



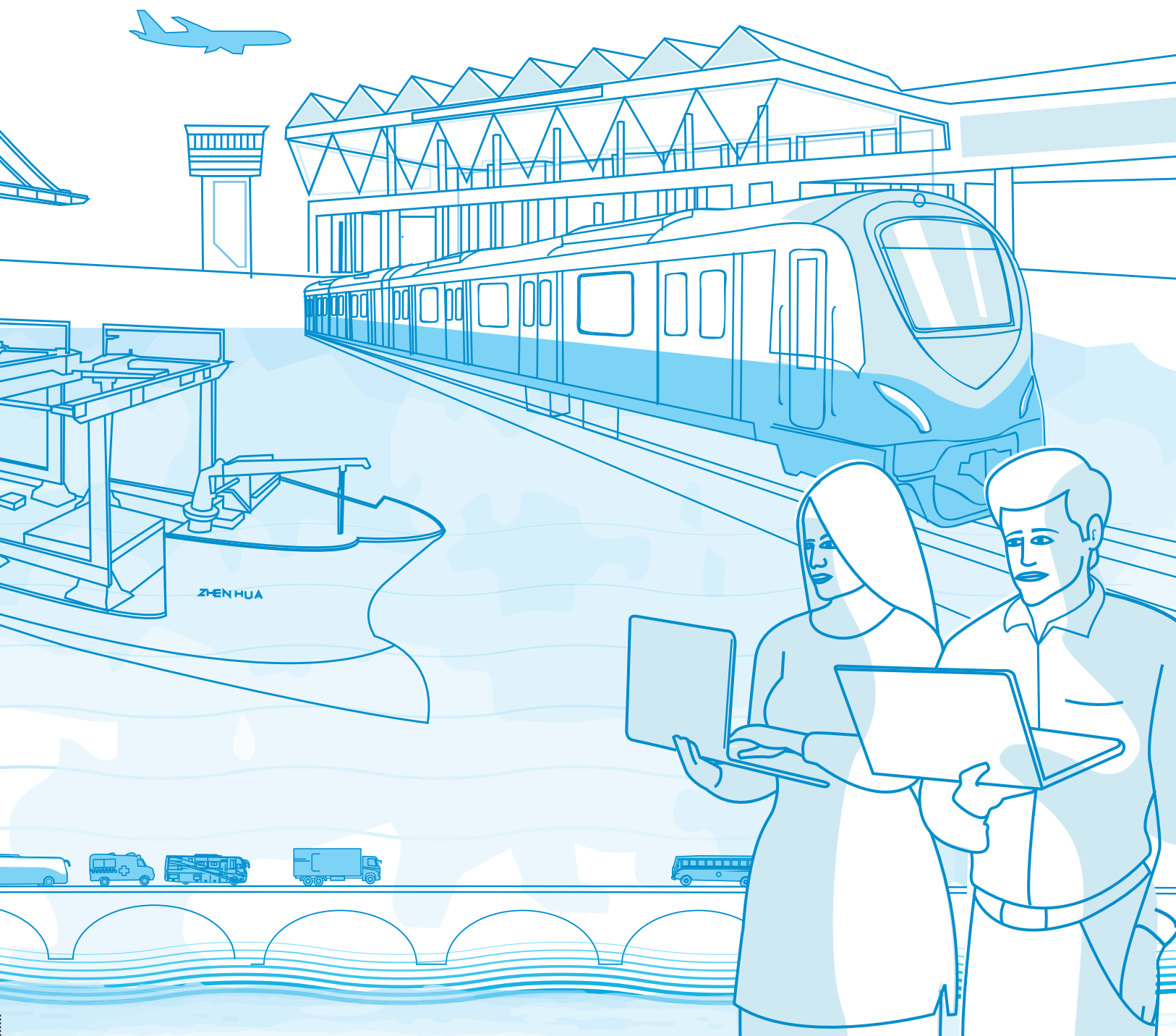
GOVERNMENT OF KERALA

ECONOMIC REVIEW 2023

VOLUME 1

JANUARY 2024

KERALA STATE PLANNING BOARD





GOVERNMENT OF KERALA

ECONOMIC REVIEW 2023

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FOREWORD

After a year of steep recovery from the Covid-19 slowdown in 2021-22, Kerala experienced steady growth in 2022-23 despite financial constraints and adversities. In 2022-23, the State Gross Domestic Product (GSDP) at constant prices recorded a positive growth of 6.6 per cent (QE). The per capita GSDP of the State increased by 6.06 per cent in 2022-23, higher than the 5.9 per cent growth recorded at the all-India level. At the national level, GDP at constant prices grew 7.0 per cent in 2022-23, down from 9.1 per cent in 2021-22.

Today, the State economy faces unprecedented financial difficulties because of unfairness and inequality in Centre-State financial relations, and failure by the Government of India to implement policies of genuine federalism. A series of policies of the Government of India has resulted in a drastic decline in central transfers to the State. These policies include the revocation of GST compensation in June 2022, the cessation of Revenue Deficit Grant in 2023-24, the limitation of borrowing space to 3 percent of a State's GSDP, the inclusion of borrowings of special purpose vehicles such as the Kerala Infrastructure Investment Fund Board (KIIFB) and Kerala Social Security Pension Limited (KSSPL) in the borrowings of the State, and policies regarding the allocation associated with centrally-sponsored schemes in the State.

Despite these constraints, the Government of Kerala has shown its determination to continue to build a New Kerala – Nava Keralam – and to do so by investing in people's welfare and the growth of incomes. Government will continue to prioritise quality public education, health care services, and other social investments, to build high-quality infrastructure, encourage production in the primary sectors and manufacturing, to invest in modern services, including the Information Technology and tourism sectors, to deepen participatory local government, and to invest in building livelihoods and modern employment. A bedrock principle of economic planning in Kerala is social inclusion, and a commitment to social equality, secularism, and democratic consultative processes.

The investment that Kerala had made in its people and in human development and incomes and livelihoods is reflected in the recognition that the State has received. Kerala has performed the best among the States of India with respect to the NITI Aayog's Multidimensional Poverty Index, 2023 (the score was 0.002 per cent). Kerala has continually ranked first in the last three editions of NITI Aayog's Sustainable Development Goals Index. Kerala has the highest rank in India on the Human Development Index (HDI), with 7.5 points, which is the same as a developed country. According to the India Skill Report 2024, Kerala's youth aged 18 to 21 are the second most employable in the country, with Trivandrum, Ernakulam, and Kozhikode ranking among the top ten cities for talent.

The State has also retained the award for best performer, for the sixth year consecutively, in the implementation of the National Urban Livelihoods Mission.

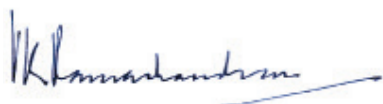
Kerala continues to win national and international awards in tourism, including the Hall of Fame honour for all-round development in the field of tourism at the National Tourism Awards in 2023. The State features consistently in international rankings for its achievement in tourism and responsible tourism, and as a tourist destination.

Kerala has been recognised as the “best performer” State in the current (2022) States’ Startup Ranking of the Union Ministry of Commerce and Industry. The micro, small, and medium enterprises (MSME) sector has been an arena of notable achievement. The Government of Kerala declared 2022-23 to be a “Year of Enterprises” and achieved its ambitious target of starting 100,000 new enterprises within a remarkable period of 250 days. The Government decided to continue the efforts in 2023-24. In these years, 2,14,564 enterprises were formed, backed by an investment of Rs 13,474.52 crore. This unprecedented growth in the MSME sector has generated 4,56,913 jobs in the State.

The theme chapter of *Economic Review 2023* is titled “Navakeralam: Infrastructure Priorities.” The early years of the Fourteenth Five-Year Plan have seen an unparalleled growth of high quality physical infrastructure in the State. The projects that were commissioned include the Hill Highway, Coastal Highway, the Anakkampoyil-Kalladi-Meppadi (AM) Tunnel Road, the Kuthiran Tunnel, Transgrid 2.0, infrastructure construction connected to the Nava Kerala Mission, National Highway 66, the Life Science Park (Land Acquisition for Phase II) in Thiruvananthapuram, the Kannur International Airport, the Kochi Water Metro and more. Digital and technology infrastructure – including Cyber Park, K-FON, e-Sevanam, and the Hi-Tech School Programme – took a major step forward.

A unique achievement has been the development of a multi-modal transportation system. Kerala launched the first integrated water transport system and first water metro system in India in 2021. The Kerala government has paid a larger contribution (Rs 5580 crore) than any other State for land acquisition for National Highways in India. This sum is about 40 per cent of the amount that all States combined have spent for this purpose. Vizhinjam International Seaport Limited (VISL) is the first deep water transshipment terminal in India. The international cargo ship *Shenhua 15* docked at Vizhinjam International Port in October 15, 2023. Projects such as the Kovalam-Bekal waterway, life science parks, mega seafood parks, hill highways, the coastal highway, Transgrid 2.0 and more represent new strides in Kerala’s infrastructure development.

Economic Review 2023 includes information on policies and programmes of Government departments. It discusses the performance of various departments and issues to be addressed. As in previous years, the *Economic Review* is presented in two volumes. Volume I covers the policies, programmes, and achievements of Government departments. Volume II provides the corresponding datasets. *Economic Review 2023* is published in English and Malayalam. A digital version will be uploaded at the website of the Kerala State Planning Board, www.spb.kerala.gov.in.



V K Ramachandran

Vice Chairperson

January, 2024

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KERALA AT A GLANCE

Kerala is a leading state in India with high GSDP and per capita GSDP. According to NITI Aayog's Multidimensional Poverty Index, 2023, Kerala has the least Multidimensional Poverty Index (i.e. 0.002) among the States consecutively for the second time. The SDG India Index ranked Kerala first for three years (2018, 2019, and 2020) consecutively. SDG India Index 2020 ranked Kerala first with overall score of 75, and the most of the SDGs adopted by Government of India have already been achieved by Kerala. Kerala ranked third in India Skills Report 2023, the second-best performer as per NITI Aayog's 'States Energy and Climate Index', 2022, and ranked first in NITI Aayog's State Health Index for 2019-20 with overall score of 82.2 points. Kerala ranked 15th in Ease of Doing Business, improved from 28th rank in 2022.

In 2022-23, State's GSDP at constant prices increased to Rs 6,16,18,850 lakh (QE), from Rs 5,78,05,727 lakh (PE) in 2021-22, registering growth of 6.6 percent over 2021-22. Gross State Value Added (GSVA) at constant prices increased by 6.19 per cent to Rs 5,32,68,632 lakh in 2022-23 from Rs 5,01,65,601 lakh (PE) in 2021-22. Kerala has been placed in top ten States in India with high per-capita Gross State Domestic Product. The per capita GSDP of the State increased by 6.06 per cent to Rs 1,74,214 in 2022-23 as against national average of Rs 1,15,746. The sectoral composition of GSDP reveals primary sector grew by 1.45 percent to Rs 47,80,990 lakh in 2022-23 from Rs 47,12,881 lakh in 2021-22. The secondary sector increased from Rs 1,40,46,278 lakh in 2021-22 to Rs 1,51,30,059 lakh in 2022-23, registering growth of 7.72 percent over 2021-22. The Services sector grown by 6.21 per cent to Rs 3,33,57,583 lakh in 2022-23 from Rs 3,14,06,442 lakh in 2021-22. In 2021-22, Kerala registered a relatively higher growth rate in GSDP is due to the base effect primarily sourced from the Covid-19 pandemic and associated mitigation measures.

The State has effectively reduced its Revenue Deficit to 0.88 per cent of GSDP in 2022-23 from 2.23 per cent in 2021-22. Fiscal deficit as a per cent to GSDP, which was 3.99 percent in 2021-22 decreased to 2.44 per cent in 2022-23, and estimated to be 3.50 per cent in 2023-24. In 2022-23, the revenue receipts of the State as percent of GSDP has increased marginally to 12.69 per cent from 12.48 per cent in 2021-22. State's Own Tax Revenue and State's Own Non-Tax Revenue increased to 23.36 per cent and 44.5 per cent respectively in 2022-23, so that the total receipts of the State increased by 13.79 per cent. However, in 2022-23, the share of Central Taxes and Grants registered a negative growth of 4.6 percent compared to 12.22 percent in the previous year 2021-22. The total expenditure has increased marginally from 10.44 percent in 2021-22 to 10.58 percent in 2022-23.

Capital outlay decreased by 1.38 percent and capital expenditure decreased by 2.75 per cent. According to National Statistical Office (NSO), CPI-Combined inflation stood at 5.02 per cent and 4.59 per cent respectively in India and Kerala in September 2023.

In 2022-23, GSVA of Agriculture and Allied Activities grew by 0.87 per cent to Rs 45,40,051 lakh in compared to Rs 45,00,756 lakh in 2021-22. Forestry and Logging and Fishing and Aquaculture grew by 3.28 percent and 7.66 percent

respectively in 2022-23 (QE). A positive growth was registered across sectors except in the Livestock sector. The share of Agriculture and Allied Activities in the total GSVA at constant prices decreased marginally from 8.97 in 2021-22 to 8.52 per cent in 2022-23 (QE).

As per the land use data of 2022-23, out of the total geographical area of 38.86 lakh hectares, the total cultivated area was 25.16 lakh hectares (64.75 per cent), and the net area sown was 19.9 lakh ha (51.20 per cent). The land put to non-agricultural use was 5.95 lakh hectare (15.31 per cent) and forest area was 10.82 lakh hectare (27.83 per cent).

Food crops consisting of rice, pulses, tapioca, ragi, small millets, sweet potatoes and other tubers constitute 10.34 per cent of the gross cropped area in 2022-23, while cash crops including cashew, rubber, pepper, coconut, cardamom, tea, and coffee comprise 65.75 per cent. Coconut occupies a significant percentage of the gross cropped area (30.2 per cent), followed by rubber (21.8 per cent). Rice constituted 7.6 per cent of the total cultivated area in 2022-23. Among the plantation crops, production of tea, coffee, rubber and cardamom increased in 2022-23 by 9.3 per cent, 3.6 per cent, 7.69 per cent, and 4.21 per cent, respectively. Production of rice increased by 6.0 in 2022-23.

In 2022-23, State produced 2.29 lakh tonne of inland fish and 6.9 lakh tonne of marine fish. Inland fish production has been growing over the years. It has increased from 1.89 lakh tonne in 2017-18 to 2.29 lakh tones in 2022-23. A major constraint in inland fisheries is the non-availability of good quality fish seeds.

The net area irrigated increased from 4.03 lakh hectares in 2021-22 to 4.19 lakh hectares in 2022-23. However, a decline is marked in the Gross Irrigated area, from 5.61 lakh hectares in 2021-22 to 5.14 lakh hectares in 2022-23. Among the various sources of irrigation, the net area irrigated through wells (including bore well) leads with 1.77 lakh hectares in 2022-23 followed by Government canals with 0.82 lakh hectares.

In Kerala, the role of Cooperatives is remarkable in mobilising people and pooling their resources to meet the common needs, particularly for the development of the weaker and marginalised people in rural areas. As on March 31, 2023, the State has 16,352 co-operative societies, of which 12,241 are working societies. The consumer co-operatives (4,629) was the largest category followed by credit co-operatives (3,751) and women's co-operatives (1,248). In addition, there are also marketing, housing, processing, health, and scheduled caste and scheduled tribe co-operatives. Kerala is the only State in the country with Youth Co-operative Societies to promote entrepreneurship among the youth.

Kerala has achieved substantial progress in modernising and diversifying its industrial sector. The Secondary sector accounted for about 28.4 per cent of GSVA at constant basic prices in 2022-23 (QE). The sector registered a growth of 7.72 per cent in 2022-23 (QE) (at constant 2011-12 prices). Within Secondary the sector, the predominant subsectors are the Manufacturing (8.96 per cent) and Construction (6.04 per cent), which recorded positive growth in 2022-23. The manufacturing sector accounted for 13 per cent of GSVA (at constant 2011-12 prices) in 2022-23 (QE), and its share increased from 9.78 per cent in 2014-15 to 13.0 per cent in 2022-23. Construction

sector contributes around 13.79 per cent to GSVA (at constant 2011-12 prices) in 2022-23 (QE).

In the MSME sector, Government of Kerala declared the Financial Year 2022-23 as the “Year of Enterprises” with the motto “My enterprise, Nation’s pride” and took the initiatives for setting up of One Lakh Enterprises in 2022-23”. The initiative includes the appointment of 1153 professionally qualified interns, setting up Enterprises Help Desks at all local bodies, setting up of MSME Clinics at all Districts, establishing Taluk level Enterprise Facilitation Centres with the services of professional resource persons, constituting committees at State, District and local body level for the monitoring the activities. The State launched the One Local Body One Product (OLOP) scheme as part of the “Year of Enterprises” initiative, to promote production of indigenous products using the resources readily available within local communities. Out of a total of 1034 local bodies, more than 680 have actively identified products that are suitable for integration into the OLOP framework. The Government achieved the ambitious target of commencing one lakh new enterprises within a remarkable period of 250 days from April 1 to December 7, 2022. In 2022-23, the State witnessed a remarkable achievement with the launch of 1,39,840 new enterprises, backed by a staggering investment of Rs 8,421.63 crore. This unprecedented growth has led to the creation of 3,00,051 new employment opportunities in the State.

A standout feature of the State economy is that it has the highest share of services in the GSVA, 62.62 per cent in 2022-23(QE). The tertiary sector posted a growth of 6.2 per cent in 2022-23 (QE). The corresponding figure in 2021-22 was 16.74 percent. A positive growth was registered across all the sub-sectors, Information Technology, Tourism, and Trade the top sub-sectors in the services sector.

Information Technology is a growing sector in the State. The state has a network of Technoparks, Infopark, Cyber Park, and Technocity. The State Government, in 2020 upgraded Indian Institute of Information Technology and Management (IIITM-K) to Kerala University of Digital Sciences, Innovation and Technology. Kerala established first techno park in the country and now it has become the largest IT Park in the country with 374 acres of land, 10.6 million square feet built up area. With the launch of Technocity project in Kazhakuttam, the largest integrated IT township in 390 acres of land established in the state. Kazhakuttam-Kovalam (NH 66) has become the first IT Corridor in the state. KFON is an innovative project under which the State government provides high speed connectivity to 30,000 government and educational institutions and offer free internet to 20 lakh families from the Economically Backward Community (EBC) of the State. It also provides internet services at a lower rate for others. Kerala will become the first State in the country to provide free internet connectivity to 20 lakh EBC households.

Kerala has been a frontrunner in e-governance and mobile governance by promoting and developing core infrastructure and e-literacy programmes. E-governance initiatives under Kerala State Information Technology Mission (KSITM) include e-office, Service plus, FRIENDS, Akshaya, SEMT, Citizen Call Centre, SPARK, and e-procurement. Core infrastructure for e-governance in the State consists of Kerala State wide Area Net Work (KSWAN), Secretariat Wide area Network, State Data Centre and State Service Delivery Gate way. Under Public Wi-Fi project, the State Government formed 2000 Wi-Fi hotspots across the State to provide free internet

to the citizens. Currently, there are a total of 2,734 Akshaya Centres functioning across the State giving employment to 9,017 persons. Kerala has 100 per cent Aadhar registration. Kerala's e-Service portal, e-SEVANAM consolidated around 711 services of more than 70 departments in a single platform. All mobile friendly services (about 546 services) are rendered through a uniform mobile application called m-SEVANAM.

In 2023, out of 12.53 lakh persons employed in the organised sector in Kerala, 5.57 lakh (44.5 per cent) is in the public sector and 6.95 lakh (55.5 per cent) is in the private sector. As compared to 2021, both the public sector and private sector employment has increased in 2022. According to live register of employment exchanges in Kerala, the total number of job seekers as on July 31, 2023 was 28.6 lakh.

The number of ration cardholders as on 31, October, 2022 is 93.95 lakh, which come under NFSA and non-NFSA category. The NFSA section includes 5.85 lakh AAY cards and 35.54 lakh priority cards. The non-NFSA section includes 22.99 lakh on non-priority subsidy group and 29.26 lakh on non-priority non-subsidy group. The total food grain distribution through PDS in the State in 2022-23 is 13,96,185 MT, including 2,40,227.3 MT of grains to AAY card holders, 7,56,427.1 MT of grains to PHH card holders, 3,99,530.373 MT of grains to non-priority card holders. An amount of Rs 17,650.25 lakh was spent on various card holders as subsidy in 2022-23, including Rs 5,097.75 lakh for AAY cards, Rs 4504.23 lakh for priority cards, and Rs 8048.27 lakh for non-priority cards.

The Public Works Department carried out development and improvement of roads for a total length of 16,456 km by using Bitumen Macadam (BM) and Bitumen Concrete (BC). In 2022-23, 419.71 km of roads were resurfaced with chipping carpet, 628 km of road works was done using plastic waste and 1465.10 km using Natural Rubber Modified Bitumen (NRMB) and Geotextiles was used in 37.05 km of roads for stabilisation. The Work is completed in 4 stretches of Hill Highway and the work is in progress in other stretches. Land acquisition for coastal highway is in progress for four stretches, and 90 percent of road work in two stretches are completed. The Water Metro Project envisaged to create modern water transport infrastructure in the Greater Kochi region started its operation in April, 2023. The Government of Kerala has transferred Rs 5,580.74 crore to National Highway Authority of India (NHAI) towards the cost of land acquisition for National Highways (NH-66) and work restarted after a long-time span. The first international cargo ship, 'Shenhua 15' docked at the Vizhinjam International Seaport on October 15, 2023, the first deep water transshipment terminal in the country.

Energy is key to economic development. Total installed capacity of power in the State as on March 2023 is 3,514.81 MW, of which, hydel power contributed the major share of 2,173.57 MW (61.84 per cent), while 734.42 MW was contributed by solar power (20.90 per cent), 536.54 MW (15.27 per cent) from thermal and 70.28 MW from wind (2 per cent). Of the total installed capacity of 3,514.81 MW in 2022-23, the contribution of State sector is 2299.89 MW (65.43 per cent), central sector 359.58 MW (10.23 per cent), and private sector 855.34 MW (24.33 per cent). KSEB has sold 25,383.77 MU power to 136.48 lakh consumers, including bulk licensees. The total revenue from sale of power, including sales to other utilities outside the State, is Rs 17,705.46 crore.

Under LIFE (Livelihood, Inclusion and Financial Empowerment) Mission, a total of 3,54,712 houses have been constructed in the State, of which, 92,411 houses were constructed for SC beneficiaries and 39,320 for ST beneficiaries. Under Janakeeya Hotels (Hotel network set up by Kudumbashree in convergence with Local Government, to provide meals at a minimal price), around 1,197 hotels have been started to achieve the Government's mission to make Kerala hunger free. On an average, these hotels sell 2 lakh meals per day. Through this project 5,043 women are getting better income and employment. Other scheme implemented by Kudumbashree in State includes SHE Starts, Theerasree, Kerala Chicken, Back to School campaign.

In 2022-23, under Ayyankali Urban Employment Guarantee Scheme, a total of 41,11,897.5 persons days was created. In this period, 85,310 households and 79,766 women were provided employment 12,024 families completed 100 days employment. Kerala has achieved significant progress in ensuring social protection of its people, especially marginalised and vulnerable. Welfare pensions have increased from Rs 600 per beneficiary in 2016 to Rs 1,600 per beneficiary in 2021. The number of social security pensioners was 34 lakh in 2015-16, which increased to 52.38 lakh on October 2022. As on November 2023, out of the 46.77 lakh pensioners, 29.45 lakh (63 per cent) are women. Category-wise breakup shows about 56.5 per cent of beneficiaries fall under old age pension, 27.1 per cent under widow category, 7.8 per cent under people with disabilities, and around 6.8 per cent under agriculture worker pension. Pension for unmarried women is given to 81,377 beneficiaries.

The State Government is committed to enhance social and economic development of vulnerable sections of the population. The constructions of 5,012 study rooms were completed in 2022-23 for high school and higher secondary students from Scheduled Caste communities with annual incomes less than one lakh. Out of this, 81 study rooms were for children belongs to the vulnerable communities among the Scheduled Caste. Unnathi Overseas Scholarship' scheme give scholarships up to Rs 25 lakh to pursue studies abroad. In 2022-23, Government supported 330 Scheduled Caste students to study in reputed foreign educational institutions, and 181 students were assisted in 2023-24 (as on September 30, 2023). Under the 'Skill Training and Employment scheme, 51 beneficiaries received self-employment subsidy, 599 SC youths received skilling through various skill development programs, and 864 persons availed assistance for seeking job abroad. In 2023-24 (as September 30, 2023) 300 Accredited Engineers, 60 Community Social Workers and 87 law graduates under JWALA project were successfully given placement under the TRACE (Training for Career Excellence) scheme.

In 2022-23, as per Tribal Resettlement and Development Mission (TRDM), 1639.78 acres of land were distributed among 1,316 tribals. As of September 30, 2023, 1,196.07 acres of land have been distributed among 966 tribals under various schemes. Since 2016-17, out of the 7708 houses sanctioned by the Scheduled Tribe Department under various housing schemes, 3901 houses have been completed as on 30.09.2023. Out of the total 6,748 settlements, 6,672 settlements are electrified. To help tribal children to achieve academic excellence, 364 community study centers were established in various settlements. Under Unnathi Overseas Education Scholarships initiative, 24 Scheduled Tribe students have benefitted to pursue studies in foreign institutions. A total of 1,67,912 people received medical assistance under the comprehensive health care scheme. Training for Career Excellence (TRACE)

programme has successfully placed 500 engineers, 114 social workers with MSW qualification, and 380 management trainees in various departmental offices. Under 'WINGS' scheme about 140 Scheduled Tribe students got employed in various international airports and related sectors of the country.

Education and health are two areas where Kerala has a proud legacy. Kerala has taken progressive steps for the development of inclusive education. To promote inclusive education, facilities that include free uniforms, mid-day meals, financial assistance to meet travel expenses, hostel facilities, and excursions for students, are provided. Apart from this, to ensure an all-inclusive education, KITE developed audio books for visually challenged, and sign-adapted classes for hearing impaired students of Classes 10 and 12. KIIFB had proposed Rs 5 crore, Rs 3 crore and Rs 1 crore each for infrastructural development of 141, 386 and 446 of schools respectively during 2016-17 to 2022-23. Under Rs 5 crore category, construction of building for 134 schools have been completed. In Rs 3 crore category, buildings constructed for 161 schools and under Rs 1 crore category, buildings constructed for 136 schools. The building constructed for 52 schools by using NABARD fund amounting Rs 104 crore.

Kerala has undergone significant policy changes in the field of higher education. The Government of Kerala has placed considerable emphasis on improving the quality of higher education as part of its policy to build and nurture a knowledge economy. In order to investigate reform initiatives in the State's higher education system, three commissions have been established at the State level with the following objectives: i) to examine various aspects of the existing higher education system in the State, in particular, with regard to the State's larger objective of transforming itself into a knowledge society and a knowledge economy, ii) to review the present state of examination in the Universities and higher education institutions of Kerala and iii) to examine the laws, statutes, regulations and ordinances of universities, in the context of the regulations of U.G.C., A.I.C.T.E. and N.C.T.E., and to formulate proposals for revising them, keeping in view the larger objectives of transforming the State into a knowledge society. The major incentives include Hunger Free Campus, Connect Career to Campus, CM's Prathibha Scholarship Award, Mini Industrial Unit, Jeevani - College Mental Awareness Programme.

Public healthcare in the State focuses on accessible, equitable, affordable, and high-quality healthcare services for all. Life expectancy (at birth) in Kerala is 75, the highest amongst Indian States and higher than the national average (70). Kerala has the lowest Maternal Mortality Rate (MMR) (19) among the States whereas MMR at national level is 97. Kerala is the only bigger State in India with a single digit Infant Mortality Rate (IMR) of 6, whereas it is 28 at all India level. As part of Nava Kerala Karma Padhathi-II, Aardram Mission-2 has been launched in 2022. New initiatives started as part of Aardram Mission include 'ASWASAM' depression management clinics in primary care started in Family Health Centre's, Chronic Obstructive Pulmonary Disease (COPD) control programme called 'SWAAS', conversion of 4261 rural sub center's into health and wellness centers, Out Patient facilities in all PFHCs up to 6.00 pm every day, laboratory facilities in FHCS, lifestyle diseases clinic in all FHCs on all days, and Sampoorana Manasika Arogyam Programme (SMAP) in FHCs. During the first phase of Aardram, 644 (72 percent) out of 886 PHCs were converted to Family Health Centers, and for 72 PHCs, work is under processes. During 2017-18 to 2022-23, 49 CHCs out of 151 were converted to FHCs and work under processes for 37 CHCs. Out Patients (OPs) department of 14 Districts hospitals out

of 17 and 11 Taluk Hospitals out of 43 were made patient friendly. OPs of all the 8 medical colleges were made patient friendly/ modified during the period 2017-18 to 2022-23. e-Health Project is implemented in the State. Kerala is the only State in the country where a database of 2,59,55,998 people has been collected and stored as electronic records.

To conclude,

The Government of Kerala is envisioned to build a 'Nava Keralam' with an underlying emphasis on enhancing the ease of living and doing business and improving economic efficiency. The broad principles behind this is creation of public goods, adoption of trust-based governance, co-partnering with the private sector for development, and improving agricultural and industrial productivity. Amidst of financial constraints, Kerala will continue to invest on its people, quality infrastructure without compromising its social commitments.

KERALA'S ECONOMIC AND SOCIAL INDICATORS: A QUICK LOOK

Sl. No	Item	Units	1970-71	1980-81	1990-91	2000-01	2010-11	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
1	Geographical Area	Sq.Km.	38864	38863	38863	38863	38863	38863	38863	38863	38863	38863	38863
Administrative Setup													
2	Revenue Divisions	No.					21	26	27	27	27	27	27
3	Districts	No.	10	12	14	14	14	14	14	14	14	14	14
4	Taluks	No.	56	58	61	63	63	75	75	77	77	77	77
5	Villages	No.	1326	1331	1364	1452	1532	1664	1664	1664	1664	1664	1664
6	Towns	No.	88	106	197	159	520	520	520	520	520	520	520
Population as per Census			1961	1971	1981	1991	2001	2011					
7	Total	(in 000s)	16904	21347	25454	29099	31844	33406					
8	Males	(in 000s)	8362	10588	12609	14289	15469	16027					
9	Females	(in 000s)	8542	10760	12885	14810	16373	17379					
10	Rural	(in 000s)	14351	17880	20682	21618	23574	17471					
11	Urban	(in 000s)	2552	3467	4771	7018	8267	15935					
12	Scheduled Castes	(in 000s)	1422	2002*	2549	2887	3124	3040					
13	Scheduled Tribes	(in 000s)	208	193*	261	321	364	485					
14	Density of Population	No. Per Sq.Km.	435	549	655	749	819	860					
15	Literacy Rate	Percent-age	55	60	70	90	90	94					
16	Sex Ratio	Females per 1000 males	1022	1016	1032	1036	1058	1084					
17	Urban Population	Percent-age	15	16	19	24	26	48					
GSDP - at constant prices			1970-71	1980-81	1990-91	2000-01	2009-10	2017-18	2018-19	2019-20	2020-21(P)	2021-22(Q)	2022-23 (Q)
18	GSDP	₹crore	1255	3823	12195	63715	180812	516189.76	554228.31	559194.18	512076.08	573591.46	616188.50
19	Primary Sector (GSVA)	₹crore	653	1682	4756	14017	15966	47619.23	46114.01	44306.26	44657.68	46515.96	47809.90
20	Secondary Sector (GSVA)	₹crore	163	841	3171	14017	38249	129866.26	130450.39	132480.25	128749.03	133735.84	151300.59
21	Tertiary Sector (GSVA)	₹crore	439	1300	4268	35680	126597	283268.51	303661.64	317187.72	271393.14	318336.73	333575.83
22	Per capita Income	₹	594	1508	4207	19951	47360	149650	159878	160506	146246	162992	174214
Agriculture			1970-71	1980-81	1990-91	2000-01	2009-10	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
23	Net Area Sown	000 ha.	2171	2180	2247	2206	2079	2040	2033	2026	2035	2029	1989.83
24	Gross Cropped Area	'000 ha.	2933	2885	3020	3022	2669	2579	2571	2586	2568	2523	2516.254
25	Gross Irrigated Area	'000 ha.		381	385	460.3	458	539.87	515.39	517.64	521.48	561.31	514.49
26	Gross Irrigated Area to Gross Cropped Area	Percent-age		13	13	15	18	21	20	20.01	20.3	22.25	20.45
Gross area under principal crops			1970-71	1980-81	1990-91	2000-01	2012-13	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
27	Paddy (wetland)	000 ha.	875	802	559	347	197	189	198	191.05	201.87	193.95	190.17
28	All Pulses	'000 ha.	40	34	23		3	1.9	2.5	2.06	2.006	1.44	1.547
29	Sugarcane Harvested Area	'000 ha.	8	8	8	3	2	1.05	1.01	0.95	0.92	0.92	0.93
30	Rubber	'000 ha.	188	238	384	474	545	551	551.2	551.03	550.65	550	549.78
31	Tea	'000 ha.	37	36	35	37	30	30	36.47	35.87	35.87	35.87	35.65

32	Coconut	'000 ha.	719	651	870	926	798	760.4	760.94	760.77	768.8	765.4	760.353
33	Arecanut	'000 ha.	86	61	65		102	94.6	95.73	96.9	96.57	93.97	94.553
34	Groundnut	'000 ha.	15	9	13		0.7	0.27	0.18	0.12	0.11	0.12	0.126
35	Pepper	'000 ha.	12	108	169	202	85	85.1	82.76	83.76	82.12	76.35	73.731
36	Cardamom	'000 ha.	47	56	67	41	42	39.1	38.88	39.69	39.14	39.14	40.345
37	Ginger	'000 ha.	12	13	14	12	5	4.37	3.27	2.82	2.7	2.92	2.581
Production of Principal Crops			1970-71	1980-81	1990-91	2000-01	2012-13	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
38	Rice	'000 tonnes	1298	1272	1087	751	509	521.3	578.25	587.1	626.90	559.30	592.684
39	All Pulses	'000 tonnes	13	22	17		3	2.04	2.3	2.18	1.92	1.47	1.606
40	Sugarcane	'000 tonnes	38	48	52	28	17	11.5	10.63	12.08	10.70	10.40	10.123
41	Rubber	'000 tonnes	88	140	308	560	800	540.7	492.5	533.5	519.50	556.60	599.375
42	Tea	'000 tonnes	43	48	63	69	63	62.23	60.76	59.26	66.85	60.36	65.98
43	Coconut	In million nuts	3981	3008	4232	5536	5799	5230	5299	481.4	4788.00	5535.00	5641
44	Arecanut	'000 tonnes	13	11	13		118	108.5	99.92	92.75	103.20	103.50	98.527
45	Groundnut	'000 tonnes	16	8	10	10	9	0.38	0.24	0.15	0.14	0.16	0.193
46	Pepper	'000 tonnes	25	29	47	61	46	37.9	36.77	34.54	33.59	32.52	27.653
47	Cardamom	'000 tonnes	1	3	3		10	18.3	11.53	10.07	20.57	21.27	22.165
48	Ginger	'000 tonnes	20	32	46	42	22	18.9	15.12	11.92	12.09	12.87	11.006
Livestock Census			1982	1987	1996	2003	2007			2019			
49	Total Livestock	in lakh	56	55	56	35	36			29.09			
50	Total Poultry	in lakh	152	185	308	139	127			297.71			
Forest			1970-71	1980-81	1990-91	2000-01	2011-12	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
51	Forest Area	000 ha.	1056	1123	1122	1115	1131	1152	1152	1152	1152	1152	1152
Factories			1981	1991	2001	2011	2012	2018	2019	2020	2021	2022	2023
52	Working Factories	No.	9106	13255	18554	19676	20473	23335	24254	24468	24453	23609	23405
53	Employees	No.	300515	368738	436410	644606	644802	698679	726195	702901	652875	582419	661698
54	Employees per lakh population	No.	1181	1267	1370	1930	1930	2091	2174	2104	1954	2031	1981
Electricity			1980-81	1990-91	2000-01	2009-10	2011-12	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
55	Total Generation	Mu	5242	5491	7656	6495	8351	5505.73	7626.37	5781.23	7109.09	9858.27	8659.38
56	Total Consumption	Mu	2869	5282	10319	12878	16182	21159.19	22361.45	22948.82	22151.6	23499.54	25248.21
57	Industrial Consumption	Mu	2025	2697	3784	4002	4926	5648.31	5820.49	5683.3	3826.99	4481.02	4920.33
58	Agricultural Consumption	Mu	125	288	350	225	286	346	337.65	348.48	412.22	382.73	391.52
59	Domestic Consumption	Mu	409	1621	4688	5931	7706	10574.8	10864.34	11898.13	12716.47	12679.39	12400.1
Education			1980-81	1990-91	2000-01	2009-10	2012-13	2017-18	2018-19	2019-20	2020-21	2021-22*	2022-23*
60	Primary Schools	No.	9605	9682	9714	9828	9737	9852	9841	9833	9858	9847	9834
61	Enrolment in primary school	'000s	4284	4402	3637	3015	2545	2384	2428	2450	2491.9	2593.6	2559.1
62	High Schools	No.	1971	2451	2596	2814	2890	3119	3120	3118	3128	3125	3125
63	Enrolment in high school	'000s	1310	1498	1611	1443	1426	1297	1276	1267	1265.83	1274.51	1273.3
Health			1980-81	1990-91	2000-01	2009-10	2011-12	2017-18*	2018-19*	2019-20*	2020-21*	2021-22*	2022-23#
64	Hospitals	No.	746	1199	1319	1254	1255	1470	1470	1471***	1473***	1477***	1476+RCC
65	No. of Beds	No.	32447	38726	38242	37021	37388	56596	56596	57713	58021	59684+RCC	59692+RCC
Vital statistics (Demographic Status)			1980-81	1990-91	2001	2009	2010	2017**	2018**	2019**	2020**		

66	Birth Rate	per 1000 population	26	20	16	15	15	14.2	13.9	13.5	13.2		
67	Death Rate	per 1000 population	6	6	7	7	7	6.8	6.9	7.1	7		
68	Infant Mortality Rate	per 1000 population	37	21	11	12	14	10	7	6	6		
Transport			1980-81	1990-91	2000-01	2010-11	2011-12	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
69	Railway Route Length	Kms.	921	988	1148	1257	1257	1257	1257	1257	1745***	1745***	2106###
70	Total Road Length**	Kms.	94145	128403	125835	151652	244373	229349.2	273113.3	331904.11	238773.02	230934.18	235634.36
71	Motor Vehicles	No.	195000	648000	2111885	6072019	8048673	12042691	13334984	14184184	14847163	15565149	16352224
Local Governments			2000-01	2006-07	2007-08	2008-09	2010-11	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
72	District Panchayats	No.	14	14	14	14	14	14	14	14	14	14	14
73	Block Panchayats	No.	152	152	152	152	152	152	152	152	152	152	152
74	Grama Panchayats	No.	990	999	999	999	978	941	941	941	941	941	941
75	Municipalities	No.	53	53	53	53	60	87	87	87	87	87	87
76	Corporations	No.	5	5	5	5	5	6	6	6	6	6	6

Modern Medicine and Ayush included

##SRS

###Including route length and running track

*Base year 2011-12

**Excludes LSGD non pucca road

***Including RCC

(P)Provisional estimate

(Q)Quick estimate

ha Hectare

Mu Million Unit

DISTRICTS: AN OVERVIEW

Sl. No.	Items	TVM	KLM	PTA	ALP	KTM	IDK	EKM	TSR	PLK	MLP	KKD	WYD	KNR	KSD	TOTAL
1	Area (sq Km)	2192	2491	2637	1414	2208	4358	3068	3032	4480	3550	2344	2131	2966	1992	38863
2	Forest Cover (sq. Km) *	1317	1334	1949	80	1099	3155	1383	1166	2104	1984	1448	1581	1669	984	21253
3	Population 2011 (in Lakh)	33.01	26.35	11.97	21.28	19.75	11.1	32.82	31.21	28.11	41.13	30.86	8.17	25.23	13.07	334.06
	Rural	15.3	14.48	10.65	9.79	14.09	10.57	10.48	10.25	21.33	22.96	10.13	7.88	8.82	7.98	174.71
	Male	7.25	6.81	5	4.65	6.93	5.27	5.18	4.88	10.31	10.95	4.85	3.86	4.26	3.88	84.08
	Female	8.05	7.67	5.66	5.15	7.16	5.29	5.29	5.36	11.01	12	5.29	4	4.56	4.11	90.6
	Percentage Decadal Growth (2001-2011)	-28.6	-31.7	-4	-34.2	-14.8	-1.4	-35.7	-52	-5.7	-29.8	-43	-4.6	-26.3	-17.7	-25.9
	Urban	17.72	11.87	1.32	11.48	5.65	0.52	22.34	20.96	6.77	18.17	20.73	0.32	16.41	5.09	159.35
	Male	8.57	5.66	0.62	5.48	2.76	0.25	11.01	9.92	3.28	8.65	9.86	0.15	7.56	2.41	76.19
	Female	9.15	6.21	0.7	6	2.9	0.26	11.33	11.04	3.49	9.52	10.86	0.16	8.85	2.68	83.16
	Percentage Decadal Growth (2001-2011)	62.3	154.8	6.3	84.8	88.6	-9.6	51.3	149.7	89.8	410.2	88.2	6.6	35.3	117.8	92.8
	Density	1508	1061	452	1504	895	255	1072	1031	627	1157	1316	384	852	657	860
	Fishermen Population, in number	176143	131915	2195	197179	25818	729	141180	78441	2676	97447	114446	238	45752	45919	1060078
	SC population as % of Total Population	11.29	12.5	13.7	9.5	7.8	13.1	8.2	10.4	14.4	7.5	6.5	4.0	3.3	4.1	9.1
	ST population as % of Total Population	0.8	0.4	0.7	0.3	1.1	5.0	0.5	0.3	1.7	0.6	0.5	18.5	1.6	3.7	1.5
4	Literacy Rate (2011)															
	Male	95.06	96.09	97.36	97.36	97.97	94.56	97.36	96.78	93.1	95.76	97.42	92.51	97.19	94.05	96.11
	Female	91.17	92.31	95.83	94.24	96.48	89.45	94.46	93.56	85.79	91.62	97.99	85.7	93.29	86.49	92.07
5	Percentage of Dropouts 2022-23 (latest)															
	Lower Primary	0.02	0.00	0.04	0.04	0.01	0.34	0.45	0.03	0.10	0.05	0.10	0.20	0.02	0.09	0.09
	Upper Primary	0.02	0.00	0.03	0.01	0.01	0.28	0.24	0.02	0.06	0.05	0.06	0.17	0.02	0.06	0.06
	High School	0.01	0.03	0.03	0.02	0.03	0.20	0.23	0.05	0.14	0.07	0.04	0.38	0.05	0.10	0.09
	GDVA 2022-23 (Quick) (Constant Price)															

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CHAPTER

01

KERALA ECONOMY

KERALA ECONOMY

1.1 RECENT TRENDS IN MACRO-ECONOMIC AGGREGATES

Global Economic Scenario and National Outlook

The short-term economic forecast from the World Economic Situation and Prospects 2023 of United Nations predicts an imminent global economic downturn due to rising inflation, aggressive monetary tightening, and increased uncertainty.

The World Economic Outlook of International Monetary Fund, October 2023 forecasts that the global growth is to slow from 3.5 per cent in 2022 to 3.0 per cent in 2023 and 2.9 per cent in 2024. Global inflation is forecast to decline steadily, from 8.7 per cent in 2022 to 6.9 per cent in 2023 and 5.8 per cent in 2024. Emerging market and developing economies are projected to have growth modestly decline, from 4.1 per cent in 2022 to 4.0 per cent in both 2023 and 2024, Global Economic Prospects, June 2023 of World Bank reiterates same. Growth forecasts are given in **Table 1.1.1**

The UN statistics predicts that average GDP growth in India would moderate from 6.4 per cent in 2022 to 5.8 per cent in 2023, as higher interest rates and a global slowdown weigh on investment and exports. The World Economic Outlook of International Monetary Fund projected that the growth in India is to remain strong, at 6.3 per cent in both 2023 and 2024, with an upward revision of

0.2 percentage point for 2023, reflecting stronger-than-expected consumption during April-June.

The UN forecast a safe position for inflation levels in India at 7.1 per cent in 2022, and it is expected to decelerate to 5.5 per cent in 2023 as global commodity prices moderate and slower currency depreciation eases imported inflation.

The National Profile of Income Estimates

The provisional estimate of Gross Domestic Product in 2022-23, at constant prices is Rs 1,60,06,425 crore registering a growth of 7.2 per cent over previous year. This is around two points less than the GDP growth rate for 2021-22, which was 9.1 per cent. Gross Value Added for 2022-23, however shows 7 per cent growth, against 8.8 per cent for 2021-22. The per capita GDP for 2022-23 is Rs.1,15,746 with a 6.1 per cent growth over the previous year. The details of national income estimates are shown in the **Table 1.1.2** below.

The growth in GVA at current prices for 2022-23 is 15.4 per cent, and it is 7 per cent at constant prices. In absolute terms GVA at current prices was Rs. 2,47,42,871 crore for 2022-23. Similarly, GDP at current prices grew by 16.1 per cent against 7.2 per cent at constant prices. The growth figures of GVA and GDP at current prices for 2022-23 was

Table 1.1.1. Growth Rate of Gross Domestic Product of the World and India, Forecast by International Agencies from 2022 to 2024

	2022	2023	2024
World			
UN	3.0	1.9	2.7
IMF	3.5	3	2.9
World Bank	3.1	2.1	2.4
India			
UN	6.4	5.8	6.7
IMF	7.2	6.3	6.3
World Bank	7.2	6.3	6.4

Source: World Economic Situation and Prospects 2023 of United Nations, World Economic Outlook of International Monetary Fund, October 2023, Global Economic Prospects, June 2023 of World Bank

lower than that of the previous year by two per cent points. The details of India's GDP, NDP, GNI and NNI at current and constant (2011-12) prices from 2012-13 to 2022-23 with percentage change over the previous year are given in **Appendix 1.1.1 , 1.1.2, 1.1.3 and 1.1.4 .** The sectorial distribution of GVA at constant and current prices are given in **Appendix 1.1.5 and 1.1.6**

Gross State Domestic Product

As per the quick estimates, the Gross State Domestic Product (GSDP) for Kerala during 2022-23 at constant prices of 2011-12 is Rs 6,16,18,850 lakh. The Gross State Value Added (GSVA) for the same period at constant prices is Rs 5,32,68,632 lakh, and the per capita GSDP is Rs 1,74,214. Details are given in **Table 1.1.3.**

Table 1.1.2. National income estimates for the periods 2020-21 to 2022-23. (Rs. in Crore)

Item				Percentage	
	2020-21 (2nd RE)	2021-22 (1st RE)	2022-23 (PE)	Change Previous	Over Year 2022-23
Domestic Product					
GVA at Constant Prices	1,26,81,482	1,37,98,025	1,47,64,840	8.8	7.0
GVA at Current Prices	1,81,88,780	2,14,38,883	2,47,42,871	17.9	15.4
Gross Domestic Product (GDP) at Constant Prices	1,36,87,118	1,49,25,840	1,60,06,425	9.1	7.2
Gross Domestic Product (GDP) at Current Prices	1,98,29,927	2,34,71,012	2,72,40,712	18.4	16.1
Net Domestic Product (NDP) at Constant Prices	1,18,54,151	1,29,77,142	1,39,29,147	9.5	7.3
Net Domestic Product (NDP) at Current Prices	1,74,89,333	2,07,96,554	2,43,68,727	18.9	17.2
National Products					
Gross National Income (GNI) at Constant Prices	1,34,96,925	1,46,19,532	1,56,81,337	8.3	7.3
Gross National Income (GNI) at Current Prices	1,95,63,240	2,30,01,260	2,66,95,929	17.6	16.1
Net National Income (NNI) at Constant Prices	1,16,63,958	1,26,70,834	1,36,04,058	8.6	7.4
Net National Income (NNI) at Current Prices	1,72,22,645	2,03,26,803	2,38,23,945	18.0	17.2
Per Capita Income					
Per Capita GDP (Rs) at Constant Prices	1,00,981	1,09,060	1,15,746	8.0	6.1
Per Capita GDP (Rs) at Current Prices	1,46,301	1,71,498	1,96,983	17.2	14.9
Per Capita GNI (Rs) at Constant Prices	99,578	1,06,822	1,13,395	7.3	6.2
Per Capita GNI (Rs) at Current Prices	1,44,334	1,68,066	1,93,044	16.4	14.9
Per Capita NNI (Rs) at Constant Prices	86,054	92,583	98,374	7.6	6.3
Per Capita NNI (Rs) at Current Prices	1,27,065	1,48,524	1,72,276	16.9	16.0

Source: National Statistical Office Ministry Of Statistics & Programme Implementation, Government Of India
RE: Revised Estimate, PE: Provisional Estimate

The GSDP growth rate for 2022-23 at constant prices was 6.6 per cent, which was 12.97 per cent in 2021-22. The GSVA growth at constant prices for the same period was 6.19 per cent, and that was 12.74 per cent during 2021-22.

Per Capita State Income

Kerala is among the top ten States of India in terms of per-capita Gross State Domestic Product. Kerala's per-capita GSDP was Rs 1,74,214 in 2022-23; the corresponding national average was Rs 1,15,746. In other words, average income per person in Kerala was 1.5 times the Indian average in 2022-23.

Per capita NSDP for Kerala was 1,59,505 at constant prices, and 2,63,945 at current prices during 2022-23 (Quick estimate). The growth of per capita NSDP at constant prices was 6.25 per cent and it was 12.59 per cent at current prices. **Figure 1.1.1** plots per capita NDP and NSDP between 2013-14 and 2022-23 at constant prices.

Per capita NSDP for Kerala was higher than the per capita NDP for all India-level, for all the years of comparison.

Sectorial Composition

The quick estimates of 2022-23 shows that the service sector continues to drive the State economy by contributing 62.62 percentage of GSVA during 2022-23, followed by industry and agriculture. The details of sector wise GSVA distribution was presented in the **Table 1.1.4**

The composition of items as per the quick estimates shows that agriculture and allied activities constituted 8.52 percentage of GSVA during 2022-23. Construction was the biggest component of the secondary sector accounting for 13.79 per cent of GSVA during 2022-23. In tertiary and real estate, ownership of dwelling & professional services constitute the biggest group, accounting for 16.96 percentages in tertiary sector. Manufacturing, trade and repair services, Transport, storage, communication and services related to broadcasting, and financial services were also major contributors of the State economy. The **Figure 1.1.2** depicts the trends in GSVA in basic sectors of state economy from 2019-20 to 2022-23. There was a spectacular recovery for all the sectors

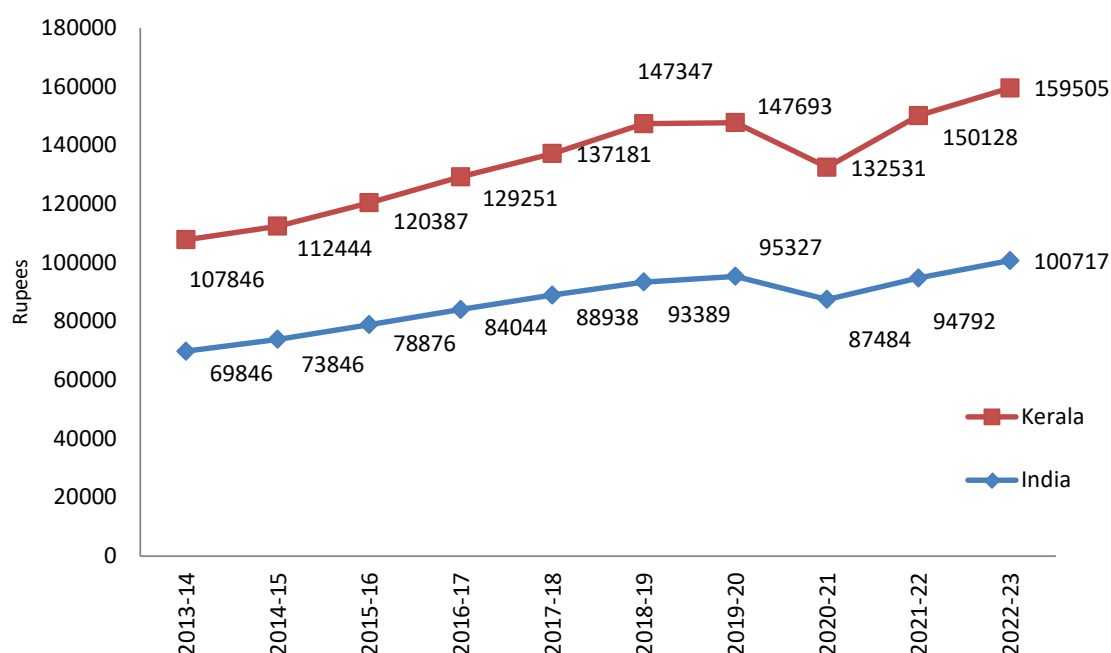
Table 1.1.3 State Income Statistics for Kerala from 2019-20 to 2022-23 (Rs. in Lakhs)

Item	2019-20	2020-21	2021-22 (P)	2022-23 (Q)	Percentage Change Over Previous Year		
Gross State Domestic Product					2020-21	2021-22 (P)	2022-23 (Q)
a) At Constant (2011-12) prices	55919418	51170292	57805727	61618850	-8.49	12.97	6.60
b) At Current prices	81293463	77172389	93454175	104618814	-5.07	21.10	11.95
Net State Domestic Product							
a) At Constant (2011-12) prices	51455269	46405239	52832267	56416375	-9.81	13.85	6.78
b) At Current prices	72772184	68079798	82500982	93356444	-6.45	21.18	13.16
Gross State Value Added (GSVA)							
a) At Constant (2011-12) prices	49397423	44498213	50165601	53268632	-9.92	12.74	6.19
b) At Current prices	73019294	68579334	83023325	92518394	-6.08	21.06	11.44
Per capita GSDP							
a) At Constant (2011-12) prices	160506	146139	164261	174214	-8.95	12.40	6.06
b) At Current Prices	233338	220400	265560	295787	-5.54	20.49	11.38
Per capita NSDP							
a) At Constant (2011-12) prices	147693	132531	150128	159505	-10.27	13.28	6.25
b) At Current prices	208879	194432	234435	263945	-6.92	20.57	12.59

Source: Department of Economics and Statistics, GoK

P: Provisional Estimate, Q: Quick Estimate

Figure 1.1.1 Comparison of Per capita NSDP and per capita NDP at constant prices, 2011-12



Source: Central Statistics Office and Department of Economics and Statistics, GoK

during 2021-22 following the COVID-19 shock. In 2020-21, GSVA of service sector declined by 15.18 per cent but there was a turnaround and growth of 16.74 per cent in 2021-22. In the case of agriculture, growth rates were always and pace of growth in 2022-23 was similar to that in the previous year. The industry sector exhibited a strong recovery with growth rate of 7.26 per cent during 2021-22, which rose further to 7.72 per cent in 2022-23.

The details of the sectoral distribution are given in **Appendix 1.1.7** and **1.1.8** GSDP with percentage change over the previous years for the last four years is given in **Appendix 1.1.9**. Details of GSVA, NSVA at constant and current prices during 2011-12 to 2022-23 are given at **Appendix 1.1.10**, **1.1.11**, **1.1.12**, and **1.1.13**

Sector-wise Distribution of Value Added and Employment

The structure of the economy and workforce participation in Kerala is perceptibly different from the rest of India. The share of agriculture and allied activities in GVA is 15.13 per cent for agriculture and allied activities. But it employs 45.80 per cent of the work force during 2022-23, in India. However, in Kerala, there has been a large-scale withdrawal of workers from agriculture

over the years, so that its share in total workforce participation is 27.27 per cent only in 2022-23 and which contributes 8.97 per cent of GSVA during 2022-23.

The manufacturing sector contributes 12.66 per cent GSVA in Kerala and absorbs 10.91 per cent of work force. All India level, the sector employs 11.40 per cent of the work force and contribute only 17.72 per cent of the GVA. (**Table 1.1.5**).

District-wise GSVA

District-wise distribution of GSVA at current prices shows that Ernakulam continues to have the highest income of Rs 1,20,50,520 lakh in 2022-23 as against Rs 1,07,42,614 lakh in 2021-22, registered a growth of 12.17 per cent. The Gross District Value Added of all the districts is given in **Table 1.1.6**.

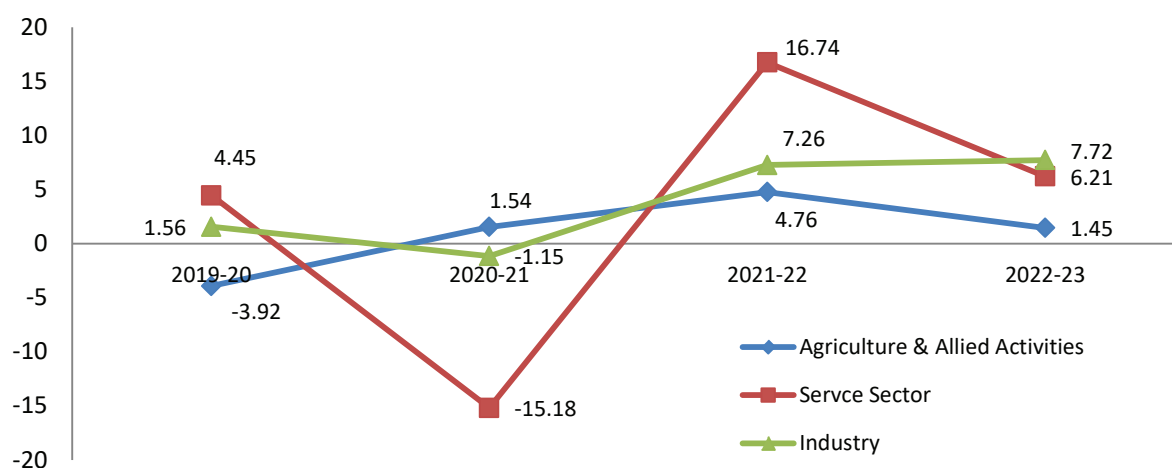
District-wise Per Capita Income (GSVA)

The analysis of District-wise per capita income indicates that Ernakulam continues to stand first with the per capita income of Rs 2,02,863 at constant (2011-12) prices in 2022-23 as against Rs 1,91,613 in 2021-22. The per capita gross district value added with corresponding rank and growth rate is given in **Table 1.1.7**.

Table 1.1.4 Sectoral Distribution of Gross State Value Added (GSVA) 2022-23 at Constant Prices (Rs in lakh)

Industry of Origin	2019-20	2020-21	2021-22 (P)	2022-23 (Q)
	% share	% share	% share	% share
Agriculture, forestry and fishing	8.55	9.64	8.97	8.52
Mining and quarrying	0.42	0.47	0.42	0.45
Primary	8.97	10.11	9.39	8.98
Construction	13.96	14.64	13.81	13.79
Manufacturing	11.53	13.31	12.66	13.00
Electricity, gas, water supply & other utility services	1.32	1.48	1.52	1.61
Secondary	26.82	29.43	28.00	28.40
Real estate, ownership of dwelling & professional services	16.81	18.46	17.12	16.96
Trade & repair services	16.94	14.71	15.60	15.67
Transport, storage, communication & services related to broadcasting	7.48	6.59	7.40	7.16
Financial services	5.39	6.18	5.56	5.65
Public administration	3.38	3.21	3.77	3.61
Hotels & restaurants	1.51	0.77	1.04	1.03
Other services	12.70	10.55	12.11	12.54
Tertiary	64.21	60.46	62.61	62.62
TOTAL GSVA at basic prices	100	100	100	100

Source: Department of Economics and Statistics, GoK P: Provisional, Q: Quick Estimate

Figure 1.1.2 Growth of GSVA in Basic Sectors of the State Economy from 2019-20 to 2022-23

Source: Department of Economics and Statistics

Highest growth rate of per capita GDVA is recorded as 6.40 per cent in Kozhikode District and lowest growth rate recorded in Pathanamthitta District at 3.87 per cent. District-wise and sectoral distribution of GSVA from 2020-21 to 2022-23 at current and constant (2011-12) prices are given in **Appendix 1.1.14, 1.1.15, 1.1.16, 1.1.17, 1.1.18 and 1.1.19.**

INFLATION: RECENT TRENDS

Global inflation is forecast to decline steadily, from 8.7 per cent in 2022 to 6.9 per cent in 2023 and 5.8 per cent in 2024 as per the World Economic Outlook, October 2023. According to the same report, inflation in India is projected to be 5.5 per cent in 2023 and 4.6 per cent in 2024.

Table 1.1.5. Shares of different sectors in Gross Value Added and Employment, Kerala and India, 2022-23

Sectors	Shares in Gross Value Added		Shares in employment	
	Kerala (GSVA)	India (GVA)	Kerala	India
Agriculture, livestock, forestry and fishing	8.97	15.13	27.27	45.80
Mining and quarrying	0.42	2.20	0.31	0.30
Primary	9.39	17.33	27.58	46.10
Manufacturing	12.66	17.72	10.91	11.40
Electricity, gas, water supply and other utility services	1.52	2.33	0.52	0.50
Construction	13.81	8.41	15.37	13.00
Secondary	28.00	28.47	26.80	24.90
Trade, repair, hotels and restaurants	16.64	18.96	17.62	12.10
Transport, storage, communication and services related to broadcasting	7.40		8.07	5.40
Financial, real estate and professional services	22.68	22.49	4.01	11.40
Public Administration and other services	3.77	12.74	15.92	
Tertiary	62.61	54.20	44.90	28.90
Total	100	100	100	100

Sources: Department of Economics and Statistics (for GSVA of Kerala) and National Accounts Statistics (for GVA of India) and Periodic Labour Force Survey (PLFS) carried out by India's Central Statistical Office, 2022-23 for data on employment.

Table 1.1.6 Gross District Value Added of States of Kerala

S l . No	District Name	Gross State Value Added at Basic Price (Rs in Lakh)					
		At Current Prices			At Constant Prices		
		2021-22	2022-23	G r o w t h Rate (%)	2021-22	2022-23	G r o w t h Rate (%)
		(P)	(Q)		(P)	(Q)	
1	Thiruvananthapuram	7700161	8558797	11.15	4661706	4925548	5.66
2	Kollam	7674961	8607496	12.15	4626685	4902598	5.96
3	Pathanamthitta	2198098	2415022	9.87	1284480	1348732	5.00
4	Alappuzha	6476415	7244618	11.86	3997566	4251426	6.35
5	Kottayam	5192966	5826437	12.20	3266679	3465001	6.07
6	Idukki	2761794	3018949	9.31	1557235	1669824	7.23
7	Ernakulam	10742614	12050520	12.17	6653304	7069580	6.26
8	Thrissur	8403563	9352607	11.29	5113124	5426836	6.14
9	Palakkad	6279055	6932204	10.40	3725998	3944122	5.85
10	Malappuram	8154927	9052200	11.00	4790783	5101302	6.48
11	Kozhikode	7072928	7923554	12.03	4250231	4539962	6.82
12	Wayanad	1540847	1717924	11.49	869649	917336	5.48
13	Kannur	5907147	6642146	12.44	3627133	3871380	6.73
14	Kasaragod	2917852	3175922	8.84	1741027	1834984	5.40
	GSVA	83023327	92518396	11.44	50165599	53268632	6.19

Source: Department of Economics and Statistics, (P: Provisional Q: Quick)

Table 1.1.7 Per Capita Gross District Value Added at basic price, constant prices, 2011-12

Sl. No.	District	2021-22 (P) Rs	Rank	2022-23 (Q) Rs	Rank	Growth Rate (%)
1	Thiruvananthapuram	137951	7	145214	8	5.26
2	Kollam	171577	3	180947	3	5.46
3	Pathanamthitta	109200	12	113425	12	3.87
4	Alappuzha	185222	2	195817	2	5.72
5	Kottayam	162745	4	171528	4	5.40
6	Idukki	141220	6	149686	6	5.99
7	Ernakulam	191613	1	202863	1	5.87
8	Thrissur	155880	5	164800	5	5.72
9	Palakkad	123440	10	130112	10	5.41
10	Malappuram	103045	13	109422	14	6.19
11	Kozhikode	128425	9	136648	9	6.40
12	Wayanad	100351	14	104305	13	3.94
13	Kannur	136926	8	145441	7	6.22
14	Kasaragod	122094	11	127641	11	4.54
State	142551		150605		5.65	

Source: Department of Economics and Statistics

P: Provisional,

Q:Quick

As per the Monetary Policy Report, October 2023, of the Reserve Bank of India, CPI inflation is projected to average 5.4 per cent in 2023-24, 6.4 per cent in Q2, 5.6 per cent in Q3 and 5.2 per cent in Q4. For 2024-25, assuming a normal monsoon, and no further exogenous or policy shocks, the structural model of RBI estimates indicate that inflation will average 4.5 per cent, in a range of 3.8-5.2 per cent.

There has been no change in policy rates by the Monetary Policy Committee (MPC) for three bimonthly reviews from April to October 2023, since RBI last raised the repo rate by 25 basis points to 6.50 per cent at its meeting in February 2023. RBI had raised policy rates from May 2022 to February 2023 by 250 basis points to check inflation. The central bank decided in October 2023 to maintain the repo rate at 6.50 per cent and has adopted a stance of 'withdrawal of accommodation.'

In India, the CPI-Combined stood at 5.02 per cent in September 2023, as per the National Statistical Office (NSO), MoSPI, Government of India. The rate of inflation in rural areas (5.33 per cent) was higher than in urban areas (4.65 per cent) in September 2023. In Kerala, inflation based on

CPI-Combined stood at 4.59 per cent, lower than the national average. In Kerala, inflation was higher in urban areas (4.93 per cent) than in rural areas (4.59 per cent) in September 2023. The average inflation rate in Q2 in financial year 2023-24 in Kerala is within the range of 6.4 per cent which was projected by the Monetary Policy Report. The CPI based inflation levels of India and Kerala for August and September 2023 are given in **Table 1.1.8**. The inflation rates for India and Kerala for the month of January 2023 to September 2023 are given in **Figure 1.1.3**.

Price Level in Kerala

Wholesale Price Index (WPI) for Agricultural Commodities

The Wholesale Price Index (WPI) for agricultural commodities in Kerala shows that the index of All Crops has decreased marginally to 145.19 in 2023 (up to September) from 145.26 in 2022 (Base year-2015-16). The decline is due to a fall in prices in case of fruits and vegetables, commercial crops, oil seeds and other non-food items. Prices of food crops increased by 1.79 per cent due to rise in prices of cereals, pulses and condiments and spices. Among food crops, prices of fruits and vegetables declined by 7.90 per cent. Prices of non-food

crops have declined by 4.67 per cent. The prices of commercial crops, oil seeds and other non-food items under the non-food category have also shown a declining trend. There is an increase in prices in the case of beverages under the non-food crop category. The WPI of agriculture commodities in Kerala from 2020 to 2022 and the average monthly indices up to September 2023 (Base: 2015-16=100) are given in **Appendix 1.1.20**

Month-wise WPI of agricultural commodities in Kerala shows that index of All Crops increased to 143.37 in December 2022 from 133.77 in January 2022. Within this, the index of food crops increased to 149 in December 2022 from 130.37 in January 2022 and the index of non-food items decreased to 129.89 from 141.9 during this period. For the year 2023, the WPI index of All Crops increased to 153.53 in September from 141.1 in January. Within this, the index of food crops increased to 161.26 in September 2023 from 145.88 in January 2023 and the index of non-food items increased to 135.02 from 129.65 in the above period. The month-wise WPI of Agricultural commodities in Kerala from January 2022 to December 2022 (Base 2015-16=100) is given in **Appendix 1.1.21**. The month-wise WPI of Agricultural commodities in Kerala from January 2023 to September 2023 (Base 2015-16=100) is given in **Appendix 1.1.21(i)**.

Consumer Price Index (CPI), Kerala

The annual average CPI (Base year 2011-12) for Kerala increased from 182 in 2021 to 192 in 2022. For the period up to September 2023, the index further increased to 199. The percentage variation in 2022 over 2021 is 5.31 per cent. Chalakkudy (7.45 per cent) had the highest rate of inflation measured by CPI among the selected centres in 2022, followed by Punalur (7.22 per cent) and Kollam (6.86 per cent). Alappuzha registered the lowest rate of inflation among the selected centres (2.66 per cent). The annual average CPI and percentage variation of selected centres are shown in **Appendix 1.1.22**. Monthly retail prices of essential commodities from January 2023 to September 2023 are given in the **Appendix 1.1.23**.

Parity Index

For the year 2022, the Parity index has been estimated at 55.75 which is marginally higher than that of 2021 (55.58). The index decreased to 54.83 in 2023 (till May). The index of prices paid by farmers was 16705.42 and the index of prices

received by farmers was only 9274.58 in 2021. The corresponding indices in 2022 were 17469.42 and 9738.83 respectively. Increasing farm input costs, transportation costs and wages are the major reasons for this situation. The yearly average price received and paid by farmers from 2009 to 2023 (up to June) is shown in **Appendix 1.1.24**.

Wages

The average daily wage rate of skilled workers in the agriculture sector in Kerala has increased consistently over the years. Daily wage rates of carpenters have increased from Rs 973.03 in 2021-22 to Rs 1,015.73 in 2022-23. Similarly, the daily wage rates of masons also increased from Rs 978.45 in 2021-22 to Rs 1,018.46 in 2022-23. The daily wage rate of a carpenter has increased by 4.39 per cent and that of a mason has increased by 4.09 per cent in the above period. The average daily wage rate of skilled workers in the agriculture sector from 2010-11 to 2022-23 is given in **Appendix 1.1.25**.

The average daily wage rate of male unskilled workers (paddy field workers) in the agricultural sector in 2021-22 was Rs 781.75 and that of female unskilled workers was Rs 577.73. By 2022-23, the wage rate of male workers had increased by 1.34 per cent and reached Rs 792.20. The female wage rate has risen by a much higher rate of 6.03 per cent and reached Rs 612.58 in 2022-23. The gap between average wage rates of male and female paddy field workers decreased to Rs 179.62 in 2022-23 from Rs 204.02 in 2021-22. The average daily wage rate of unskilled workers in the agriculture sector from 2010-11 to 2022-23 is given in **Appendix 1.1.26**.

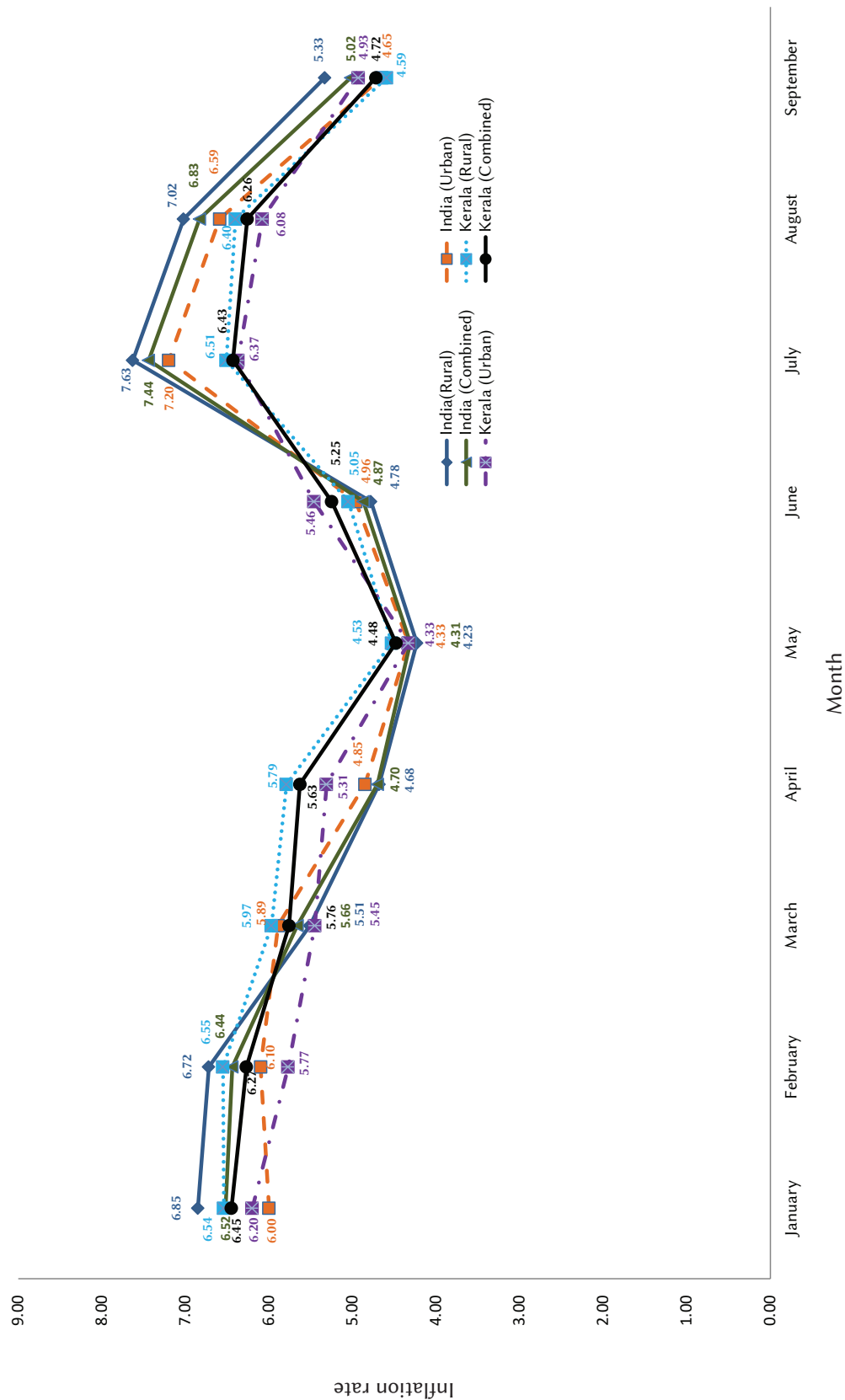
State-wise average daily wage rates in rural India of non-agricultural labourers is described in Chapter 7 of the Economic Review in **Table 7.1.3(B)**.

State Interventions

In the public distribution system, measures like renovation and automation of ration shops, E-Ration Card Project, One Nation One Ration Card have furthered transparency and timely provision of essential commodities.

The Kerala State Civil Supplies Corporation (Supplyco) through its more than 1600 outlets has made effective interventions in stabilising the price of 13 essential commodities which are sold at half the open market price. The Corporation also sells more than 6,000 fast-moving consumer goods

Figure 1.1.3: Inflation Rates - Current Series (Base 2012) for Kerala and India - General Index (All Groups), January to September 2023, in per cent.



Source: National Statistical Office, Ministry of Statistics and Programme Implementation, Govt of India

Table 1.1.8: Inflation based on Consumer Price Index (General), September 2023 and August 2023, in per cent - All-India and Kerala

Consumer Price Index (General)	September 2023			August 2023		
	Rural	Urban	Combined	Rural	Urban	Combined
India	5.33	4.65	5.02	7.02	6.59	6.83
Kerala	4.59	4.93	4.72	6.40	6.08	6.26

Source: National Statistical Office, Ministry of Statistics and Programme Implementation, GoI

items at an average of 10 per cent less than the open market.

Government has also established Centre for Price Research Kerala at Commissionerate of Civil Supplies with the objective of monitoring the fluctuation in the prices of 13 essential commodities in the State. This will help to monitor the prices of essential commodities and to assist the government in policy matter to control prices. Weekly Price Analysis Report is being prepared and published incorporating the wholesale and retail prices of 13 essential commodities from January 2023 onwards.

Direct measures were also taken by the State Government by intervening in the public markets. Inspections were conducted directly by District Collectors in various public markets of the State to check any kind of arbitrary price hike. Joint squads for inspection of public markets were formed with Legal Metrology and Food Safety Departments under the leadership of District Supply Officers. Notices were issued to shopkeepers who had not displayed price lists. Thus, the state has been successful in controlling inflationary pressures with effective market interventions.

1.2 DEMOGRAPHIC PROFILE

The population Census 2011 details are used for analysis in this section. The population Census, 2021, which was to be held in the last year, has not been conducted. The 2021 Census of India is intended to be carried out in 2024.

Population in India

The total population of India as per 2011 Census is 1,21,08,54,977 as against 1,02,86,18,821 at 2001 Census. As per the 2011 Census, there are 62,32,70,258 males and 58,75,84,719 females and the population density in the country is 382 persons per square kilometers. The sex ratio in the country in 2011 is 943 females per thousand males, 949 in rural areas and 929 in urban areas. The child population in the country in 2011 in the age

group 0-6 is 16,45,15,253 and the child sex ratio in the age group 0-6 is 918 females per thousand males.

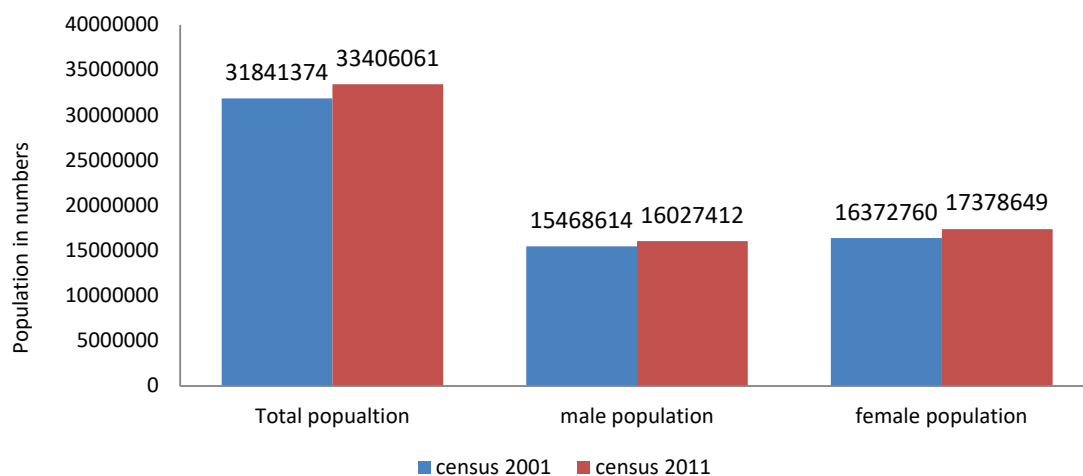
Population trends - Kerala

The total population of Kerala as per the Census, 2011 is 3,34,06,061 as against 3,18,41,374 in 2001 Census. As per the 2011 Census, there are 1,60,27,412 males and 1,73,78,649 females. The percentage change in the population of the State during 2011 when compared to 2001 is 4.91%.

Population Projection up to 2036

According to the Census, 2011 population projections for India and the States, the population of India is expected to increase from

Figure 1.2.1 Population in Kerala 2001 and 2011

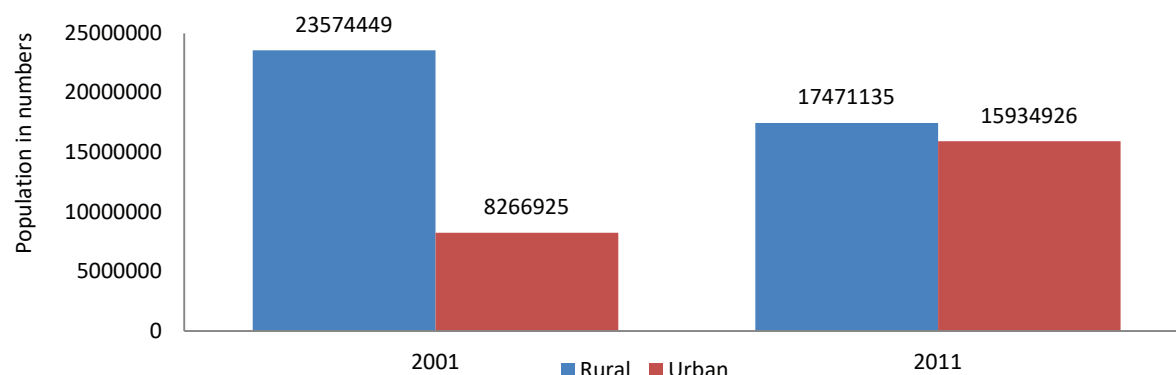


Source : Census 2001 and 2011

Table 1.2.1 Rural Urban Composition of Kerala's population, Census 2001& 2011

	2001			2011		
	Total	Rural	Urban	Total	Rural	Urban
India	1,02,86,10,378	74,24,90,639	28,61,19,689	1,21,08,54,977	83,37,48,852	37,71,06,125
Kerala	3,18,41,374	2,35,74,449	82,66,925	3,34,06,061	174,71,135	159,34,926

Source : Census 2001 & 2011, censusindia.gov.in/census website/data

Figure 1.2.2 Rural –Urban Population in Kerala

Source : Census 2001 and 2011

Table 1.2.2 Total Projected Population -India and Kerala (in 1000's)

Sl.No.	Year	Category	India	Kerala
1	2011	Person	1210855	33406
		Male	623271	16027
		Female	587585	17379
2	2016	Person	1290235	34578
		Male	663346	16594
		Female	626889	17984
3	2021	Person	1361343	35489
		Male	698959	17043
		Female	662384	18447
4	2026	Person	1423435	36207
		Male	729604	17395
		Female	693831	18812
5	2031	Person	1475519	36695
		Male	754893	17638
		Female	720626	19057
6	2036	Person	1518288	36949
		Male	775702	17775
		Female	742586	19174

Source : Census, 2011

121.09 crore in 2011 to 151.83 crore in 2036 that is an increase of 25%. The population of Kerala is expected to increase from 3.3406 crores to 3.6949 crores in the year 2036 that is an increase of 10.60%. The details are given in the **Table 1.2.2**.

Population Growth

The percentage decadal growth rate of Kerala's population during 2001 to 2011 was 4.9 per cent, the lowest among the Indian States. Among the Districts of the State, Malappuram has the highest growth rate (13.4 per cent), and Pathanamthitta has the lowest growth rate (-)3.0 per cent. Idukki also has seen a decline in population with a negative growth rate (-)1.8 per cent. The growth rate of population is lower in six southern Districts (Idukki, Kottayam, Alappuzha, Kollam, Pathanamthitta and Thiruvananthapuram) than in other Districts of the State. Details are given in **Appendix 1.2.1**

Density of Population

Kerala's density of population as per 2011 Census is 860 persons per square kilometre. It is much higher than that of India (382). Thiruvananthapuram is the most densely populated District (1,508) and Idukki is the least densely populated District (255). Density of population has increased in all Districts compared

to 2001 except for Pathanamthitta and Idukki. Details are given in **Appendix 1.2.1**

Birth Rate

The crude birth rate is the number of live births occurring among the population of a given geographical area in a given year, per 1,000 mid-year total population of a given geographical area in the same year. According to the Annual Vital Statistics Report, 2020 and 2021 published by the Economics and Statistics department, the crude birth rate was 15.75 for the year 2010 which slightly reduced to 12.77 in 2020 and 11.94 in 2021. Details are given in **Appendix 1.2.3**.

Mortality Rate

The crude death rate is the number of deaths occurring among the population of a given geographical area in a given year, per 1,000 mid-year total population of the given geographical area in the same year. According to the Annual Vital Statistics Report, 2020 & 2021 of the Economics and Statistics Department, the crude death rate for the year 2021 was 9.66 while the same for the year 2010 was 6.88. The infant mortality rate is the number of deaths under one year of age occurring among the live births in a given geographical area in a given year, per 1,000 live births. Infant Mortality Rate was 5.05 for the year 2021, whereas it was 7.42 for the year 2010. Maternal Mortality Rate (MMR) is the number of maternal deaths per 100,000 live births due to pregnancy or termination of pregnancy. The maternal mortality rate is used to represent the risk associated with pregnancy among women. Kerala's maternal mortality rate was 19 for the year 2021 where as it was 30 for the year 2010. All the indicators show a decreasing trend. Details are given in **Appendix 1.2.3**

Literacy

Kerala has the highest proportion of literate persons in the population among Indian States. The effective literacy rate is 94 per cent. The literacy rate of Kerala was 90.9 per cent in the Census of 2001. In Kerala, 96.11 per cent men and 92.07 per cent of women are literate as against 82.14 per cent of men and 65.46 per cent of women at the all India-level. Among districts, Kottayam tops in literacy with 97.2 per cent followed by Pathanamthitta with 96.5 per cent. Lowest literacy rates are in Wayanad and Palakkad with 89 per cent and 89.3 per cent respectively. Even the lowest literacy rate of Wayanad (89 per cent) is higher

than the national average. As compared to 2001, the literacy rate of all the Districts has improved in 2011. Details are given in **Appendix 1.2.1**

Sex Ratio

Sex ratio means number of female population per thousand of male population. The Census figures of Kerala for 2011 shows that women outnumber men in all the districts of Kerala. The sex ratio of Kerala according to Census 2011 is 1,084 and has improved by 26 points since 2001. It increased from 1,032 to 1,036 from 1981 to 1991 and to 1,058 in 2001. Kerala is the only State where the sex ratio has historically been above unity. The sex ratio at all India-level is 943.

Another significant feature of the State is that all districts in Kerala show a positive sex ratio. Among the districts, Kannur has the highest sex ratio (1,136) followed by Pathanamthitta (1,132). Idukki has the lowest sex ratio (1,006). The sex ratio of Ernakulam is 1,027. All the districts have sex ratio above 1,000. In 2001, only Wayanad had a ratio below 1,000 (995). The difference between the lowest (Idukki, 1,006) and highest (Kannur, 1,136) is 130 points. Details are given in **Appendix 1.2.2**

Child Sex Ratio (0-6 Years)

Child sex ratio (number of females per 1000 males in age group 0-6 years) in Kerala is 964 as per the 2011 Census. It was 960 in 2001. The child sex ratio in Tamil Nadu is 943, Karnataka 948, Andhra Pradesh 939 and the all India average is 919. Among Districts, Pathanamthitta has the highest child sex ratio (976) followed by Kollam (973) and Kannur (971). Thrissur has the lowest ratio (950). The difference between the lowest and highest is 26 points. The highest decadal increase is in Kollam (13) followed by Kozhikode (10). The decadal change in other Districts is below 10. Thrissur (-)8, Idukki (-)5 and Alappuzha (-)5 have a negative decadal change in child sex ratio are given in **Appendix 1.2.2**

Age Group Distribution

It is interesting to note the demographic transition in Kerala during the last fifty years. It is observed that the proportion of population in the age group of (0-14 years), has declined from 43 per cent in 1961 to 23.4 per cent in 2011. Due to increasing life expectancy and availability of health facilities, the proportion of the population in the old age group (60 years and above) has increased from 5 per cent in 1961 to 12.7 per cent in 2011. At the

national-level, 29.5 per cent of the population India falls in 0-14 years age group, 62.5 per cent in 15-59 and 8.0 per cent in 60+ age category (as per Census 2011).

If this trend continues, the addition to the working age group of population (15-59) will decrease in the near future, as the proportion of the population in the age group of 0-14 is declining. The increasing proportion of the old age group (60 and above) would place higher social security obligations on the Government.

District-wise Age Group Distribution

District-wise distribution of population among different age group as per 2011 Census is given in **Table 1.2.3**. The State has 63.9 per cent of its population in the working age group of 15-59, 23.4 per cent and 12.55 per cent in 0-14 age and 60 and above age groups respectively. Among Districts, Idukki has the highest per cent of the working population (66 per cent) while Malappuram has the lowest (61.4 per cent). In the age group of 60 and above, Pathanamthitta has the highest per cent (17.9 per cent), while Malappuram

has the lowest per cent (8.4 per cent). At the same time, Malappuram has the highest proportion of the population, in the 0-14 group at 30.2 per cent, while Pathanamthitta has the lowest (19.4 per cent).

If the actual number is taken, Malappuram has the highest number both in 0-14 and 15-59 groups (12.4 lakh and 25.2 lakh). While Ernakulam District has the highest number of people in the elderly group of 60 and above. Wayanad has the lowest population in all age groups.

Kerala's Working Population - Census 2011

According to the Census, 2011, out of the total population in Kerala, the working population among the main workers is 9329747 that is 27.93% and 461113 that is 1.38% main workers worked for less than 3 months. Around 1828203, that is 5.47% of the total population of Kerala worked in the marginal worker's category for 3-6 months. Out of the total population, 1116671 that is, 3.34% are seeking /available for work among the marginal workers. Among these the non-workers are 65% of the total population. Details are given in the **Table 1.2.4**

Table 1.2.3 District-wise Distribution of the Population in Different Age Groups-2011

S I. No.	District	Numbers in Different Age Group in total District population			Per cent of Different Age Group in Total District population		
		0-14	15-59	60+	0-14	15-59	60+
1	Kasaragod	3,42,696	8,35,111	1,29,568	26.2	63.9	9.9
2	Kannur	5,94,411	16,06,593	3,21,999	23.6	63.7	12.8
3	Wayanad	2,12,246	5,26,414	78,760	26.0	64.4	9.6
4	Kozhikode	7,49,692	19,72,762	3,63,839	24.3	63.9	11.8
5	Malappuram	12,41,491	25,26,407	3,45,022	30.2	61.4	8.4
6	Palakkad	6,78,192	17,95,096	3,36,646	24.1	63.9	12.0
7	Thrissur	6,88,592	20,01,050	4,31,558	22.1	64.1	13.8
8	Ernakulam	6,93,215	21,35,689	4,53,484	21.1	65.1	13.8
9	Idukki	2,47,338	7,32,193	1,29,443	22.3	66.0	11.7
10	Kottayam	4,13,849	12,47,065	3,13,637	21.0	63.2	15.9
11	Alappuzha	4,46,279	13,57,100	3,24,410	21.0	63.8	15.2
12	Pathanamthitta	2,32,670	7,50,202	2,14,540	19.4	62.7	17.9
13	Kollam	5,83,023	17,00,534	3,51,818	22.1	64.5	13.3
14	Thiruvananthapuram	7,07,280	21,60,992	4,33,155	21.4	65.5	13.1
	All Kerala	78,30,974	2,13,47,208	4193393 #	23.4	63.9	12.55

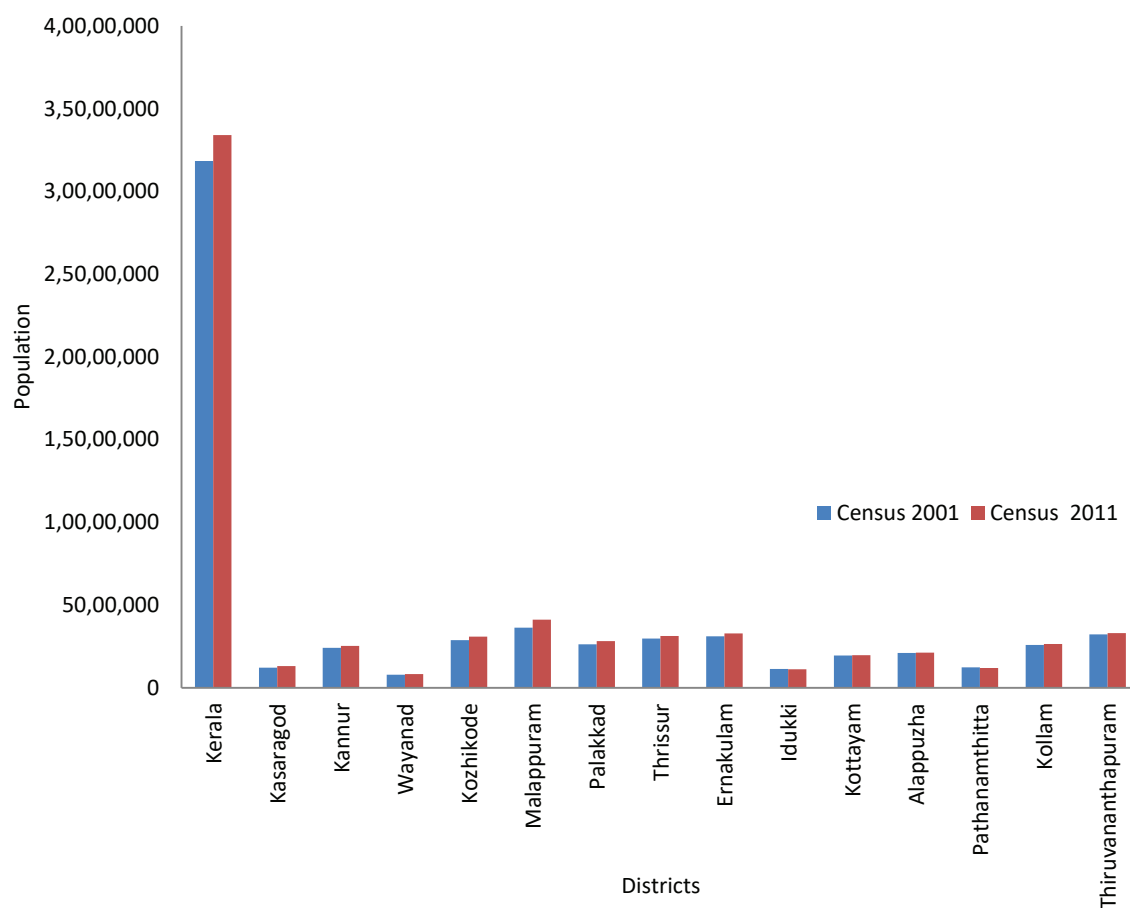
Source: censusindia.gov.in, Census 2011, # excluding 'age not stated' population which is 34486

Table 1.2.4 Main workers, Marginal workers, Non-workers and those marginal workers, non-workers seeking/available for work classified by age and sex

Sl.No	Population Category	Total Population	Marginal Workers		Main Workers		Non-workers	
			Working Population	Worked for less than 3 months	Marginal workers- Worked for 3 -6 months	Seeking / available for work	Total	Seeking / available for work
1	Male	160,27,412	7179828	210044	1061697	637148	7575843	3921212
2	Female	173,78,649	2149919	251069	766506	479523	14211155	1157115
	Total	33,40,6061	9329747	461113	1828203	1116671	21786998	2764097

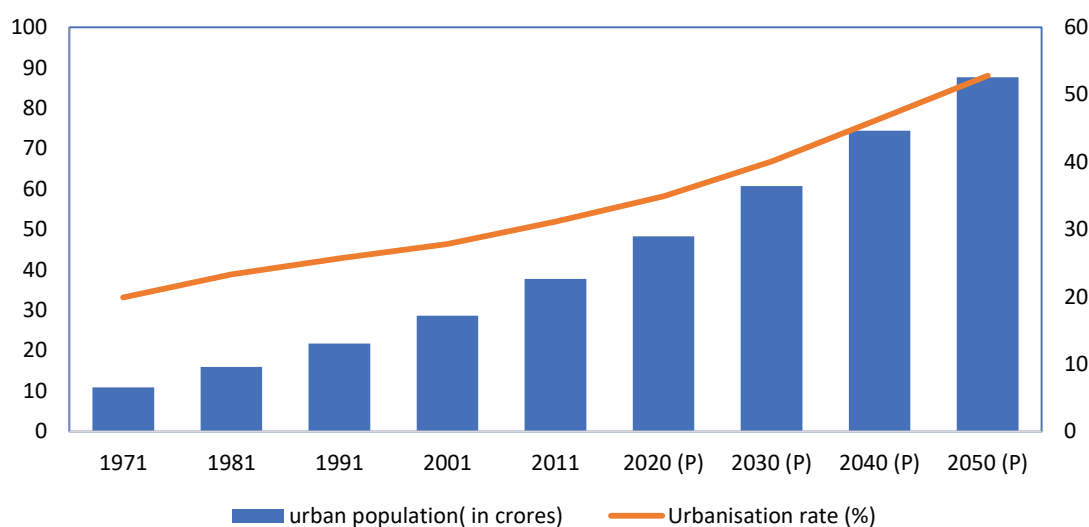
Source: Office of the Registrar General & Census Commissioner, India, Ministry of Home Affairs, Government of India, <https://censusindia.gov.in/nada/index.php/catalog/12629>, Ref. No. ORGI Census 2011 Tables.

Figure 1.2.3 Districtwise population of Kerala 2001 and 2011



Source : Census 2001 and 2011

Figure 1.2.4 Trend of urbanisation in India



Source: Census of India(1971 to 2011), UN World Urbanisation Prospects, 2018 (Years 2020 to 2050)

Urbanisation

Urbanisation has been a significant global trend in recent decades, with the United Nations projecting that it will continue to grow, reaching about 68 per cent by the middle of the century. India is a crucial player in this urbanisation process, having witnessed a gradual but consistent increase in its urban population.

In India, urbanisation is determined through two distinct definitions: the administrative definition and the Census definition. Under the administrative definition, an area falls into the urban category if it is already under the jurisdiction of an urban Local Self Government (LSG). Furthermore, States have the authority to designate an area as urban if it surpasses specific thresholds related to population, population density, and economic activity.

As per the Census definition, India has 7,933 urban settlements (statutory towns and census towns), with a total population of 377.1 million (Census 2011). In fact, India boasts of the world's second-largest urban system. In 2020, India's urban population was approximately 483 million, making it the second-largest contributor to the global urban population. This urban population accounted for 31.5 percent of India's total population, as per the 2011 Census. According to the United Nations, India's urban population is projected to reach 607 million (40.1 percent of the total) by 2030 and 876 million by 2050

more than double the urban population in 2011. **(Figure -1.2.4)**

The "State of the Cities India (2021)" report has introduced an urbanisation index that incorporates 25 indicators, representing various dimensions of urbanisation, productivity, inclusion, and environmental safety. Urbanisation index has been used to rank 28 states and three Union territories of the country. Of the 17 general States, the results reveal that Kerala (66.0) is the second most urbanized state in India, following Goa (66.5). On the other hand, Bihar (17.0), Chattisgarh (27.6), Odisha (29.2), and Madhya Pradesh (32.6) are identified as the least urbanized of the 17.

The report goes further to rank States and Union territories individually for each of the following components of the index: urbanisation, urban productivity, and urban inclusion and environmental security. This analysis aims to shed light on the interplay among these dimensions and whether more urbanized states exhibit consistent higher productivity and inclusivity. Notably, the report highlights that Kerala secures the top position in both urbanisation and productivity. However, it lags in the aspects of inclusion and environmental safety.

Data on urbanisation in Kerala reveal that, during 1901, the combined population of Travancore, Cochin, and Malabar was 6.4 million, with 92.2 percent living in rural areas, and less than 10

percent in urban areas. Over the past century, the rural population share has gradually decreased, reaching 74 per cent in 2001. Significantly, in the 2011 Census, the rural and urban population were nearly equal- 15.9 million urban, which accounts for 47.7 per cent of total population, against a rural population of 17.4 million (52.3 per cent). The decadal growth rate of the urban population in Kerala between 2001 and 2011 was 92.72 per cent.

Kerala is regarded as the fastest urbanising State. Ernakulam has the highest proportion of urban population to total population (68.1 per cent), and the lowest is in Wayanad (3.8 per cent). The increasing urbanisation in Kerala is evident in the increase in number of census towns in 2011. A census town is defined as an area which is not statutorily notified as town, but has attained urban characteristics viz. population which exceeds 5,000, population density of at least 400 persons per sq. km, and a minimum of 75 per cent of male working population employed outside the agricultural sector. In Census 2001, there were 99 census towns and 60 statutory towns in Kerala. As per Census 2011, there are 461 census towns and 59 statutory towns. This shows a 366 per cent growth in the number of census towns. Wayanad and Idukki districts did not have any census towns in 2011, but had one statutory town each.

This classification of census towns has brought rural population growth down to negative figures. Furthermore, the decadal population growth rate of the towns which existed in both 2001 and 2011 Census is estimated to be 3.90 per cent, lower than that of the State's average of 4.86 per cent decadal population growth rate. This negates the possibility of migration to towns or even organic growth as the reasons for urban population growth. Instead, the growth in urban population could be largely attributed to the increase in census towns. Now, there are 19 Urban Agglomerations in the State.

Thrissur District, with 135 towns (statutory + census), has the highest number of towns in the State, and accounts for more than 25 per cent of total towns in the State. Around 60 per cent of towns are in Thrissur, Kannur, Ernakulam, and Kozhikode districts. Urban population has crossed one million each in eight districts. Among these, Ernakulam leads, closely followed by Thrissur, Kozhikode, and Malappuram. The total urban population of these four districts together constitutes more than 50 per cent of urban

population in the State. Decadal urban population growth in 2001-2011 was positive in all districts except Idukki. Malappuram District shows the highest urban population growth, followed by Kollam, Thrissur, and Kasaragod.

In terms of share of rural population to the total population of the State, Malappuram and Palakkad together account for 25 per cent. Along with the above districts, Kasaragod, Kottayam, Pathanamthitta, Kollam, Idukki and Wayanad are the other districts where rural population outnumber the urban population. In Idukki and Wayanad, more than 95 per cent of the population is rural.

Kerala's urban growth trends, the needs and aspirations of the growing urban population, and policies/programmes to provide basic facilities to improve the quality of life in urban areas offer opportunities as well as raise challenges. Urban areas have enormous opportunities for human and economic development, but it is imperative to ensure sustainable expansion and deal with related problems. The State must continue to invest in infrastructure, environmental conservation, and social inclusion to become an inclusive urbanised region. By doing so, Kerala can harness the benefits of urbanisation while preserving its unique cultural and natural heritage. However, this requires proper mechanisms to coordinate the interventions of various institutions involved in urban issues. Decision of the Government to institute an urban commission is a key step in this direction. Moreover, the initiatives of the Government to strengthen urban LSGs and focus on important urban issues have also yielded commendable results. For instance, the campaign for garbage-free Kerala has significantly improved infrastructure facilities and organisational set up for waste management in urban centres. Urban LSGs are actively ensuring state-of-the-art civic amenities, as envisaged by the government in the 14th FYP. Implementation of Ayyankali Urban Employment Guarantee Programme, the unique programme to provide employment opportunities to urban poor is hailed as an innovative step to address urban poverty. The urban LSGs are also keen to integrate local development programmes with various centrally sponsored programmes for urban development to make the interventions more effective and impactful.

1.3 INDICATORS OF POVERTY

Extreme poverty, currently defined as living on less than \$2.15 per person per day at 2017 purchasing power parity, has declined significantly in recent decades. However, COVID-19 has reversed this positive trend. In 2020, the number of people living in extreme poverty rose to 724 million, surpassing the pre-pandemic projection by 90 million and reversing approximately three years of progress on poverty reduction. Recovery from the pandemic has been slow and uneven, with extreme poverty dropping from 9.3 per cent in 2020 to 8.8 per cent in 2021. About 41 per cent of low-income countries experienced a higher poverty rate in 2021 compared to the previous year, versus only 13 per cent of upper middle-income countries. If current trends continue, an estimated 7 per cent of the global population – approximately 575 million people – will still be living in extreme poverty by 2030, with most in sub-Saharan Africa. This projection would represent a meagre poverty reduction of less than 30 per cent since 2015. (United Nations' The Sustainable Development Goals Report 2023, Special edition)

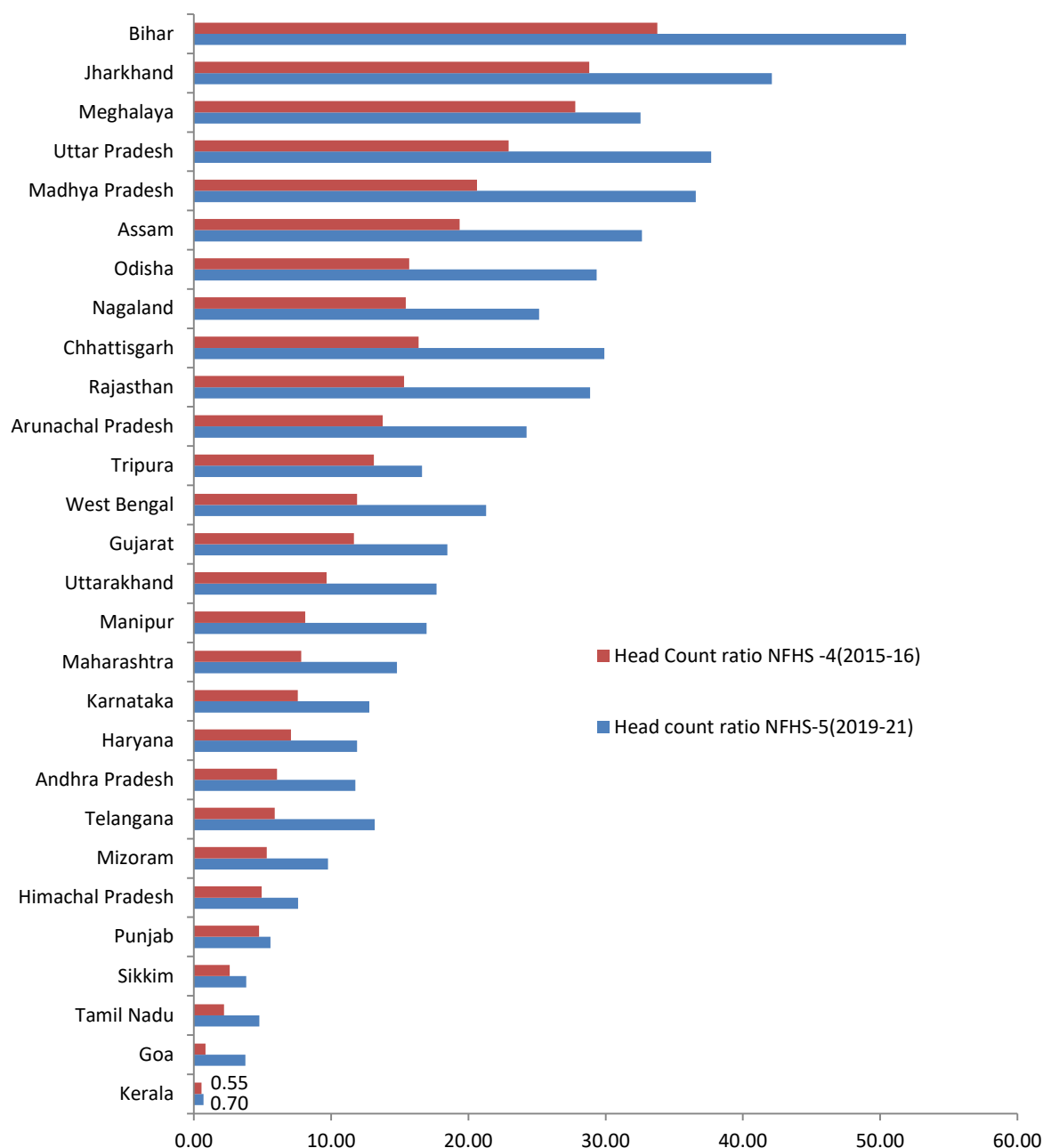
According to the 2022 World Bank report titled “Poverty and Shared Prosperity-Correcting Course”, in 2020 alone, the number of people living below the extreme poverty line around the world rose by over 70 million, of which 56 million were in India. The incidence of poverty in India had come down to 29.5 per cent in 2011-12 from 54.88 per cent in 1973-74 (Planning Commission, GoI, 2014). However, lack of data in the succeeding decade has raised serious questions on the levels of poverty in the country, particularly on grounds of the substantial impact

of the pandemic on poverty world over. As GoI decided not to release the 2017-18 NSS round due to concerns about data quality, there is a severe data gap of poverty estimates in the last decade. As per the report by the World Bank, which depended mostly on Consumer Pyramids Household Survey (CPHS) conducted by the Centre for Monitoring Indian Economy, a private data company for the period from 2015-16 to 2019-20, poverty had declined in India since 2011.

Kerala has followed a development path quite different from that of other Indian States in addressing poverty and related issues. Radical policy decisions to implement land reforms, universal education and health care, democratic decentralisation, extensive social security schemes, robust public distribution system, women empowerment programmes such as Kudumbashree, and several similar interventions have contributed significantly to reduce poverty in rural and urban areas. According to official figures, the absolute poverty ratio in Kerala has shown a sharp reduction over the last forty years. Poverty in Kerala has reduced from 59.79 per cent in 1973-74 to 11.3 per cent in 2011-12 while the all-India figures for the corresponding period showed a comparatively lesser decline, as stated previously.

The time series data gap for the last decade notwithstanding, Kerala has emerged as the State with the least multidimensional poverty across India, according to NITI Aayog's first Multidimensional Poverty Index (MPI) report (2021). By the order of the incidence of least

Fig 1.3.1 Performance of states in reducing multi-dimensional poverty in 2021 and 2023



Source : National Multi-Dimensional Poverty Index-A Progressive Review 2023, NITI Ayog

poverty, Kerala (0.71 per cent) is followed by Goa (3.76 per cent), Sikkim (3.82 per cent), Tamil Nadu (4.89 per cent), and Punjab (5.59 per cent). Kerala registered low counts on almost all the parameters of deprivation viz; child and adolescent mortality (0.19%), maternal health (1.73 %), years of schooling (1.78 %), school attendance (0.3%), and sanitation (1.86%). Very few households were found to be deprived with respect to nutrition,

cooking fuel, sanitation, drinking water, electricity, housing, assets and bank accounts. Among Districts, Kottayam was the best performer with no one identified as multi dimensionally poor (0 per cent). Wayanad with 3.48 per cent has the highest percentage of multidimensional poverty.

Now, as per the latest report of NITI Ayog (National Multi-dimensional poverty Index-A

Progressive Review 2023), the number of multi dimensionally poor in Kerala has reduced even further from 0.7 per cent to 0.55 per cent during the period 2015-16 to 2019-21. The unwavering commitment of the State towards social and economic upliftment of the poor is evident in the low MPI index in the State.

Though Kerala is better off than most other States in India in terms of average poverty estimates, there are still several isolated pockets of deprivation in the State. Poverty in Kerala is mainly found among the marginalised social categories, and groups such as SC, ST, fisher-folk, potters, and artisans. This has warranted focused interventions by the Government through various schemes. Different schemes and programmes have been formulated and implemented under the supervision of Local Self Governments (LSGs) and State departments like Development of SC, ST, Fisheries etc. to address the issues of deprivation and abject poverty among marginalised communities. However, eradication of abject poverty of households requires a comprehensive approach, integrating the efforts of all the development agencies and focusing on the specific causes of poverty. It was with this goal in mind, the Government established a massive programme to end extreme poverty through targeted interventions by development departments and LSGs.

Extreme Poverty Eradication Programme

Kerala initiated this unique drive to eradicate extreme poverty with a State-wide survey to identify extremely poor households based on four key deprivation categories- lack of food, income, health and shelter. The Commissionerate of

Rural Development was the nodal Department for conducting the survey. The survey targeted households not previously covered under the Ashraya programme, the States' flagship programme for identification of the destitute, which had 1.57 lakh beneficiaries.

The Extreme Poverty Identification Process (EPIP) began with nomination of 1,18,309 poor households through an intensive participatory nomination process from Wards / Divisions, from which 87,158 were shortlisted as recommended by the LSG sub-committees formed for this purpose. This data was recorded in an MIS. Subsequently, these 87,158 households were interviewed face-to-face, using a specially developed mobile application. A 20 per cent sample was subjected to a super-check, and a priority list of 73,747 households was prepared. This priority list was further scrutinised by Grama Sabhas for another round of elimination of ineligible households, and the final list of 64,006 extremely poor households (1,03,099 individuals) was drawn up (**Fig 13.2**).

It was observed that out of the 64,006 identified families, 75 per cent belonged to the general category, 20 per cent to Scheduled Caste, and 5 per cent to Scheduled Tribe categories. However, a tiny portion of respondents were unsure of their group. Additionally, the survey data revealed that a greater proportion of the extremely poor were concentrated in rural regions, with 81 per cent of them living in Grama Panchayats, 15 per cent in Municipalities, and 4 per cent in Municipal Corporations. District-wise analysis showed that Malappuram district with 8,553 families topped the list, accounting for 13.4 per cent of

Fig:1.3.2 Different stages of identifying extreme poverty

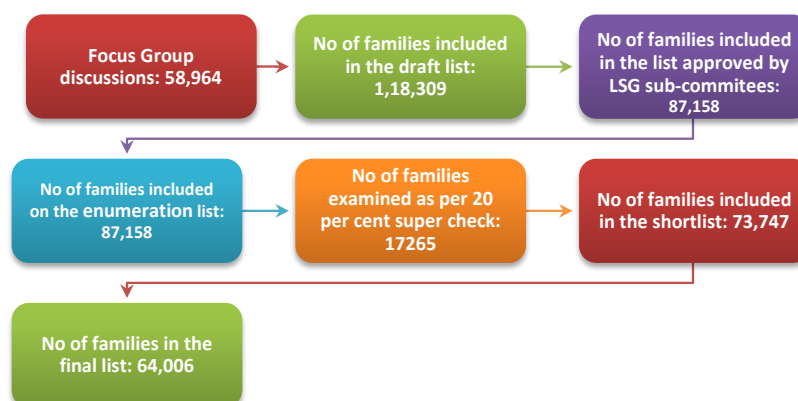
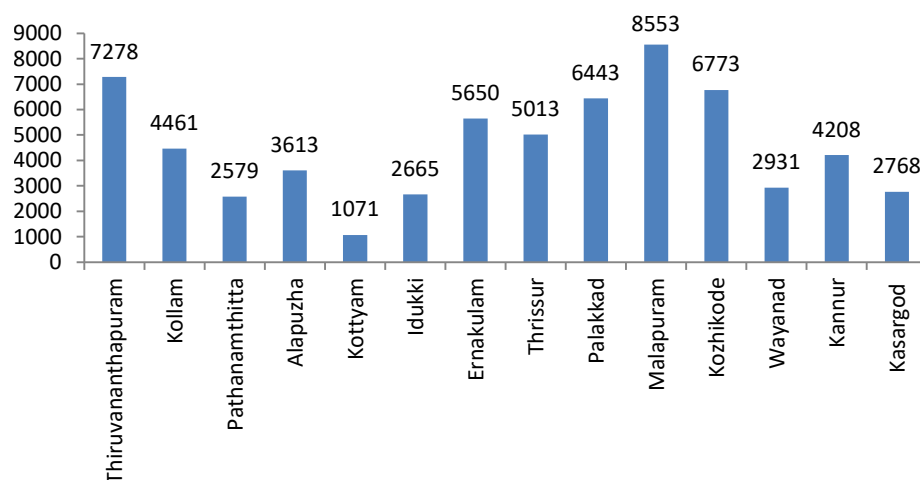


Fig:1.3.3 District wise break up of number of extreme poor families identified in the state.



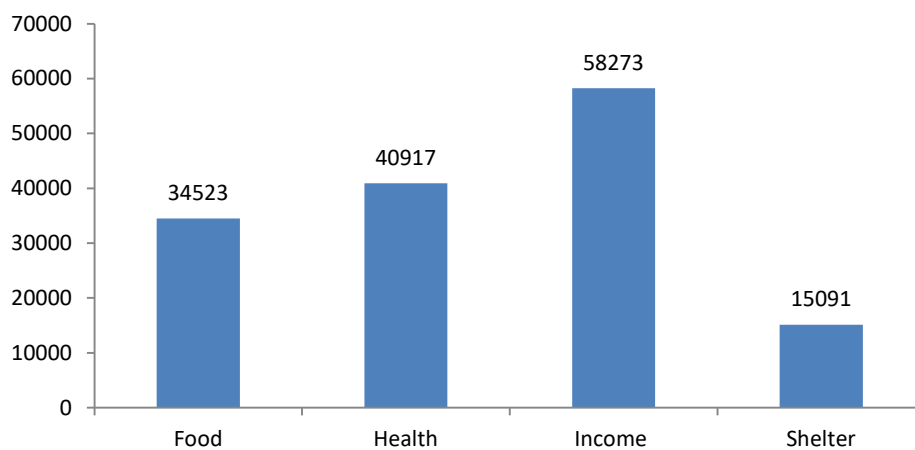
Source: EPIP cell, Rural Development Department

the extreme poor in the State. This was followed by Thiruvananthapuram with 11.4 per cent of the extreme poor households. Kottayam had the least number of extreme poor in the State (1071 families) (See Fig13.3)

As previously mentioned, EPIP identified the extreme poor in the State, based on four major deprivation categories- food, health, income and shelter. It was seen that out of the total households identified, 58,273 families encountered income deprivation, 40,917 families had health related issues, 34,523 families were deprived of food, and 15,091 did not have shelter. It is to be noted that there would be overlap between these categories, and one person could experience deprivation of multiple components.

The next step in this programme was to prepare an Extreme Poverty Sub Plan, comprising of the interventions required to address different types of deprivation. The programme would be implemented and monitored by LSGs with the support of the State Poverty Eradication Mission, i. e Kudumbashree. Each local authority would develop an extreme poverty sub-plan for this purpose, assisted by Kudumbashree. Each sub-plan would be a collection of micro-plans, which would comprise projects to address deprivation factors in each household. The projects will be scrutinised as per existing guidelines and approved by the District Planning Committee. The numerous interventions indicated in the micro-plan will be aggregated at the LSG level based on the sector. The concerned Working Group would formulate development

Fig1.3.4: Disaggregated list of Deprivation categories



Source: EPIP cell, Rural Development Dept

projects, which would be carried out by the related implementing officer. These are prepared after collecting micro level details of the families in addition to the details collected previously in the EPIP survey.

The contents of the plan are divided into three sections:

1. Immediate care plan
2. Intermediate Plan
3. Long term comprehensive plan

The services to be provided on an immediate basis would be grouped under immediate care plan while the services or schemes that can be provided in a span of 3 months to 2 years have been included under the intermediate plan. In cases where immediate or intermediate intervention would not be adequate, the LSG would prepare a long-term comprehensive plan.

A total of 77,557 urgent projects, 36,433 short term projects and 30,696 long term projects have been formulated as part of the micro-plans across the LSGs. Priority was given to provide the households with those services that could be immediately dispensed, like entitlement and identity cards, food, medical care etc. This would be followed by other important needs.

The implementation of micro-plans with focus on food, shelter, health care, rehabilitation, income generation has already commenced at the local level. These micro-plans have been prepared by pooling funds from LSGs, different departments, CSR, etc. In addition, a gap fund of Rs 50 crores was allotted by Government to LSGs to meet additional expenditure to implement the projects.

Accomplishments of the Extreme Poverty Eradication Programme

Extreme Poverty Eradication Programme (EPEP) has been hailed as one of the most innovative interventions in the country to eradicate extreme poverty. This programme has tried to ensure coordination among development departments, to collectively address all the factors that contribute to deprivation of families that have been identified as extremely poor. The programme has been able to make remarkable accomplishments as the first phase gets concluded.

Avakasham athivegam campaign: This campaign was launched to address short term and long term needs of extreme poor, particularly to provide

documents of identity and entitlements to the extremely poor households. This was done based on the revelation that many of the members of the identified households lacked fundamental civic documents and access to essential services ration cards, election identity cards, Aadhar card, MGNREGS job card, social security pension etc. The campaign focused on providing these documents to the identified individuals.

LSGs, along with development departments, were asked to identify the immediate needs of the extremely poor families and intervene forthwith. The Health Department ensures that all those who require medical care are provided with free treatment, medicines and follow up care. They are also provided health insurance cards, disability certificates and ambulance services through special medical camps, doorstep services, and home visits. The Civil Supplies Department identified households without ration cards, and given them ration cards in a time bound manner. They also distributed food items and kits to the doorstep of the extreme poor families. The Department of Education provided books, school bags, etc. to the children of extremely poor households. They are also provided with counselling support, vocational training programmes, and assistance for pursuing higher studies. The Social Justice Department ensured rehabilitation of nomadic communities and palliative treatment to those who are terminally ill. The department also instituted systems to assist those who are mentally challenged, and support other vulnerable communities. Other departments like the Revenue Department are also involved in dealing with the problems of extremely poor families. The Transport department declared that the extremely poor could use public transport for free.

Regarding housing, some of the identified families were already included in the LIFE list, and a special Government Order was issued to include the remaining also. Construction of houses for the extreme poor has already begun, and 415 houses have already been completed as on 30th September, 2023. This unique programme has demonstrated how LSGs and various departments could work together and create synergy to resolve major development riddles like multi-dimensional poverty and uplift the poor to lead secure and dignified living conditions.

BOX 1.3.1 Government declares 47.89 per cent of the extreme poor lifted out of poverty

As per the latest status report released by LSGD, 47.89 per cent of the extremely poor households identified have come out of extreme poverty. This was declared based on the decisions taken by the corresponding LSG committees to provide them with all necessary conditions required to lift them from extreme poverty, marking the completion of the first phase of Extreme Poverty Eradication Project.

This has been the result of the efforts taken by the LSGIs to provide necessities to the poor families. Accordingly, food kits to 15,276 families, and cooked food to 5,336 families are distributed through community kitchens and Janakeeya hotels of Kudumbashree Mission. Treatment and medication have been ensured for 21,027 families with frequent medical check-ups by medical staff through bimonthly house visits. Palliative care is given to 4,977 individuals, health care support equipment is given to 384 patients, and nine individuals have been assisted for organ transplantation. In addition to this, 693 individuals have been shifted to shelter homes including 333 from single member families and 360 from other families. As part of the interventions to provide means of income to poor households, 841 families who had no source of income were assisted with income generation activities.

Kuttiyattur Gram panchayath in Thaliparambu constituency in Kannur district had identified 16 families with extreme poverty. They were able to provide necessary services to address the distress of all the 16 families and uplift them from extreme poverty, thereby becoming the first Gram Panchayat in the State to totally eradicate extreme poverty.

Motivated immensely by these achievements, the Government has embarked on an ambitious journey to eradicate extreme poverty from the state by November 1, 2025.

Achievement of Extreme Poverty Reduction Programme as on 31.10.2023

District	Number of extreme poor families identified	Number of families uplifted from extreme Poverty as on 31.10.2023	Percentage of achievement
Alappuzha	3613	1859	51.45
Ernakulam	5650	2653	46.96
Idukki	2665	1115	41.84
Kannur	4208	2617	62.19
Kasargod	2768	1218	44.00
Kollam	4461	1809	40.55
Kottayam	1071	556	51.91
Kozhikode	6773	3171	46.82
Malappuram	8553	4166	48.71
Palakkad	6443	2845	44.16
Pathanamthitta	2579	984	38.15
Thiruvananthapuram	7278	3761	51.68
Thrissur	5013	2707	54.00
Wayanad	2931	1197	40.84
Total	64,006	30,658	47.90

Source : Status Report on Extreme Poverty, LSGD

1.4 ROLE OF FINANCIAL INSTITUTIONS IN DEVELOPMENT INITIATIVES

The banking sector is crucial to the modern economy. Banks and financial institutions have a vital role in fostering economic growth and development by facilitating the flow of savings toward investment opportunities. Various intermediaries, including banks, stock exchanges, post offices, and government institutions contribute to this process. Financial institutions are essential because they provide a marketplace for money and assets so that capital can be efficiently allocated to where it is most useful. Banks have a major role in financial inclusion, through which delivery of banking services to masses including privileged and disadvantaged people at an affordable manner is ensured. It enables to reduce the gap between rich and poor population.

Spread of Banking – All India and State level

As per RBI Annual Statistics, 136 scheduled commercial banks (SCBs) are operating in India through a network of 1,54,792 bank branches at the end of March 2023. Among these bank branches, 54,047 branches are in rural area, 43,611 are in semi-urban area, 28,067 are in urban area and the remaining 29,067 branches are operating in Metropolitan cities. Uttar Pradesh has the largest number of bank branches (17,955) followed by Maharashtra (13,592) and Tamil Nadu (12,091). Kerala has 6724 scheduled commercial bank branches which are 4.34 per cent of the total bank branches in India. Kerala has the largest number of bank branches among the semi-urban areas in the country as per the RBI data. According to the RBI data, the number of bank branches in Kerala shows an increase of 1.98 per cent in

March 2023 when compared with the previous year. Major State wise distribution of Scheduled Commercial bank branches at the end of March 2023 is given in **Appendix 1.4.1**.

As per the State Level Bankers' Committee (SLBC) data, Kerala has 7,786 bank branches as on March 2023, which includes commercial banks, regional rural banks, small finance banks and co-operative banks. Of the total number of 7,786 bank branches in Kerala, 12.02 per cent branches are in rural area, 66.62 per cent branches are in semi urban area and 21.36 per cent branches are in urban area. As per SLBC report, Kerala has a total of 6,469 scheduled commercial bank branches (which includes only public sector commercial banks, private sector commercial banks and regional rural banks) in March 2023, as against 6,330 bank branches in March 2022, which shows an increase of 139 branches in March 2023. The total number of branches of Kerala Gramin Bank is 634 as on March 2023 which is same as that of previous year. There are 319 Small Finance Banks. The number of Co-Operative banks in Kerala as on March 2023 is 998 which are the same as that of previous year. The group-wise branch network in Kerala as on March 2023 according to SLBC Report is shown in the **Table 1.4.1**

Deposits

As per RBI data, the total deposits in the country shows an increase of 10.1 per cent in March 2023 when compared with previous year. But the growth rate of deposits decreased from 10.21 per cent in March 2022 to 10.1 per cent in March 2023. In

Table 1.4.1 Banking Group-wise Branch Network in Kerala, 2023

Sl. No.	Banking Group	Number of Branches			
		Rural	Semi-urban	Urban	Total
1	Public Sector Commercial Banks	143	2326	830	3299
2	Regional Rural Bank - Kerala Gramin Bank	53	542	39	634
3	Private Sector Commercial Banks	133	1786	617	2536
4	Small Finance Banks	151	129	39	319
5	Co-Operative Banks*	456	404	138	998
Total		936	5187	1663	7786

*includes branches under Kerala Bank

Source: State Level Bankers' Committee Report, Kerala, March 2023

Kerala, there is an increase of 8.06 per cent in the total bank deposits in March 2023 as compared to March 2022. As on March 2023, the total deposits in the Scheduled Commercial banks in the country is Rs 1,87,42,311 crore whereas it was Rs 1,70,15,931 crore in March 2022. The share of deposits in scheduled commercial banks in Kerala to total deposits in the country as on March 2023 is 3.86 per cent. Maharashtra has the highest share of deposits (20.93 per cent) in the country. Major State wise deposits in scheduled commercial banks from March 2019 to March 2023 is given in **Appendix 1.4.2**. In metropolitan areas the growth rate of aggregate deposits decreased from 11.6 per cent in March 2022 to 10.89 per cent in March 2023 and in rural areas it shows an increase from 7.6 per cent in March 2022 to 9.13 per cent in March 2023. In Public Sector banks, the growth rate of aggregate deposits increased to 8.1 per cent in March 2023 from 8.0 per cent in March 2022; while in Small Finance Banks the aggregate deposits decreased to 33.9 per cent in March 2023 from 37.3 per cent in March 2022, as per RBI report. Among the bank groups the growth of aggregate deposits in regional rural banks is at a faster pace. Regional Rural Banks shows an increase from 5.7 per cent in 2022 to 9.3 per cent in 2023 and in public sector and private sector banks the growth is very slow.

The total bank deposits (including deposits of Commercial Banks, Regional Rural Banks and Small Finance Banks) in Kerala as on March 2023 is Rs 7,19,377 crore as against Rs 6,66,220 crore in March 2022 as per the SLBC data. However, the annual growth rate of total deposits in Kerala showed a decline from 9.95 per cent in March 2022 to 7.98 per cent in March 2023 as per the SLBC report. The growth of bank deposits in

Kerala for the period from 2005-2023 is given in **Appendix 1.4.3**.

Domestic deposits and NRI deposits

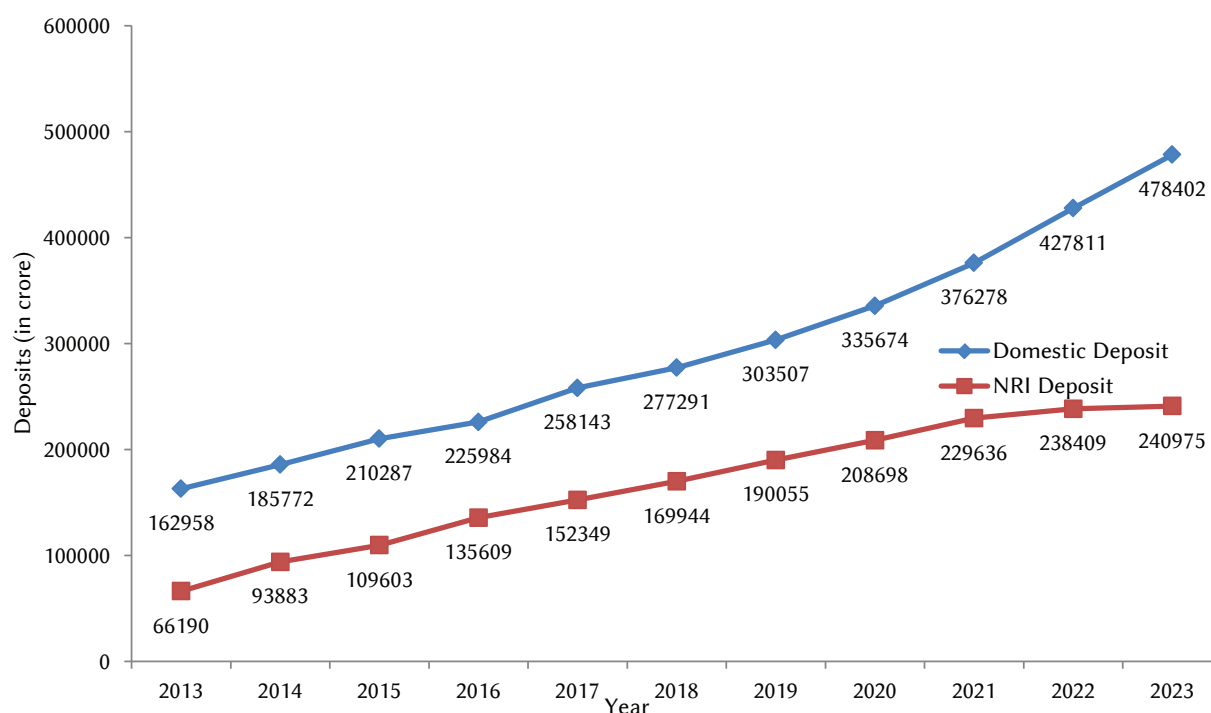
The total bank deposit in Kerala comprises Rs 4,78,402 crore as domestic deposits (66.50 per cent of total deposits) and Rs 2,40,975 crore (33.50 per cent) as NRI deposits in March 2023 whereas it was Rs 4,27,811 crore and Rs 2,38,409 crore respectively in March 2022 as per the SLBC data. The annual growth rate of total domestic deposit in March 2023 is 11.83 per cent which is lower than that in the previous year. The total NRI deposits in the state in March 2023 showed only a marginal increase of 1.07 per cent. The growth of bank deposits in Kerala (domestic and NRI) from 2013-2023 is shown in **Figure 1.4.1**.

As per SLBC data, total NRI deposit of public sector banks as on March 2023 is Rs 1,04,331.15 crore which is 43.29 per cent of total NRI deposits. Whereas the private sector banks have NRI deposits of Rs 1,31,783.46 crore i.e., 54.68 per cent of total NRI deposits. In the previous year it was 45.71 per cent and 52.46 per cent respectively. The SFBs received Rs 3050.46 crore as NRI deposits in March 2023 which is 1.26 per cent of the total NRI deposits. Similarly, RRBs received Rs 1,809 crore as NRI deposit. In co-operative sector banks, the share of NRI deposits is very meagre. The details of NRI deposits and CD ratio of major banks in Kerala as on March 2023 are given in **Appendix 1.4.4**.

Advances

As per SLBC data, in March 2023, Rs 5,47,987.92 crore was disbursed as advances in the state by commercial banks and co-operative banks compared to Rs 4,78,657.12 crore as advances

Figure 1.4.1 Growth of Bank Deposit in Kerala (Domestic & NRI) from 2013-2023, in Rs crore



Source: State Level Bankers' Committee Report, Kerala March 2023

in March 2022 which is 14.48 per cent higher than previous year advances. All Commercial banks including public sector commercial banks, private sector commercial banks, RRBs and Small Finance Banks (SFB) together disbursed Rs 4,93,157.02 crore at the end of March 2023 as compared to Rs 4,24,625.73 crore as advances at the end of March 2022. Out of this, the advances of public sector commercial banks, private sector commercial banks, RRBs and Small Finance Banks were Rs 2,72,409 crore, Rs 1,92,074 crore, Rs 21,885 crore, and Rs 6,789 crore respectively. There is an increase of 8.53 per cent in Priority Sector Advance (PSA) as compared to previous year. Public Sector Commercial Banks disbursed 50.50 per cent of their advances to primary sector, which is higher than that of previous year (48.75 per cent) and Co-operative banks disbursed only 7.74 per cent of their advances to primary sector. In the previous year it was 12.34 per cent. Kerala Gramin Bank has a share of 13.60 per cent in primary sector disbursement. Share of primary sector disbursement is shown in **Figure 1.4.2**. The advances financed by scheduled commercial banks in major states as per annual RBI report are given in **Appendix 1.4.5**.

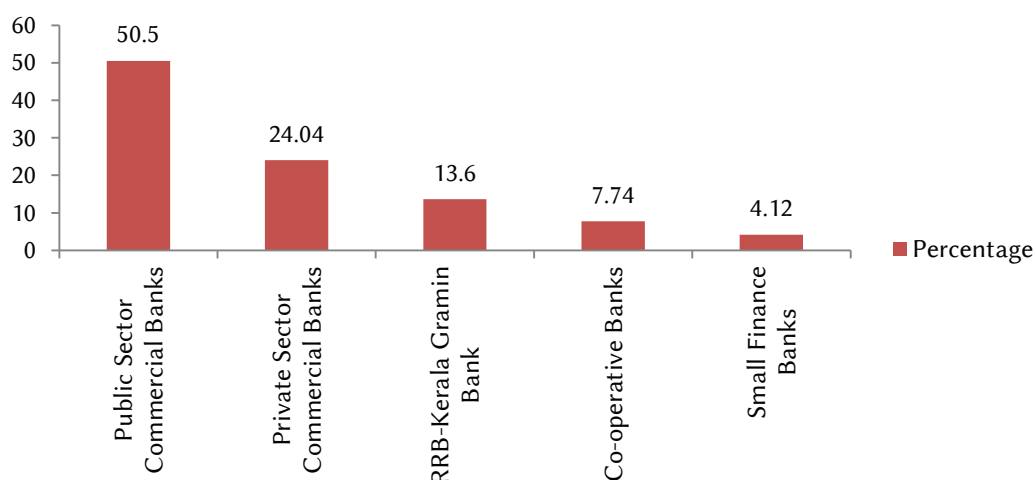
Advances for Agricultural Purpose

Total agricultural advances through commercial banks, RRBs, SFBs and co-operative banks increased to Rs 1,22,031 crore in March 2023 from Rs 1,04,842 crores in March 2022, registered a growth of 16.39 per cent. The share of agricultural advance to total advances is 22.27 per cent in March 2023. Share of agricultural advances of various banks as on March 2023 is shown in **Figure 1.4.3**.

Advances to SCs/STs and Weaker Section

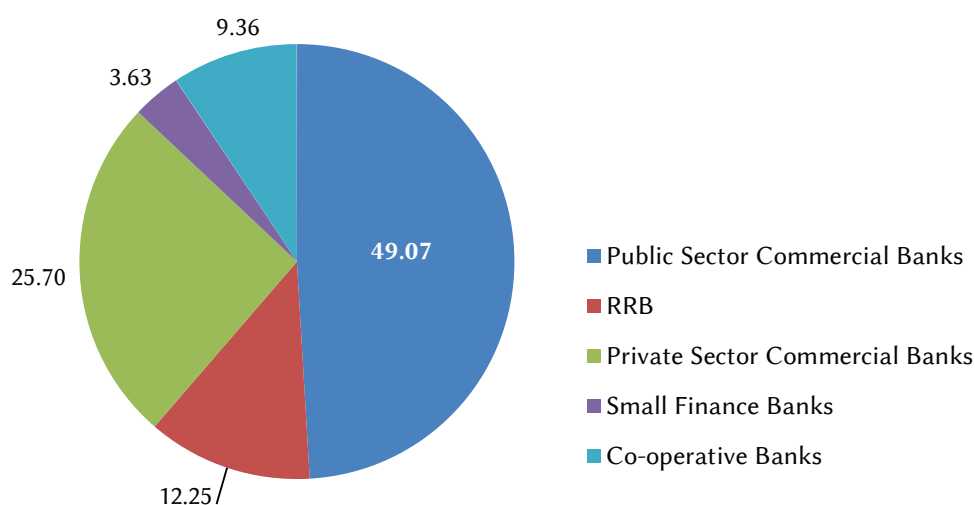
As on March 2023, an amount of Rs 2275.26 crore and Rs 500.71 crore were disbursed to persons belonging to Scheduled Castes (SC) and Scheduled Tribes (ST) respectively in the State by various banks as against Rs 2335.98 crore and Rs 398.72 crore in March 2022. The SLBC report shows that advances provided by banks decreased by 2.6 per cent in SC sector and increased by 25.58 per cent in ST sector as compared to previous year. Amount disbursed to weaker sections in the State shows an increase of 20.30 per cent as compared with previous year. The total amount disbursed to weaker sections in March 2023 was Rs 1,22,421.00 crore and in the previous year it was Rs 1,01,759.09 crore. The group-wise advances

Figure 1.4.2 Share of Primary sector disbursement as on March 2023



Source: SLBC Report, March 2023

Figure 1.4.3 Share of Agricultural Advances by various banks in Kerala as on March 2023



Source: SLBC Report, March 2023

given by banks to SCs and STs are given in **Table 1.4.2**.

Housing loans

As per SLBC data, the banks in Kerala including commercial banks and co-operative banks sanctioned Rs 43,790.14 crore to 5,83,577 beneficiaries as housing loan as on March 2023 against Rs 41,842.51 crore to 7,52,631 beneficiaries in March 2022. There is an increase of 4.65 per cent in the total housing loan sanctioned compared to March 2022. Public sector banks disbursed Rs 25,339.50 crore to 3,02,191 beneficiaries, RRBs disbursed Rs 3383.40 crore

to 63,740 beneficiaries, private sector commercial banks disbursed Rs 5866.45 crore to 1,02,573 beneficiaries, small finance banks disbursed Rs 172.39 crore to 4,354 beneficiaries and co-operative banks disbursed Rs 9,028.39 crore to 1,10,719 beneficiaries during the review period. Public sector commercial banks disbursed major share of housing loans (57.86 per cent) followed by co-operative banks (21 per cent).

Educational Loan

In the State, Rs 12,897.19 crore was sanctioned as educational loan for 2,84,780 students as on March 2023. The total amount sanctioned showed

Table 1.4.2 Details of SC/ST Advances by various banks, Kerala, as on March 2023, in Rs crore

S.No.	Bank	SC Advances 2023		ST Advances 2023		SC Advances 2022		ST Advances 2022		Percentage increase or decrease in advances to SC in 2023 compared to 2022	Percentage increase or decrease in advances to ST in 2023 compared to 2022
		Number	Amount	Number	Amount	Number	Amount	Number	Amount		
1	Public Sector Commercial Banks	53508	1099.28	10960	229.53	53735	979.95	10161	193.53	12.18	18.60
2	RRB	55716	449.38	13343	81.45	49015	381.99	11482	67.68	17.64	20.35
3	Private Sector Commercial Banks	157121	443.04	35536	84.97	127103	356.17	28977	74.71	24.39	13.73
4	Small Finance Banks	39020	149.42	17167	64.50	13233	40.94	4151	14.82	264.97	335.22
5	Co-Operative Banks	71887	134.14	24759	40.26	23615	576.93	3008	47.98	-76.75	-16.09
Total banking sector		377252	2275.26	101765	500.71	266701	2335.98	57779	398.72	-2.59	25.58

Source: State Level Bankers' Committee Report, Kerala, March 2023

an increase of 15.88 per cent but the number of students decreased by 3.69 per cent compared to previous year. The public sector commercial banks disbursed 86.62 per cent of the total educational loan provided i.e., Rs 11,172.00 crore to 2,30,235 students. RRBs disbursed Rs 482.66 crore to 15,907 students and private sector commercial banks disbursed Rs 1164.53 crore to 28,598 students. The SFBs disbursed Rs 20.60 crore to 9,034 students. Co-operative banks disbursed Rs 57.41 crore to 1,006 students in March 2023.

Credit-Deposit Ratio

The annual statistics of RBI showed that the Credit-Deposit (CD) ratio of Scheduled Commercial Banks in India increased from 71.87 per cent in March 2022 to 75.44 per cent at the end of March 2023. Andhra Pradesh has the highest CD ratio, 144.67 in March 2023. Tamil Nadu (105.68 per cent) has the second highest CD ratio. Telangana also have a high CD ratio (103.28 per cent) when compared to other States. Maharashtra showed an increasing trend in the CD ratio i.e., from 90.91 per cent in March 2022 to 98.58 per cent in March 2023. In the previous

two years also, Andhra Pradesh had the highest CD ratio.

As per RBI report, the CD ratio of scheduled commercial banks in Kerala as on March 2023 is 65.81 per cent (**Appendix 1.4.6**). The total deposits in scheduled commercial banks in Kerala increased by 8.06 per cent i.e., Rs 7,24,013 crore as on March 2023 from Rs 6,70,023 crore in March 2022. Total credit also increased by 15.28 per cent i.e., Rs 4,76,455 crore as on March 2023 from Rs 4,13,288 crore in 2022. As per SLBC data, the overall CD ratio of all banks in Kerala including co-operative banks, as on March 2023 is 69.01 per cent.

The CD Ratio of public sector banks in India increased to 69.42 per cent in March 2023 from 65 per cent in March 2022. The highest CD Ratio among Public Sector banks is in Andhra Pradesh which increased to 155.40 per cent in March 2023 from 145.62 per cent in March 2022. Telangana has the second highest CD ratio of 112.91 per cent in March 2023 which increased from 105.62 per cent in March 2022. Tamil Nadu is in the third

place in March 2023 (104.78 per cent). The CD Ratio of public sector banks in Kerala increased from 65.85 per cent as on March 2022 to 72.05 per cent in March 2023. (**Appendix 1.4.7**). Among the public sector banks in Kerala, State Bank of India has the major share of deposits in March 2023 (57.35 per cent), but its CD ratio is 55.72 per cent as per SLBC data.

District-wise Analysis of Banking Statistics

District-wise analysis of RBI statistics showed that Ernakulam has maintained the highest number of branches of Scheduled Commercial Banks; (bank branches increased to 1030 in March 2023 from 1008 in March 2022). Thrissur (758) and Thiruvananthapuram (758) are in second place. Wayanad, which has the lowest number of bank branches, showed an increase in the number of branches, from 143 to 148. (**Appendix 1.4.8**). District-wise distribution of deposits and credit of scheduled commercial banks in Kerala as on March 2023 is shown in **Figure 1.4.4**.

Co-operative banking sector in Kerala

Co-operative banks play a vital role in the development of Kerala. As per SLBC report, around 13 per cent of the total bank branches in Kerala are in the co-operative sector. There are 998 co-operative bank branches in Kerala as on March 2023. Of the total 998 branches, 456 are in rural area, 404 are in semi-urban area and 138 are in

urban area. Majority of the branches are in rural area.

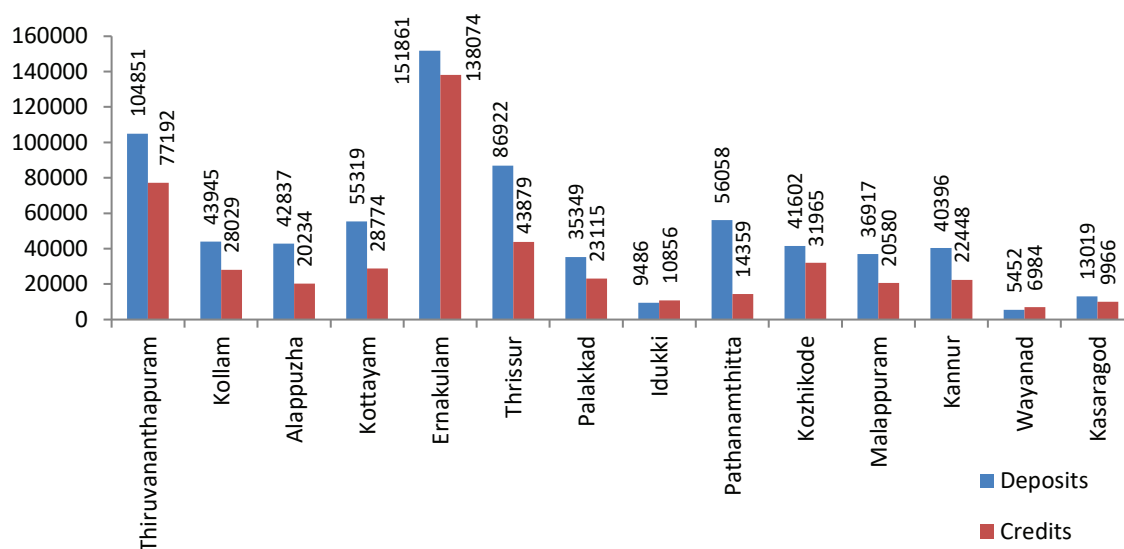
The total deposits of commercial banks, RRBs, SFBs and co-operative banks as on March 2023 is Rs 7,94,076.38 crore, of which 9.41 per cent is from co-operative sector. The share of co-operative banks in the total business (deposits and advances together) is 9.65 per cent which decreased when compared with previous year. The total advances from both commercial banks and co-operatives in the State was Rs 5,47,988 crore in March 2023, of which, the share of cooperatives is Rs 54,831 crore. The total agricultural advances from commercial and co-operative banks in the State as on March 2023 was Rs 1,22,031 crore and the share of co-operatives is Rs 11,420 crore. The per cent share of co-operatives in the agricultural advances decreased to 9.35 per cent in March 2023 from 10 per cent in March 2022. Co-operative banks provided 58.42 per cent of their advances to the priority sector and 4.7 per cent to the MSME sector during the year 2022-23. The performance of Co-operatives in the banking sector as on March 2023 is shown in **Table 1.4.3**.

Non-Banking Financial Institutions

Kerala State Financial Enterprises (KSFE)

Kerala State Financial Enterprises (KSFE), which was incorporated in 1969, is a fully owned

Figure 1.4.4 District-wise Distribution of Deposits and Credit of Scheduled Commercial Banks in Kerala as on March 2023



Source: RBI -Annual statistics on Deposits and Credit of Scheduled Commercial Banks, March 2023

Table 1.4.3 Performance of Co-operative Sector, in Kerala, March 2023, Rs in crore

Sl. No.	Parameter	As on March 2023			
		Co-operative Sector	Commercial Banks+ RRBs+ SFBs	Total banking sector	% of cooperative sector to total banking sector
1	Branches	998	6788	7786	13
2	Total Deposits	74699.60	719376.78	794076.38	9.41
3	Total Advances	54830.90	493157.02	547987.92	10.01
4	Total Business	129530.50	1212533.80	1342064.30	9.65
5	Priority sector advances	32033.64	226159.88	258193.52	12.40
6	% Priority sector advances	58.42	45.85	47.12	-
7	Agriculture Advances	11420.13	110610.51	122030.64	9.35
8	% Agriculture Advances	20.83	22.43	22.27	-
9	MSME Advances	2583.00	68450.91	71033.91	3.64
10	% MSME Advances	4.71	13.88	12.96	-
11	CD Ratio	73.40	68.55	69.01	-

Source: State Level Bankers' Committee, Kerala 2023

Government Miscellaneous Non-Banking Finance Company (MNBC). The major business segments of KSFE are chitty, loans and advances and deposits. The aggregate turnover as on March 2023 is Rs 69,153 crore. The business transaction of KSFE in 2022-23 is shown in **Table 1.4.4**.

The Government had declared the financial year 2022-23 as the 'Year of Enterprises'. The objective of the initiative was to start one lakh new enterprises in the State during the financial year 2022-23. The government has achieved this target and 1.39 lakh enterprises started during the period. Further details on KFC are covered in the industry section.

Table 1.4.4 Business transactions of KSFE in 2022-23

Sl.No	Particulars	Amount (Rs crore)
1	Chitty (yearly sala)	36196
2	Advances (o/s)	11157
3	Deposits (o/s)	21800
	Aggregate Turnover	69,153

Source : KSFE Limited

Kerala Financial Corporation (KFC)

Kerala Financial Corporation (KFC) incorporated under the State Financial Corporations Act of 1951, plays an important role in the development and industrialisation of Kerala by providing financial assistance to micro, small and medium enterprises in the manufacturing and service sector. Net profit of KFC has increased from Rs 13.20 crore in 2021-22 to Rs 50.19 crore in 2022-23.

1.5 STATE FINANCE

The Government's ability to provide essential public goods and develop infrastructure lies with the potential revenue base of the State and implementation of prudent fiscal measures. The Government of Kerala has taken strenuous efforts towards a fiscal path of consolidation since 2016-17 with a view to bringing back the State to a secure financial position through improved tax collection and rationalisation of expenditures. As a result, the State has achieved better fiscal indices in the financial year 2022-23 compared to the bygone years despite the financial squeeze due to factors beyond the State's control. The State has effectively reduced its Revenue Deficit to 0.88 per cent of GSDP for the year 2022-23 from 2.23 per cent of GSDP in 2021-22. For the same period, the Fiscal Deficit reduced from 3.99 per cent of GSDP to 2.44 per cent of GSDP. This achievement is primarily attributed to the increase in State's Own Revenue and the reduction in Revenue Expenditure from the year 2021-22 to 2022-23. Similarly, there was a marginal increase of capital expenditure to total expenditure and the total outstanding liabilities of the State has reduced from 35.92 per cent in 2021-22 to 34.62 per cent in 2022-23. This shows that borrowing is effectively utilised for development purposes.

Kerala's Economy is integrally linked in different ways to the national and global economy. As a result, the national and global economic environment is transmitted to Kerala's regional economy, especially in high performing human resources and a range of socially focused services. Demonetisation in 2016-17, issues of GST

implementation in 2017-18, Cyclone Ockhi and unprecedented floods in 2018-19, continuity of natural calamities and floods in 2019-20, outbreak of Covid-19 in 2020-21, spread over of the pandemic in 2021-22 and its repercussions in 2022-23 adversely affected the State's resource mobilisation and economic growth.

Recent policy initiatives of the Union Government have posed a threat to the fiscal independence of the State in general. Cessation of the GST compensation in June, 2022 by the Union Government led to a decline in the State's revenue. The annual loss due to discontinuation of GST compensation is around Rs 12,000 crore per year. The shareable tax entitled to Kerala has been consistently falling. The share of horizontal devolution has been shrunk to 1.92 per cent of the divisible pool by the 15th Finance Commission from 3.06 per cent by the 11th Finance Commission and 2.5 per cent by the 14th Finance Commission. Without consulting the States, the Union Government increased Cess and surcharges and such additional levies are not shared with the States.

Although the State has the capacity to maintain the Debt GSDP ratio as constant over a period of time, the restrictions imposed by the Union Government on the borrowing limit of the State are quite unfortunate. The loans from Government of India have decreased significantly. The State Government relies on market borrowings to fulfill such shortfalls. The interest rate of market borrowings is very high compared to the loans

from Government of India. The strategy of reducing the borrowing space of States has been in place since 2017. The Union Government reduced the stipulated borrowing space of the State by including borrowings from Public Sector entities and the Public Account within the State's borrowing limit. The Union Government considers the surplus in the Public Account, attributed to employees' provident fund contribution, treasury savings deposits from the public and the civil deposit from government departments to undertake public works, as a mode to reduce the State's borrowing.

The Revenue Deficit Grants recommended by the 15th Finance Commission are lower in every succeeding year, and it is to cease after 2023-24. The changes brought by the NITI Aayog into the structure of Centrally Sponsored Schemes have created an additional burden to the States. At present, the Centrally Sponsored Schemes are being implemented in two categories, namely 'Core of the Core' and 'Core' schemes. The number of schemes in the first category which receives 90 per cent central share is decreasing every year. The lion's share of projects is in the second category. The State has to bear 40 per cent of the expenditure in these schemes and the burden is huge on the State. The State has also had to bear 25 percent of the land to be acquired for the projects directly carried out by the Centre in the development of national highways. Unlike other States, the density of population and urbanisation is high in Kerala, so a large amount has to be found for this purpose. Despite these circumstances, the State is moving forward with the task of promoting sustainable economic growth in the economy.

The State government has not desisted from development and welfare activities and responsibilities during the crisis caused by floods, Covid-19 pandemic and the extraordinary loss of Revenue. The State has achieved top position in its progress towards United Nations Sustainable Development Goals as measured by NITI Aayog through Sustainable Development Goals - India Index. This indicates that funds earmarked for key social services such as education and health are effectively utilised. The Government's efforts in the health sector have won worldwide acclaim. The Government's prompt and scientific response to the health crisis such as Covid-19 and the Nipah virus outbreak saved tens of thousands of lives and minimised the impact of the pandemic.

The Government of Kerala has accelerated investments in infrastructure for ensuring sustainable growth in the economy. Some major infrastructure initiatives of the Government include the Kannur Airport, GAIL Pipeline, Vizhinjam International Container Transshipment Terminal, Integrated Water Transport System Kochi (Water Metro), Kochi Metro Rail Phase II. The efforts to stimulate economic growth in the State through Government spending has to be aligned with the efforts to mobilise more State Own Tax Revenue and Non-Tax revenue for fiscal sustainability.

Major Deficit Indicators

Revenue Deficit for 2022-23 is 0.88 per cent of GSDP as against 2.23 per cent in 2021-22. As per the Budget Estimates of 2023-24, Revenue Deficit is estimated to be 2.11 per cent of GSDP. Fiscal deficit to GSDP proportion, which was 3.99 per cent in 2021-22 has decreased to 2.44 per cent in 2022-23 and estimated to be 3.50 per cent in 2023-24. Major deficit indicators of the State for the period from 2011-12 to 2023-24 are shown in **Table 1.5.1**.

Receipts

The State Government's receipts are divided into revenue receipts and capital receipts. The revenue receipts comprise of State's own tax and non-tax revenues, share of Central tax transfers and grants-in-aid from Government of India, whereas capital receipts mostly consist of debt receipts from internal resources and loans and advances from Government of India, disinvestment receipts, recoveries of loans and advances and net accretions under public account.

Revenue Receipts

The revenue receipts of the State increased from Rs 49,176.94 crore in 2013-14 to Rs 1,32,724.65 crore in 2022-23 in nominal terms, recording a CAGR of 11.66 per cent. The growth rate of revenue receipts showed an increase from 11.42 per cent in 2013-14 to 13.78 per cent in 2022-23. In 2022-23 the state's revenue receipts as a proportion to GSDP has increased marginally to 12.69 per cent from 12.48 per cent in 2021-22.

The largest component of revenue receipts of the State is State's Own Tax Revenue (SOTR). In 2022-23, contribution from SOTR was Rs 71,968.16 crore (54.22 per cent). The contribution of State's Own Non-Tax revenue was Rs 15,117.96 crore (11.39 per cent). The share of

Table 1.5.1 Major deficit indicators from 2011-12 to 2023-24, Rs in crore

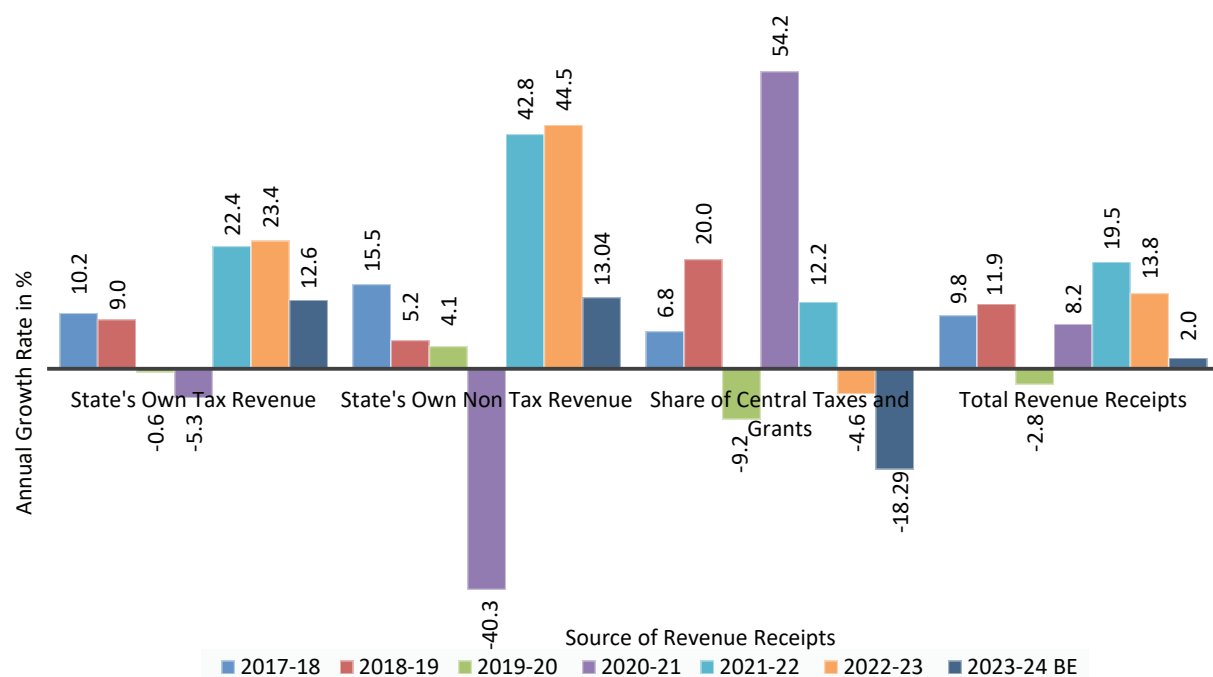
Year	Revenue Deficit		Fiscal Deficit		Primary Deficit	
	Amount	% to GSDP	Amount	% to GSDP	Amount	% to GSDP
2011-12	8034.26	2.21	12814.77	3.520	6521.17	1.79
2012-13	9351.45	2.27	15002.47	3.639	7797.66	1.89
2013-14	11308.6	2.43	16944.13	3.644	8678.74	1.87
2014-15	13796	2.69	18641.72	3.637	8872.13	1.73
2015-16	9656.81	1.73	17818.46	3.194	6707.61	1.20
2016-17	15484.59	2.44	26448.35	4.17	14331.85	2.26
2017-18	16928.21	2.41	26837.41	3.83	11717.48	1.67
2018-19	17461.92	2.22	26958.30	3.42	10210.39	1.30
2019-20	14495.25	1.78	23837.48	2.93	4622.78	0.57
2020-21*	20063.51	2.60	35203.69	4.56	14228.33	1.84
2021-22*	20799.96	2.23	37306.47	3.99	14003.65	1.50
2022-23	9226.29	0.88	25554.54	2.44	378.18	0.04
2023-24 BE	23942.24	2.11	39662.22	3.50	13415.24	1.18

Source: Finance Department, Government of Kerala

Note * The loan received in lieu of GST compensation of Rs.5766 crore and 8739.31 crore in 2020-21 and 2021-22 respectively is reckoned as Revenue Grant for the calculation of Fiscal indicators since the repayment obligation of the loan will not be met from the resources of the State Government.

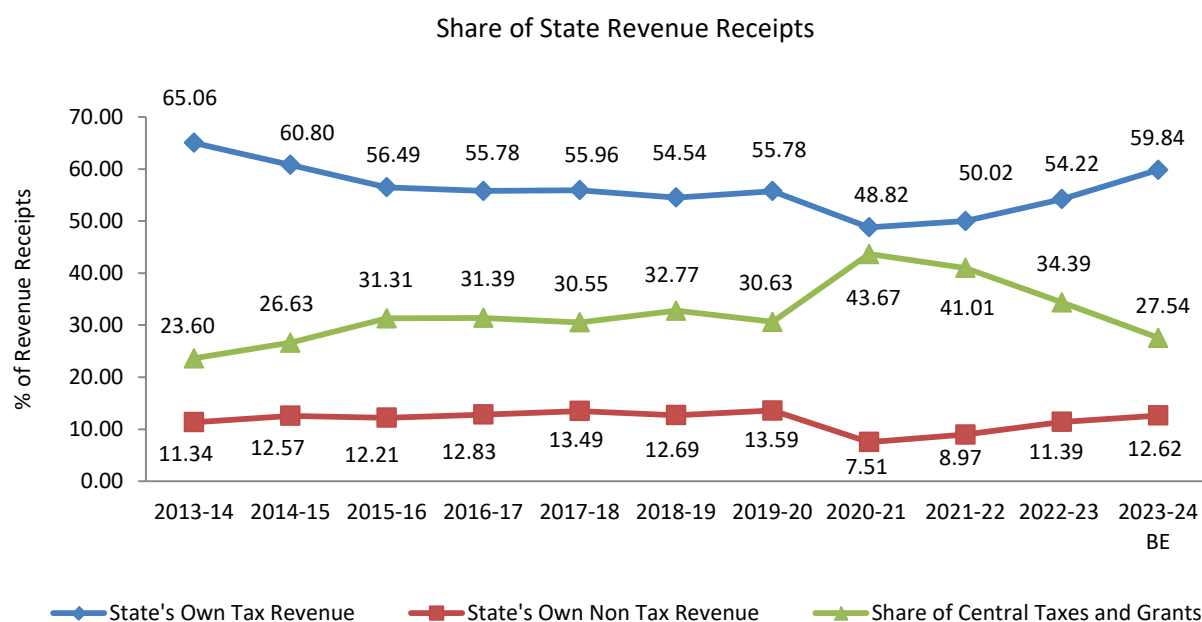
central taxes and grants was Rs 45,638.54 crore (34.39 per cent). Of the central taxes and grants, the share of central taxes was Rs 18,260.68 crore and Grants in aid received from the Centre was Rs 27,377.86 crore. From the Grant in aid received

from the Government of India, an amount of Rs 15,382.30 crore was the Finance Commission Award. The source-wise annual growth of revenue receipts of the State is given in **Figure 1.5.1**. Details of revenue receipts of the State are given in the **Appendix 1.5.1**.

Figure.1.5.1 Source-wise annual growth of revenue receipts of the State, in per cent

Source: Finance Department, Government of Kerala

Figure 1.5.2 Share of Different Sources in State's Revenue Receipts, in per cent



Source: Finance Department, Government of Kerala

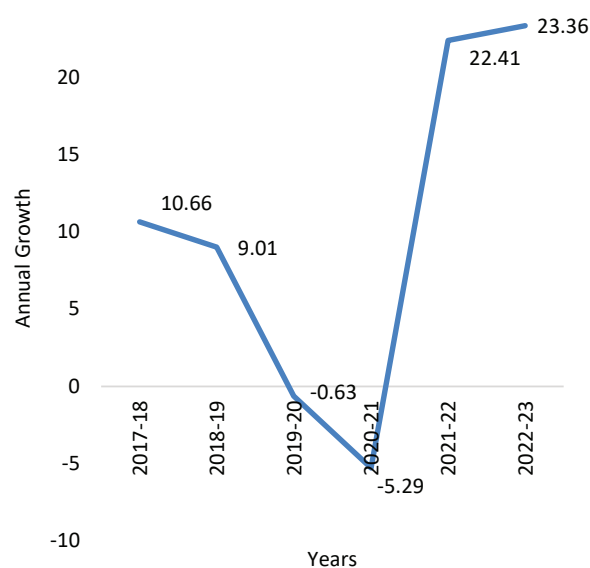
In 2013-14, the proportion of central assistance to the total revenue receipts was 23.6 per cent. The hike in the central share in the total revenue receipts after 2014-15 is attributed to the change in procedure of routing central share in centrally sponsored schemes (CSS) through the State Budgets instead of directly funding the implementing agencies. After reaching a high of 43.67 per cent in 2020-21 the share of central assistance in total revenue receipts declined to 41.01 per cent and 34.39 per cent in 2021-22 and 2022-23 respectively and it is expected to decline to 27.54 per cent in 2023-24. The loss is due to the stoppage of GST Compensation and tapering off of revenue deficit grants which would further aggravate the fiscal position of the State in the ensuing years. The trend of State revenue receipts from different sources are given in the **Figure 1.5.2**.

(i) State's Own Tax Revenue

The main sources of SOTR are State Goods and Services Tax, Sales Tax on petroleum and alcoholic liquor for human consumption, Stamps and Registration fees, State Excise Duties, Motor Vehicle Tax and Land Revenue. In 2013-14, SOTR was 65.06 per cent of total revenue. It declined to 54.22 per cent in 2022-23 in the backdrop of general economic slowdown following the Covid-19 pandemic and other external

and internal factors which influenced the State economy. However, in absolute terms the growth of SOTR was increased from 22.41 per cent in 2021-22 to 23.36 per cent in 2022-23. The growth trend of SOTR is given in the **Figure 1.5.3**. Details of State Own Tax Revenue is given in (**Appendix 1.5.2**).

Figure 1.5.3 Growth trend of State Own Tax Revenue (SOTR)



Source: Finance Department, Government of Kerala

The receipt from State's Own Tax Revenue in 2022-23 was Rs 71,968.16 crore. State Goods and Services Tax constituted the major share of State's Own Tax resource. In 2022-23 receipts from State Goods and services tax (Rs 29,513.28 crore) contributed 41 per cent of the total SOTR, followed by 37.34 per cent from Sales Tax (Rs 26,875.78 crore), 8.64 per cent from Stamp duties and registration fees (Rs 6,216.71 crore), 7.48 per cent from Taxes on Vehicles (Rs 5,386.81 crore), 4 per cent from State Excise Duties (Rs 2,875.95 crore), and 1 per cent from Land Revenue (Rs 718.90 crore) Others 0.54 per cent (Rs 380.72 crore). **Figure 1.5.4** shows the source-wise State own tax revenue in 2020-21 to 2022-23.

(ii) State's Own Non-Tax Revenue

Receipts under State Lotteries are the major source of Non-Tax revenue of the State. Other main sources of State's Own Non-Tax Revenue (SONTR) are interest receipts and dividends, sale proceeds of forest produce and receipts in the form of fees and fines from various social developmental services. In 2022-23, Rs 15,117.96 crore was realised as SONTR recording a growth rate of 44.50 per cent over 2021-22 (Rs 10462.51 crore). In 2022-23, receipts from State Lotteries were Rs 11,892.88 crore showing an annual increase of 66.69 per cent, compared to 2021-22 (Rs 7134.93 crore). This constitutes 78.67 per cent of the total non-tax revenue of the State. This was followed by receipts of Rs 1,358.35 crore from Social Developmental Services (8.99 per cent), Rs 220.89 crore from contribution on account of interest

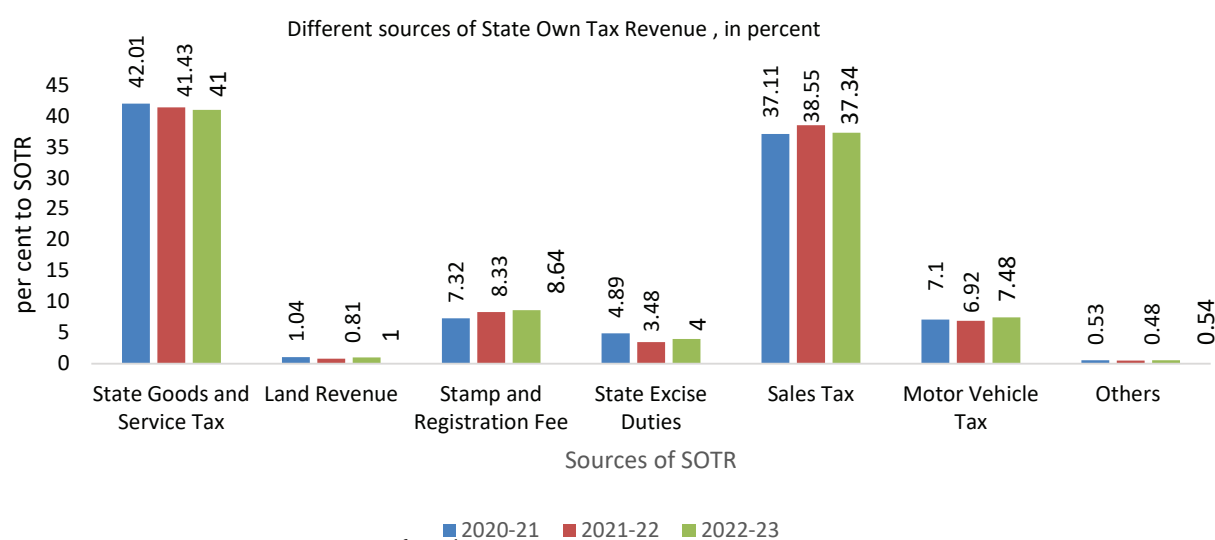
receipts and dividends (1.46 per cent), Rs 290.61 crore from the sale proceeds of forest produces (1.92 per cent) and Rs 1,355.23 crore (8.96 per cent) from others. Details of State own non-tax revenue is given in **Appendix 1.5.3**.

(iii) Central Resource Transfers

Two major components of central devolution are share of taxes and grants as recommended by the Finance Commissions and grants disbursed by the Union Government. Within Central Devolution, Tax is to be devolved based on the formula recommended by the Finance Commission (FC) as mandated in Article 280 of the Constitution. The FC also recommends grants-in-aid under Article 275 of the constitution to bridge post tax devolution revenue deficits. Moreover, the FC also recommends the devolution of sector specific grants. The tax devolution and revenue deficit grants are the flexible part of Central resource transfer. The other components like central share in CSS are tied grants over which the State has no flexibility in spending.

As per the recommendations of the 15th Finance Commission, the share of the States in the net tax proceeds of Union Government is 41 per cent. Kerala was entitled to 2.5 per cent of net sharable union tax proceeds in the 14th FC period. Due to the change in the criteria for horizontal devolution, the net proceeds of tax for a single year entitled to the State of Kerala is reduced to 1.925 per cent in the 15th FC. **Figure 1.5.5** shows the trend of net

Figure 1.5.4 Source-wise State own tax revenue in 2020-21 & 2021-22



shareable tax proceeds based on different Finance Commissions.

The criteria used by the 13th, 14th, and 15th Commissions to determine each State's share in Central taxes, and the weight assigned to each criterion are given in the **Table 1.5.2**.

In 2022-23, the total central transfers to the State was Rs 45,638.54 crore against Rs 47,837.21 crore in 2021-22 with the declined growth rate from 12.22 per cent in 2021-22 to (-)4.6 per cent in 2022-23. In this period, the share of central taxes was Rs 18,260.68 crore against Rs 17,820.09 crore in 2021-22 registering growth rate of 2.47 per cent over the previous year. In 2022-23 the State received Rs 27,377.86 crore as Grant in aid from the centre which included Rs 7,245.97 crore as

the compensation for the loss of revenue from the implementation of the GST. Details of central transfers are given in the **Table 1.5.3**.

Expenditure

Expenditure of State includes three components viz. revenue expenditure, capital expenditure and expenditure on loan disbursements. The total expenditure in nominal terms increased from Rs 66,244.01 crore in 2013-14 to Rs 1,58,738.43 crore in 2022-23, recording a CAGR of 10.20 per cent. Out of the total expenditure, in 2022-23, Non-Plan and Plan expenditure stood at Rs 1,25,988.45 crore (79.37 per cent) and Rs 32,749.98 crore (20.63 per cent) respectively.

Revenue Expenditure

Revenue expenditure involves both development and non-development expenditure. Development expenditure includes expenditure on Education, Health, Agriculture and Animal Husbandry, Industries, Labour and Employment. Non-development expenditure comprises interest payment, pension payment, debt charges, administrative services and others. Details of revenue expenditure are given in the **Table 1.5.4**.

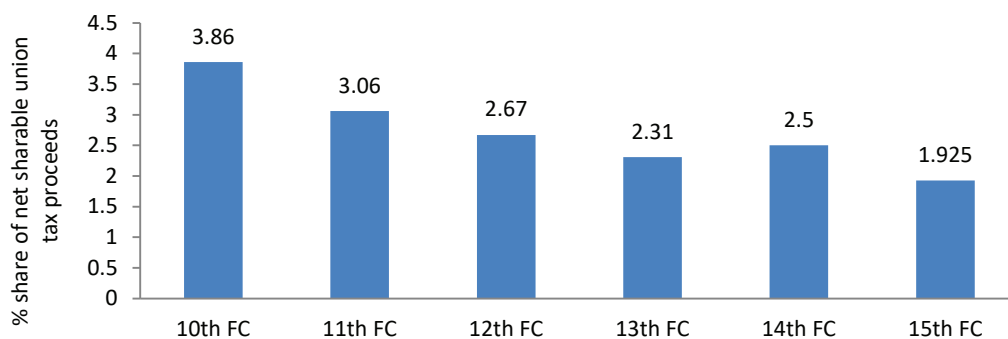
The operational and maintenance cost for the completed projects and programmes are also classified under the revenue account. Grants provided by the State to meet salaries and pension liabilities of employees in the Universities and State autonomous bodies and also the pension liabilities of employees of Panchayat Raj Institutions are classified as revenue expenditure. Major portion of revenue expenditure devolved to the Local Self Government Institutes is utilised for the creation of capital assets at the local government level.

Table 1.5.2 Criteria for horizontal devolution of tax resources by Centre to States in the 13th, 14th, and 15th Finance Commission Reports in per cent

Criteria	13th FC	14th FC	15th FC
Population (1971)	25	17.5	-
Population (2011)	-	10	15
Income distance	47.5	50	45
Area	10	15	15
Forest cover	-	7.5	-
Forest and ecology	-	-	10
Demographic performance	-	-	12.5
Tax and Fiscal effort	-	-	2.5
Fiscal Discipline	17.5	-	-

Source: Various Finance Commission Reports, Go

Figure 1.5.5 Trend of net shareable tax proceeds to Kerala by different Finance Commissions



Source: Various Finance Commission Reports, Gol

Table 1.5.3 Central Transfer, Rs in crore

Year	Share in central tax and duties		Grant in aid and other receipts from centre for Plan and Non Plan		Total transfer	
	Amount	Annual Growth Rate in %	Amount	Annual Growth Rate	Amount	Annual Growth Rate in %
2012-13	6840.65	14.19	3021.53	-18.54	9862.18	1.68
2013-14	7468.68	9.18	4138.21	36.96	11606.9	17.69
2014-15	7926.29	6.13	7507.99	81.43	15434.3	32.98
2015-16	12690.7	60.11	8921.35	18.82	21612	40.03
2016-17	15225	19.97	8510.35	-4.61	23735.4	9.82
2017-18	16833.1	10.56	8527.84	0.21	25360.9	6.85
2018-19	19038.2	13.10	11389	33.55	30427.1	19.98
2019-20	16401.1	-13.85	11235.3	-1.35	27636.3	-9.17
2020-21	11560.4	-29.51	31068.28	176.52	42628.68	54.25
2021-22	17820.09	54.15	30017.12	-3.38	47837.21	12.22
2022-23	18260.68	2.47	27377.86	-8.79	45638.54	-4.60

Source: Finance Department, Government of Kerala

Revenue expenditure decreased to Rs 1,41,950.94 crore in 2022-23 as against Rs 1,46,179.51 crore in 2021-22. Of the total revenue expenditure of 2022-23, plan expenditure was Rs 17,358.53 crore and non-plan expenditure was Rs 1,24,592.41 crore. The ratio of revenue expenditure to GSDP decreased to 13.57 per cent in 2022-23 compared to 15.64 per cent in the previous year.

In 2022-23, the share of committed expenditure in revenue expenditure increased compared to the previous year. Expenditure on committed liabilities on salaries, pension, interest payments, subsidies and devolution to the LSGIs constituted 71.54 per cent of revenue expenditure. In 2022-23, salary and pension as per cent of total revenue expenditure decreased to 45.08 per cent from 48.84 per cent in 2021-22. Interest payment as per cent of total revenue expenditure was 17.74 per cent in 2022-23 compared to 15.94 per cent in 2021-22. Details of Revenue expenditure are given in the **Appendix 1.5.4** and **Appendix 1.5.5**

Capital Expenditure

As most of State expenditure on Human Capital is categorised as revenue expenditure, the outlay in capital expenditure has always been small. Still, the Government of Kerala is committed to infrastructural development in the State and has initiated innovative financing models to support major infrastructural projects for the sustainable

development of the State economy. These models have already begun to show positive results by attracting long term investment in capital projects. Details of capital expenditure and total expenditure are given in the **Appendix 1.5.6**.

The share of government spending on capital projects in various sectors has increased in recent years. The capital expenditure of the State in 2022-23 was Rs 16,787.49 crore. Public Works continued to remain the major segment of capital outlay with 19.38 per cent of the total capital outlay in 2022-23 followed by, Agriculture and allied activities (5.44 per cent), Industries and Labour (3.78 per cent), and Irrigation (2.88 per cent). The trend in capital outlay is given in **Appendix 1.5.7**.

Debt Profile

Debt outstanding of the State comprises of (i) internal debt including market loan and loans from financial institutions, (ii) loans and advances from the Union Government, and (iii) liabilities on account of Small Savings, Provident Fund Deposits, etc. During the last five years, the State mainly relied on market borrowings and accretions in Small Savings and Provident Fund Deposits to finance its fiscal deficit.

Outstanding public debt of the State at the end of 2022-23 were Rs 2,38,000.96 crore. The annual

Table 1.5.4 Trend in Revenue Expenditure, Rs in crore

	Total Revenue Expenditure		Development Expenditure		Non-Development Expenditure	
	Amount	Annual Growth Rate	Amount	% of total revenue exp.	Amount	% of total revenue exp.
2008-09	28223.85	13.39	15154.3	53.69	13069.6	46.31
2009-10	31132.38	10.31	16908.6	54.31	14223.8	45.69
2010-11	34664.81	11.35	18918.6	54.58	15746.2	45.42
2011-12	46044.62	32.83	25069.8	54.45	20974.8	45.55
2012-13	53488.74	16.17	29889.0	55.88	23599.7	44.12
2013-14	60485.50	13.08	32921.1	54.43	27564.4	45.57
2014-15	71746.43	18.62	39182.2	54.61	32564.2	45.39
2015-16	78689.47	9.68	41762.7	53.07	36926.8	46.93
2016-17	91096.31	15.77	48602.6	53.35	42493.7	46.65
2017-18	99948.35	9.72	52979.5	53.01	46968.8	46.99
2018-19	110316.39	10.37	56788.0	51.48	53528.4	48.52
2019-20	104719.92	-5.07	47550.2	45.41	57169.7	54.59
2020-21	123446.33	17.88	71224.0	57.70	52222.3	42.30
2021-22	146179.51	18.42	74026.85	50.64	72152.66	49.36
2022-23	141950.94	-2.89	70133.18	49.41	71817.75	50.59
2023-24 BE	159360.91	12.26	80157.87	50.30	79203.04	49.70

Note: From 2006-07 onwards, assistance to LSG is being classified under "Grant in Aid and Contributions", Developmental Expenditure of the devolutions to LSGs is also reckoned.

growth rate of public debt decreased to 8.19 per cent in 2022-23 from 10.16 per cent in 2021-22. The Public Debt-GSDP ratio also decreased from 23.54 per cent in 2021-22 to 22.75 per cent in 2022-23. The total outstanding liabilities of the State were 35.92 per cent in 2021-22 and are at 34.62 per cent in 2022-23.

The ratio of public debt to revenue receipts decreased to 179.32 per cent in 2022-23 from 188.59 per cent in 2021-22. The share of internal debt in the public debt of the State was 95.44 per cent in 2022-23. Outstanding internal debt increased to Rs 2,27,137.08 crore in 2022-23 from Rs 2,10,791.60 crore in 2021-22. The growth rate of outstanding internal debt in 2022-23 was 10.78 per cent. The outstanding liabilities under loans and advances from the Centre increased to Rs 10,863.90 crore in 2022-23 from Rs 9,182.96 crore in 2021-22. The share of the Central loan in the public debt of the State was 4.56 per cent in 2022-23.

The outstanding liabilities under small savings, provident fund etc. at the end of 2022-23 was Rs

1,24,190.91 crore compared to Rs 115666.60 crore in 2021-22. The gross and net retention of debt in 2022-23 was Rs 26550.73 crore and Rs 1413.17 crore respectively.

Despite Kerala's proactive efforts towards fiscal consolidation, the State has faced policy setbacks beyond its control, posing challenges to financial improvement. The concept of cooperative federalism would truly materialise when adequate fiscal support is provided, especially in times of distress. Amidst recovering from internal and external shocks in recent years, the Government's paramount focus is on reconstructing and revitalising Kerala.

In addressing the current economic stagnation, the State recognises the necessity for a pragmatic approach to resource mobilisation. While placing a special emphasis on increasing revenue through tax and non-tax sources, Kerala aims for sustainable long-term stability. This involves optimising the efficiency of raising State-owned resources, ensuring justifiable central receipts, and rationalising expenditures.

It is essential for Kerala to navigate through these challenges with resilience and innovative fiscal strategies. Collaborative efforts with the union government and effective resource management will play a pivotal role in steering the State towards economic recovery and the realisation of its development goals. The commitment to building a resilient and vibrant New Kerala remains steadfast, even in the face of external uncertainties.

1.6 ANNUAL PLAN 2023-24

Economic planning is central to Kerala's development. The Annual Plan 2023-24 has focussed on further upliftment of material life of all sections of the people, especially marginalised and vulnerable. Government of Kerala is committed to a 'Nava Keralam', therefore, planned investment

in social and economic overheads such as health, education, housing, social welfare, roads, energy, etc is essential. In order to enhance production, productivity and sustainable growth, economic policy is designed to give a special thrust to industry, sectors allied to agriculture and modern

Table 1.6.1 Sector-wise Outlay in Annual Plan 2022-23 & 2023-24 Rs crore

Sl. No.	Sector/ Sub Sector	2022-23			2023-24			% Increase/ decrease in Aggregate Plan 2022 -23 over 2023-24
		Outlay	Central Assistance	Aggregate Plan	Outlay	Central Assistance	Aggregate Plan	
1	2	3	4	5	6	7	8	9
I	Agriculture and Allied Activities*	1648.44	268.09	1916.53	1638.51	265.32	1903.83	-0.66
II	Rural Development	1753.11	4343.19	6096.30	1779.01	4515.29	6294.30	3.25
III	Special Area Programmes	390.50	0.00	390.50	370.02	0.00	370.02	-5.24
IV	Irrigation and Flood Control	540.85	11.60	552.45	514.85	10.60	525.45	-4.89
V	Energy	1152.93	0.00	1152.93	1158.09	0.00	1158.09	0.45
VI	Industry and Minerals	1214.66	12.00	1226.66	1247.66	12.00	1259.66	2.69
VII	Transport	1788.67	0.00	1788.67	2080.74		2080.74	16.33
VIII	Science, Technology and Environment**	1027.14	61.39	1088.53	1048.81	61.39	1110.20	1.99
IX	General Economic Services***	1425.58	108.82	1534.40	1305.78	130.77	1436.55	-6.38
X	Social Services	9696.23	4429.10	14125.33	9974.81	3227.82	13202.63	-6.53
XI	General Services	83.89	36.00	119.89	88.89	36.00	124.89	4.17
	Total (I To XI)	20722.00	9270.19	29992.19	21207.17	8259.19	29466.36	-1.75
XII	LSGD	8048.00	0.00	8048.00	8258.00	0.00	8258.00	2.61
XIII	RKI	1600.00	0.00	1600.00	904.83	0.00	904.83	-43.45
	Grand Total	30370.00	9270.19	39640.19	30370.00	8259.19	38629.19	-2.55

Source: Annual Plan Documents 2022-23 & 2023-24

*Agriculture and allied activities includes Co-operation.

**Science Technology and Environment includes Information Technology and Forestry and wildlife

*** General Economic Services includes Tourism and Civil supplies

services and science and technology, modernise and improve the system of higher education. It also aimed to provide Kerala's youth with the best forms of skilled employment available in a modern economy. In addition, special focus has also been given to information technology, tourism, retail trade, high employability, productive economy and an end to extreme poverty. The government has established an infrastructure for the collection of comprehensive special data based on remote sensing to modernise the entire land revenue system. Kerala is the first State to frame a transgender policy in India. Specific programmes/schemes are proposed for mainstreaming transgender persons into the society.

The aggregate Plan outlay of Annual Plan 2023-24 was Rs 38,629.19 crore which includes State Plan of Rs 30,370 crore and central assistance of Rs 8,259.19 crore. The outlay earmarked for the LSGIs during 2023-24 was Rs 8,258 crore,

which was 27.19 per cent of the total State plan outlay. This included the amount of Rs 210 crore earmarked for the Externally Aided Project "Kerala Solid Waste Management Project" to the Municipalities and Municipal Corporations.

An amount of Rs 2979.4 crore was allocated to Scheduled Caste Sub Plan (SCSP) and Rs 859.5 Crore to Tribal Sub Plan (TSP). A total of Rs 4670.22 crore (21.12 per cent of the State Plan Outlay) has exclusively been earmarked for girls/women which included Rs 6.40 crore for the Transgender community. The total allocation of resources intended for benefiting children was Rs 1647.53 crore (7.45 per cent). The sector wise outlays earmarked in the Annual Plans 2022-23 and 2023-24 are given in **Table 1.6.1**

The sector wise expenditure incurred during Annual Plan 2022-23 are given in **Table 1.6.2**

Table 1.6.2 Sector wise expenditure incurred during the Annual Plan 2022-23 (Rs in crore)

Sl. No.	Sector/ Sub Sector	2022-23		
		State Plan Outlay	Expenditure	% of Expenditure
1	2	3	4	5
I	Agriculture and Allied Activities	1648.44	1097.47	66.58
II	Rural Development	1753.11	925.52	52.79
III	Special Area Programmes	390.50	268.80	68.83
IV	Irrigation and Flood Control	540.85	326.09	60.29
V	Energy	1152.93	990.18	85.88
VI	Industry and Minerals	1214.66	603.42	49.68
VII	Transport	1788.67	2340.16	130.83
VIII	Science, Technology & Environment	1027.14	589.66	57.41
IX	General Economic Services	1425.58	727.45	51.03
X	Social Services	9696.23	9058.43	93.42
XI	General Services	83.89	94.91	113.14
	Total (I To XI)	20722.00	17022.08	82.14
XII	LSGD	8048.00	8161.64	101.41
XIII	RKI	1600.00	835.34	52.21
	Grand Total	30370.00	26019.07	85.67

CHAPTER

02

NAVAKERALAM: INFRASTRUCTURE
PRIORITIES

NAVAKERALAM: INFRASTRUCTURE PRIORITIES

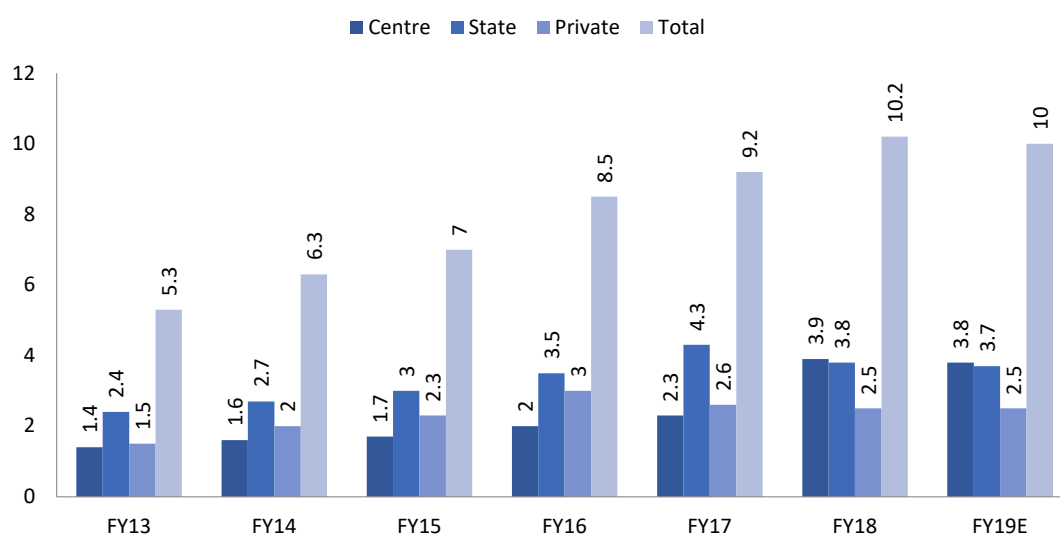
Infrastructure is a prerequisite for sustained economic development and enhancement of the quality of people's lives. This is more so for emerging countries that suffer from huge infrastructural deficits. As per the Global Infrastructure Outlook report developed as part of the G20 initiative, meeting the UN Sustainable Developmental Goals for universal access to drinking water, sanitation and electricity by 2030 increases the global infrastructure need by a further \$3.5 trillion by 2030. This estimate does not include the requirements for higher economic growth required for poverty reduction or moving countries like India to medium per capita income levels. In addition, in the context of the global response to climate change, an unfair burden

is being thrust on developing countries by not sharing equitably the available global carbon budget resources to address historical development deficits.

Kerala remains the only State to have made a public commitment to continue the planning process, and planning is central to its development. The 13th Plan (2017-18 to 2021-22) proposed for the development of high quality infrastructure aligned with the unique geographical needs of the State.

In this backdrop, the Government of Kerala has been working out an infrastructure development strategy that builds modern infrastructure for

Figure 2.1 Year-wise trend in infrastructure, Rs in lakh crore



Source: Report of the Task Force, Volume 1, National Infrastructure Pipeline, Ministry of Finance, Government of India

growth and development, while also paying attention to the needs of sustainable development. The current fiscal framework with severe restrictions on government borrowings for infrastructure development is a major constraint to the State's economic development. This chapter details the progress, achievements, challenges, and future plans of the Government of Kerala in infrastructure development.

State-sector and private-sector investment in infrastructure have been increasing consistently over the years. (Figure 2.1)

Investments in high-quality infrastructure are crucial to accelerate economic growth and sustain it in the long run. Infrastructure facilitates participation in the workforce, production of goods and services, and distribution of products to markets, which in turn promote economic growth and wellbeing of the people. Access to electricity, roads and railways, safe drinking water, and quality communications are all essential parts of social and

economic life. Infrastructure is the basis on which economic development is built, and economic development brings about changes in infrastructure

Kerala's Approach to Infrastructure Development

Kerala has sustained economic growth that is higher than the all-India average for decades, and is among the top-ranked States in terms of per capita income. The primary reason for this achievement is Kerala's investment in its people, particularly because of its success in universal education and in imparting employable skills to the people. The 13th and 14th Plan approach to infrastructure has been to facilitate the fuller utilisation of human potential by creating productive assets within Kerala.

The word "infrastructure" is currently used in broad terms, covering traditional physical infrastructure including irrigation and energy systems, ports, roads, transport, and housing, digital infrastructure including broadband, mobile connectivity, and data/cloud systems,

Box 2.1 Kerala's Approach to Infrastructure Development

Linkages to State Development Strategy: The infrastructural investment strategy is closely aligned to the overall development strategy of the State. The full benefits from historical achievements in human resources development can only be realised by building productive assets to provide opportunities for the youth.

Externality and Non-Excludability: This approach recognizes that positive externalities stem from infrastructure. It is not just availability, but making these services affordable for consumption that brings benefits. Access to digital services through Akshaya Centres and the provision of free broadband services to economically weaker sections indicate the distinctive approach taken by the Government of Kerala.

Public Funding-led Investments: In addition to enhanced budgetary allocations for infrastructure investments, the Government created special purpose institutions to mobilise resources from the market. The Kerala Infrastructure Investment Fund Act, 2016 was substantially amended to enhance its objective and scope to attract infrastructure investments, including from the private sector. In addition to general budgetary allocation, more specific revenue streams from motor vehicles tax and petroleum cess are transferred to the KIIFB Fund. This enabled KIIFB to leverage these future revenue streams to borrow money for current investments in infrastructure.

Rebuild Kerala Initiative (RKI): RKI was established in 2018-19 to rebuild flood-damaged Kerala. The principle of "build back better" was applied to rebuild flood-damaged infrastructure.

Public Private Partnerships (PPP): Kerala adopted its well-tested Kochi Airport PPP model for other airports, like in Kannur, and are exploring similar approach to Industrial Park development.

Major Infrastructure Development Projects (MIDP): To efficiently manage available resources, a pooling mechanism was created to deploy funds based on implementation progress. The total outlay from 2016-17 to 2022-23 was Rs 9,666 crore. Major MIDPs include Water Metro, Vizhinjam Port (PPP), Kochi Metro, Kannur Airport, and Silver Line.

Nava Kerala Mission: A mission-mode was adopted to build social infrastructure under four Missions, namely, LIFE, Aardram, General Education Protection, and Haritha Keralam Mission. Kerala increased public expenditure on upgrading physical infrastructure in schools, colleges, hospitals, and the construction of houses, and sanitation infrastructure.

financial infrastructure for transactions, and social infrastructure including hospitals and clinics for health services, education and skill development institutions, and research facilities for science and technology development. Infrastructure investments are viewed as “capital stock” with intergenerational benefits. The development outcomes of infrastructure arise from the final consumption of services at individual households, as well as essential intermediate consumption items for production. The economic multiplier effect of intermediate consumption needs to be kept in view while planning for infrastructure investments.

Infrastructure planning and investments assume greater significance in the context of climate adaptation and low-carbon development imperatives, to ensure sustainable growth and intergenerational equity. To build a climate-responsive future, addressing the concerns of development deficits due to inadequate investments in productive capacities (both human and economic), the root cause for current poverty levels and inequalities in emerging economies, assume priority. The socio-economic returns of infrastructure matter more than the financial viability of user fee-based cost recovery.

Infrastructure as a Means to Inclusive Development: Kerala’s Experiences and Achievements

In the last 67 years, that is, since the formation of Kerala, infrastructure development has grown consistently across sectors, including transportation, housing, education, health, commercial development, communication, energy, and sanitation. Against conventional economic paradigms, Kerala has used social overhead capital to encourage development, including development in relatively remote areas, through dedicated budgetary allocation, robust decentralisation, and focused programme delivery. This has helped to expand physical infrastructure, connectivity, financial inclusion, and digital penetration more evenly across the State.

The last seven years (2016 to 2023) have been important in the history of the development of infrastructure in Kerala. The unique feature of this period is the importance given to the development of high quality infrastructure and public utility services for the people.

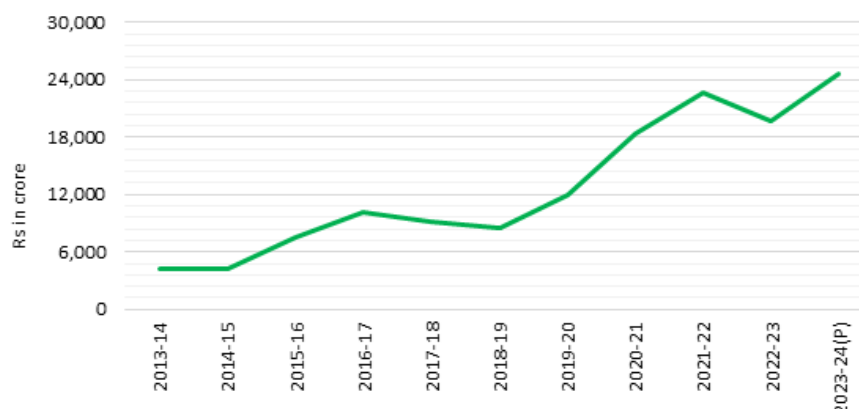
From 2017-18 to 2022-23, the Government of Kerala launched some of its biggest infrastructure projects, including National Highway-66, the Hill Highway, the Coastal Highway, the Anakkampoyil-Kalladi-Meppadi (AM) Twin-tube Tunnel Road, Transgrid 2.0, Nava Kerala Mission, Life Science Park (Phase II-LA) - Thiruvananthapuram, Hi-Tech School Programme, Kannur Airport, Water Metro and more. It is remarkable that these changes took place during a period when the State had to confront a series of unprecedented events, including cyclone Ockhi in 2017, floods and mudslides in 2018, and the crisis associated with the Covid-19 pandemic in 2020.

Therefore, from 2016-17, the Government of Kerala has followed a multi-pronged approach to its development. The broad objectives were to create more public goods, adopt trust-based governance, build high quality infrastructure, improve agricultural and industrial productivity, and boost economic growth across sectors. The institutional arrangement after the amendment of the KIIFB Act has been utilized to its full impact. The State has spent Rs 23,631.74 crore of KIIFB’s funding on various infrastructure projects including roads, power, ports, and metro. Under the Rebuild Kerala Initiative (RKI), the Government has invested Rs 3924.13 crore on various infrastructure projects. The Government launched ‘Nava Kerala Mission’ in 2017-18 through four Missions, namely, LIFE, Aardram, General Education Protection, and Haritha Keralam Mission. This Mission is the first time that a State has set down a comprehensive agenda for the development of physical infrastructure in the spheres of education, health, housing, and sanitation. Proactive policy interventions, particularly enhanced investment in big infrastructure projects, has resulted in the increased contribution of manufacturing and construction sectors to the GSDP, which has led to a revival from the negative growth of 8.49 per cent in 2020-21 to 12.97 per cent in 2021-22.

Capital Expenditure as an Engine of Growth

Kerala’s total capital expenditure has been increasing consistently due to increased public investment in big infrastructure projects (**Figure 2.2**). As a result, the State economy has experienced commendable growth, and per capita Gross State Domestic Product (GSDP) has been increasing steadily (**Figure 2.3**). The State’s average per capita income has been three times the national

Figure 2.2 Trends in Capital Expenditure, Rs in Crore



Source: State Budget

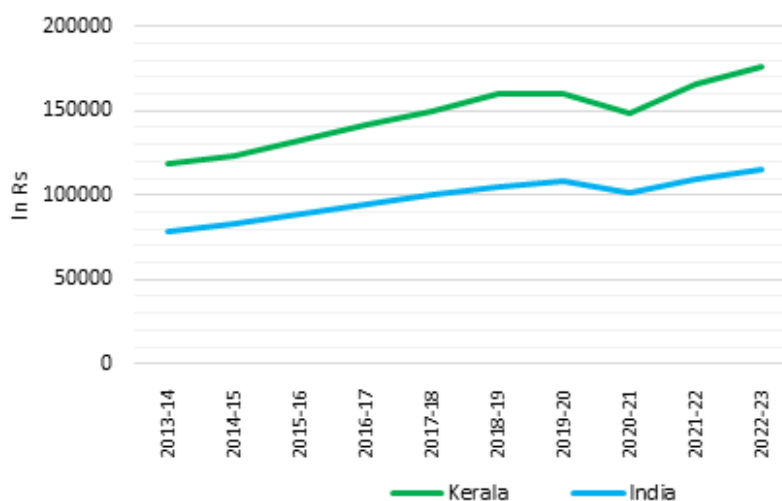
average since 2016-17. Total capital expenditure has increased from Rs 4,294 crore in 2013-14 to Rs 10,126 crore in 2016-17, and further to Rs 19,628 crore in 2022-23. A rapid growth of 93.8 per cent registered in 2022-23 over 2016-17 (State Budget). The moderate growth in 2021-22 was due to the spill overs of Covid-19. Capital expenditure as a percentage of the GSDP has also increased from 0.92 per cent in 2013-14 to 2.5 per cent in 2021-22, indicating substantial real growth. KIIFB has played a pivotal role in infrastructure development. Upcoming projects including the Kovalam Bakel Waterways, the Sabarimala Greenfield Airport, ring roads, Life Science Parks, and Mega Seafood Parks, are notable. The

development of projects including the Vizhinjam International Seaport, the Kannur Airport, the Water Metro, and the Kochi Metro represent new strides in Kerala's infrastructure development.

Unprecedented Expansion, Commitment to Connectivity, Service Delivery, and Inclusion

The last seven years have been marked by unprecedented expansion and upgradation in roads, railways, ports, and airports in the State. Initiatives for the development of a multi-modal transportation system have been major achievements during this period. The integrated transportation system provides last-mile connectivity, and has contributed to

Figure 2.3 Trends in Per Capita GSDP, in Rs



Source: Ministry of Statistics and Programme Implementation, Govt of India

Box 2.2 Major Achievements (2016-2023)

Kannur Airport – Kerala's fourth International Airport opened to the public on December 9, 2018.

Kochi Metro – The Phase I, Blue Line from Aluva to Petta opened to the public in October, 2017.

Kochi Water Metro – The first integrated water transport system and first water metro system in India opened in February, 2021.

Land Acquisition for National Highways (NH-66) – The Government of Kerala has transferred Rs 5,580.74 crore to NHAI towards the cost of land acquisition for National Highways (NH-66).

Vizhinajm International Seaport (VISL) – VISL is the first deep water trans-shipment terminal in India, and is a landmark project of Kerala in the port sector.

Hill Highway – Several stretches of hill highway in Thiruvananthapuram, Kollam, Idukki, and Kasaragod districts have been completed.

Solar Ferry-Aditya – The construction of India's first solar boat was completed, and the boat was launched on January 2017, operating on the Vaikom - Thavanakadavu water way.

Oorjja Kerala Mission – Launched in 2018 for integrated development of the power sector.

Transgrid 2.0 – This project aims at the long-term stability of the Kerala Grid to ensure reliable power transmission.

NILAAVU Project – Local Self Government Department (LSGD) project for the installation of LED street lights.

Education – Under the Public Education Rejuvenation Campaign (2017-2023), buildings in 425 schools were constructed, 44,705 high-tech classrooms in Secondary and Higher Secondary schools and 11,257 high-tech labs in LP and UP schools were built. The construction of 19 schools out of 39 has been completed, as of March, 2023.

Health – Under Aardram Mission (2017-18 to 2022-23), 644 Primary Health Centres (PHC) out of 886 were converted to Family Health Centres (FHC), and 49 Community Health Centres (CHC) out of 151 were converted to FHCs. Out Patients (OPs) department of 14 of 17 District Hospitals, 11 of 43 Taluk Hospitals were made patient-friendly. OPs of all the 8 Medical Colleges were made patient-friendly.

LIFE Mission – A total of a total of 3.54 lakh houses have been completed through the three phases of LIFE Mission, as of 30 September, 2023. In the LIFE Towers housing complexes, 886 units were created, of which 643 have been occupied.

Box 2.3 Infrastructure Development in 13th Plan - Major Highlights

1. Measures to create an environmentally sustainable Kerala, including building green corridors, and the promotion of green logistics and green vehicles (including fleet renewal programmes adopting innovative technologies).
2. Multimodal Transportation System - Water Metro, Kochi Metro, Kannur Airport, K-Rail (Silver line), to shift traffic from road to rail in the long run.
3. Safety First- Installation of AI cameras and new measures for law enforcement and road safety auditing to ensure road safety.
4. Making National Waterway-3 functional by attracting more cargo and passenger traffic.
5. Port Sector – Development of business model for ports, development of dedicated passenger berths and terminals, construction of a new cargo Terminal at Azheekkal port, improved connectivity at all non-major Ports, establishing EDI facility in Ports, constitution of Kerala Maritime Board, setting up of Port-related industrial clusters and industrial parks.
6. Power - Electricity to all households, strengthening of high voltage transmission lines to improve Transmission and Distribution network, and developing domestic capacity for power generation through hydro, solar and wind projects.

Box 2.4 National Leader in of Development Indices

Kerala is fairly advanced and frontrunner among the States in majority of the development indices.

- 1.NITI Aayog's Multidimensional Poverty Index, 2023** - Kerala has the least Multidimensional Poverty Index (0.002) among the States, for the second time consecutively.
- 2.SDG India Index** – Kerala was frontrunner in the SDG India Index for three years (2018, 2019, and 2020), consecutively. SDG India Index 2020-21 ranked Kerala first in the country with an overall score of 75, while the corresponding national score was 66.
- 3.Human Development Index** - Kerala topped among the States in HDI ranking in 2021, with a score of 0.75. Kerala retains first rank, far exceeding the national average of 0.63
- 4.India Skills Report, 2022** – Kerala ranked third among States in terms of the employability of its youth.
- 5.States Energy and Climate Index, 2022** – Kerala was the second-best performer as per NITI Aayog's 'States Energy and Climate Index', 2022, which measures the State's efforts for improving the energy sector.
- 6.Ease of Doing Business** –Kerala ranked 15th among the states, up from 28th rank in 2022.
- 7.State Health Index for 2019-20** – In NITI Aayog's State Health Index for 2019-20, Kerala retained its top rank among the larger States with an overall score of 82.2 in terms of overall performance. followed by Tamil Nadu (72.4), and Telengana (69.96).
- 8.State Food Safety Index 2020-21**-Kerala was awarded second rank with 70 points (in the category of larger States) in State Food Safety Index 2020-21 released by FSSAI (Food Safety and Standards Authority of India).

reducing logistics costs and promoting export competitiveness. Achievements include the Kannur Airport, the Kochi Metro Blue Line, and the Water Metro. The development and expansion of digital and technology infrastructure including Cyber Park, K-FON, and e-Sevanam, are notable achievements. Economic activities across sectors have been boosted by increased formalisation of the economy, higher penetration of digital services, and greater financial inclusion.

Transportation: Kerala's Commitment to Connectivity

Kerala has a multi-modal transportation system with an integrated network of roads, railways, airports, metro, water metro, and inland water transport. The transport network in Kerala consists of 2.36 lakh km of roads, 2,106 km of railways, 1,687 km of inland waterways, 76.2 line km of water metro, four international airports and 18 ports. The transport sector contributed about 5.17 percentages to the total GSVA (Gross State Value Added) in 2022-23(Q), of which the road sector contributes about 4.7 per cent, railways at 0.17 per cent, air transport at 0.8 per cent, and water transport at 0.1 per cent.

Mega public transportation projects including Kochi Metro, Kochi Water Metro, Hill Highway, Coastal Highway, and Kannur Airport, have been opened to the public in the period since 2016.

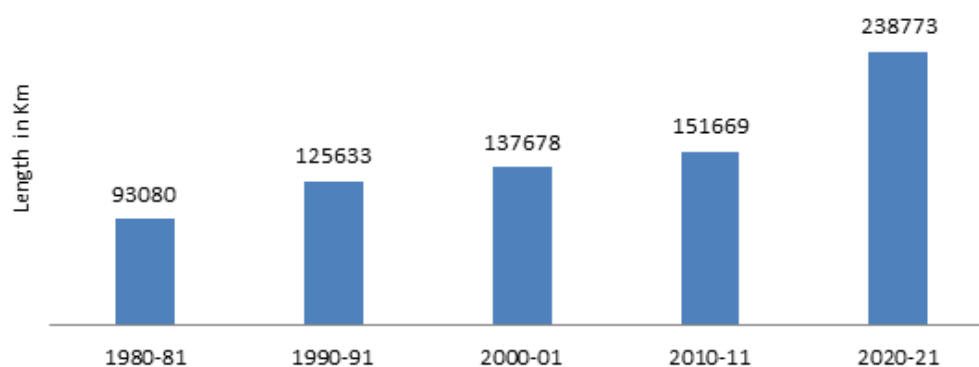
Road Network

Kerala has an advanced and well-developed road network with a total length of 2.36 lakh km, as on 31st March 2023. This constitutes 3.7 per cent of total road in the country. Every village in the State is connected with all-weather roads. The composition of roads in Kerala, as on March, 2023, consists of 29,573.16 km of PWD roads, 1,781.36 km of National Highways, 1.96 lakh km of roads built and maintained by Local Governments, and the other roads constructed by Departments including Railways, Irrigation, KSEB, Forest, and Devaswom. Road length has been expanding consistently (**Figure 2.4**). The total length has increased from 1.52 lakh km in 2010-11 to 2.38 lakh km in 2020-21, registering an increase of over 58 per cent over ten years. About 73 per cent of total roads in Kerala are surfaced, as against 64.5 per cent at the national level. More than 95 per cent of roads in urban Local Governments are surfaced,

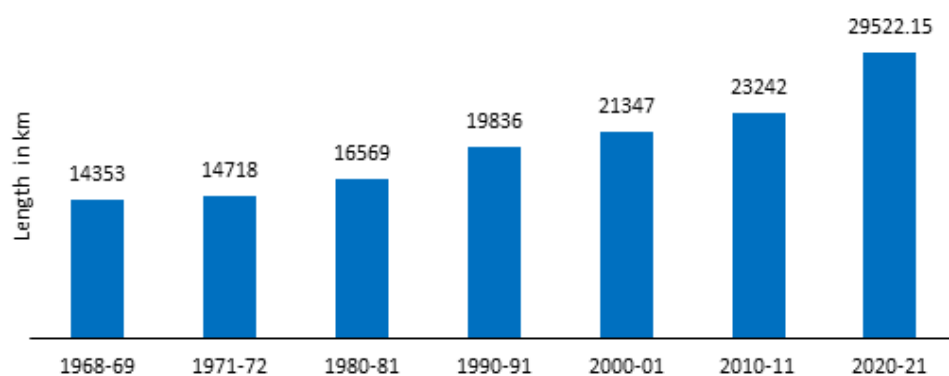
Table 2.1 Composition of Road Network in Kerala, as on March 31, 2023

	Total Length (Km)	Surfaced (Km)	Un-Surfaced (Km)	% of Surfaced Road
PWD (SHs & MDRs)	29573	29573	0	100
National Highway	1781	1781	0	100
Corporations	8533	8102	431	94.95
Municipality	18139	17278	2861	95.25
District Panchayat	13165	12633	533	95.96
Grama Panchayat	156936	103808	53127	66.15
Other	7516	-	-	-
Total	235643	173175	56952	73.49

Source: Public Works Department, Government of Kerala

Figure 2.4 Decadal trends in the total length of road in Kerala

Source: PWD, GoK

Figure 2.5 Length of roads constructed and maintained by PWD

Source: PWD, GoK

and 66 per cent of rural roads. PWD roads share about 12.5 per cent of the total roads in Kerala, but handle over 60 per cent of total road traffic. (Figure 2.5).

Public Expenditure on Roads

The significant upturn in road construction is due to increased public expenditure by the Government of Kerala in a critical sector that generates employment and supports infrastructure development. Budget spending (excluding KIIFB) has increased from Rs 3998.42 crore in 2016-17 to Rs 5939.41 crore in 2021-22, registering two times increase in six years (Figure 2.7). In addition to budget support, KIIFB has approved Rs 37,512.43 crore as on 31 March, 2023, on various roads projects including Hill Highway, Coastal Highway, Anakkampoyil Kalladi-Meppadi (AM) Tunnel Road, land acquisition for NH, and other road transport projects. Under Rebuild Kerala Initiative (RKI), the Government has spent Rs 2,934 crore from 2018-19 to 2022-23, on roads and bridges including repair and reconstruction of flood-damaged roads and bridges. Accordingly, 28 PWD, 5 flood-damaged bridges, and 66 LSG roads have been repaired and reconstructed. Of the 363 km State Highway upgradation being done as part of KSTP Phase-II, 11 stretches have been completed in 2022-23, and work on the remaining stretches is in progress. Public expenditure on roads and bridges is shown in Figure 2.6.

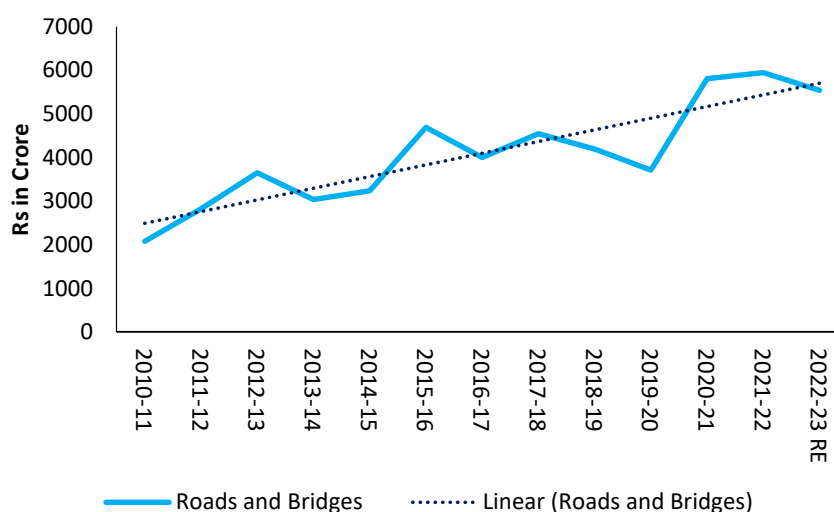
Projects in progress include National Highway 4 lining, hill highways, coastal highways, tunnel

roads, and bypasses. The other projects of KIIFB in the road sector, including Aroor-Thuravoor Elevated Highway, Anakkampoyil Kalladi-Meppadi (AM) Twin Tube Tunnel Road, and the Outer Ring Road connecting Avaikulam to Vizhinjam, will further enhance connectivity in the State. Completed projects include Kochi-Odappally power highway, bypasses at Kollam and Alappuzha, Sabarimala road, four stretches of Hill Highway, Chenganoor-Ettumanoor road, Ettumannor - Muvattupuzha road, Ponkunnam - Thodupuzha road, etc.

Road Quality

The important features of the development of road infrastructure in Kerala after 2016 have been the construction of new roads, and the importance given to upgrading the quality of roads. During this period, the Government has developed State Highways, Major District Roads (MDR), and City Roads through geometrical improvements, junction improvements, better pedestrian facilities, utility ducts, re-laying roads incorporating technical corrections, and incorporating maintenance contracts. The widening of State Highways and MDRs and ensuring professional design and adequate drainage facilities, widening National Highways to four lanes, surfacing of roads, construction of bypasses and over bridges etc, have been executed on a large scale. The 13th Plan also proposed to develop and widen various highways in Kerala as per national standards, building green corridors, and the promotion of green logistics and green vehicles.

Figure 2.6 Trends in the expenditure on roads and bridges, Rs in crore



Source: State Budget

Box 2.5 Infrastructure Development in the 13th Plan - Major Highlights

Hill Highways – “Kerala Spices Route” - State Highway 59 (SH 59), the longest SH of the State, has been declared a Hill Highway or Malayora Highway. The Highway connects all districts except Alappuzha, and runs from Nandarapadavu in Kasaragod to Parassala in Thiruvananthapuram. Of the total length of 1,166.27 km, KIIFB is funding 793.68 km. The Hill Highway will connect all trading points of the high ranges and reduce traffic in main central roads. Work has been completed in four stretches, and is in progress in other stretches. As of March, 2023, 45 stretches, with a total length of 732.42 km and total outlay of Rs 3,167.89 crore, has been approved by KIIFB.

Coastal Highways – This landmark project is envisaged to connect the coastal belt of the State, and will serve as a supplement to National Highway 66. With a length of 600.25 km, the Highway will pass through nine districts, and connect Vallarpadam, Kollam, and Vizhinjam, and other small ports and harbours. As of March 2023, KIIFB has approved an outlay Rs 2,899.11 crore for the project. Land acquisition is in progress for four stretches, and 90 per cent of road work in two stretches has been completed.

Source: PWD, GoK

The widening of National Highways to four lanes was initiated for the first time in 2017-18. In the period from 2016-17 to 2022-23, a total of 898 km of NH were upgraded to four lanes. Land acquisition for NH 66 has been completed, and work is in progress.

In 2016-17, of the total 4,341 km of State Highways, only 1,640 km were Standard Double Lane, 2,404 km were Single Lane, and the rest were Below Standard Single Lane. In 2022-23, the State upgraded 3,194 km of State Highways to Standard Double Lane, registering 94 per cent growth over 2016-17. Another remarkable achievement was the upgradation of 2,369 km of Below Standard Single Lane State Highway to Standard Double Lane. The State has only 35 km of SH categorized as Standard Single Lane, as on March, 2023.

In 2016-17, of the 27,470 km of MDRs, only 1,310 km were Standard Double Lane, and the remaining 26,160 km were Standard Single Lane. PWD upgraded an additional 9,283 km of MRDs in six years. In 2022-23, the total length of Double Line MDR has increased to 10,593 Km. In addition, 52 km of Major Districts Roads has been converted to Four Lane. All PWD roads in the State are paved.

Initiatives in Road Development

The Government has made several policy initiatives since 2016-17. The KIIFB Act was amended in 2016-17, allowing investment in road development. The Road Infrastructure Company Kerala Ltd (RICK) has been designated to implement the State Road Improvement Project (SRIP) on an Annuity mode. Quality Control Units were established in all districts. Three regional laboratories were established. In 2017-18, Project

Table 2.2 Upgradation /Widening of PWD Roads, 2016-17 to 2022-23

Upgradation of Roads	2016-17	2022-23
PWD Road (km)	31811	29522
State Highways (km)	4341	4128
Four Lane	0	898
Double Lane	1640	3194
Single Lane	2701	36
Major Districts Road (km)	27470	25394
Four Lane	0	53
Double Lane	1310	10593
Single Lane	26160	14748

Note: Reduction in total length is due to the conversion of PWD roads to NH

Preparation Units (PPU) were created. Another remarkable initiative was the introduction of waste plastic, Natural Rubber Modified Bitumen (NRMB), and coir in road construction. A PWD regional design office was established. In this period, 194.74 km of Sabarimala Road has been completed. The Kerala Highway Research Institute (KHRI) was made a Centre of Excellence (CoE) in 2018-19.

State Road Improvement Project (SRIP)

SRIP aims at the development of select State Highways and MDRs, and is implemented by the SPV, Road Infrastructure Company Kerala Limited. Work includes the Uppala-Kaniyana Road (9.4 km), the Vidyanagar –Seethangoli Road (15.6 km), the Kanjirappally- Kanjiramkavala Road (36.10 km), the Vellanad- Chettachal Road (21.90 km), and land acquisition for the Karamana-Vellarada Road (35.5 km).

The Government has declared 7000 km of road stretches, including all State Highways and some MDRs, as Core Road Network (CRN), and has implemented of Road Maintenance and Management System (RMMS). The prioritisation of Core Road Network (CRN) has been done broadly based on economic importance, connectivity to economic growth centres, strategically important corridors, traffic volume, share of commercial vehicles, public transport routes, disaster relief, and climate resilient functionalities.

Externally Aided Projects

Externally Aided Projects in the roads sector aim at the upgradation and maintenance of the existing road network. Kerala State Transport Project (KSTP) implements these projects. Under KSTP-II, construction completed includes the Kasaragod - Kanganhangad Road (27.78 km), the Pilathara - Pappinisserry Road (20.90 km), the Thalassery - Kalarode Road (28.80 km), the Chengannur Ettumanoor Road (45.40 km), the Ettumanoor - Muvattupuzha Road (40.96 km), and the Ponkunnam -Thodupuzha Road (50 km). The work in progress for several roads.

Under RKI, Kerala spent Rs 348.38 crore in the period from 2018-19 to 2022-23 to repair and reconstruct flood-damaged roads. By 2023, 277 LSG roads were completed, at the cost of Rs 2188.99 crore.

Under the City Road Improvement Projects, 16 stretches of road (42.07 km) have been completed in Thiruvananthapuram City. In Kozhikode, the development of 22.25 km of road over six corridors, at a total concessionaire's cost of Rs 211.00 crore, is in progress.

Kerala State Road Transport Corporation (KSRTC)

Kerala State Road Transport Corporation (KSRTC) is the single largest Public Sector Undertaking in Kerala, KSRTC runs public passenger transport operations in Kerala, in addition to KURTC and KSRTC-SWIFT Ltd. The total number of buses held by the three organisations, as of August, 2023, is at 5,626. The total number of schedules operated was 3,325 in 2020-21, which has increased to 3,731 in 2022-23. Passengers carried increased from 2,418 lakh in 2021, to 6,292 lakhs in 2023-24. The average earning per vehicle per day on KSRTC routes has increased from Rs 10,925 in 2016-17 to Rs 16,175 in 2022-23.

Green Initiatives: e-Mobility

The State has been actively pursuing greener policies and environment-friendly programmes. The adoption of electric mobility on a mass scale has benefited the State both environmentally and financially. A total of 8,701 electric vehicles were registered in 2021, which climbed to 39,576 in 2022. As of August, 2023, the total number of EVs is 98,332, constituting about 0.6 per cent of the total vehicles registered in the State. The Motor Vehicles Department (MVD) and other departments have switched to 'Plug-in Electric Vehicles' on dry-lease from the Energy Efficiency Services Ltd. (EESL), a Central Government institution under the Ministry of Power. This initiative is executed through the Agency for Non-Conventional Energy and Rural Technology (ANERT).

Railways

Kerala has a total track length of 2,106 km and all railway lines passing through the State have been converted into broad gauge. The 13th Plan proposed to shift traffic from road to rail, across the length of Kerala in the long run. As a step to achieve this, Government of Kerala formed a Joint Venture Company called Kerala Rail Development Corporation (KRDCO), in 2016 with an equity share of 51 per cent and 49 per cent between State and Centre to deal with railways development in the State. It has since been renamed Kerala Rail Development Corporation Limited (KRDCL). The details of projects initiated by KRDCL are given in the **Table 2.3**.

Silver Line: Semi High-Speed Rail Corridor

Silver Line is Kerala's largest railway development programme. A 530 km long Semi High-Speed Rail Corridor connecting Kasaragod and Thiruvananthapuram was proposed, passing through 11 districts, with 11 stations. This will enable trains to run at an operating speed of 200 kmph, and reduce total travel time between the North and South ends of the State from the existing 10 to 12 hours, to four hours. It will connect to airports, IT Parks, health facilities, institutions, cultural amenities, and commercial nodes. KRDCL has prepared the DPR for the proposed Silver Line Project, and this has been approved by the Government of Kerala. The estimated project cost is to be Rs 63,941 crore, and the target was set to complete the project by 2025. The DPR was submitted to the Ministry of Railways on 17 June, 2020, and approval is pending.

Table 2.3 Projects Identified by KRDCL (2017-18 to 2022-23)

Sl. No	Project	Length
1.	Rapid Rail Transit System (Suburban Rail Project) between Thiruvananthapuram – Chengannur	125.56 km
2.	Thalassery- Mysore New BG Line via Kannur International Airport	206.51 km
3	Ernakulam Terminus (ERG) Redeveloping as a third terminus for Cochin	5 km
4	Cochin International Airport New BG line and building new passenger station and container terminal	15 km
6	Erumely - Punalur New BG Line via Pathanamthitta, linking Sabari line with Kollam Shengottah line	65 km
7	Ettumanoor- Pala New BG Line linking Sabari line with Thiruvananthapuram -Ernakulam line	15 km
8	Nilambur - Nanjangud New BG line via Sultan Bathery	236 km
9	Silver Line Project	530 km

Source: KRDCL

Kochi Metro

The Kochi Metro Rail Project (KMRP) is a flagship project of the Government of Kerala, and is one of the fastest completed metro projects in India. This is the first metro in the country which connects rail, road, and water transport facilities. The Kochi Metro Rail Ltd (KMRL), SPV is jointly owned by the Government of Kerala and the Government of India through equity participation. It has completed Phase-I (Blue Line), from Aluva to Petta (22 km), and opened to the public in October, 2017. The project costed Rs 6,218.14 crore. Work is in progress for the extension of the Blue Line to Thripunithura, and Rs 1,159.26 crore has been approved for this project. The Kochi Metro Phase II (Pink Line) from JLN Stadium to Infopark via Kakkanad (11.2 km) has received in-principle approval from the Department of Expenditure, Government of India, and the foundation stone was laid in September, 2022. The cost of project is estimated at Rs 1,957.05 crore.

The revenue earnings of Kochi Metro showed an upward trend in general, except at the time of the 2018 flood, and Covid-19 (**Table 2.4**). Total revenue earnings were Rs 73 crore in 2017-18, which increased to Rs 132 crore in 2022-23. The efficiency parameters are relatively good. The average cost per passenger per month has

declined from Rs 2,188 in 2017-18, to Rs 1,530 in 2022-23. The average earning has been growing over the years (**Figure 2.7**). The Metro carried 101 lakh passengers in 2017-18, but has increased ridership to 249 lakh in six years, as of March, 2023. The total number of services operated has increased from 63,432 in 2017-18 to 85,985 in 2022-23 (**Figure 2.8**)

Water Metro: A Socially Inclusive Model of Transportation

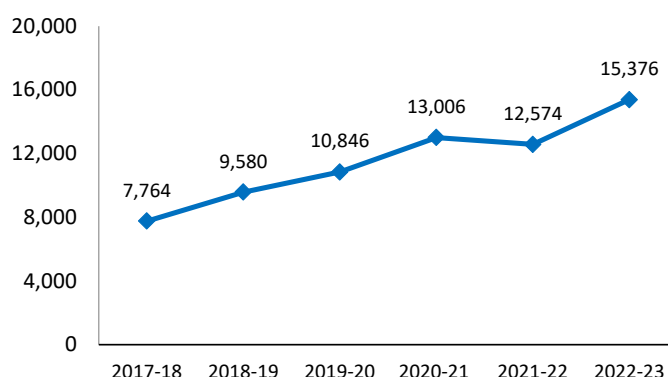
Kerala launched the country's first Water Metro in Kochi, to connects various parts of Kochi through its network of waterways. With a total line length of 76.2 line km, the Water Metro connects 38 jetties across ten island communities, and two boatyards through 15 identified routes. The Water Metro generated Rs 1.83 crore of revenue up to August, 2023. More than 34,000 Islanders are expected to benefit from the Water Metro. There are 78 eco-friendly boats for passenger service, 23 of them are 100 pax capacity, and the remaining 55 are 50 pax. The project is expected to reduce pollution and traffic congestions in the city. The Water Metro won the Gussie Award (France) for best commercial passenger electric boats in 2022. Water Metro has ferried 7.87 lakh passengers with a fleet of nine boats since services commenced.

Table 2.4 Trends in Revenue Earnings and Expenditure (Rs in Crore)

Items	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24 up to August)
Gross Revenue earnings	49.25	82.54	101.46	54.32	78.35	132.21	66.52
Gross Revenue expenditure	73.44	88.24	115.38	110.88	113.29	126.86	52.18
Gross operating profit/loss	-24.19	-5.7	-13.92	-56.564	-34.94	5.35	14.34

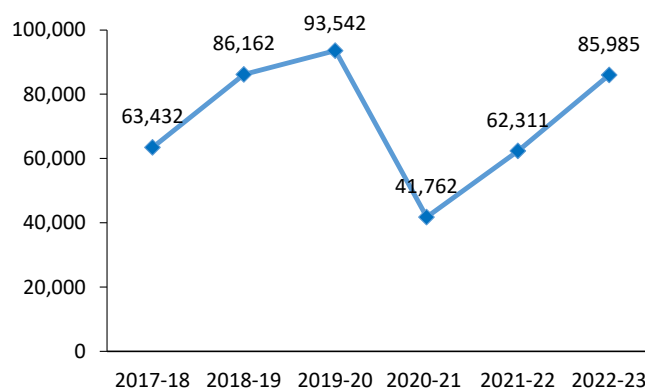
Source: Kochi Metro Rail Limited

Figure 2.7 Year-wise average annual earnings per service (in Rs)



Source: Kochi Metro Rail Limited

Figure 2.8 Year-wise number of services operated



Source: Kochi Metro Rail Limited

Airports

All four civilian airports functioning in Kerala are international airports. The newest, the Kannur International Airport, opened to public in 2019. In 2022-23, Kerala's airports handled 68.8 lakh domestic and 67.7 lakh international passengers. Cochin International Airport has become the world's first airport to be completely powered by solar energy. Its entire power requirement of about 50,000 units per day is being generated through solar energy plants. In addition to the four international airports, the Government has proposed to develop three strings of airstrips-heliports- at Bekal in Kasaragod, Kalpetta in Wayanad, and in Idukki. Work is in the initial phase, and these projects will connect the State's major tourist spots. Land acquisition is in progress for the Sabarimala Airport.

Ports in Kerala

Kerala has a coastal length of approximately 590

km. The State has one major port (Cochin), four intermediate ports, and 13 minor ports. There is an inland port at Nattakom in Kottayam. Of the 17 non-major ports, four are operational for trade and cargo handle. The total number of vessels registered increased from 223 in 2017-18 to 431 in 2022-23. The Government is upgrading four intermediate ports on PPP mode. Major physical achievements of port sector are given in the **Box 2.6**.

The cargo handled by minor and intermediate ports has increased by 71 per cent from 1.41 lakh tonnes in 2016, to 3.23 lakh tonnes in 2022. Revenue collected has also increased from Rs 26.71 crore to Rs 46.01 crore in 2022-23. This is due to the multi-faceted policy interventions of the State in the development of ports. The flood in 2018 caused a moderate dip in revenue earnings.

Box 2.6 Major Achievements in Minor and Intermediate Ports (2016-17 to 2022-23)

1. Introduced Automated cargo/container handling gears at Kollam, Beypore and Azhikkal Port completed
2. Kollam, Beypore and Azhikkal Ports are equipped with cargo/ container handling equipment
3. Completed Multi-purpose passenger-cum-cargo wharf at Kollam Port
4. Established EDI facility at Beypore and Azhikkal Port
5. Completed Transit Shed and Electronic Data Interchange Facility at Beypore Port
6. Construction of new wharf at Ponnani progressing.
7. Establishment of crew changing facility at Beypore por
8. Construction of Passenger cum Multi-purpose berth at Kollam
9. Commissioned a container handling crane at Azhikkal and Beypore Ports

Source: Various Issues of Economic Review, Kerala State Planning Board

Table 2.5 Cargo Handled at the Intermediate and Minor Ports of Kerala (in Tonne)

Items	2016	2017	2018	2019	2020	2021	2022
Import	3893	1,06,663	12,174	97,001	38,246	8193	57,253
% share	2.76	26.31	8.77	43.47	24.80	16.59	17.74
Export	1,37,149	2,98,799	1,26,619	1,26,147	1,15,968	41,187	2,65,538
% share	97.24	73.69	91.23	56.53	75.20	83.41	82.26
Total	1,41,042	4,05,462	1,38,793	2,23,148	1,54,214	49,380	3,22,791

Source: Kerala Marine Board

Inland Waterways

Kerala has five national waterways with a total length of 473 km (excluding AVM Canal), in 2022-23. Cargo movement in the National Waterway 3

has been growing over the years, and has increased from 0.42 M.MT in 2018-19 to 2.69 M.MT in 2022-23. The total length of inland waterways in the State is 1,712.45 km, of which 612.45 km

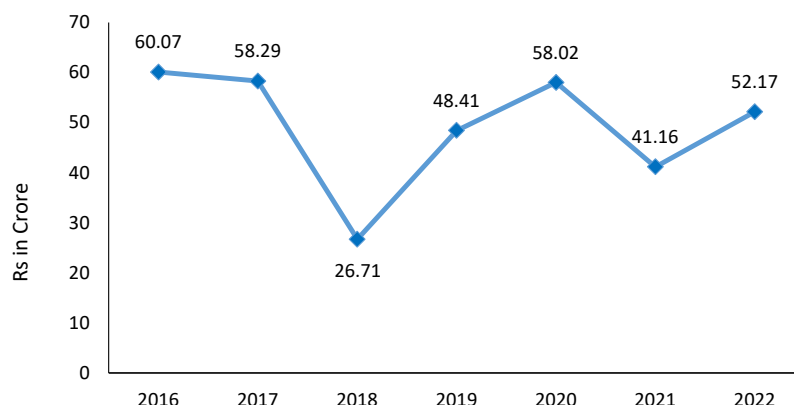
Box 2.7 Major Projects

Vizhinjam International Seaport – This deep-water multipurpose Seaport is a landmark project in the port sector of Kerala, and is the first deep-water trans-shipment terminal in India. The main advantage of the Vizhinjam port is the natural depth of 18m, a relatively small distance of 10 nautical miles from major international shipping routes, and minimal littoral drift along the coast. With a draught of 18.20 m, this Port can handle new generation mother vessels in the size range of 18,000 to 22,000 TEU. The first international cargo ship 'Shenhua 15' docked at Vizhinjam International Port on 15th October 2023. Vizhinjam international seaport is developed by the Government of Kerala (GoK) in Public Private Partnership (PPP) with M/s Adani Vizhinjam Port Private Ltd. (AVPPL) as the concessionaire. Vizhinjam International Seaport Ltd (VISL), a company fully owned by GoK, is the nodal agency for implementing this project. With regard to funding, the State Government will contribute 60.46 per cent, followed by 29.89 per cent by the concessionaire, and the remaining 9.65 per cent by the Government of India

Malabar International Port and SEZ Limited - Malabar International Port and SEZ Limited (MIPS Ltd), a Company wholly owned by the Government of Kerala, was incorporated to execute the project for development of Azhikkal Port. The development of a new seaport for domestic and international cargo in the open sea at Azhikkal is envisaged in 3 phases. The Port will be capable of handling up to Panamax-size ships (a capacity of 4,000 to 4,500 containers). A 500-metre berth is planned in Phase I, a 300-metre berth in Phase 2, and a second 300-metre berth in Phase 3. Once the port becomes fully operational, Azhikkal port will handle even internationally plying ships of around 4500 TEU Panamax, with a dredged depth of around 14.5m in the harbour basin. The Port can handle containers, liquid bulk, petroleum products, dry bulk /break-bulk cargo, etc.

Source: Kerala Marine Board

Figure 2.9 Revenue Generated at the Intermediate and Minor Ports of Kerala (Rs in crore)



Source: Kerala Marin Board

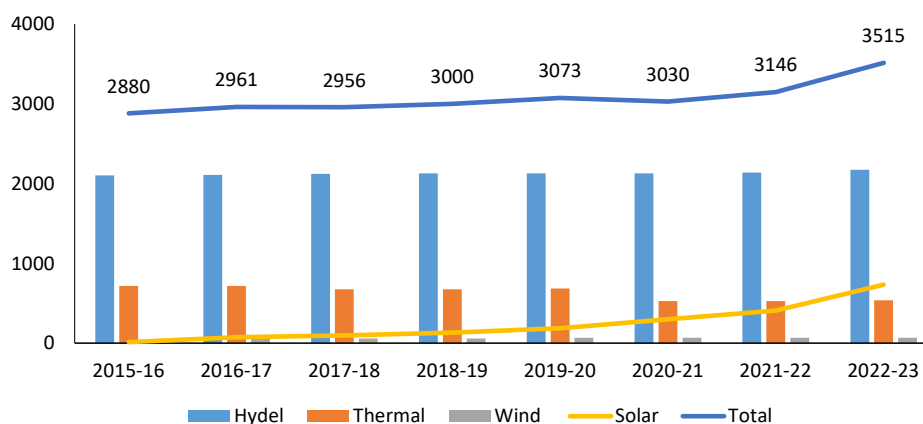
constitutes the West Coast Canal (WCC), and 1,100 km constitute feeder canals connecting the WCC. The State Water Transport Department (SWTD) operates around 2.3 lakh trips per annum, utilizing a fleet strength of 63 vessels. As many as 103.59 lakh passengers were ferried in 2022-23, covering a total route length of 23.25 lakh km in 116 identified routes. Three new services- Vega-2, See Kuttanad, and See Ashtamudi- operate exclusively for tourists, fetching an average monthly revenue of Rs 30 lakh. The Department initiated water taxis in inland services. It has four water taxis, two of which- Thejas 1 and Thejas 2- ferry in the Alappuzha and Payyannur routes, respectively. Major achievements in 2022-23 include the completion of the Kallupalam Bridge at Kollam, nine boat jetties and jankar kadavu in Alappuzha and 11 steel foot bridges in Kozhikkode. Work in progress includes the construction of a Lock Cum Bridge at Veliyancode

(Phase II) in Malappuram, construction of the Karikkakam steel lifting bridge and St. Andrews bridge, construction of a steel lattice bridge across Parvathy Puthanar, and construction of a sluice downstream of the Chettuva bridge in Thrissur.

Power for All

Kerala was declared fully electrified on 29 May, 2017, by providing connections to over 1.5 lakh applicants under the Total Electrification Scheme. Kerala is the first State in the country to achieve universal electrification, except for certain tribal hamlets which are in dense forests. Electricity is being provided throughout the State 24 x 7 x 365, without power cuts or load shedding. Kerala is the second-best performing State as per NITI Aayog's State Energy and Climate Index (SECI) published in 2022, which measures the State's efforts in improving the energy sector.

Figure 2.10 Trends in category-wise total installed capacity, in MW



Source: KSBEL

Box 2.8 Major Initiatives

Total Electrification Campaign (100 Per Cent Electrification), 2017-18 – To achieve total electrification, KSEBL has constructed 65 km of 11 KV Overhead lines, 40 km of 11 KV Underground cables, 3,040 km of LT line, 39 km of LT Underground cable, and installed 21 transformers. The efforts include the electrification of remote tribal colonies, as well. A total of 1,50,384 connections have been provided as part of the Total Electrification Project.

Oorjja Kerala Mission – This Mission includes five interrelated projects- Dyuthi 2021, Soura, Filament-free Kerala, Transgrid 2.0 and e-Safe. Under Filament-free Kerala, about 84.18 lakh bulbs were distributed and 26 lakh LED bulbs were sold, as of 31 March, 2023. Under Soura, 20.77MW power generation capacity has been increased, of which 8.77MW is through rooftop solar. A total of 109 Soura Suvidha kits have been distributed to tribals in Nilakkal, Sabarimala. Under Dyuthi, which aims at providing quality power to all, work amounting to Rs 1,457.06 crore has been completed, as on 31 March, 2023. The e-Safe project aims at zero electrical accidents. As on 31 March, 2023, 26,145 works amounting costing Rs 775.00 crore have been completed, and 17,390 safety inspections were carried out by safety officers.

Transgrid 2.0 –Of the 12 substations targeted in the first phase of Transgrid 2.0 (2017-23), 11 substations and 1,490 ckm of EHT lines were completed by 31 March, 2023. In 2022-23, 6 new substations were completed in Kerala, of which 4 stations were as part of Transgrid 2.0.

E-Mobility – Kerala is one of the first Indian States to formulate an e-mobility policy. Between 2019 and 2023, 2019 charging stations have been installed. A pilot project of 10 charging poles for three-wheelers and two-wheelers was commissioned in Kozhikode.

NILAABU Project – Under this first-of-its-kind project in the country, the Local Self Government Department (LSGD) has installed two lakh LED street lights in 411 Gram Panchayats and 35 Municipalities

Kerala Green Energy Mission – Kerala aims to transition to 100 per cent renewable energy by 2040, and net carbon neutrality by 2050.

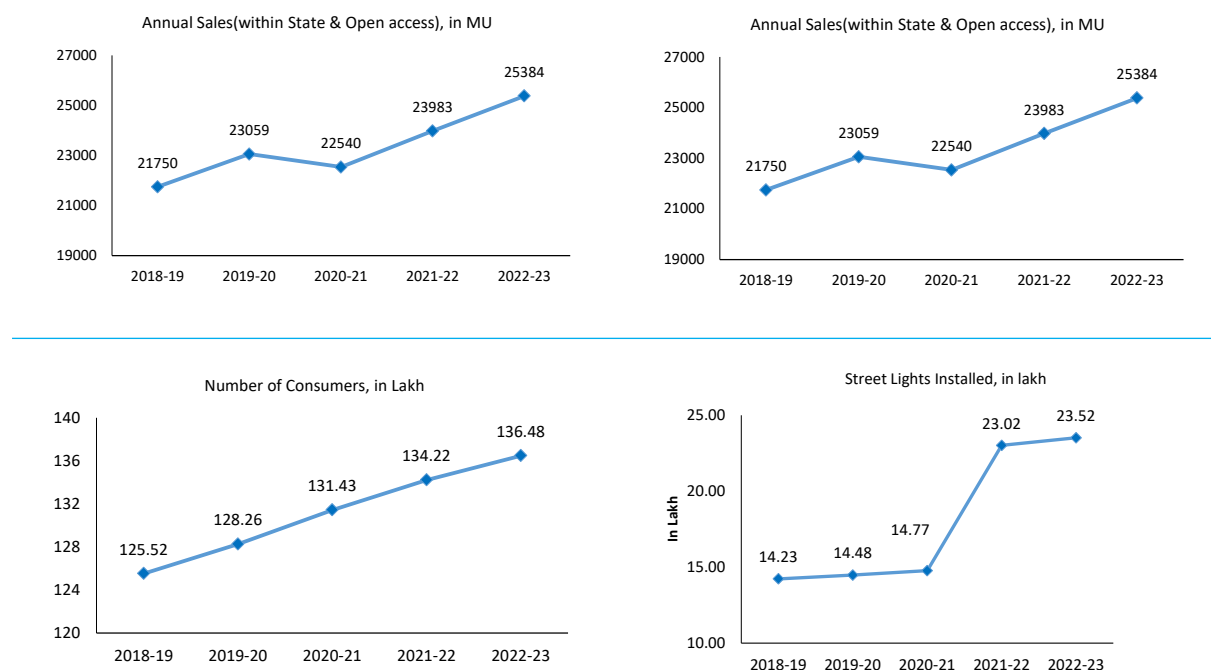
Source: Various Issues of Economic Review, Kerala State Planning Board

Box 2.9 Major Achievements

1. Kerala was declared fully electrified on 29 May, 2017. Kerala ranked second in NITI Aayog's State Energy and Climate Index (SECI), 2022. KSEB won the Rooftop Solar Enabler award from EQ International Magazine.
2. About 37 substations were constructed and 3099.15 Ckt.km of transmission line was added in five years, from 2017-18 to 2022-23.
3. A 25 KWP capacity solar power plant was installed in Palakkad as part of the Integrated Solar Agro Farm Project.
4. Solar power systems were installed in 54 remote hamlets in Idukki, Palakkad and Wayanad districts, covering 2,300 households as part of the total electrification campaign
5. Free electricity connections, including one post, were provided to 574 Anganawadis.
6. A total number of 27 un-electrified Tribal colonies were electrified by KSEBL. One solar power plant of 50 KW capacity and 10 plants of 1.5KW capacity were installed at Thazhae Thudukki tribal hamlet in Silent Valley Reserve and Velappankandi Tribal Colony in Wayanad, respectively.
7. Commissioned projects include Anakompil SHP (8 MW) and Arippara SHP (4.5 MW) in Kozhikode, Upper Keller Small Hydro Electric Project (2MW), Chathankottunada Small Hydro Project – Stage-II (6MW), Ground Mounted Solar Plant at Agali (1MW) and Kanjikkode (3MW), and Perumthenaruvi Small Hydro Electric Project (6 MW)
8. In 2022-23, 3.73 lakh new service connections were provided and 2,283 new distribution transformers were installed. 1,566 km of 11 kV line and 4,036 km of LT lines constructed.
9. Solar rooftop installation for the general public under Soura scheme was done in about 1,900 houses, with a total capacity of 6 MW.

Source: Various Issues of Economic Review, Kerala State Planning Board

Figure 2.11 Performance Indicators



Source: KSEBL

Kerala State Electricity Board Limited (KSEBL) plays a pivotal role in the generation and transmission of power in the State. Non-conventional and renewable sources of energy are managed by (i) Agency for Non-conventional Energy and Rural Technology (ANERT), and (ii) Energy Management Centre (EMC). Kerala has a total installed capacity of 3,514.81 MW, as on March 2023. The national installed capacity is 4,24,288 MW, as on August 31, 2023. In Kerala, power is generated from four sources- hydel, thermal, wind and solar. Hydel power has the largest share (961.84 MW). (Figure 2.10)

Public Utilities: More Inclusive, Uninterrupted, and Safe Service

Since Kerala has achieved universal electrification, emphasis has been shifted to improve the quality of services. Multiple initiatives have been made for modernisation of the grid, reduction of system losses, ensuring safety of installations, and for renewable energy generation. In addition to this, the Government aims to build a state-of-the-art transmission network by constructing new lines, substations, and modernising existing systems.

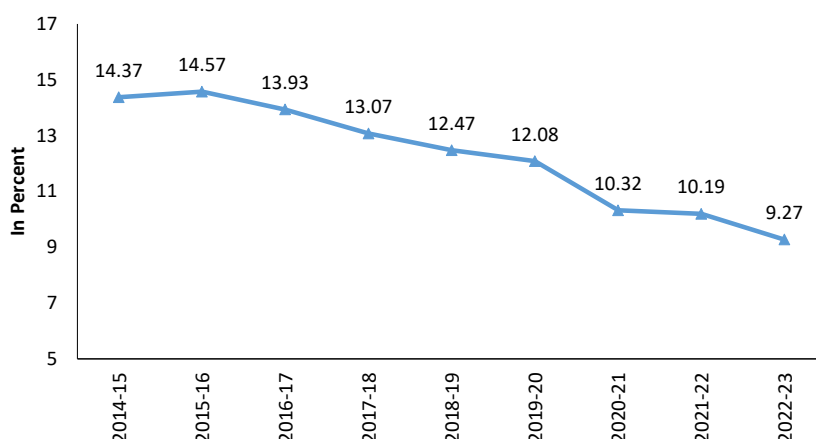
Total revenue from the sale of power has

grown from Rs 13,521.21 crore in 2018-19 to Rs 17,705.46 crore in 2022-23. In 2022-23, the total number of energy consumers increased to 136.48 lakh from 125.52 lakh in 2018-19, and about 11 lakh new consumers were added in a five-year time span. Power consumption subsequently increased by 45.43 per cent from 17,454 MU in 2013-14 to 25,384 MU in 2022-23. Per capita consumption has also been growing over the years, from 626 kWh in 2018-19 to 682 kWh in 2022-23. The number of street lights installed increased from 14.22 lakh in 2018-19 to 23.52 lakh in 2022-23.

Transmission Infrastructure

An efficient transmission system is necessary for the effective distribution of power. In 2017, the State had 395 substations and 11,331.96 Ckt. km of transmission lines, which increased to 432 substations and 14431.11 Ckt.km of transmission lines in 2022-23. Transgrid 2.0 is a landmark initiative in the transmission infrastructure network, and aims at long-term stability of the Kerala grid to ensure reliable power transmission. Under this scheme, a 400 KV backbone network and a 220 KV downstream interconnected network is envisaged, at an estimated cost of Rs 6,375 crore over a period of five years. KIIFB has allocated

Figure 2.12 Trends in Aggregate Transmission and Distribution (T&D) losses, in per cent



Source: KSBEL

Rs 5,200 crore for the Transgrid plan. Implementation of the project is expected to reduce peak load system loss by about 107.8 MW, with the corresponding annual energy savings of 522.21 Million Unit (MU). Construction of substations at Kothamangalam, Kaloor, Chalakkudy, and Thalassery have been completed, as part of this project.

Distribution Infrastructure

Kerala's distribution infrastructure has grown from 59,252 km of 11 kV lines, 2,77,422 km of LT lines, and 75,579 distribution transformers in March, 2017, to 67,920 circuit km of 11 kV and 22 kV lines, 3,02,626 circuit km of LT lines, and 87,584 distribution transformers by March, 2023. In 2021-22, 2,355 new distribution transformers were installed.

Operational efficiency

The energy lost through transformation, transmission and distribution has reduced drastically from 14.37 per cent has in 2014-15, to to 9.27 per cent in 2022-23 (**Figure 2.13**). In five years, from 2018-19 to 2022-23, 1151.44 MU worth Rs 531.65 crore has been saved.

Communication Infrastructure

Communication plays a decisive role in the social and economic development of a nation. The unique feature of Kerala's development is the relative narrowness of the rural-urban divide with respect to development.

Postal Network

Kerala is the only postal circle in which every village has at least one Post Office. On an average, each Post Office in the State serves an area of 7.7 sq.km and a population of 6,613, as against the national average of 21.21 sq.km and a population of 7,175 people. Of the 5,062 Post Offices in the State, 4,162 (82.2 per cent) are in rural areas. In 2016-17, all 1,508 departmental Post Offices in the State were computerised. E-Payment facilities, including for payment of utility bills, has been activated in 1,508 Post Offices in the State. As on 31 March, 2020, e-Post facility has been provided in 1,334 Post Offices. International speed post/ EMS facility is available from India to 99 countries. Items weighing up to 30 kg can be sent anywhere in the world through PACK Post, and parcel services are available in the Kerala postal circle. A total of 1,498 Post Offices (51 HOs and 1,447

Table 2.6 Postal Network in Kerala

Sl. No	Description	2016	2023
1	Number of Post Offices	5066	5062
2	Departmental post offices	1457	1508
3	Extra Departmental Post offices	3558	3554
4	Area Served by post office (sq.km)	7.69	6609
5	Population served by one post office	7.71	6614

Source: Chief Post Master General, Kerala Circle

Table 2.7 Total Number of Wireless Subscribers in Kerala as on March,2023

Number of Wireless Subscribers	As on March,2023	% Share in Total
Vodafone Idea (VI)	1,44,70,640	34.1
Reliance Jio	1,00,70,654	23.7
BSNL	98,78,402	23.3
Bharti airtel	79,91,307	18.8
Reliance communications	113	0.0
Total	4,24,11,116	100.0

Source: Press Release, 2023, TRAI

SOs) in the State have been shifted to the Core Banking System in 2016-17.

Telecommunication in Kerala

The State has a modern telecom network spanning its length and breadth, one that has state-of-the-art digital switches interconnected by reliable Optical Fibre/Microwaves/Satellite media. All Panchayats and Villages in the Circle have been provided with public telephones. Total telephone connections in Kerala, as on March 2023, is 4.38 crore. This is 3.73 per cent of the total telephone connections in the country. Kerala Telecom circle serves the whole of Kerala State, the Union Territory of Lakshadweep, and part of Puducherry (Mahe). The Circle has 11 major Secondary Switching Areas (SSAs) and one minor SSA (of Lakshadweep). A total of 1,188 telephone exchanges are working under the Circle, with an equipped capacity of 14,72,636. The number of working connections under the circle is 1.06 crore (97.48 lakh mobile and 9.17 lakh landline connections). The total number of wireless subscribers in Kerala, as in March, 2023, is 4.24 crore, of which Vodafone Idea (VI) has the largest share (34.1 per cent). (**Table 2.7**)

Kerala has the highest tele-density among the States of India (122.13 per cent as on March 2023). The national average is 84.51 per cent. Kerala's rural tele-density stands at 89.45 per cent and urban tele-density at 223.06 per cent, and the corresponding figures at national level are 57.71 percent and 133.81 percent, respectively. Kerala service area has the highest rural tele-density (89.45), followed by Himachal Pradesh service area (86.31 per cent). The Government of Kerala has placed considerable emphasis on the development of internet and broadband in the State. The number of internet subscriber per population of 100 is 171.98 in urban areas, and 62.12 in rural

areas, as of March, 2023. The total number of wire line connections in the State was 13.81 lakh in March 2023, which is higher than Gujarat (12.13 lakh), Punjab (12.12 lakh), and Rajasthan (8.3 lakh).

Soft Infrastructure: Information Technology-led Development

The State Government is making earnest efforts to create sound, world-class infrastructure for the sector. Kerala was declared the first digital State in the country in 2016. To boost IT infrastructure facilities, the Government has introduced multi-faceted initiatives including governance initiatives, e-literacy programmes, and IT projects. Now, the State has the highest mobile penetration in India (about 42 million connections), the highest internet penetration, and is making significant strides in transforming the State into a knowledge-powered economy.

Digital Inclusion, e-Governance

Kerala is the first to announce access to the internet to be a basic right of its citizens. Kerala has been a frontrunner in e-governance and mobile governance by promoting and developing core infrastructure and e-literacy programmes. E-governance initiatives of the Kerala State Information Technology Mission (KSITM) include e-Office, Service-plus, FRIENDS, SEMT, Citizen Call Centre, SPARK, e-procurement etc. Core infrastructure for e-governance in the State consists of Kerala State-Wide Area Network (KSWAN), Secretariat-Wide Area Network, State Data Centre, and State Service Delivery Gateway. Major initiatives by the Government are given in **Box 2.10**.

Kerala Fibre Optic Network (K-FON)

The Government of Kerala has established its own communication infrastructure, K-FON, in 2017. The project aims at enhancing communication in

Box 2.10 Major Initiatives

Public Wi-Fi - 2,000 Wi-Fi hotspots have been established across the State to provide free internet.

E-Office- e-Office has been implemented in the State Secretariat, 119 Directorates/Commissionerates/ other Government offices, all Collectorates, and 22 Sub-Collectorates/RDOs.

Kerala State Wide Area Network (KSWAN)- Around 4000 offices of Government departments are connected to KSWAN through wireless, and a larger number through leased lines and LAN. All districts, 152 Block Panchayats and 63 Mini Civil Stations/ revenue towers across the State are also connected.

e-District – This is a State Mission Mode project under the National e-Governance Plan. Currently, e-District has made 23 revenue certificate services available online across the State. In 2021, 95,48,327 applications were approved out of the 1,06,22,604 applications received.

Friends Janasevana Kendras - Established in all the 14 District headquarters, these are single window, no-queue, integrated remittance Centres, where citizens can pay all taxes and other dues to the Government, at no extra cost

Aadhaar: Kerala has 100 per cent Aadhar generation.

Digi Locker – This is currently integrated for six services including SSLC certificates, Ration Cards, Revenue Certificates, driving licenses and vehicle registrations, Kerala University certificates, and PSC One-Time Verification.

e-SEVANAM and m-SEVANAM – This platform consolidates around 711 services of more than 70 departments. All mobile-friendly services (about 546 services) are rendered through a uniform mobile application called m-SEVANAM.

Source: Various Issues of Economic Review, Kerala State Planning Board

rural areas by providing high speed connectivity to 30,000 Government and educational institutions (Track-1), to offer free internet to 20 lakh of those in Economically Backward Communities (EBC), and internet services at a lower rate for others (Track-2). This is the first of its kind in the country. Track 1 will be implemented with the assistance of KIIFB, and Administrative Sanction was issued for an estimated cost of Rs 1,548.08 crore. The details are given in the **Table 2.8**.

Technology-led Infrastructure Development

The State has a network of Technoparks, Infopark, Cyber Park, and Technocity. Kerala established the first techno park in the country. It is now one of the largest IT Parks in India, with 375 acres of land. The built-up space in Technopark has increased from 85 lakh sq ft in 2016-17 to 1.06 crore sq ft in 2022-23. The Park is home to nearly 465 companies, employing more than 64,000 IT/ITeS professionals. Total export from Techno Park has increased from Rs 5,000 crore in 2016-17 to Rs 9,300 crores in 2021-22. Infopark, Kochi is the second largest IT hub in Kerala, with 10 million sq ft built up space. It provides employment to over

Table 2.8 Work Completed Under K-FON

Work	Completed
OPGW (optical Ground Wire) cable laying	2470 km
ADSS (all-dielectric self-supporting) Cable laying	21221 km
Point of Presence (prefab shelter in KSEBL substation across (Kerala)	171 No
End office installation work	25729 No

Source: KSITIL

63,000 IT professionals through 546 IT companies. The total export increased from Rs 5,200 crore in 2019-20 to Rs 8,500 crores in 2021-22. The number of companies operated was 427 in 2019-20, which increased to 546 in 2021-22. Cyberpark in Kozhikode has 2.88 lakh sq ft built up space for SEZ operations, 12,391 sq ft for non-SEZ IT operations. About 52 IT companies provide direct employment to 1,688 IT professionals. Kerala launched Technocity in Kazhakuttam, the largest integrated IT township, in 390 acres of land. The Kazhakuttam-Kovalam NH 66 has

become the first IT Corridor in Kerala. In 2021, the Government of Kerala upgraded IIITM-K to Kerala University of Digital Sciences, Innovation and Technology, the States' first Digital University, in Thiruvananthapuram.

Social Overhead Capital: Social Infrastructure

Kerala's advances in social indicators, particularly in the domains of health and education, have garnered international acclaim. The quality of life depends on basic needs being met and on being able to live in a secure environment. The Government Kerala places a high priority on the development of social infrastructure in the State. Kerala spends about one third of its total expenditure on social services (**Figure 2.13**).

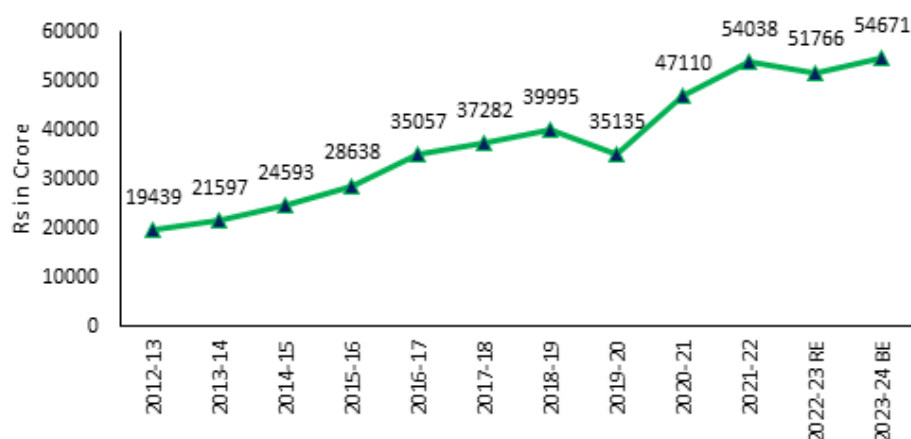
A standout feature of the development of social infrastructure in Kerala post 2016-17 was the launch of the Nava Kerala Mission. The Mission

envisages a new Kerala, and consists of four Missions, namely, LIFE (Livelihood, Inclusion, and Financial Empowerment) Mission, General Education Protection Mission, Aardram Mission, and Haritha Keralam Mission.

Safe Drinking Water for All

Kerala is the only State in the country with 100 per cent metered water supply. Kerala ranked low among the States, with the lowest percentage of availability of drinking water in rural (29.5 per cent) and urban (56.8 per) areas (NSSO 69th round). The use of polluted water caused several waters borne diseases in the State. Thus, the provision of safe drinking water was a priority in the 13th Five-Year Plan. The Government initiated several schemes to improve quality and coverage of drinking water supply in the State. The targets proposed in the 14th Plan are given in **Box 2.11**.

Figure 2.13 Trends in social services expenditure, Rs. in Crore



Source: State Budget

Box 2.11 14th Plan Targets - Drinking Water Supply

1. The 14th Plan proposed to cover 100 per cent households in rural areas with Functional Household Tap Connections (FHTCs) with a service-level of 100 lpcd by 2024, and 100 per cent coverage in urban areas with a service-level of 150 lpcd by the year 2026.
2. Drinking water supply in accordance with the norms of the Indian Standard on drinking water quality (IS:10500, 2012).
3. 24X7 water supply systems in all cities by 2026 through capacity additions, NRW (Non-Revenue Water) management, and the use of technology in distribution system management.
4. To achieve 50 per cent reduction in NRW so that Kerala can reach the benchmark figure of 20 per cent in the next five years.
5. To promote entrepreneurship among women and students in the water sector, especially in the operation and maintenance of water supply schemes and to establish a network of educational institutions for Water Quality Monitoring and Surveillance (WQM&S).

Source: 14th Plan Document

Drinking Water: Universal Coverage and Affordability

The access and coverage of water supply has been growing consistently over the years because of the concrete policy interventions of Local Governments, the Kerala Water Authority (KWA), and the Kerala Rural Water Supply and Sanitation Agency (KRWSA). In 2017, KWA implemented 1,073 water supply schemes, of which, 989 were in rural areas and 84 in urban. These schemes covered a population of about 1.81 crore (54 per cent), constituting 54.19 per cent rural and 54.36 per cent urban (Ref to Table 2.8). In 2022, the total population covered increased to 2.49 crore (66.26 per cent) through 911 water supply schemes. The rural and urban population covered under water supply schemes increased to 63 per cent and 80 per cent respectively, in 2023. In 2023, a total of 700 water supply schemes of KWA have been transferred to Local Governments, which covered a population of 11.14 lakh. Alappuzha district, with coverage of 90.80 per cent of its population, has the highest. This is followed by Ernakulam (90.51 per cent), which has the highest number of water supply schemes (93). Wayanad has the least (22).

KWA distributes water through House Service Connections (HSC) and street taps. Total connections including household services and street taps have increased from 20.2 lakh in 2016 to

Table 2.9 Population Covered by Water supply schemes

Year	Rural Population (in lakh)	Urban Population (in lakh)	Total Population (in lakh)
2017	95.14 (54.1%)	86.61 (56.36%)	181.74 (54.27%)
2023	181.15 (63.03%)	67.95 (79.97%)	249.10 (66.89%)

Source: KWA

43.44 lakh in 2022, and have more than doubled in seven years (**Table 2.10**). Till 2016, KWA provided 18.12 lakh household connection, which increased to 41.9 lakh in 2023, and more than doubled over seven years. KWA also supplies water through 1.53 lakh public taps across the State.

Revenue from the Sale of Water

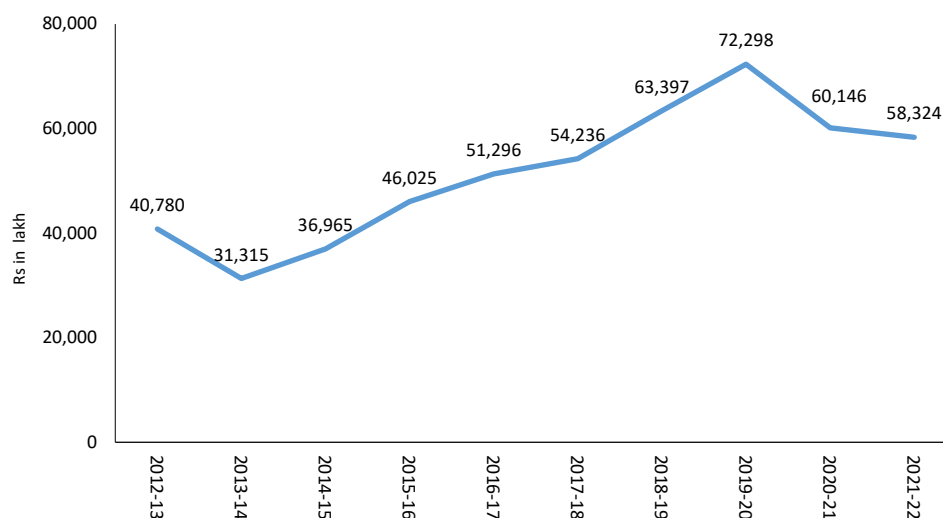
The Kerala Water Authority's major income is from the sale of water. Kerala is the only State in the country with 100 per cent metered water connections. The water tariff is uniform across the State, with a block tariff structure (increasing rate with increasing consumption). The total revenue collected from the sale of water has increased over the years (**Figure 2.14**). The total revenue has increased from Rs 40,780 lakh in 2012-13 to Rs 58,324 lakh in 2021-22. KWA supplies 15,000 L of drinking water per month, free of cost, to about 5.91 lakh BPL families in the State.

Table 2.10 Water Supply Connections and Street Taps

Category	2016	2023	% Change in 2023 over 2016
Water Supply Connections			
Domestic	16,96,694	39,99,105	135.7
Non-Domestic	1,14,379	1,78,292	55.9
Industrial	1455	2083	43.2
Special	0	10,533	
Sub Total	18,12,528	41,90,013	131.2
Street Taps			
Panchayaths	1,62,568	1,12,014	-31.1
Corporations	18,131	26,533	46.3
Municipalities	27,335	15,130	-44.6
Sub Total	2,08,034	1,53,677	-26.1
Grand Total	20,20,562	43,43,690	115.0

Source: KWA

Figure 2.14 Trend in Revenue from the sale of water, Rs in Lakh



Source: KWA

Major Initiatives

In Kerala, other agencies that finance water supply projects include KIIFB, NABARD (RIDF), and RKI. About 98 per cent of KWA consumers have been brought under abacus, the Online Transaction Processing System, in 2022. With loan assistance from NABARD, KWA implements 20 water supply schemes in rural areas, of which 8 projects have been completed. Japan International Cooperation Agency (JICA) assisted the implementation of five water supply schemes in Thiruvananthapuram, Meenad, Cherthala, Kozhikode, and Pattuvam. All five projects have been commissioned.

KIIFB Projects: Water Supply

The Government of Kerala has sanctioned 77 drinking water projects of KWA under KIIFB. Approval has been given to fund 75 projects worth of Rs 5,113.61 crore. This includes 64 water supply projects costing Rs 4683.373 crore, and the replacement of transmission mains in 11 circles (Thiruvananthapuram, Kollam, Pathanamthitta, Kottayam, Muvattupuzha, Kochi, Thrissur, Palakkad, Malappuram, Kozhikode and Kannur), amounting to Rs 430.23 crore. Of this, 21 water supply projects amounting to Rs 684.5 crore, and 47 replacement projects amounting to Rs 150.93 crore have been completed.

Rebuild Kerala Initiative (RKI)

Under the Rebuild Kerala Initiative (RKI), 17 water supply projects have been sanctioned, with Administrative Sanction (AS) of Rs 303.75 crore, and spend Rs 202.41 crore from 2019-20 to

2022-23. Of its four projects- improvement of water supply to Cheranalloor Panchayat, distribution network for RWSS to TV Puram Panchayat, WSS to Erumeli Panchayat, laying, distribution system in Zone 4 – Kanakapallam, and energy audit of pumping stations, have been completed. All the other projects are in different stages of execution.

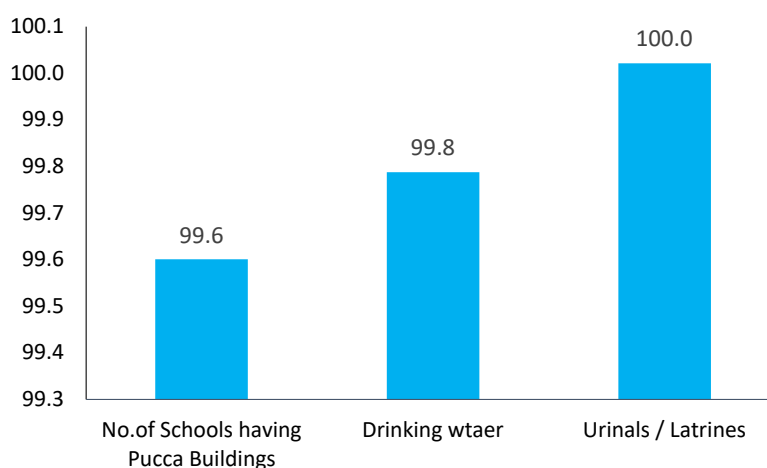
Jal Jeevan Mission (JJM)

JJM aims to provide safe and adequate drinking water through individual Functional Household Tap Connections (FHTC) to all households in rural India, by 2024. In Kerala, the share of Central and State Governments is 50:50. Of the 50 per cent State share, 15 per cent is from Panchayats and 10 per cent is beneficiary contribution. Kerala provided 5.28 lakh rural household connections under JJM in 2022-23. A total of 1.79 crore FHTCs have been provided till date (October 12, 2023), under JJM.

Jalanidhi

Jalanidhi is a World Bank project implemented by the SPV Kerala Rural Water Supply and Sanitation Agency (KRWSA). KRWSA is implementing 5,884 schemes in two phases, with projects covering 227 Gram Panchayats and benefiting 4.52 lakh households. A total of 13.65 lakh beneficiaries were covered under 4,772 schemes of Jalanidhi in 2016. This has increased to 23.32 lakh beneficiaries and 5884 schemes in 2023. As on August 31, 2023, KRWSA completed 11,312 rain water harvesting structures of 10,000 ltr capacity and 2,778 open well recharge structures.

Figure 2.15 Infrastructure in Government Schools in 2022-23, in per cent



Source: Directorate of General Education, GoK

Education: Universal and Complete

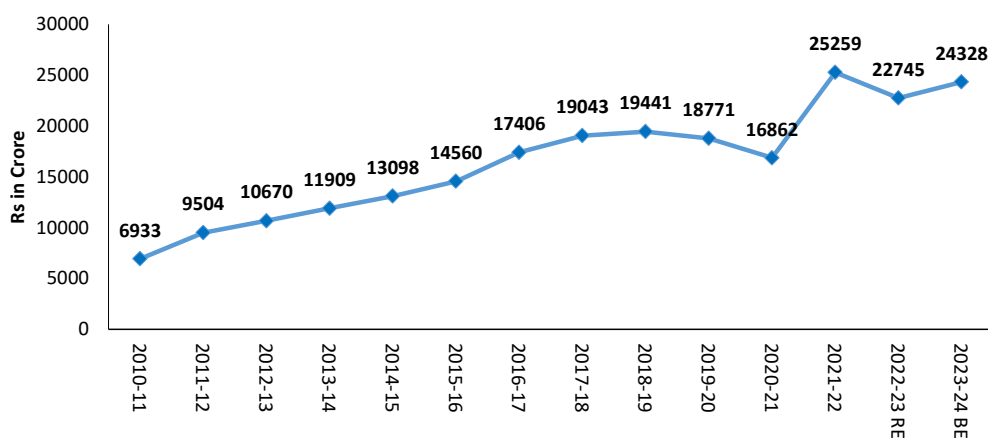
Kerala has a well-developed education system, with a network of schools, as well as higher education institutions including medical, engineering, and technical colleges. Kerala has 12,959 schools in 2022-23, of which 4,698 (36.3 per cent) are Government schools, 7,120 (55.6 per cent) are aided schools, and 1,051 (9 per cent) are unaided schools. Data on infrastructure in Government schools is given in **Figure 2.15**.

Kerala spends about 17 per cent of its total expenditure on education. Budget spending on education has increased from Rs 6,933 crore in 2010-11, to Rs 25,259 crore in 2021-22- quadrupling in 12 years. In addition, KIIFB has earmarked Rs 4,747 crore for infrastructure development in the

education sector, of which Rs 2,995 crore is for General Education and the Rs 1,752 crore for Higher Education.

Since 2016-17, the State has implemented the Public Education Rejuvenation Campaign in Mission-mode to develop physical infrastructure and common facilities in Government schools. KIIFB has proposed to spend Rs 5 crore each for 141 schools, Rs 3 crore each for 386 schools, and Rs 1 crore each for 446 schools, in the period from 2016-2023. In the Rs 5 crore category, the construction of building for 134 schools has been completed. In the Rs 3 crore category, buildings have been constructed for 161 schools, and in the Rs 1 crore category, buildings have been constructed for 136 schools. The buildings for 52 schools have

Figure 2.16 Trends in Expenditure on Education, Rs in crore



Source: State Budget

Box 2.12 Public Education Rejuvenation Campaign- 2017

1. Upgradation of 1,000 Schools to Centres of Excellence.
2. Conversion of all classrooms from Standard 9 to 12 into hi-tech class rooms.
3. Improvement of infrastructure of schools with more than 1,000 students.
4. Improvement of infrastructure of primary schools
5. Special packages for renovation of schools which have completed 50 and 100 Years.

Source: Directorate of General Education, GoK

been constructed with NABARD funds of Rs 104 crore. In the General Education sector, Rs 702.29 crore has been earmarked for the upgradation of one school in each constituency, under the Protection of Public Education (PPE) Mission. Work on 19 schools out of 39 has been completed, as of March, 2023. Work done in the education sector also includes the completion of 425 school buildings, setting up of 44,705 high-tech class rooms in Secondary and Higher Secondary schools, and 11,257 high-tech labs in LP and UP schools in the State. An amount of Rs 785.5 crore has been spent to complete these projects.

In the Higher Education Sector, projects for the renovation of 55 Arts and Science Colleges have been approved by KIIFB. Of these, five colleges will be developed as part of the Development of Heritage Colleges scheme. Projects for Rs 560.43 crore have been earmarked for the development of four Engineering Colleges, eight Polytechnics, and five Universities have also been approved. Among the five Universities, Cochin University of Science and Technology (CUSAT) receives the major share

of Rs 241.72 crore. CUSAT is being developed into a Centre of Excellence in Academics and Research.

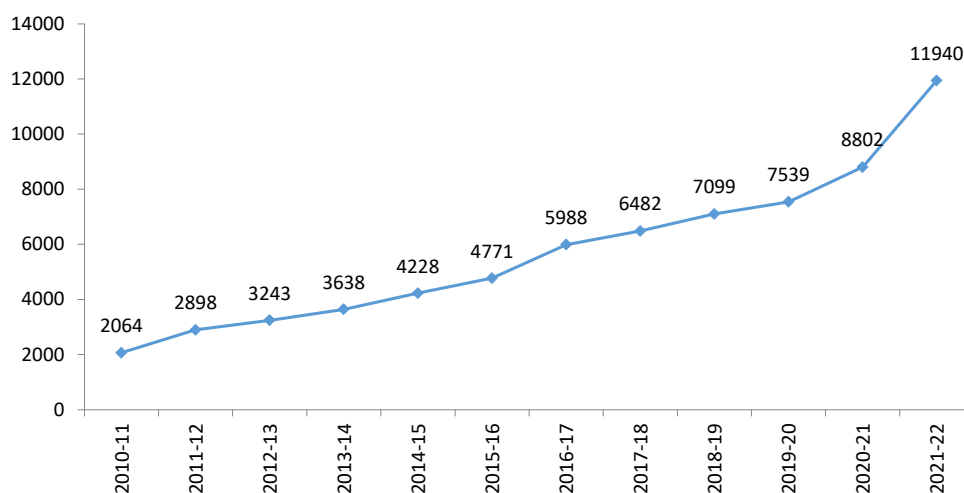
Healthcare: Accessible, Equitable, and Affordable

Kerala is committed to high quality healthcare services for all. The State has successfully narrowed the rural-urban healthcare divide. Due to the concrete and proactive policies of the Government, Kerala tops all the major national health metrics. According to NITI Aayog's State Health Index for 2019-20, Kerala retains its top rank among the larger States, with an overall score of 82.2 in terms of overall performance, and is followed by Tamil Nadu (72.4) and Telangana (69.96). Kerala's response to the Covid-19 pandemic has been commended internationally.

Public Spending on Health

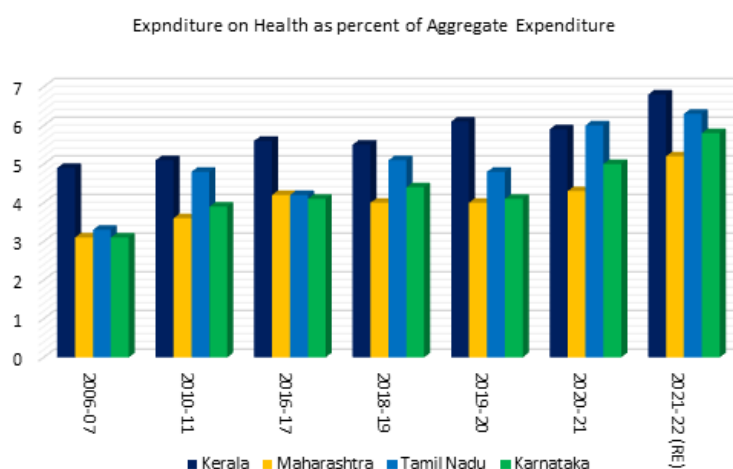
Over the years, the State's expenditure on healthcare has increased consistently, surpassing other Indian states (**Figure 2.18**). Kerala invests about 8 per cent of its total expenditure in public health. In 2015-16, public spending on health was

Figure 2.17 Trends in expenditure on health, Rs, in crore



Source: State Finances: A Study of Budgets 2023-24, Reserve Bank of India

Figure 2.18 State-wise expenditure on health as a per cent of aggregate expenditure



Source: State Finances: A Study of Budgets 2023-24, Reserve Bank of India

Box 2.13 Major Initiatives

Aardram Mission I and II –

1. Patient friendly transformation of the outpatient (OP) wings of Medical College Hospitals and other Government Hospitals,
2. Standardisation of the District and Taluk-level hospitals,
3. Developing PHCs into FHCs in a phased manner
4. Ensuring protocol-based treatment guidelines in the management of patients in hospitals.

e-Health Project - Kerala is the only State in the country with an electronic health record database of 2,59,55,998 people. This includes 68,35,432 households, 1,26,83,803 male, 1,32,71,379 female, and 816 transgender registrations.

Source: DHS, GoK

Rs 4,771 crore. This increased to Rs 7,939 crore in 2019-20, and 58 per cent to Rs 11,940 crore in 2021-22 (**Figure 2.17**). In addition, funding through KIIFB and NABARD, RKI, and World Bank has been used for the construction of buildings and purchase of high-end equipment. KIIFB has approved Rs 5,895.63 crore for health and family welfare, including projects in Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH). Projects include the development of 55 Hospitals across the State, including Taluk Hospitals, General Hospitals, District Hospitals, Medical Colleges, and speciality hospitals including the Cochin Cancer Centre, and at Mattannur. In addition, 10 Critical Care Units (CCU), 9 Cathlabs, and 43 Dialysis units were completed. The construction of ten bed isolation wards in 140 Loksabha Assembly Constituencies, and developments to upgrade Government Medical Colleges to Centres of Excellence have also been approved.

Infrastructure Development

Aardram Mission I, initiated in 2017-18, and Aardram Mission II, initiated in 2021-22, enabled significant development of health infrastructure in Kerala. During the first phase of Aardram, 644 (72 per cent) of 886 PHCs were converted to Family Health Centers. Work is in progress for 72 PHCs. From 2017 to 2023, 49 CHCs out of 151 were converted to FHCs, and work is in progress for 37 CHCs. Out Patient (OPs) departments of 14 Districts Hospitals out of 17, and 11 Taluk Hospitals out of 43 were made patient-friendly. OPs of all the 8 Medical Colleges were also made patient-friendly. Details are given in **Table 2.11**.

Houses for All - Livelihood, Inclusion and Financial Empowerment (LIFE) Mission

Kerala has launched LIFE Mission, a programme to house the landless and homeless in the State, in a phased manner. A total of 3.54 lakh houses have been completed as of 30 September, 2023. A total of 92,411 houses were constructed for

Table 2.11 Infrastructure Development under Aardram Mission

Type of Hospitals	Phases	Total Institutions	Work Completed	Work Progressing	Works to be started
PHCs into FHCs	1st Phase	170	166	1	3
	2nd Phase	504	418	27	59
	3rd Phase	212	60	44	108
	Total	886	644	72	170
CHC to Block FHCs	1st Phase	76	46	15	15
	2nd Phase	75	3	22	50
OPs of District / General Hospitals	1st Phase	17	14	0	3
OPs of Taluk Hospitals	1st, 2nd and 3rd Phases	43	11	18	14
Medical Colleges	1st Phase	8	8	0	0

Source: DHS

Scheduled Caste beneficiaries and 39,320 houses for Scheduled Tribe beneficiaries. The Mission constructed LIFE Towers, housing complexes and created 886 units, of which 643 units have been occupied. Two housing complexes were completed in partnership mode, three by Local Governments, one in sponsorship mode, and five by LIFE Mission directly.

The Kerala State Housing Board (KSHB) has implemented housing schemes including ‘Grihasree’, Working Women’s Hostel, EWS/LIG Housing, and Aswas Rental Housing. Under the Grihasree Housing scheme, a total of 1,433 houses have been constructed since 2017-18. KSHB has constructed 13 Working Women’s Hostels up to March 31, 2023. Under Aswas Rental Housing scheme, the construction of rental houses near Alappuzha, Thrissur, and Kannur Medical Colleges has started, and work has been completed in Thrissur. KSHB has started building 36 apartments in Pattuvam, Kannur, 36 apartments in Mukkam, Kozhikode, and 18 independent cottages in Thrikkaipetta, Wayanad, for economically weaker groups. The scheme ‘Thanteyidam’ is a landmark project of KSHB to address the housing needs of Economically Weaker Sections. It is under implementation.

Way Forward

Since 2016, despite the challenges of financial constraints, climate disasters, the pandemic, and global slowdown, the Government of Kerala has introduced multiple initiatives to develop a robust infrastructure. Significant progress has

been achieved in enhancing the road network, universalising power supply, water supply, education, and health care services, financial inclusion, and digital infrastructure. Kerala’s economy grew faster in this period, with per capita GSDP growing at a rate three times the national average. Additionally, the higher economic efficiency resulting from the public digital infrastructure created in the last few years has contributed significantly to potential GDP growth in the State. The Government of Kerala recognises the need to invest more in enhancing domestic generation of power, widening and four-laning major roads, developing the railway and metro network, and expanding digital and technology infrastructure.

The Government of Kerala envisions a ‘Nava Keralam’, with emphasis on human development, and improving economic efficiency. The broad principles behind this are the creation of public goods, adoption of trust-based governance, and improvement of agricultural and industrial productivity. The Government also encourages the private sector to participate in this historic effort. Amidst financial constraints, Kerala will continue to invest in high quality infrastructure, without compromising on its social commitments.

CHAPTER

03

AGRICULTURE AND ALLIED
SECTORS

AGRICULTURE AND ALLIED SECTORS

3.1 AGRICULTURE

The agriculture sector has a significant role in the development process. It influences on employment generation, food security, supply of raw materials and livelihood generation and imparts resilience to the rural economy. The agriculture sector continues to be the primary source of livelihood in the State. The diverse agro-climatic conditions prevailing in the State favour the cultivation of a variety of crops, including plantation crops, cash crops, spices and food crops.

Poor annual growth rate in the sector has been one of the challenges in the last decade. The approach to the 14th Five Year Plan on enhancing productivity of crops in agriculture and intensification for the revival of agricultural growth rates in the State. As a measure to mitigate climate-change related problems and to reduce the risk of production decline, the agricultural development programmes of the State have been oriented to a farm plan based development approach, giving thrust to integrated farming systems. The State is on the path of group activities in production, value addition, and services through collectives of farmers.

In order to keep in pace with the recent advances in the sector globally, Kerala's agriculture needs to embrace new technologies, particularly in biotechnology and nanotechnology. Youth

should be attracted to agriculture by making it economically rewarding and intellectually stimulating. Production and marketing must be restructured, and interventions in marketing must use the strengths of the State's cooperative sector. A strong crop specific value chain needs to be developed to strengthen agriculture and farmers income.

Gross Value Added in Agriculture

The share of agriculture and allied sectors in the country's total GVA has been declining in the last decade. Sector's share in the Gross Value Added (GVA) of the country at constant prices has declined from 17.8 per cent in 2013-14 to 15.1 per cent (P) in 2022-23. The sectors share in total GSVA (at constant 2011-12 prices) of the State declined to 8.52 per cent in 2022-23 (QE), compared to 8.97 (P) per cent in 2021-22 (Table 3.1.1).

Trends in Growth Rate

As per the provisional estimates of national income, the share of agriculture and allied sectors to GVA of the country declined to 15.1 (P) per cent. in 2022-23 as compared to 15.6 per cent recorded in 2021-22 (Table 3.1.1).

The annual growth rate (GSVA at constant 2011-12 prices) of agriculture and allied activities

Table 3.1.1 Share of agriculture and allied sectors in GVA/GSVA National and State-level, constant prices 2011-12

Year	Share of Agriculture and allied sectors in Total GVA (India) (%)	Share of Agriculture and allied sectors in GSVA (Kerala) (%)
2013-14	17.8	12.37
2014-15	16.5	11.92
2015-16	15.4	10.74
2016-17	15.2	9.96
2017-18	15.3	9.61
2018-19	14.8	9.03
2019-20	15.1	8.55
2020-21	16.4	9.64
2021-22	15.6	8.97(P)
2022-23	15.1(P)	8.52(Q)

Note: (P) Provisional, (Q) Quick

Source: National Accounts Statistics 2023, GoI; Directorate of Economics and Statistics, GoK

(including crops, livestock, forestry and logging and fishing and aquaculture has been fluctuating over the years. In 2021-22, growth rate of agriculture and allied activities was 4.91(P) per cent. In 2022-23, it declined to 0.87 (Q) per cent (Table 3.1.2). The growth in crop sector was 0.74 per cent compared to 3.67 per cent in 2021-22 (Department of Economics and Statistics 2023, GoK).

Table 3.1.2 Growth rate in Gross value Added (GVA) in Agriculture and Allied Sectors in Kerala, 2013-14 to 2022-23

Year	Growth rate per annum in Kerala (%)
2013-14	-6.3
2014-15	0.02
2015-16	-5.1
2016-17	-0.65
2017-18	2.1
2018-19	-2.09
2019-20	-2.56
2020-21	1.58
2021-22	4.91(P)
2022-23	0.87(Q)

Note: (P) Provisional (Q) Quick

Source: National Accounts Statistics, 2023 and DES, Kerala

Monsoon 2023

The pre monsoon rainfall received in the State from March 1, 2023 to May 31, 2023 was categorised as 'deficient' with a departure of (-)34 per cent from the normal. The average actual rainfall received was 241 mm against the normal of 364 mm. Normal rainfall was received only in Pathanamthitta and Wayanad Districts while in the remaining Districts, it was deficient.

In 2023, the Southwest monsoon reached Kerala on 8th June, 7 days after the normal date of onset over the State. The actual rainfall received in Kerala in the South West Monsoon season (June 1, 2023 to September 30, 2023) was 'deficient' receiving 1326.5 mm as against the normal rainfall of 2018.6 mm. This was a departure of (-) 34 per cent from the normal. Southern Districts of Thiruvananthapuram, Kollam, Pathanamthitta and Alappuzha received normal rainfall in 2023, while in the remaining Districts rainfall received was deficient. Kasaragod District received the highest rainfall 2272.4 mm (Figure 3.1.1). Withdrawal of the SW-monsoon 2023 began on 25th September against the normal date of 17th September. It can be noticed that Kerala was deficit in winter, pre monsoon and south west monsoon in 2023.

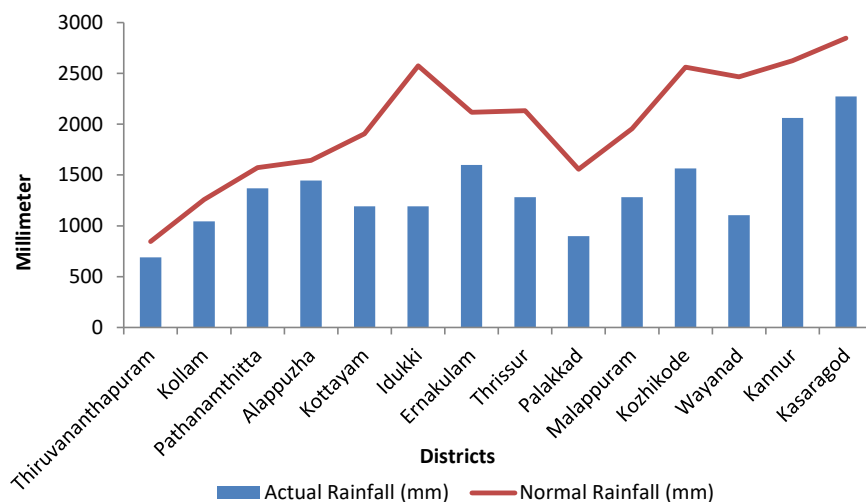
The forecast of rainfall during October to December 2023 indicates normal to above normal rainfall over many areas of northwest India and south peninsular India. The rainfall averaged over south peninsular India during the period is most likely to be normal (88-112% of long period average). The LPA of south peninsular India during the period is about 334.13mm.

Land Use Pattern

As per the land use data, 2022-23 of the Department of Economics and Statistics, out of the total geographical area of 38.86 lakh ha, total cultivated area was 25.16 lakh ha (64.75 per cent) and the net area sown 19.89 lakh ha (51.20 per cent). Land put to non-agricultural use was 5.95 lakh hectare (15.31 per cent) and area under forests 10.82 lakh hectare (27.83 per cent).

The area under cultivable waste and current fallow reported an increase in 2022-23 by 7.51 per cent and 17.43 per cent respectively as against the decline reported in 2021-22. The area under land put to non-agricultural uses and fallow other than current fallow also recorded an increase. The area under barren and uncultivated land recorded a decline of 3.2 per cent over 2021-22.

Figure 3.1.1 South West Monsoon Rainfall received from June, 1 to September 30, 2023



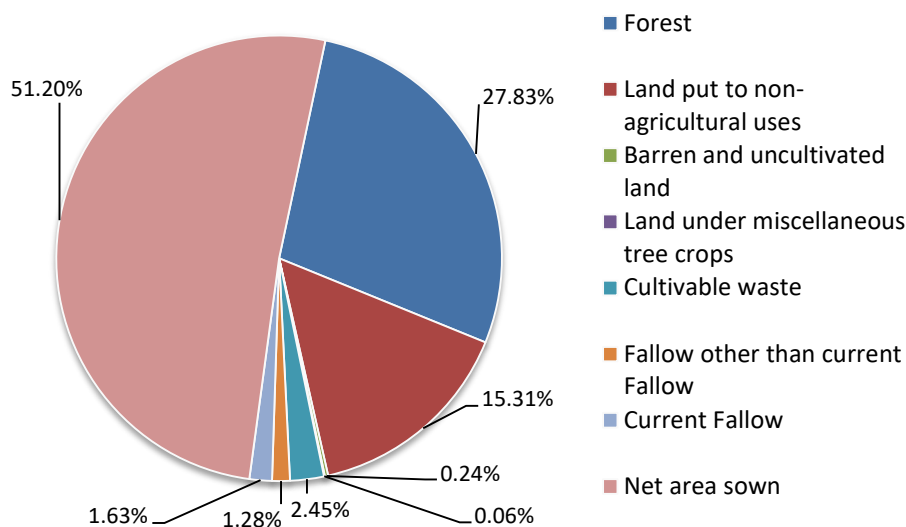
Source: Indian Meteorological Department 2023

The 'area sown more than once' recorded an increase of 6.64 per cent as against the decline reported in the previous year. The increase in extent of cultivable waste and current fallow is reflected in the total cropped area showing a decline of 0.27 per cent over 2021-22. Data on land use pattern for the year 2022-23 is given in **Appendix 3.1.2** and **Figure 3.1.2**.

The total number of operational holdings in the State has increased from 68.31 lakh in 2010-11

to 75.83 lakh in 2015-16 showing an increase of 11 per cent. The average size of operational holding has declined to 0.18 ha in 2015-16 from 0.22 ha in 2010-11(**Appendix 3.1.3**). According to the NSS 77th round of Situation Assessment of Agricultural Households 2019, 33.2 per cent of rural households in the State are agricultural households compared to 54 per cent at the national-level. Among them, 34.4 per cent are self-employed in crop production in the State compared to 68.9 per cent in the country.

Figure 3.1.2 Land use pattern of Kerala 2022-23



Source: Department of Economics and Statistics 2023, GoK

Cropping Pattern

According to the Department of Economics and Statistics, the intensity of cropping in the State in 2022-23, increased by 2.13 per cent over 2021-22. Coconut constituted the major share of the total cropped area with 30 per cent followed by rubber with 22 per cent.

Rice constituted 7.6 per cent and cash crops comprising of cashew, rubber, pepper, coconut, cardamom, tea and coffee constituted 65.7 per cent of the total cultivated area. Compared to 2021-22, the production of food crops except for rice, pulses and small millets recorded a decline in 2022-23. Production of tea, rubber cardamom and coffee increased by 9.3 per cent, 7.7 per cent, 4.2 per cent and 3.6 per cent respectively over 2021-22. The performance of spices except cardamom showed a declining trend in production in 2022-23. The production and productivity of coconut in 2022-23 has recorded an increase of 1.9 per cent and 2.6 per cent respectively over 2021-22.

Data regarding the area, production and productivity of important crops grown in Kerala are shown in **Appendix 3.1.4**.

Crop-Wise Analysis

Rice

According to third Advance Estimate 2022-23 of the country, rice production in India is estimated at 135.54 million tonnes an increase of 4.7 per cent over the previous year.

In 2022-23, the area under rice cultivation (wetland) in the State decreased to 1.90 lakh ha showing a decrease of 1.9 per cent compared to 2021-22. But the production and productivity of rice recorded an increase to 5.93 lakh tonnes and 3117 kg per ha respectively registering an increase of 6 per cent and 8 per cent over 2021-22.

Rice constituted 7.6 per cent of the total area cultivated in the State in 2022-23. Since last 10 years, the highest share of area under paddy was recorded in 2020-21 i.e. 2.02 lakh ha with a production of 6.27 lakh tonnes. The decline in rice production reported in 2021-22 continued in 2022-23 also, but the productivity recorded was the highest in the last ten years. (**Appendix 3.1.5**).

Season-wise data of rice reveals that the area under

Virippu (autumn) and *Puncha* (summer) crop has increased, while that of *Mundakan* (winter) crop has decreased in 2022-23 over the previous year. The seasonal production also recorded similar trend and productivity of rice recorded increase in all the three seasons. As against the previous year, the highest productivity was recorded in *Puncha* season with 3,357 kg per ha (**Appendix 3.1.6**).

Mundakan crop contributed to 37 per cent of the total cultivated area of paddy in 2022-23 with 61 per cent of the area in Palakkad, Thrissur and Malappuram Districts. Alappuzha and Palakkad Districts contributed to 78 per cent area of Virippu crop. While Puncha crop was dominant in Alappuzha District, Mundakan and Virippu crop were prominent in Palakkad District (**Appendix 3.1.7**).

Palakkad (38.6 per cent), Alappuzha (20.5 per cent), Thrissur (12 per cent) and Kottayam (9.4 per cent) accounted for about 81 per cent of the total area of rice in the State contributing to 82 per cent of the total rice production. All the Districts, except Pathanamthitta, Alappuzha and Kottayam recorded a decline in area under paddy compared to 2021-22.

Palakkad District stood first with respect to area and production of rice in the State followed by Alappuzha District. But with respect to productivity, Malappuram District stood first followed by Thrissur. The production of rice in all the Districts except Thiruvananthapuram, Palakkad, Kozhikode, Wayanad, Kannur and Kasargod recorded an increase compared to 2021-22. The highest increase in rice production in 2022-23 was recorded in Pathanamthitta District followed by Alappuzha District. Kannur District recorded the highest decline in production under wetland category (**Appendix 3.1.8**). The productivity of rice recorded an increase in all the Districts in 2022-23.

In addition to wetland cultivation, upland paddy was cultivated in an area of 1,541 ha producing 3,175.8 tonnes. The productivity of upland rice was 2,061 kg per ha. Significant decline in upland paddy area is noticed since 2020-21. (**Appendix 3.1.8**).

Season-wise area for high yielding and local varieties are given in **Appendix 3.1.9** and **3.1.10**. About 97.8 per cent of the paddy area extending

to 1.86 lakh ha was cultivated with high yielding varieties and 4197 ha with local varieties.

The intervention to promote paddy cultivation in the State includes input assistance of Rs 5,500 per ha and support to area expansion programmes from the State Plan schemes. Over and above the State Plan schemes, the Local Self Governments also support paddy cultivation of Rs 25,000 per ha. In Pokkali, Kaippad and Kari regions this assistance is of Rs 32,000 per ha. The LSG support covers assistance for inputs such as seeds, fertilizers and pesticides in addition to support for land preparation.

Other incentives to paddy farmers include, paddy production bonus of Rs 1,000 per ha per season and free electricity. 'Royalty' to owners of paddy land, introduced in 2020-21 for conserving paddy lands is being provided at Rs 3,000 per ha from 2022-23.

Vegetables

The State Government implements the Vegetable development programme with the objective of promoting vegetable production to attain self-sufficiency and nutritional security in the sector. Cluster based vegetable cultivation and the application of new technologies were promoted in addition to assistance provided for cultivation in homesteads, institutions and fallow land. Rain shelters and micro irrigation and fertigation was used to increase the productivity of vegetables. An area of 85,177.75 ha was covered under rain shelter vegetable cultivation with the involvement of 898 farmers in the year. According to the data of State Department of Agriculture Development and Farmer's Welfare, the area under vegetable cultivation increased from 1.08 lakh ha in 2021-22 to 1.14 lakh ha in 2022-23 recording an increase in production from 16.01 lakh tonnes to 17.10 lakh tonnes. Good agricultural practices were promoted in vegetables, pineapple, banana, and passion fruit through State Horticulture Mission (SHM) in 2,529.6 ha. Vegetable and Fruit Promotion Council Kerala (VFPC) supported good agricultural practices in 500 ha of vegetable cultivation by providing assistance to green manuring, organic inputs, phosphate rich organic manure and insect traps. As part of this, soil tests were conducted in 900 samples before the start of the season.

Coconut

According to Food and Agriculture Organization Statistics 2021, Indonesia stands first in coconut production in the world followed by Philippines, India and Sri Lanka.

According to the advance estimate of 2022-23, the area under coconut in India was 21.77 lakh hectare with a production of 19,602 million nuts and productivity of 9,003 nuts per hectare. Among the coconut growing States, the southern States of Tamil Nadu, Kerala, Karnataka and Andhra Pradesh accounts for 89.35 per cent of the total area and 90.59 per cent of the total production. According to Coconut Development Board, white fly infestation and Gaja Cyclone in Tamil Nadu, drought in Karnataka during 2017 to 2019, increase in the input cost, mainly fertilizer cost had contributed to low production in the country during 2018-19 to 2022-23 from 21,288 million nuts to 19,602 million nuts.

In 2022-23, coconut was cultivated in 7.60 lakh ha occupying 30 per cent of the gross cropped area in the State. According to the data of Coconut Development Board, even though Kerala has reduced area of coconut compared to the previous year 2021-22, it holds first position in production in the Country due to concentrated efforts of the State and Coconut Development Board. The production and productivity in 2022-23 increased to 5,641 million nuts and 7,419 nuts per ha respectively. However, the performance of coconut sector in the State has been fluctuating over the last five years (**Appendix 3.1.11**).

Productivity improvement programmes and technology adoption to reduce pest infestation is imparted to farmers at grass root levels through State department programmes. Keragramam programme for the integrated management of coconut gardens on cluster basis and Coconut Mission, a campaign for replanting and maintenance of coconut palms for enhancing the productivity and ensuring forward linkages with the agro industry are other initiatives of the State for reviving the coconut wealth of Kerala. It is expected that these initiatives would result in better yield and production in the future. As part of the replanting programme under the coconut mission initiated in 2018, 34,31,754 coconut seedlings comprising of West Coast Tall (WCT), Dwarf and

Table.3.1.3 Status of distribution of coconut seedlings under Coconut Mission from 2019-20 to 2022-23, in numbers

Year	WCT	Dwarf	Hybrid	Total
2019-20	2,22,751	32,493	95,781	3,51,025
2020-21	6,06,967	29,217	1,20,986	7,57,170
2021-22	8,98,647	31,293	1,30,052	10,59,992
2022-23	11,23,790	40,965	98,812	12,63,567
Total	28,52,155	1,33,968	4,45,631	34,31,754

Source: Department of Agriculture Development and Farmers Welfare, Kerala

hybrid varieties have been distributed throughout the State (Table 3.1.3).

Pepper

According to the International Pepper Community, the global production of pepper is estimated to decline to 5.26 lakh tonnes in 2023 compared to 5.38 lakh tonnes in 2022. Vietnam, maintained its first position in pepper production contributing to 37.1 per cent of the global pepper production.

As per the advance estimate of Spices Board, pepper production in India in 2022-23 is estimated at 64 thousand tonnes, a decline from 70 thousand tonnes recorded in 2021-22. Karnataka stood first in terms of area and production of pepper in the country contributing to 56 per cent of the total pepper production, followed by Kerala.

The steady increase in domestic price of pepper observed since 2021 continued in 2022 and recorded an increase to Rs 516.63 per kg against the price of Rs 419.44 per kg in 2021.

According to the Department of Economics and Statistics GoK, the area and production of pepper in the State recorded a decline in 2022-23 compared to 2021-22. The production of pepper declined by 4,862 tonnes recording 27,654 tonnes from an area of 73,732 ha (Appendix 3.1.4).

Cashew

According to FAO Statistics 2022, Cote d' Ivoire retained its first position in cashew nut production in the world followed by India.

According to the Directorate of Cashewnut and Cocoa Development statistics the national production of raw cashew nuts in 2022-23 was 7.82 lakh tonnes which is an increase of 30 thousand tonnes over 2021-22. The area under cashew also recorded an increase to 11.92 lakh hectare from 11.84 lakh hectare (Appendix 3.1.12).

Among the cashew growing States in India, Maharashtra retained its first position in production in 2022-23 contributing a share of 25.23 per cent followed by Andhra Pradesh with 16.9 per cent of the domestic production.

Kerala came sixth in the country with a production of 74,630 tonnes from an area of 1.08 lakh hectare. The extent of cashew cultivation as well as its production in the State recorded an increase of 2100 hectare and 2,870 tonnes respectively over 2021-22.

Plantation Crops

In view of the potential for export, employment generation and poverty alleviation, plantation crops play a vital role in the National and State economy. Kerala has a substantial share in the four plantation crops viz. rubber, tea, coffee and cardamom. These four crops together occupied 7.12 lakh ha, accounting to 28.3 per cent of the total cropped area in the State (Appendix 3.1.13). Kerala's share in the national production of rubber is 71.4 per cent. The percentage share of cardamom, coffee and tea were 90.6 per cent, 20.6 per cent and 4.8 per cent respectively in 2022-23.

Fluctuating price realisation, declining production and productivity and susceptibility in the areas of research and development, processing, marketing and trade has been identified as challenges in the plantation sector of the State. Considering the significant role of plantation crops in the economy, focus on initiatives to improve processing and value addition of produces of plantation crops in addition to expanding, replanting and productivity, can enhance the revenue flow from plantations.

Rubber

According to the International Rubber Study Group, the world Natural Rubber (NR) production in 2022 was 14.609 million tonnes which is an

increase of 5.8 per cent over 2021. Among the main NR producing countries, Thailand recorded the highest production of 47.53 lakh tonnes followed by Indonesia and Vietnam. India was the sixth largest producer with a share of 5.8 per cent of world production. The global consumption of natural rubber also increased over the previous year by 1.1 per cent recording 14.219 million tonnes. India continued its second position in terms of natural rubber consumption, next to China.

As per the Rubber Board Statistics, the natural rubber production in the country in 2022-23 showed improvement over the previous year, with a growth of 8.3 per cent recording 8.39 lakh tonnes. Out of the 7.38 lakh ha of tappable area under natural rubber, 5.66 lakh ha contributed to the NR production. The average yield measured in terms of tapped area increased from 1472 kg per hectare to 1482 kg per ha. Increase in tapped area, supply of rain guarding materials, continuation of Rubber Production and Incentive Scheme (RPIS), bringing more untapped area to tapping, promotion of self tapping and other appropriate agronomic practices are attributed to growth in rubber production by the Rubber Board.

The natural rubber consumption peaked to 13.5 lakh tonnes in 2022-23, 9 per cent more than the quantity consumed in 2021-22. The import of natural rubber in 2022-23, declined by 3.2 per cent to 5.29 lakh tonnes compared to 5.46 lakh tonnes in 2021-22 (**Appendix 3.1.14**). As against the dip in rubber export to 3,560 tonnes in 2021-22, the volume of natural rubber exports from the country recorded an increase to 3,700 tonnes in 2022-23.

Rubber occupies the second largest area in the State next to coconut with 22 per cent of the gross cropped area. In 2022-23, the rubber production in the State increased by 7.7 per cent to 5.99 lakh tonnes compared to 2021-22. However, there was a marginal decline in area of 220 hectare recording 5.49 lakh ha. The productivity of rubber increased from 1,565 kg per ha to 1,570 kg per ha in 2022-23 (**Appendix 3.1.13**).

Annual average domestic price for RSS 4 grade rubber declined to Rs 15,652 per 100 kg in 2022-23 compared to Rs 17,101 per 100 kg in 2021-22. The average domestic price of rubber was

above the international prices throughout the year (**Appendix 3.1.15 and 3.1.16**).

Coffee

According to the International Coffee Organisation, the global coffee production in 2022-23 was estimated at 171.3 million bags (60 kilo bags), an increase of 2.8 million bags over 2021-22. Brazil stood first in coffee production with a share of 37.8 per cent of the global production followed by Vietnam with 17.1 per cent. India came to sixth position with 3.8 per cent share. Globally, Arabica production increased and Robusta production declined as against the previous year.

Coffee Board estimated the domestic coffee production in 2022-23 at 3.52 lakh tonnes, which is an overall increase in total production by 10 thousand tonnes. Robusta production dominated with 71.6 per cent of the total coffee production. Among the major coffee producing States Karnataka maintained the first position with 70.5 per cent of the total production followed by Kerala.

The Indian coffee export decreased to 398 thousand metric tonnes in 2022-23 compared to 420 thousand tonnes in 2021-22, while value realisation increased to Rs 9,022 crore and unit value increased to Rs 226 per kilogram.

The production of coffee in Kerala increased from 69,900 metric tonnes in 2021-22 to 72,425 metric tonnes in 2022-23. The area planted under coffee recorded a marginal increase of 77 ha over 2021-22 with 85,957 hectare (**Appendix 3.1.13**). As reported by Coffee Board, the bearing area is 85,044 ha. Kerala's share of coffee production in the country was 20.6 per cent. The productivity of the crop in Kerala was 852 kg per ha. With respect to employment generation, the coffee plantations in Kerala provided employment to 44,242 persons per day.

Tea

China maintained its first position among the major tea producing countries in the year 2022, contributing to 49.1 per cent of the world tea production followed by India and Kenya with a share of 21 per cent and 8.3 per cent respectively. As per Tea Board Statistics 2022, there are 2.31 lakh tea growers in the country cultivating in an area of 6.2 lakh hectares. Domestic tea production

in 2022-23 was 1,374.97 million kilogram which is an increase of 30.57 million kilogram over 2021-22 (**Appendix 3.1.17**). Assam followed by West Bengal were the leading tea producing States in the country.

As per Tea Board estimate of March 2022, there are 8,018 tea growers in the State cultivating in an area of 35,651 hectares. Kerala accounted for 4.8 per cent of the total domestic production of tea in the country in 2022-23. The production of tea in the State increased by 5.6 million kg to 65.98 million kg compared to 2021-22 (**Appendix 3.1.13**).

Cardamom

India is the second largest producer of small cardamom in the world next to Guatemala. As per the advance estimate of Spices Board 2022-23, cardamom production in India is estimated at 24.5 thousand tonnes, which is an increase of 1.1 thousand tonnes over 2021-22.

In 2022-23, the price for cardamom increased to Rs 1,075.45 per kg compared to Rs 996.52 per kg in 2021-22. The cardamom export from the

country witnessed a decline in quantity, value as well as unit price in 2022-23 compared to 2021-22.

Kerala had a major share in cardamom production contributing to 90.6 per cent of the national production. The production of cardamom increased to 22.165 thousand tonnes in 2022-23, which is an increase of 4.2 per cent over 2021-22. The area under cardamom also increased to 40,345 hectare which is an increase of 1,202 hectare compared to 2021-22 (**Appendix 3.1.13**).

Consumption of Fertilizers and Pesticides

As indicated in **Table 3.1.4**, highest pesticide consumption in 2022-23 was for banana crop, followed by coconut and paddy.

Consumption of pesticides reported in 2022-23 was the highest in the last three years with 495.2 metric tonnes. This constituted 231.2 metric tonnes of chemical pesticides and 264 metric tonnes of bio-pesticides. The increase was more for chemical pesticides than bio-pesticides.

Compared to the previous year, total consumption of NPK fertilizers has increased in 2022-23. (**Table 3.1.5**).

Table 3.1.4 Commodity and crop-wise consumption of pesticides, chemical and bio, 2020-21 to 2022-23 (MT), technical grade

Commodity	Chemical Pesticides			Biopesticides			Total		
	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
Cereals Paddy	52.9	59.2	45.7	62.9	56.8	50.2	115.7	116.0	95.9
Vegetables	34.1	40.7	41.6	42.8	46.2	43.6	76.9	86.9	85.2
Spices	22.1	20.9	27.6	31.2	30.2	32.7	53.2	51.1	60.3
Coconut	52.9	43.6	46.0	63.7	65.3	61.9	116.6	108.9	107.9
Arecanut	12.3	12.1	13.2	19.9	17.6	16.8	32.2	29.7	30.0
Banana	50.2	49.2	57.0	47.9	47.6	58.9	98.2	96.8	115.9
Total	224.5	225.7	231.2	268.4	263.7	264.0	492.9	489.4	495.2

Source: Department of Agriculture Development and Farmers Welfare, Kerala

Table 3.1.5 Pesticide and Fertilizer (NPK) Consumption Pattern in the State, 2018-19 to 2022-23 (MT)

Year	Chemical Pesticides	Biopesticides	Total	Nitrogen	Phosphorus	Potassium
2018-19	517.3	676.8	1194.1	73109	40802	67877
2019-20	291.0	343.8	634.8	75292	36797	55866
2020-21	224.5	268.4	492.9	89238	42613	75085
2021-22	225.7	263.7	484.1	76682	36327	50072
2022-23	231.2	264.0	495.2	83594	39819	64751

Source: Department of Agriculture Development and Farmers Welfare, Kerala

The per hectare consumption of nitrogenous and potassium fertilizers increased in 2022-23 compared to the previous year with 31 kg per ha and 23kg per ha respectively. The ratio of consumption of nitrogenous fertilizers compared to phosphorus and potassium fertilizers together was 87 per cent which is slightly less than the previous year. (**Appendix 3.1.18**).

Collective Farming through Kudumbasree

Kudumbashree launched collective farming by organising women to take up leased land farming with the objective of empowering women economically while helping Local Governments in moving towards food security. Cultivation of fallow land is undertaken on informal lease by Joint Liability Groups (JLGs) along the lines of the group concept promoted by the National Bank for Agriculture and Rural Development (NABARD) with the support of Panchayats and the Kudumbashree community network.

In 2022-23, an area of 38,956.82 ha was cultivated with paddy, vegetables, banana, tubers and other crops with the participation of 74,783 JLG's. The area brought under cultivation of paddy was 9,048 ha, vegetables 6,334 ha, banana 9,781 ha and tubers 9,654.5 ha. Other crops were cultivated in 917 ha. On comparing with the area covered in 2021-22, the area taken up under all the crops through collective farming has increased considerably. Details of area covered in 2022-23 are given in **Appendix 3.1.19**.

Soil Conservation

Considering the importance of sustainable management of soil resource in agricultural development, soil conservation activities were carried out in the State by the Department of Soil Survey and Soil Conservation. In 2022-23, an area of 6,361.58 hectare area have been treated with conservation measures aiming to improve the local production environment with basic infrastructure for facilitating increased agricultural production and productivity under various watershed projects/ drainage and flood control schemes. Agronomic and bio engineering interventions were undertaken for the stabilisation and protection of landslide affected/prone areas in an area of 989.19 hectare and eco-restoration activities were carried out in an area of 2,984.42 hectare in Idukki, Wayanad, Thrissur, Malappuram, Kozhikode and Alappuzha Districts under Rebuild Kerala Initiative.

Considering the importance of soil test based management practises in crop production and classification of soils based on its physico-chemical properties, 25,322 samples were analysed and 17,164 soil health cards were distributed. As part of converting the data available with the department to digital platform, digitisation drive was started in 2021-22 and till date digitisation of soil and land resources of 350 Panchayats has been completed. The "Soil Museum" under the department which acts as a repository of comprehensive information about the soils of the State, was included in the official tourism website of the Government of Kerala during this period.

Agricultural Marketing

Marketing of agricultural commodities is facilitated through a network of whole and retail markets functioning in rural and urban areas. There are also local market outlets placed at various levels, facilitating marketing of the local farm produce with different mode of aggregation, either on cluster-based business model or aggregating from farmers.

In 2022-23, VFPCCK contributed significantly to strengthening the agricultural marketing system of the State through initiation of 180 farm gate collection centres to facilitate marketing of excess produce from households and rural areas. Trading of 85,849 metric tonnes of vegetables and fruits worth Rs 309.99 crore were carried out through 292 Swasraya Karshaka Samithis established at the production centres.

"Kerala farm fresh *Pazham Pachakkari* – base price" programme of the State facilitated assured price to farmers in all seasons by way of the base price fixed for 16 items of vegetables and fruits. Farmers were compensated with the difference in price, in the event of fall in market price below the base price. In 2022-23, this programme was implemented through 550 selected nodal markets including 250 Primary Agricultural Cooperative Societies and 300 nodal markets of the Department of Agriculture and VFPCCK. Through the 250 markets of VFPCCK, 5,000 farmers registered under the "Kerala farm fresh *Pazham Pachakkari* – base price" programme of the State and benefitted the minimum base price fixed for 16 items of fruits and vegetables.

A total of 2,010 onam markets were conducted in 2022-23 through the Department of Agriculture

along with VFPC and HORTICORP. VFPC intervened in controlling price hike of vegetables during the Onam season by organising 160 vegetable retail markets in which vegetables and fruits were provided at 30 per cent reduced rates to consumers.

Development of an organised market information system and market intelligence mechanism as well as an efficient supply chain for marketing of agricultural commodities especially the perishables are essential for strengthening the agricultural marketing scenario of the State.

Post-harvest management and Value Addition

Small Farmers Agribusiness Consortium (SFAC), under the Department of Agriculture and Farmers Welfare, Government of Kerala is the organisation providing necessary linkages for establishment and running of successful agribusiness for the benefit of farmers and entrepreneurs. In 2022-23, SFAC Kerala provided assistance to 8 new agripreneurs consisting of 2 micro, 3 small and 3 medium units. Sixty eight additional units has been promoted through SFAC since 2017-18 in addition to these 8 units.

Farmer producer Organisations (FPO) being the appropriate institutional mechanism to mobilise farmers and build their capacity for collective production and marketing, State Government focused on providing favorable environment for creation of new FPOs by providing necessary technical and managerial skills along with marketing infrastructure facilities. Under the RKVY scheme for Promotion of Farmer producer Organisation, the process for the formation of 50 new FPOs and strengthening of existing 50 FPOs continued under SFAC. Accordingly in 2022-23, 44 new FPOs have been approved and strengthening of 49 existing FPOs have been initiated.

VFPC was recognised as the Cluster based business organisation (CBBO) for formation of FPOs under Central SFAC and accordingly 5 FPOs were formed in five blocks. Among the 41 FPOs registered through VFPC covering crops such as banana, pineapple, spices, jack, mangosteen and vegetables, Uzhavoor FPO, Kottayam initiated value addition for processing of tubers, fruits and vegetables and Anchal FPO initiated the honey processing unit in 2022-23.

The Kerala State Warehousing Corporation,

operates 55 warehouses with a storage capacity of 2.35 lakh metric tonnes across the State. In 2022-23 a new godown of 1,393 metric tonne was inaugurated at Mavelikkara. In 2023-24, godowns were constructed at Thalassery, Kozhijampara and Muthalamada utilising the NABARD warehouse Infrastructure fund with a total capacity of 6995 metric tonne. Establishment of one agri complex at Kozhijampara warehouse and a temperature controlled godown at State warehouse, Vandanmedu for cardamom farmers were the other contributions for strengthening the storage and warehousing facilities of agricultural commodities.

Facilitating sufficient incubators, promoting technology protocol for ready to use packaging for micro-level entrepreneurs, disseminating knowledge and experience in e-commerce and online marketing, quality standardisation of products, common infrastructure for cold storage and community processing centre can strengthen the agribusiness ventures in the State.

Mechanisation

In order to overcome the shortage of agricultural labour force existing in the State, thrust has been given for the promotion of mechanisation of agricultural operations in the past years. Initiatives to facilitate mechanisation support and other agricultural services to farmers in the State include Agro Service Centres (ASC) at block-level, Karshika Karma Senas (KKS) and Custom Hiring Centres (CHC) at Panchayat-level. Kerala State Agricultural Mechanisation Mission constituted in the State in 2018, functions with the objective of ensuring proper coordination and monitoring of the activities of ASC, KKS, CHC and similar services providers, Kerala Agromachinery Corporation (KAMCO) and Kerala Agro Industries Corporation Ltd (KAICO), and also to enable a single window mechanism to deliver services to farmers.

As reported by the Mission, there exists 99 Agro Service Centres, 368 Karshika Karma Senas and 28 Krishisree centres in the State in 2022-23. According to the agro machinery survey conducted by the mission, 11,505 agromachines have been supplied to different farmer group, padasekhara samithi and other groups with 100 per cent assistance by various departments including Agriculture and Local Self Government. Out of this 5,354 machineries were reported as functional

Table 3.1.6 Agromachinery Registration 2022-23

District	Combine Harvester	Tractor/Mini Tractor	Transplanter	Power Tiller	Garden Tiller/Mini Tiller	Thresher/Thresher Com winnower/Winnower	Reaper	Pumpset/Motor	Sprayers	Brush Cutter	Climber	Others	Total
Thiruvananthapuram	3	39	11	152	24	36	17	52	382	146	41	37	940
Kollam	13	58	7	124	7	122	32	11	331	12	14	5	736
Pathanamthitta	0	23	13	69	8	57	38	78	104	15	3	11	419
Alappuzha	0	19	2	35	14	25	6	225	266	13	4	8	617
Kottayam	2	16	1	35	8	19	12	141	143	111	103	80	671
Idukki	1	7	3	38	17	42	11	8	168	103	46	50	494
Ernakulam	25	27	5	232	17	187	38	32	239	65	19	15	901
Thrissur	18	64	122	259	40	198	38	540	497	153	21	80	2030
Palakkad	16	105	114	109	12	126	67	19	195	129	16	54	962
Malappuram	0	31	28	68	25	63	19	43	88	30	8	18	421
Kozhikode	2	11	6	118	6	92	17	22	55	27	4	6	366
Wayanad	1	7	21	240	0	170	55	8	86	17	2	22	629
Kannur	0	71	24	433	10	184	49	27	139	80	9	84	1110
Kasaragod	0	52	10	489	0	295	145	11	74	58	0	75	1209
Total	81	530	367	2,401	188	1,616	544	1217	2,767	959	290	545	11,505

Source: Kerala State Agricultural Mechanisation Mission 2023

and among the non operative agromachineries, 17 per cent could be repaired and made functional. Training on Agromachinery operations and repair and service was imparted to 256 technical personnels in 14 Districts. 202 machineries worth Rs 150 lakh was repaired and made functional through the mission in 2022-23. Summary report of agromachinery registration campaign 2022-23 is given in **Table 3.1.6**.

In 2022-23, 1009 individuals comprising of 541 women and 468 men were engaged as service providers through the Agro Service Centres and 3792 agricultural technicians comprising of 2,039 women and 1,753 men were engaged in the Karshika Karma Senas for various mechanisation services through the Mission. The ASC and KKS besides providing mechanisation services, also provided support for production and supply of 15.62 lakh fruit seedlings as part of the one crore fruit seedling distribution programme in 2022-23.

Major Achievements of Department of Agriculture in 2022-23

In 2022-23, one of the major initiative of the department was the introduction of farm plan-based approach as a strategy for the holistic development of individual farms to improve the income of the farmer and provide livelihood security on a long term perspective. Under this approach, individual farms were identified and developed as the basic unit of development through Krishi Bhavans based on a scientific resource-based plan. The concept of FPO formation and development through collectivisation of these farms was promoted to facilitate efficient marketing and better value realisation of produce to farmers. Development of supply chain network linking the farmers with FPOs, marketing hubs, retail shops and consumers and facilitating prompt payment to farmers was also targeted under this approach through application of digital technology.

Transformation of Krishibhavans to Smart Krishibhavans was another initiative during the period with the objective of improving the functioning efficiency of Krishi Bhavans to focus on productivity-enhancing interventions for farmers in a scientific manner with the integration of latest technologies including Information Technology. In 2022-23, Thondarnad Krishi Bhavan of Mananthavady in Wayanad District and Aruvappulam Krishi Bhavan of Konni in Pathanamthitta District have been converted into Smart Krishi Bhavans.

The other activities of focus included crop husbandry, marketing, value addition, extension services and farmer welfare schemes. Efficient resource management, climate resilient practices, technology-driven development were given due importance in implementing agricultural programmes. The crop production programmes in addition to crop specific schemes also concentrated on promoting scientific and Good Agricultural Practices. With the objective of providing income security to farmers, industry-based development of agriculture sector through value addition was also supported. Agricultural credit facilities, crop insurance coverage, market intervention for price stabilisation and farmer pension were the farmer welfare programmes supported by the State. Some of the major highlights of achievement for 2022-23 are as follows.

- As part of the farm plan based development approach 10,760 farm units ranging from 10 cents to 200 cents were identified and activities initiated for its development. 523 integrated farming system models were developed throughout the State. A total of 90 new Farmer Producer Organisations were formed as collectives of these farm units. As part of the process of establishing a supply chain for marketing of produce generated from these farm units, a chain of 9 premium outlets were developed. Digital display boards displaying prices of commodities were also established in 525 sale outlets of the established FPOs.
- Assistance as input subsidy of Rs 5,500 per ha was provided for rice development in 93,510 ha.
- Royalty to paddy land owners for ecosystem services was enhanced to Rs 3,000 per ha and was provided to 14,498 hectare.
- As part of area expansion programmes for paddy, 970.2 ha fallow land was brought under paddy cultivation. Double crop cultivation was expanded in 338.6 ha and upland paddy in 511ha. Specialty rice cultivation was supported in 618 ha.
- With the objective of promoting safe to eat vegetable production during the onam season, 49.31 lakh vegetable seed kits and 200.42 lakh vegetable seedlings were distributed free of cost.
- Assistance was provided for promoting cool season vegetables in 579 ha in Idukki and Wayanad Districts. Cluster based vegetable cultivation was promoted and 746 clusters comprising of 11,609 farmers in an area of 3,062 ha was supported.
- As part of promotion of cluster based coconut development 98 new Keragramams which are clusters of 100 ha were formed in 13 Districts. Rejuvenation of coconut palms was done in 9,455 ha by providing assistance for basin opening, weed control, application of organic and chemical fertilizers, lime and magnesium sulphate, biofertilizers, pest and disease control and husk burial.
- Distributed 11,23,790 West Coast Tall, 40,965 dwarf and 98,812 hybrid coconut seedlings as part of the rehabilitation and rejuvenation of coconut palm campaign under Coconut Mission.
- Under the fruit development package 68.9 lakh planting materials varieties were distributed and fruit cultivation expanded to 7,496 ha.
- Cluster-based medicinal plant cultivation of Kacholam, Chethikoduveli, Koovalam, Kurunthoti, Thipali, Thulsi, Ramacham and Shatavari was promoted in Alappuzha, Thrissur, Malappuram, Palakkad and Kannur Districts in an area of 58.8 ha
- Established 3,583 pest surveillance units and 2 new Plant Health Clinics making the total number of Plant Health Clinics established in the State 278.
- Fertilizer Quality Control Laboratory Parottukonam obtained accreditation of National Accreditation Board for Testing and Calibration in accordance with ISO/IEC 17025:2017 in the discipline of Chemical Testing.
- As part of quality control enforcement of fertilizers, pesticides, biofertilizers and organic manures distributed in the State, samples were collected from outlets and analysed. Accordingly 2,186 pesticide samples, 3,781 fertilizer samples and 48 biofertilizer and organic manure samples were analysed and 2 pesticide, 367 fertilizer and 17 biofertilizer samples were found non standard.

- The procurement price of green coconut was raised from Rs 32 per kg to Rs 34 per kg from April 1, 2023. In 2022-23, 12,069.208305 MT of green coconut was procured from 31,782 farmers through KERAFED, FPOs, Co-operatives and KSCDC.
- As on September 2023, 41,39,109 individual farmers, 36,236 Farmer Groups and 578 institutions enrolled in AIMS portal.
- The Kerala Agro Business Company (KABCO) for marketing and value addition was established to function as an independent, professionally managed Special Purpose Vehicle to establish market linkage to farmers, facilitate transformation of agriculture to agri-business, promote value addition and to perform other related functions.
- Farm products produced from various Departmental Farms were onboarded on online platforms under the common brand name of 'Keralagro'
- Registration of 15,058 farmers as members of Farmer Welfare Fund Board as on September 2023. Under PM KISSAN scheme 21,29,189 farmers got enrolled as on March 2023.
- Assistance was provided to 29,755 individual beneficiaries and a total of 422 farm machinery banks were established under the centrally sponsored scheme on Sub Mission for agricultural mechanisation.

Crop Insurance Schemes

The crop insurance schemes under implementation in the State are the State Crop Insurance Scheme, Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather Based Crop Insurance Scheme (RWBCIS).

The State Crop Insurance covers risks to crop production due to vagaries of nature and attack of pests and diseases. Total of 27 major agricultural crops namely coconut, banana, rubber, black pepper, arecanut, cardamom, cashew, pineapple, coffee, ginger, tea, tapioca, turmeric, cocoa, groundnut, sesamum, vegetables, nutmeg, clove, betel leaf, pulses, tuber crops, sugarcane, tobacco, paddy, mango and millets are covered. The scheme covers losses caused by natural calamities such as drought, flood, landslide, earthquake, sea erosion, storm, hurricane, lightning, wild life menace and forest fire. In 2022-23, 2,38,666 farmers were enrolled under the scheme and an amount of Rs 5,16,09,025 was collected as premium amount. An amount of Rs 40.83 crore was disbursed to 21,740

farmers as compensation to crop damage under this scheme.

The crops notified under Restructured Weather Based Crop Insurance Scheme (RWBCIS) in the State are paddy, banana, pepper, ginger, turmeric, pineapple, cardamom, arecanut, nutmeg and sugarcane for Kharif season and paddy, banana, cashew, mango, sugarcane, pineapple, potato, cabbage, carrot, garlic, french bean, yard long bean, snake gourd and bitter gourd for Rabi season. In Kharif 2022 season, 57,518 farmers had enrolled and Claims of Rs 94.28 crore has been approved with respect to 51,962 farmers. For Rabi 22-23 season, 72,249 farmers were enrolled. Claims are settled based on weather data of the respective automated weather stations. Automatic Weather Stations are installed in 150 locations linking Panchayats facilitating settlement of claims.

The crops notified under Prime Ministers Fasal BimaYojana (PMFBY) in the State are paddy, in Alappuzha, Kottayam and Pathanamthitta Districts and banana, tapioca and plantain in all the Districts. During Kharif 2022 season, 8,760 farmers had enrolled and claims of around Rs 2.7 crore were settled for 4,056 farmers for paddy alone and for Rabi season 8,019 farmers have been enrolled.

Vegetable and Fruit Promotion Council, Kerala (VFPCCK)

The mandate of Vegetable and Fruit Promotion Council, Kerala (VFPCCK) is to support the commercial fruit and vegetable growers in Kerala in various farm operations, from seed to marketing. All the interventions, including agricultural extension, rural credit, group marketing and value addition are conceptualised through Self Help Groups by the Council. In 2022-23, it is reported to have inducted 3,145 new farmers forming 99 new Self Help Groups thereby increasing the farmer database to 2,11,339 numbers and SHGs to 10,310 numbers.

The Seed Processing Plant at Alathur, Hitech Plug nursery at Nadukkara, Ernakulam and Krishi Business Kendras at Ernakulam, Thiruvananthapuram and Kasaragod functioning under the Council, produced and distributed 47.38 metric tonne vegetable seeds, 7.76 lakh fruit plants, 58.56 lakh vegetable seedlings and 2.3 lakh tissue culture plantlets in 2022-23. The production of biocontrol agents from the Biocontrol lab at

Palakkad showed a remarkable progress with the production improving from 2.5 metric tonne in 2021-22 to 19.54 metric tonne in 2022-23. Soil test based nutrient applications was promoted through distribution of 5,659 number of Soil Health cards.

As part of promoting organic/safe to eat agriculture, production incentive @ Rs 2/kg was distributed for produce, marketed through ecoshops/sasya retail shop. A chain of 63 Thalir green ecoshop outlets were initiated under RKI throughout the State as part of promotion of organic products and safe to eat produce. As an initial step to Block chain technology development, banana value chain of 250 farmers in 7 Districts was introduced in 2022-23. VFPCCK contributed significantly to strengthening the agricultural marketing system of the State. Green coconut procurement was entrusted to VFPCCK in 2022-23 and 9,015.4 MT was procured through 65 collection centres and 11 mobile collection centres in Malappuram, Kozhikode Palakkad, Kasargod, Thrissur and Kannur.

Farmers including lease land farmers were provided credit facility and Rs 99.48 crore was disbursed under Kissan Credit Card (KCC). Interest subsidy amounting to Rs 150 lakh of 2 per cent was provided to prompt repayers.

VFPCCK, the designated State nodal agency for agri export policy, after having developed the sea shipment protocol of Nendran banana and catering to its export is running trial of export production protocol for Vazhakulam Pineapple. Also, selected farmers were trained in the export production protocol for mango developed by IIHR, Bangalore.

As part of the farmer social security scheme, 10,811 farmers were covered under Personal Accident Insurance in 2022-23.

State Horticulture Mission (SHM)

The State Horticulture Mission functions with the objective of holistic development of the horticulture sector in the State. In 2022-23, Mission for Integrated Development of Horticulture and Rashtriya Krishi Vikas Yojana were implemented through the mission.

In 2022-23, under the Mission for Integrated Development of Horticulture (MIDH), an amount of Rs 4,812.15 lakh was released to State Horticulture Mission, out of which Rs 4,062.77 Lakh was utilised for implementation of various

components under the scheme. The crops identified for development under the mission through MIDH are mango, banana, pineapple, pepper, ginger, turmeric, nutmeg, cashew, cocoa and flower crops. Bee keeping, vegetable seed production and mushroom cultivation area also included. The programmes of the mission covered area expansion, production and productivity improvement, post-harvest management and marketing. The achievement under area expansion of crops through the mission is provided in **Table 3.1.7**.

Table 3.1.7 Achievement under the area expansion programme of MIDH through the mission

Crops	Area expansion in hectare
Fruits	
Dragon fruit	82.81
Strawberry	34.9
Banana	597.17
Pineapple	357.96
Tissue culture banana	2.3
Pappaya	49.64
Mango	59.15
Jack	145.28
Avocado	51.76
Rambutan	172.28
Passion fruit	51.7
Mangostein	32.4
Gooseberry	6.61
Garcinia	7.7
Jamun	1.89
Hybrid Vegetables	1,243.86
Cool season vegetables	452.81
Floriculture	
Cut flowers (Orchid, Anthurium, Gerbera)	135.62
Loose flowers (Jasmine, marigold)	99.7
Plantation Spices and Aromatic plants	
Ginger and Turmeric	391.59
Pepper	1,091.68
Betelvine	79.42

Source: State Horticulture Mission 2023.

Besides the above, high density planting of mango, jack, rambutan and guava in 17.85 hectare and poly house cultivation of cut flowers and loose flowers consisting of orchid, anthurium, gerbera, carnation, rose, lily in 1.17 hectare was promoted by the mission during the period.

As part of infrastructure development for post-harvest operations, SHM-Kerala provided assistance for establishment of 14 primary processing units, 18 pack houses, a precooling unit and a preservation unit, and 4 retail outlets for fruits and vegetables in various Districts of the State in 2022-23.

Establishment of Centre of Excellence for vegetables and Flowers at Regional Agriculture Research Station (RARS), Wayanad under the Indo – Dutch Action Plan with technical support from the Netherlands was one of the major achievement of the mission. The centre aims to impart required skills, knowledge and training in Hi-tech cultivation of flowers and vegetables, besides providing good quality planting material of high yielding varieties of vegetables and flowers to farmers of the State.

Mushroom cultivation, Arka Vertical garden for vegetable cultivation, establishment of decentralised nurseries for quality planting material production of horticultural crops and open precision farming were promoted under RKVY through the mission. Open precision farming was undertaken in 1,000 ha each of banana and vegetables in the Districts of Thiruvananthapuram, Kollam, Idukki, Thrissur, Palakkad, Malappuram, Kozhikode, Kannur, and Kasargod, installation of 66 Arka vertical gardens, establishment of 28 nurseries in public/private sector and 953 mushroom production units were the major achievements under RKVY in 2022-23.

Data on prices of agricultural commodities, agricultural inputs, indicators of development are given in **Appendices 3.1.20, 3.1.21, 3.1.22, 3.1.23 and, 3.1.24.**

Agriculture Research and Education

Kerala Agricultural University, is the premier agricultural institute in the State, delegated for undertaking education, research and extension outreach in agriculture and allied sectors and generating quality human resources with skill and knowhow for sustainable development and management of agriculture sector.

Kerala Agricultural University celebrated its Golden Jubilee in the year 2022. To commemorate this, Golden Jubilee Post-Doctoral Fellowships was awarded to three candidates @ Rs 0.75 lakh per month and establishment of a separate department for Nano science and technology at the College of Agriculture, Vellanikkara.

The research priorities of the University focused on developing Agro Ecological Unit(AEU) based package of practices, hybrids in vegetables, technology for commercial scale production of wines from fruits, assessment of climate change impacts on the agricultural sector, social vulnerability, and mitigation and adaptation strategies to manage the impacts. Development of stress tolerant varieties through breeding, biotechnological applications, conservation and utilisation of traditional varieties and conservation of natural resources (crop varieties, soil, and water, flora, and fauna) were the other areas of research intervention. The research projects were also oriented towards improving the efficiency of labour through ergonomically designed farm machinery, minimising use of chemicals in farming ensuring the sustainable performance of the sector, eco-friendly methods of management of pest and diseases and technologies to sustain soil health and use of modern techniques in agriculture like precision farming and high-tech agriculture. Secondary agriculture dealing with product diversification and by product utilisation, and methods to develop nutritionally better products was given importance aiming at commercial application of such technologies to ensure effective utilisation of the produces while ensuring employment generation. The projects were designed to help the small and marginal farmers to improve the livelihood status and also to realise better returns from agriculture to accomplish the wider objectives of food and nutritional security, ecological safety and natural resource conservation. Thus, the projects were intended to come up with results that help to boost the agriculture sector in a sustainable manner. Moreover, there was equal emphasis on developing quality seeds and planting materials and enhancing seed testing facilities.

In 2022-23, Kerala Agricultural University played a significant role in the implementation of the flagship programme on Farm Plan based development approach introduced in year, by providing technical support to the Department of Agriculture through creation of master trainers,

preparation and implementation of a technical modules and dissemination of technical inputs on a regular basis by conducting frontline demonstrations, on farm development of technology, workshops and farmer-extension-scientists interactions. Creation of two master trainers each in 152 blocks throughout the State, 154 front line demonstrations and 18 on farm trials in 152 blocks, popularisation of drone technology among farmers for spraying nutrients were the salient achievements under this programme.

Some of the major achievements of the University in 2022-23 are as follows.

- Onattukara Sesame, Kodungallur Pottuvellari, Vattavada Garlic, Attappady Attukompu Avara and Attapadi Tuvava awarded geographical indication in 2022-23.
- Accession 33, a new variety of 'Ramacham' with long stems, suitable for coastal sandy soils of Kerala, approved for release.
- Developed Hybrid variety KRH 1 in Ridge Gourd and rapid propagation techniques in moringa.
- Developed technology for high pressure processing and vacuum impregnation of ripen jackfruit and pineapple, technique for preparing functional cookies using powdered Jackfruit seed, vacuum impregnation technology for coconut and tender coconut chips and spray drying technique for Neera and toddy powder.
- Developed liquid and capsule formulation of PGPR Mix-I
- Developed mechanised pepper harvesting machine, hand-operated dehulling machine for arecanut, pedal operated Agarbatti making machine and Tractor-driven basin lister for coconut
- Farm Advisory and Diagnostic Services were offered through 53 Multi-Disciplinary Diagnostic Team (MDDT) field visits in the current year to tackle field difficulties and sudden outbreaks of pests and diseases.
- In 2022-23, various centres of the University hosted around 2,058 training programmes on a wide range of agricultural disciplines, with approximately 70,531 participants. In the year 2023, 683 trainings were held, benefiting 22,929 persons. Farmer –extension –research interface was carried out with the involvement of 252 scientists of the University, 358 officers of the Department and 1,546 farmers.
- Directorate of Extension was instrumental in forming 2 Farmer Producer Organisations with

the involvement of Krishi Vigyan Kendras, Thrissur

- Centre for e-learning (CEL, KAU) under the Directorate of Extension conducted 16 Massive Open Online Courses (MOOC) for farmers, extension workers, students, farm entrepreneur groups, and other agri-stakeholders with 5,912 registered participants in 2022-23.
- KAU RKVY-RAFTAAR-Agribusiness Incubator (KAU RABI) successfully incubated and assisted 208 innovative budding startups through its training programmes till August 31, 2023.

Finance to Agriculture and Allied Sectors

There is a huge demand for capital investment in rural financial services and agricultural sector for enhancing food security and livelihood. The access to financial services is a major constraint which results in low credit growth to agriculture sector. Most of the requirement for investment comes from the private sector due to the availability of limited Government resources. Large scale finance is required for mechanisation, climate smart technologies, processing, and agro-food logistics. The small holder households and enterprises in developing countries often don't receive adequate investment capital resulting in low capital formation in the economies. Smaller investments are also needed for farmers and micro, small and medium enterprises to increase their productivity. The climate angle of financing also assumes much importance.

Agricultural finance is important in supporting the growth of the primary sector as it augments the existing resources and reduces risk in farming. The scope of credit extends beyond production and has direct and indirect effects on employment generation, and reducing inequalities. Agriculture finance empowers poor farmers to increase their assets and facilitates development of food value chains. Credit is critical to agricultural finance, whether to purchase inputs (seeds, fertilizer), tools, or to cover on-going operational costs prior to harvest time.

Agricultural Credit Policy

The Government of India has initiated policy measures to improve the accessibility of farmers to the institutional sources of credit. The objective of these policies has been on progressive institutionalisation for providing timely and adequate credit support to all farmers and enable

them to adopt modern technology and improved agricultural practices for increasing agricultural production and productivity. The policy lays emphasis on augmenting credit flow at the ground-level through credit planning, adoption of region-specific strategies and rationalisation of lending Policies and Procedures. There has been a consistent increase in the agriculture credit flow over the years, exceeding the target every year for the past several years due to the initiatives taken and the measures to strengthen existing policies. Agriculture credit flow for the year 2022-23 was Rs 21.67 lakh crore as against the target of Rs 18.5 lakh crore. In 2023-24, the target of credit to agriculture has been fixed at Rs 20 lakh crore. NABARD, has been promoting investment opportunities in agriculture and allied sectors for increased capital formation and also to achieve sustainable development in agriculture through various promotional and developmental initiatives and refinance support to banks.

Institutional Arrangements

The agricultural situation in Kerala is unique in terms of resource endowments, land use and cropping pattern, scale of farming as well as socio-economic factors. Majority of the farmers in the State are small farmers and production takes place in marginal and small holdings. In a State like Kerala, collectivisation of agricultural produce assumes greater importance. The financial institutions play a greater role in providing credit to the entire supply chain in agriculture and allied activities. Agricultural credit is disbursed through multi-agency network consisting of Commercial Banks (CBs), Regional Rural Banks (RRBs) and Co-operatives.

As per State Level Bankers Committee, Kerala has an excellent banking network, with the total number of bank branches placed at 7,786 as on

March 2023 which includes 6,788 commercial banks, RRBs and Small Finance Banks and 998 banks and their branches in the co-operative banking sector (State Focus Paper 2024-25).

The cooperative banks and primary agriculture credit societies (PACS) have played a greater role in furthering financial inclusion in the State. PACS play a major role in bringing rural and low income populations to the banking system and also function as the backbone of the rural credit system. The cooperative sector in Kerala experienced an active role of the Government in their development and functioning. In fact, most of the co-operatives in Kerala have a Government shareholding in its paid-up capital with the levels differing widely across regions and sectors. At the local-level, the credit co-operatives have a good network through 170 offices of Kerala State Cooperative Agriculture Rural Development Bank and 1,645 PACS, as on March 2023.

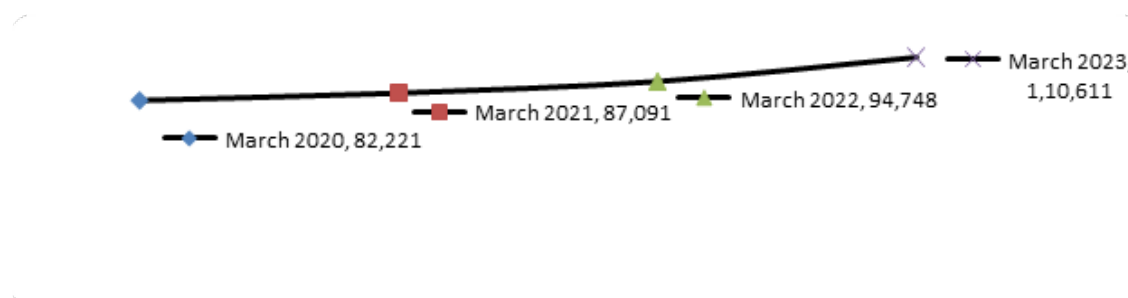
Growth in Agriculture Advances

Credit is a crucial supply side factor which contributes to agriculture production. The financial institutions in the State provide long term, medium term and short term loans to the primary sector. In Kerala, agriculture advances have increased significantly during the past few years constituting 5.64 per cent of the total agricultural advances in the country. Total agricultural advances through commercial banks, RRBs, SFBs and cooperative banks stood at Rs 122,030 crores as on March 2023. Agricultural advances constituted 22 percentage of total advances. (Fig 3.1.3)

Agency-wise disbursement of agriculture credit

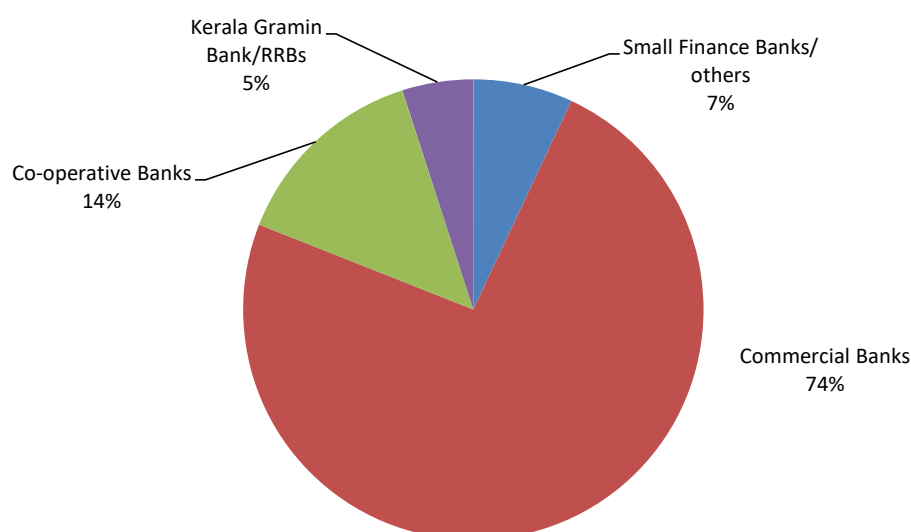
There has been considerable increase in agriculture credit flow in the State from Rs 67,089 crore in 2017-18 to Rs 1,19,708 crore in 2022-23. Out of the total agriculture credit disbursed in

Figure 3.1.3 Agriculture advances except cooperative banks (Rs in crores)



Source: SLBC Report 2022-23

Figure 3.1.4 Agency-wise disbursement of investment credit to agriculture



Source: SLBC Report 2022-23

2022-23, Rs 89,232 crore was disbursed by Public and Private sector Commercial Banks; Rs 9,263 crore by Co-operative Banks Rs 16,279 crore by Regional Rural Banks (RRB) and Rs 4,934 crore by other small finance banks (**Table 3.1.8**). In 2022-23, Rs 31,664 crore was disbursed as investment credit in the State, of which Private and Public sector Commercial Banks provided Rs 24,291 crore, Co-operative banks Rs 1,845 crore, RRBs Rs 597 crore and others Rs 4,931 crore. The share of Commercial banks stood at 77 per cent of total long term credit, whereas the share of

Co-operatives was only 6 per cent. The share of RRBs and Small Finance Banks and others in Long Term (LT) credit was 2 per cent and 15 per cent respectively. It shows that Commercial banks continue to play a predominant role in the advance of credit in agriculture and allied activities. The agency-wise disbursement of investment credit to agriculture in Kerala in 2022-23 is indicated in **Figure 3.1.4**.

During 2022-23, the achievement in crop loan lending has improved to 138 per cent, whereas the same was only 116 per cent of the target fixed

Table 3.1.8 Credit flow to Agriculture Sector in 2022-23 (Rs in crore)

Sl no.	Agency Name	Crop Loan			Term Loan			Total Agricultural loan		
		Target	Achievement	% Ach	Target	Achievement	% Ach	Target	Achievement	% Ach
1	Public and Pvt sector Commercial Banks	39,354	58,697	149	12,803	24,291	190	56,257	89,232	159
2	Cooperative Banks	11,319	7,121	63	4,459	1,845	41	17,179	9,263	54
3	Regional Rural Banks	7,677	15,681	204	1,684	597	35	10,410	16,279	156
4	Small Finance Banks	580	3.41	1	773	4,939	638	1,466	4,934	337
Total		53,929	81,503	138	19,719	31,655	161	85,313	1,19,709	140

Source: SLBC Report, 2022-23

for 2021-22. Compared to 2021-22, there has been an improvement in lending to agriculture by commercial banks from 131 to 149 per cent of the crop loans against lending target in 2022-23. Small Finance Bank's share in agriculture financing has decreased from 440 to 337 per cent. The achievement in agricultural term loan was 161 per cent of the target fixed for 2022-23 as against 156 per cent achievement in 2021-22.

Investment Credit

Investment credit promotes capital investment resulting in increased production, productivity and incremental income to farmers and entrepreneurs. A balance between short term and long term investment credit ought to be brought in to maintain sustainable agricultural growth. It is noted that there occurred a significant change in proportion of investment credit in the last few years. In 2015-16, production (short term) credit and investment (long term) credit constituted 80 per cent and 20 per cent respectively of the total Ground Level Credit (GLC) flow to agriculture. In 2022-23 the proportion of production and investment credit changed to 68 per cent and 32 per cent respectively. Short term credit was issued at a Compound Annual Growth Rate (CAGR) of 13 per cent and long term credit at a CAGR of 20 per cent. Increasing share of investment credit is particularly important because it helps in creation of assets in agriculture, which is essential for improving agricultural productivity in the long run. It needs to be ensured that the importance of investment credit continues to increase in the long run for sustained increase in income from agriculture and also for enhancing the production and productivity in tune with the requirements.

In 2022-23, Rs 1,19,709 crore was disbursed as agricultural credit in the State, of which Rs 81,503 crore is production credit and Rs 31,665 crore is investment credit. Break up of production and investment credit is provided in **Appendix 3.1.25** and in **Figure 3.1.5**.

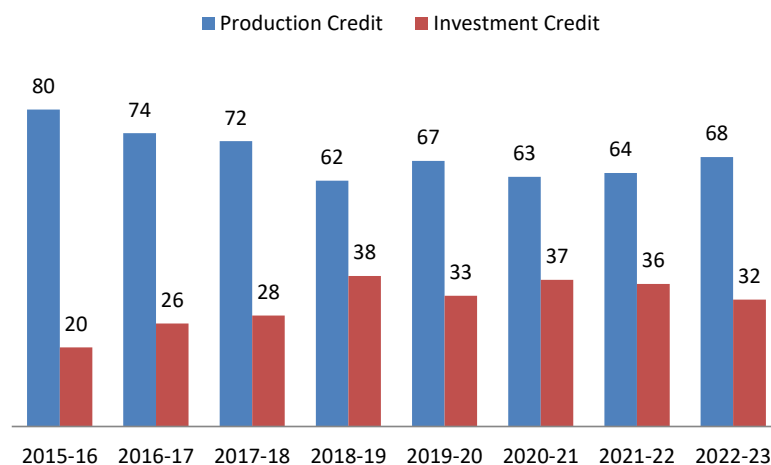
During the year 2022-23, out of the total investment credit of Rs 1,19,709 crore, 68.08 per cent has been utilised for crop loans and 3.5 per cent for dairy development. Sub-sector-wise agriculture credit flow is shown in **Appendix 3.1.26**. Banks need to ensure that agricultural term credit is dispensed to facilitate capital formation in the agricultural sector. Agency-wise and broad sector-wise GLC flow is shown in **Appendix 3.1.27**.

The Credit Deposit ratio for cooperative banks and commercial banks, RRBs and SFBs as a group is 73.40 Per cent and 68.55 percent respectively as at the end of March 2023, as compared to 72.14 per cent and 63.74 percent respectively for the year 2021-22. Non-performing assets in agriculture and allied sectors was 3.8 per cent of total agriculture advances. Primary sector lending in Kerala has achieved 128 per cent as against the target fixed for 2021-22, an increase of 28 per cent.

Kisan Credit Card (KCC)

The KCC scheme was introduced in 1998-99 as a step to ensure adequate and timely credit to the farmers from the banking sector. The cumulative disbursement in 2021-22 under KCC by all agencies was Rs 29,737.97 crore in respect of 14.85 lakh cards issued. The issues of KCC through various agencies are shown in **Appendix 3.1.28**. Banks are expected to leverage

Figure 3.1.5 Share of Production and Investment Credit in Total agriculture Credit in Kerala



Source: SLBC Report 2022-23

their Core Banking Solution platforms to provide value added services to farmers like Automated Teller Machines, anywhere banking and debit cards. The banks can use the Rupay network for issuing smart cards or debit cards with KCC so that farmers are able to obtain all services at their convenience. KCC was made mandatory for availing the benefit of Interest Subvention on Short-term loans (ISS) disbursed since April 2020. Aadhar was also made mandatory for availing the benefit of ISS. An estimated number of around three crore Kisan Credit Cards are with the co-operative sector (Rural Co-op Banks and PACS), hence it is important to support the co-operative sector for conversion of Kisan Credit Cards into Rupay Cards.

NABARD

NABARD extends support to the States in the form of loan/refinance and also as grant. Loan/refinance is extended for augmenting ground-level credit flow to agriculture and allied sectors and for the creation of rural infrastructure. Financial assistance in the form of grant is extended for various developmental activities ranging from fostering innovation in farm sector to promotion of Farmers Producer Organisations (FPOs), promotion of off farm activities, skill development, support for financial inclusion and digitising banking transactions, creation of livelihood opportunities through Self Help Group (SHG)/Joint Liability Group (JLG) and capacity enhancement through training and marketing support for such groups.

Long Term Rural Credit Fund (LTRCF), Short Term Refinance and Direct Refinance

NABARD provides long term and medium term re-finance to banks for providing adequate credit for taking up investment activities by farmers and rural artisans. Government of India has set up a “Long Term Rural Credit Fund” with NABARD for providing long term refinance support for investment credit in agriculture activities exclusively for cooperative banks and Regional Rural Banks (RRBs) at a concessional rate of interest. All State Cooperative Banks, State Co-operative Agriculture Rural Development Banks (SCARDBs) and RRBs are eligible to avail refinance facilities from NABARD, subject to the satisfaction of eligibility criteria.

During the financial year 2022-23, NABARD Kerala region refinanced Rs 13,477.58 crore in

the State, which include long term, short term and direct refinance, for ensuring sufficient funds at the grass root-level for carrying out farm/nonfarm activities in the State. Out of Rs 13,477.58 crore, the Kerala region disbursed Rs 9,579.22 crore as Short Term refinance including Special Liquidity Facility (extended by RBI) and Rs 3,898.36 as Long Term refinance, of this a major portion was disbursed to commercial banks and small finance banks.

To ensure unhindered flow of credit from banks to farmers to carry out agricultural operations smoothly, RBI has made available a Special Liquidity Facility to NABARD for providing front ended liquidity support to RRBs, Cooperative Banks and microfinance institutions. This is in addition to the long term refinance at reduced interest rates for agriculture under LTRCF to cooperative banks and RRBs. The agency-wise disbursement of re-finance assistance by NABARD is shown in **Appendix 3.1.29**.

Other Assistance from NABARD

NABARD has been facilitating smooth flow of credit in rural areas and enabled all-round development of rural areas through its credit, promotional and developmental interventions. NABARD is also providing refinance to production as well as for long term investment purposes in agriculture and allied sectors at concessional rate of interest to State Cooperative Banks (SCBs) and Regional Rural Banks (RRBs) by way of sanction of credit limits.

- a. Rural Infrastructure Development Fund(RIDF): The Rural Infrastructure Development Fund supports State's efforts in creation of infrastructure for agriculture development. During 2022-23, an amount of Rs 710 crore was sanctioned across agriculture and allied sector, social sector and connectivity sector. This facility was extended at an interest rate of 4.4 per cent. The tranche-wise sanction and disbursements under RIDF are shown in **Appendix 3.1.30**. A Long Term Irrigation Fund (LTIF) is also created by NABARD for funding and fast tracking the implementation of incomplete major and medium irrigation projects.
- b. NABARD Infrastructure Development Assistance (NIDA): NABARD Infrastructure Development Assistance (NIDA) is a line of credit support for funding rural infrastructure projects. NIDA is

available for State Governments and other State-owned organisations, such as Corporations. In order to assist infrastructure projects in rural areas, there exist lot of financial assistance programmes like the Food processing Fund (FPF), Fisheries and Aquaculture infrastructure Development Fund (FIDF), Dairy Processing and Infrastructure Development Fund (DIDF), Micro Irrigation Fund (MIF).

- c. In addition, there are Central Sector Schemes via, Micro Food Enterprises (MFE) Fund, Pradhan Mantri Matsya Sampada Yojana (PMMSY) and Animal Husbandry Infrastructure Development Fund (AHIDF), which facilitate creation of agriculture infrastructure. In tune with the above schemes, NABARD has come out with a special refinance scheme under AIF for providing concessional refinance to Primary Agricultural Cooperative Societies for converting them into multi service centres. Under this scheme, refinance is sanctioned to Kerala Bank at 3 per cent which in turn finances PACS at 4 per cent. In order to ensure a smooth flow of implementation of AIF in the State, the State Government has signed an agreement with NABCONS for setting up of a project management unit in Kerala.

The interventions of NABARD have generated employment, facilitated income generation and helped in improving the state of agriculture and allied sectors, and social sectors. These interventions are expected to further the cause of rural development and promote sustainable development across sectors.

Way forward

Innovations in technology and the structure of agricultural markets enable the evolution of approaches and products that can help agricultural finance. As noted in the 2012 G20 Report, sustainable agricultural finance requires an assessment of: a) risks, b) costs/distribution channels, c) bankable opportunities, and d) the right product to the right people. The five areas of research undertaken by the Global Partnership for Financial Inclusion (GPFI), as summarised in the present report, contribute to solutions in these areas. Value chain finance is most relevant to address points a), b) and c). Insurance focuses on a), but is also confronted with b). Demand assessment is critical for d). Technology is driving innovation for b), and financing for women is relevant for c) and d). (Source: GPFI Report)

The banking system has always been working closely with the State Government to ensure availability of timely and adequate credit to the needy farmers without any hassles. The share of investment credit is low in the State, though in recent years it has been showing an increasing trend. Fragmented land holding with an average size of 0.18 ha per holding is the major reason for the low investment credit flow to the agriculture sector. In order to expand agriculture finance, challenges such as access to markets for agriculture products, lack of proximity of financial institutions, and land tenure are to be addressed, as they represent barriers to the development of agriculture finance. Interventions are required to facilitate and scale up climate smart investments for productivity increase and resource efficiency and help financial institutions to manage climate risks in their agriculture lending portfolios.

3.2 COOPERATIVES IN KERALA

Cooperatives nurture a long term vision for sustainable growth, social development and environmental responsibility through self-help and empowerment, reinvesting in their communities and showing concern for the well-being of people and the world in which we live. The cooperative movement extends across the globe and encompasses diverse sectors of the economy. At least 12% of the people in the universe is a co-operator of any of the three million cooperatives on earth. Cooperative sector also contribute to the stable, quality employment, providing jobs or work opportunities to 280 million people across the globe ie; 10 per cent of the world's employed population. As per the World Cooperative Monitor, the top 300 cooperatives and mutual report a turnover of 2,170.99 billion USD for the year 2020 with most of the enterprises operating in the insurance sector (101 enterprises) and agricultural sector (100 enterprises), followed by wholesale and retail trade (59 enterprises).

Cooperatives in India's economy have a social perspective and hold the key to rural economic transformation. With 98% coverage in rural India, cooperatives are the mainstay of rural economy ensuring sustainable livelihoods and income for people. Present in diverse sectors including agriculture, dairy, forestry, fisheries, credit and banking, housing and construction, cooperatives in the country serve vast sections of society including farmers, women, youth, poor and the marginalised. There are 8.5 lakh registered cooperatives in the country, having more than 29 crore members

mainly from the marginalised and lower-income groups in the rural areas.

Cooperatives in Kerala play a critical role in mobilising people and pooling their resources to meet the common needs of members and thereby the larger society. Through its wide reach, cooperatives have played a vital role in the economic development, particularly for the development of the weaker and marginalised people in rural areas. The State has an extensive network of co-operatives engaged in various activities, including agricultural credit, the public distribution system, distribution of agricultural commodities, health, education including professional education, housing, agro processing, development of scheduled caste and scheduled tribe, women's development and fisheries.

The growth of cooperatives in Kerala contributes to the accomplishment of the United Nations Sustainable Development Goals, particularly, no poverty, food security, zero hunger, gender equality, decent work and economic growth and climate action.

Cooperative societies are classified according to the area and nature of work and the authorities and functions undertaken by them. At present, there are 16,352 co-operative societies in Kerala, of which 12,241 are functional and the rest are dormant. Among them the majority are consumer co-operatives (4629) followed by credit co-operatives (3751) and women's co-operatives

(1248). In addition, there are marketing, housing, processing, health, and scheduled caste and scheduled tribe co-operatives. Details of the various types of cooperatives in 2023 are given in **Appendix 3.2.1**.

Credit Cooperatives

Credit cooperatives are an important source of credit, particularly rural credit, in Kerala. In the cooperative sector, credit cooperatives, including Kerala Bank, PACS, Farmers Service Societies (FSS), Kerala State Cooperative Agriculture Rural Development Bank (KSCARDB) and Primary Agriculture and Rural Development Banks (PCARDBs) play a lead role in credit disbursement to primary sector. The institutions, including PACS have branches which are spread in 14 districts. The Government has initiated several measures to bring about a structural change in the co-operative agricultural credit sector in the State. The Government has taken a policy decision to convert the prevailing three tier credit structure of the State into a two-tier structure. The short term and medium-term structure consist of Kerala Bank and Primary Agriculture Cooperative Society (PACS) including Farmers Service Credit Society (FSCS) at the bottom level. As of March 2023, 3751 credit co-operative societies are registered in the State, of which 3369 are functional and remaining are dormant. Selected credit operations and physical achievements of Credit Cooperatives are given in **Appendix 3.2.2**.

Primary Agriculture Cooperative Society (PACS)

PACS form the short term credit structure of cooperative in the State. The primary societies in Kerala mobilises substantial deposit, gives loans and advances to their members and hold a significant market share. PACS play a major role in bringing rural and low income population to the banking system there by functioning as the backbone of the rural credit system. These institutions also undertake other services like agriculture input distribution, operation of consumer and medical stores, aggregation and marketing of agriculture produce and value addition, grading, branding and packing. As of March 2023, there were 1645 PACS working under Registrar of Cooperatives in the State. The PACS had issued total loans and advances of Rs 1.15 lakh crore to its members and collected deposits of Rs 1.68 lakh crore. Selected indicators of credit operations and performances of PACS are given in **Appendix 3.2.3** and **Appendix 3.2.4**.

The Kerala State Co-operative Bank Ltd (Kerala Bank)

The Kerala Bank, which came into being in November 2019, plays a lead role in providing working capital to the agriculture sector and entrepreneurs. The bank will provide financial, technical and support service to the PACS and its members in a manner that the members of PACS need not look elsewhere for any financial product or service. The year 2023 saw a turning point in the history of the Kerala State Cooperative Bank (KSCB) with the successful completion of the IT integration that unified the hitherto 14 different banking systems. It has seven regional offices, a corporate business office at Ernakulam and credit processing centres in 13 Districts across the State. At present, Kerala Bank has 823 branches across the State which is adequate to ensure service without any urban or rural differences with membership coverage of 1689 as on March 31, 2023. The members include Government of Kerala and 1688 primary societies as 'A' class members. As on 31 March 2023, the total share capital of the Bank is Rs 2159.30 crore, which includes the share of government, societies, and individuals. It has a deposit of Rs 74,152.32 crore, which includes the deposits of societies, individuals, and institutions. The Bank has a reserve and surplus fund of Rs 1040.46 crore. The total borrowing of the bank was Rs 10,690.18 crore, which included the borrowings from NABARD which is the major component, Government of Kerala and long-term deposits. Total loan outstanding of the Bank as on 31 March 2023 was Rs 47,052.07 crore. Being a bank from the co-operative segment, the majority of customers are from the rural and unorganized sectors. The detailed financial particulars of the Kerala Bank for the financial year in 2022-23, are given in the **Appendix 3.2.5**.

Kerala State Cooperative Agriculture Rural Development Bank (KSCARDB)

Kerala State Cooperative Agriculture Rural Development Bank (KSCARDB) is the pioneer in long-term lending, advancing credit for agricultural and allied activities, non-farm sector activities and rural housing through the affiliated Primary Cooperative Agriculture Rural Development Bank (PCARDB) with a motto of comprehensive rural development through credit. The Bank has only limited resources of its own for carrying out lending business and depends mainly on refinance provided by NABARD.

The KSCARD Bank channels it to the ultimate borrowers through the network of PCARDBs and their branches located in each Taluk. There are 79 PCARDBs in the State and its head office is located at Thiruvananthapuram. The lion share of KSCARDB borrowers, nearly 80 per cent belong to the small and marginal farmer category. The prime objective of the bank is the social and financial upliftment of the rural folk at the grass root level. The loan disbursement in 2022-23 was Rs 754.01 crore, of which Rs 12.02 crore as ordinary loan and Rs 741.99 crore as scheme loan. Major portion of the loan is utilized for asset creation. Classification of long-term loans issued by KSCARDB is given in **Appendix 3.2.6**.

Consumer Co-operatives

Consumer co-operatives play an important role in providing consumer goods, medicines and stationary items at subsidized rates to the consumers and prevent them from exploitation by private retailers. In Kerala, Consumer co-operatives act as one of the principal agencies in the public distribution system by providing essential and consumer articles to the general public at a reasonable rate, than the rate prevailing in the open market. As on March 31, 2023, 4629 consumer cooperative societies are registered in the State, of which 3764 co-operative societies are working.

Consumer Co-operative sector in the State comprises of the Kerala State Co-operative Consumer Federation (Consumerfed) at the State level, wholesale co-operative stores at district level and primary consumer societies and stores at the grassroots level. The district wholesale stores and primary stores cater to the needs of consumers through their own outlets, supermarkets and department stores.

The Kerala State Co-operatives Consumers' Federation Ltd (Consumerfed) was established in the year 1965 as the apex body of the Consumer Wholesale Co-operatives in Kerala with head office at Ernakulam, 11 regional offices and 6 business divisions. The business divisions are explained below.

A.Triveni Division

At present there are 172 Triveni Super Markets, 41 Mobile Triveni Stores, and 34 Triveni Godowns functioning at various urban and semi-urban areas across Kerala. The total sales in Triveni

segment during 2022-23 was Rs 290.53 crores. Consumerfed is vested with market intervention responsibilities especially during the festival seasons. By conducting 1513 festival markets, federation had achieved Onam total subsidy sales of Rs 43.03 crores during the year 2022-23.

B.Neethi Medical Divison

Consumerfed has broadened its retail business portfolio by bringing in medicinal and surgical items through its Neethi medical scheme at reasonable rates across Kerala. It has 12 Neethi medical warehouses and 76 *Neethi* medical shops. In addition to this, PACS run 92 Neethi medical stores in the Kerala. During the year 2022-23, the total sales of the scheme were Rs 213.09 crores.

C.Beverages Division

Consumerfed owns 39 foreign liquor shops and 3 beer shops. The liquor sales turnover shows a continual increasing trend from 2019-20. Considering the trend in sales turnover from foreign liquor, except 2019-20, all years from 2018-19 showed a steady increase. Sales turnover for 2022-23 was Rs 2183.05 crores which was 45.44 per cent more than the sale in 2021-22. With the objective of increasing sales, the foreign liquor shops are upgraded with starting self-service counters, premium counters and delivery counters.

D.Notebook Division

Consumerfed also owns a notebook manufacturing unit at Kunnankulam which had a turnover of Rs 6.44 crores during 2022-23.

E.Neethi Gas Plant

Consumerfed owns a gas plant at Moongilmada, Palakkad through which domestic gas named "*Neethi Gas*" is filled and distributed. The total sale of *Neethi* gas was Rs 1.12 crores in 2022-23. Consumerfed in tie up with Indian Oil Corporation Ltd (IOCL), took up the sale of "*Chottu gas*" cylinders through *Triveni* outlets from 2021.

F.Triveni Institute of Pharmacy (TIP)

Beside these institutions and business it also operates an approved "*The Triveni Institute of Pharmacy*" from 2018, which offers B.Pharm course.

The 11 regional offices directly supervise and coordinate Triveni outlets, Neethi Medical stores, Beverage's outlets and E-Triveni centres.

Notebook unit, Gas Plant and Triveni Institute of Pharmacy (IIP) are directly controlled by head office.

Vanitha Co-operatives

The co-operative movement has made a significant contribution to women's empowerment. The Kerala Women Co-operative Federation Ltd (*Vanithafed*), is an apex federation of Primary Women Co-operative Societies. The main objective of the Federation is to provide integrated credit and services to the beneficiaries through its member societies in an effective and coordinated manner for improving the social and economic conditions of the women in the State. As on March 2023, 1248 women co-operative societies were registered, of which 945 societies are working.

Housing Co-operative Societies

The Kerala State Cooperative Housing Federation Ltd (HOUSEFED) is the apex body of the housing cooperatives functioning in a two-tier structure- State Government and Primary Housing Cooperative societies. As on March 2023 there were 394 housing co-operative Societies registered, of which 286 societies are functioning.

SC/ST Co-operative Societies

Scheduled Caste/Scheduled Tribe Co-operatives are organized and established for the socio-economic development of the Scheduled Caste and Scheduled Tribes in the State. The revival of SC/ST Co-operatives is vital, for supporting the income and livelihood of the SC/ST families. As on March 2023, there were 851 Scheduled Caste/Scheduled Tribe cooperative societies registered in the state, of which 444 are working. An apex institution of primary SC/ST cooperatives known as Kerala State Federation of Scheduled Caste and Scheduled Tribe Co-operative is also functioning in the State for the promotion of SC/ST.

Marketing Co-operatives

The activities of cooperatives in marketing is organised by the apex institution of primary marketing societies known as Kerala State Co-operative Marketing Federation (Marketfed), and the apex body of primary rubber marketing societies known as Kerala State Co-operative Rubber Marketing Federation (Rubber Mark). As on March 2023, of the 585 primary marketing and processing societies registered, 216 societies are functional in the State.

Health Co-operatives

As on March 2023, 192 hospital and dispensaries co-operative societies are registered of which 96 societies are functional. An apex body of health cooperatives named Kerala State Hospital Federation Ltd. (Hospitalfed) is functioning in the State with Ernakulam as its headquarters.

Miscellaneous Co-operatives

There are 4637 registered miscellaneous co-operative societies in the State, of which 3079 were working as on March 2023. Miscellaneous co-operatives include labour contract, transport, rubber plantation, poultry, joint farming, collective farming societies, and tourism societies. It also includes Artist Cooperative Societies, formed for the welfare of artist. Sahithya Pravarthaka Cooperative Society (SPCS), a writer's cooperative society is the first of its kind in Asia.

Education, Research and Training

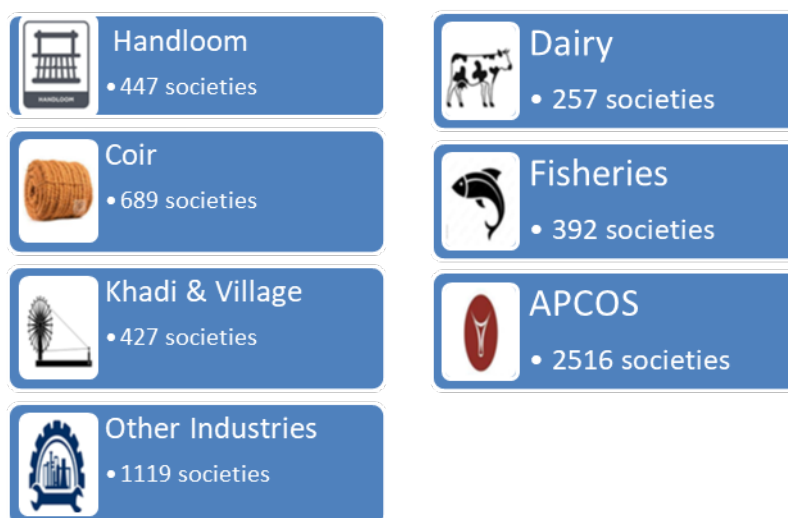
Co-operative Academy of Professional Education (CAPE)

The Co-operative Academy of Professional Education (CAPE) is an autonomous society under Government of Kerala and promoted by the Co-operative department. It was formed to establish educational institutions in various professional fields to provide facilities for education and training. Under CAPE, nine engineering colleges, one MBA college and a Finishing school at Punnappra are functioning, by giving opportunity to around 12,000 students to pursue higher studies. Various CAPE institutions have received ISO certification and National Assessment and Accreditation Council/National Board of Accreditation. Skill and Knowledge Development Centre (SKDC) is a new venture in the field which offers training and consultancy services to corporate and other organisations. It also provides training programme for the employees in Cooperative sector.

State Co-operative Union (SCU)

The State Co-operative Union is a statutory body established under Section 89 of the Kerala Co-operative Societies Act, 1969 for teaching co-operative principles and practices and to organise training programmes. There are 13 Co-operative training colleges, 10 training centers and six extension centers functioning for conducting Higher Diploma in Co-operation (HDC) and Junior Diploma in Co-operation (JDC) courses.

Figure 3.2.1 Cooperative Societies under the control of Functional Registrars



Source: Registrar of Cooperative Societies

Grant-in-aid for member education programmes and for running SC/ST centers are provided by the Government as assistance to the training centers. State Co-operative union is having a sister concern named Kerala Institute of Cooperative Management at Neyyattur, which offers MBA programmes.

Institute of Co-operative Management (ICM)

Institute of Co-operative Management in Thiruvananthapuram and Kannur are established by the Government under the administrative control of National Council for Co-operative Training in order to provide advanced training courses to the officers of co-operative department, officials and non-officials in the co-operative sector. The State government is providing financial assistance to the institutions as grant-in-aid as per the budget allocation every year. During the financial year 2022-23, the ICM Kannur conducted 182 training programmes with 14,118 participants. The training programmes focused on improving the efficiency and effectiveness of employees of PACS, other societies, auditors and inspectors of co-operative department and managerial and leadership qualities of Board of Directors.

Agricultural Co-operative Staff Training Institution (ACSTI)

The Agricultural Co-operative Staff Training Institute (ACSTI), an autonomous institute, established in 1992, sponsored

by National Cooperative Development Corporation has been functioning for the last 31 years. The Institute has been conducting training to personnel of co-operative credit structure. The Agricultural Co-operative Staff Training Institute which was functioning under the Kerala State Co-operative Bank Ltd conducted 140 Training Programs. The ACSTI has been granted accreditation (Grade 'A') by Centre for Professional Excellence in Co-operatives (C-PEC).

Innovative Initiatives and model schemes in 2022-23

Branding and marketing of co-operative products: In order to enhance the brand visibility and increase the sales of product produced by different Co-operative Societies, the Department of Co-operation has formulated the plan project named as 'Branding and Marketing of Cooperative Products'. The project aims to ensure the quality of the products of co-operative societies, build an integrated branding and market network to deliver quality products to the customers, enter into the national and international markets, set up outlets in key locations, set up quality testing labs and to create online markets. As part of the project, various *Coopmart* outlets have been set up in selected societies and 400 products manufactured by 75 co-operative societies in Kerala are sold through the outlets. The brand name "*coopkerala*" and the outlet trade name

“coopmart” have been registered under the Trademarks Act 1999. A Managing Committee comprising 11 members issue ‘coopkerala’ certification marks to cooperative products, which satisfies the stipulated standards and criteria fixed by the Co-operative department.

Palakkad Paddy Procurement Processing and Marketing Co-operative Society Ltd (PAPCOS): PAPCOS established by co-operative department started functioning in 2019 as a solution to the problems faced by the paddy farmers in Palakkad and nearby districts

Co-operative Initiative in Technology Driven Agriculture (CITA)

Cooperative Initiative in Technology Driven Agriculture (CITA) is an initiative in State Plan 2022-23, to address the problems of small and marginal farmers in Kerala to help them with the support of technology to process and market their produce directly or through value addition with the help of cooperative sector. The scheme formulated jointly by Kerala State Planning Board and Department of Cooperation, aims to support production, value addition, marketing, transportation and branding the products of small and marginal farmers by ensuring maximum price for their produce.

The scheme ensures intervention in production and marketing, increasing production efficiently through farming in open field, precision agriculture, kitchen gardens, terrace farms and also integrating allied activities such as animal husbandry and fisheries. The scheme is implemented by utilising the small farmers of the area with the help of Primary Co-operative Societies (PACS). The project is targeted to be implemented in 14 districts in a phased manner within the next five years. During the financial year 2022-23, the scheme was implemented in seven districts. An allocation of Rs.34.50 crore has been made for this scheme in the financial year 2023-24 and the projects of 20 PACS from 13 districts are selected for implementation, after scrutiny by 11 member high level technical committee comprising technically qualified professionals from various fields.

Sl No	PACS	Activity/Area of Functions
1	Primary Agriculture Credit Society (PACS), Anikad, Kottayam	High Tech Nursery
2	Primary Agriculture Credit Society (PACS), Panayal, Kasaragod	Cultivation of vegetables, rice and pulses, aggregation and marketing of agricultural produces and agro-clinics
3	Primary Agriculture Credit Society (PACS), Villangivithinassery, Palakkad	Rice and vegetables
4	Primary Agriculture Credit Society (PACS), Madapally, Kottayam	Mixed farming of banana, tapioca, fish farming, supply of milk and milk-products
5	Primary Agriculture Credit Society (PACS), Mankulam, Idukki	Integrated farming system: Cultivation, processing, value addition and marketing of passion fruit, banana, vegetables and fodder cultivation and backyard linkage to Animal Husbandry
6	Primary Agriculture Credit Society (PACS), Tankamani, Idukki	Cultivation and value addition in tapioca, banana, pineapple and jackfruits etc. Processing, storage and distribution of dried fruits and other value added products
7	Primary Agriculture Credit Society (PACS), Okkal, Ernakulam	Precision Farming, Farmers Information Centre, Farmer's Service Centre, Horticulture and Post-Harvest Services, Value Added Products, Tissue Culture Lab and Nursery
8	Primary Agriculture Credit Society (PACS), Pattuvam, Kannur	Mixed Farming including Paddy, Black gram, Cereals and Vegetables, Fish Cultivation-Prawn (Aquaculture) etc.
9	Primary Agriculture Credit Society (PACS), Bedadukka, Kasaragod	Vegetable Cultivation, Fertiliser Sales Outlets, Grading, Processing, Packing and Distribution of Agricultural Produce, Leasing of Agricultural Machinery (Sale & Leasing), Labour Bank in primary sector, Agricultural Training Center, Cold chain facilities.

Sl No	PACS	Activity/Area of Functions
10	Karakulam service cooperative bank, Thiruvananthapuram	Assistance for Grameen Markets/ Vegetable centres
11	Poovattu east service cooperative bank Ltd, Kollam	
12	Puthupulli Service Cooperative Bank, Alappuzha	
13	Madappalli service Cooperative Bank, Kottayam	
14	Varapetti service Cooperative bank, Ernakulam	
15	Koratty service Cooperative bank, Thrissur	
16	Manarkkad rural service Cooperative bank, Palakkad	
17	Marayur service Cooperative bank, Idukki	
18	Ulliyeri service Cooperative bank, Kozhikode	
19	Meenagadi service Cooperative Bank, Wayand	
20	Kasargod service Cooperative bank, Kasargod	

Source: SC Development Department, 2023

by procuring paddy as soon as it is harvested and making payment at the time of procurement itself. The major objective of the society is to procure, process and market rice, including broken rice, bran, rice powder and husk. This will enable the farmers to avoid distress sale to intermediary sellers. The present paid-up share capital of the society is Rs 13.7 crore. The society has a membership of 36 Primary Agricultural Co-operative Societies (PACS) in Palakkad district. It also proposes to set up a modern rice mill with the facility of storing and converting rice produced by the farmers.

Formation of a Statewide paddy society and setting up of modern rice mills at Kuttanad and Upper Kuttanad (KAPCOS): The Kerala Paddy Procurement Processing and Marketing Co-operative Society (KAPCOS) was registered in 2021 with an authorised share capital of Rs 310 crore; with the objective to address the procurement and marketing issues faced by the paddy farmers. The KAPCOS procure paddy at a fair price from the farmers, process it and market through government, semi-government, co-operative and private marketing institutions, online marketers, and own marketing centers. The Society

has 43 PACS in Kottayam district as member societies. Except Palakkad, all districts are part of the new co-operative society.

Youth Co-operative Societies: This is the first co-operative sector initiative in the country for the youth. The societies emphasise entrepreneurship rather than credit activity and have members in the age group between 18 and 45 years. The societies cover a wide range of sectors including information technology, agriculture, waste management, trade, manufacturing and marketing, cinema, eco-tourism, catering services and organic farming. There are 30 registered youth cooperative societies functioning in the State.

Uralungal Labour Contract Co-operative Society Ltd (No.10957): ULCCS has been functioning since 1925. The society was formed with the main objective of societal upliftment by creating job opportunities among the weaker sections of the society. More than thirteen thousand workers directly depend on the society for their livelihood and more than 35 lakhs man-days are generated under the society every year. The Society undertakes civil construction work in infrastructure development including development

of roads, bridges, and allied infrastructure. Other highlights of ULCCS include art and craft village at Iringal and Thiruvananthapuram for the development of arts and crafts, Indian Institute of Infrastructure and Construction (IIIC) at Kollam to improve skill and education. Uralungal Labour Contract Cooperative Society (ULCCS) has been ranked at second position in the list of Industry and Utilities Co-operatives in the World Co-operative Monitor, published by the International Co-operatives Alliance.

CARe Kerala: Co-operative Alliance to Rebuild Kerala (CARe Kerala) was formulated by co-operative department to provide relief and rehabilitation to the flood affected people. Three schemes are included in the project; CARe Home, CARe Loan, and CARe Grace.

In CARe Home scheme, houses are being constructed to flood affected people who possess suitable land and are implemented with the co-operation and support of co-operative institutions. The funds required for the construction of the houses were collected from various co-operative institutions in the State. Under this scheme, 2094 houses were sanctioned. From the year 2018, 2092 houses were constructed as on 15th August 2023 and construction of 2 houses is in progress.

Department has started the project's second phase of CARe Home, with the construction of 14 collective dwellings (flat) for the landless and homeless people. Each dwelling unit have facilities like playground for children, Anganwadi, library and reading room, meeting hall, and waste management facilities. A total of 30 to 40 housing units are included in each dwelling.

40 dwelling units were constructed with in the extent of 106 cent land availed from Pazhyannoor grama panchayat in Thrissur district and keys were handed over.

Navakeraleeyam Kudishika Nivaranam (One Time Settlement Scheme): In order to reduce the Non Performing Assets (NPA) of co-operatives, the Co-operative department announced a one-time settlement scheme called '*Navakeraleeyam Kudishika Nivaranam*'. All co-operative societies and banks under the Registrar of Co-operative societies were included in this scheme and an interest incentive was

offered to the borrowers. Under this scheme, only simple interest was charged on outstanding loan amounts. Those who were suffering from serious health issues such as cancer, heart disease and kidney disease and those who were affected by flood, covid 19 pandemic and loss of employment due to subsequent lockdown were entitled to get maximum incentives in this scheme. During 2022-23, a total of 4,53,965 default accounts have been given a concession of Rs 829.23 crore.

Distribution of Social security pension: The consortium named 'The Kerala Social Security Pension Limited' comprising primary agriculture co-operative societies, employee's co-operative societies and other primary co-operative societies, was constituted at the Government-level under the Companies Act for the smooth distribution of social security pension in the State. The consortium raises funds from these co-operative societies at an interest rate of 8.5 per cent. Welfare pension (agricultural workers pension, old age pension, disability pension, unmarried mother's pension and widow's pension) has been disbursed directly to the deserving persons through the cooperative societies even during challenging circumstances at the time of floods and the pandemic.

Co-op Mart Veg Fresh outlets through PACS for procurement and distribution of fruits and vegetables: With the objective of achieving self-sufficiency in vegetable production and ensuring food security, the Government announced, guidelines for starting 'co-op mart veg fresh outlets' under the name of Kerala farm fresh fruit and vegetables. The project aims to deliver safe and local vegetables as per the requirements of the consumers. Collection and distribution of required fruits and vegetables were carried out with the help of the agriculture department. The scheme also aims to strengthen the marketing system and ensure price stability. There were 198 PACS identified as the primary procurement agencies of the scheme.

Muttathey mulla Scheme: In order to protect the common people from the clutches of private money lenders the 'Muttathey mulla' scheme was introduced in 2018 and implemented through Kudumbasree units. Under this scheme, up to August 2023, an amount of Rs 3452.69 crore has been disbursed to beneficiaries.

Deposit mobilisation campaign: In 2023, the Co-operative department conducted the 43rd deposit mobilisation campaign to attract depositors including youth. The sector mobilised Rs 8646.35crore, against a target of Rs 9000 crore. The detailed financial particulars for the financial year in 2022-23, are given in the **Appendix 3.2.7**.

Co-operative EXPO 2022: The CO-OPERATIVE EXPO 2023 with the tagline ‘Orumayude Pooram’ 2nd edition was organised by Department of Co-operation from 22nd April to 30th April 2023 at Marine Drive in Eranakulam District. In the expo, there were more than 300 stalls of Apex Co-operatives, Co-operative Boards, Hospital Co-operatives, Producers Co-operatives, other major Co-operative Societies and institutions under the Registrar of Co-operative Societies, Co-operatives under the Functional Registrars, and National Co-operative Institutions. In addition, there were knowledge sharing sessions, seminars and discussions on various subjects in the Co-operative sector and various class level cultural programs. The department also organised Business Meets in the expo venue with the aim of expanding the business of the Co-operatives.

Member Relief Fund Scheme: Member relief fund scheme is implemented by the Co-operative department for providing financial assistance to the A class members of the Primary cooperative Societies registered under Registrar of Co-operative Societies, suffering from severe health problems such as kidney ailments, heart disease, liver problems, paralysis etc.

MODERNISATION OF DEPARTMENT

Integrated Co-operative Department Management System (ICDMS): Integrated Co-operative Department Management System, an online application was developed by C-DIT as part of the modernisation of the Department of Co-operation. Three services namely Registration & Byelaw amendment Module, Fund Management Module and Audit Module have been implemented online under the ICDMS scheme.

Through this applications for Registration of Co-operative Societies and Amendment of Byelaws can be submitted directly by the public / Co-operative Societies online and is integrated with the Treasury Online Payment Gateway for payment of fees. At present, applications for Registration of

Co-operative Societies and Byelaw amendment are submitted and registered through ICDMS.

The Fund Management Module is designed to accurately monitor the repayment of the amount after disbursement of financial assistance to Co-operative societies included in State / NCDC schemes. Full information regarding the assistance given to co-operative societies and the repayment of the amount can be monitored through this module.

CO-OPERATIVE AUDIT MONITORING & INFORMATION SYSTEM (CAMIS): As part of the ICDMS project, an online application called Co-operative Audit Monitoring & Information System (CAMIS) has been developed for the audit of co-operative societies. Basic information and audit information of all Co-operative Societies in Kerala under the control of the Registrar of Co-operative Societies and Functional Registrars are made available online to the public through the website www.camis.kerala.gov.in.

CO-OPERATIVE ELECTION MANAGEMENT SYSTEM: Software has been developed and implemented for online submission and follow-up of application for conducting elections of cooperative societies.

IIIrd phase-100 day's programme

Sahakaranam Sowhridam: In connection with the third phase of the hundred day's programme of Government of Kerala, the department decided to start a loan scheme for differently abled persons, in order to create job opportunities through Kerala State Co-operative Bank/Urban Co-operative Bank/Primary Co-operative Societies. Under this an amount of Rs 4.30 Crore was sanctioned through 519 loans, till September 2023.

Sahayahastham: As a part of the 3rd phase of hundred day's program conducted by the Government of Kerala, the scheme is being implemented through primary cooperative banks/societies, to start small roadside trade and small enterprises and to provide loans for initial expenses and maintenance to those who intend to buy auto rickshaws to earn a livelihood under the name of 'SAHAYAHASTHAM'. The scheme provide loans to small, street vendors and micro-entrepreneurs through primary cooperative banks/societies in the State. An amount of Rs 72.34 lakh has been disbursed till date in 403 loans.

Sourajyothi : As part of the 3rd phase hundred day's program conducted by the Government, the scheme is being implemented through the Primary Agricultural Cooperative Societies/Banks in Kerala. The scheme is for disbursing loans to individuals to start 2KV – 10KV solar power plants at home. An amount of Rs 76.40 lakh has been disbursed in 34 loans.

Assistance from NABARD to the Cooperative system (ST-SAO)

National Bank for Agriculture and Rural Development (NABARD) has sanctioned Rs 3084.22 crore as Short-Term Sessional Agricultural Operations (ST-SAO) refinance to Kerala State Co-operative Bank in 2022-23. The same along with the portion of the Kerala State Co-operative Bank was disbursed through the district offices as agricultural loan as shown in the table (Table 3.2.1).

Assistance from National Cooperative Development Corporation (NCDC)

NCDC has been providing assistance to cooperatives directly or through the State government for expanding and strengthening their businesses and infrastructure creation in credit/marketing/rural infrastructure/service sectors like healthcare, education and tourism.

Table 3.2.1 District wise disbursement of Agricultural Loans (Rs. in crore)

Sl no	District Co-operative Bank	Total
1	Thiruvananthapuram	339.79
2	Kollam	465.90
3	Pathanamthitta	354.46
4	Alappuzha	601.00
5	Kottayam	258.11
6	Idukki	593.78
7	Ernakulam	614.53
8	Thrissur	384.39
9	Palakkad	515.92
10	Malappuram	220.17
11	Kozhikode	309.34
12	Wayanad	116.92
13	Kannur	489.13
14	Kasargode	344.24
Total		5607.68

Source: Registrar of Co-operatives, GoK.

Integrated Co-operative Development Project (ICDP) is a unique scheme assisted by NCDC for comprehensive and integrated development of selected districts through co-operative networks. The other objectives of the scheme are to develop PACS as viable multipurpose societies by increasing value and range of business, strengthening the existing co-operative structure by providing vertical and horizontal linkage, revamping the agricultural and credit sector to cater to the needs of small and marginal farmers and weaker sections.

NCDC has disbursed a cumulative financial assistance of Rs 9843.72 crore for various co-operative development projects in Kerala as on August 2023. Of this, Rs 2558.74 crore is through the State government and Rs 7284.98 crore is via direct funding. Out of the assistance for direct funding, Rs 2.38 crore is long term loan and Rs 2.97 crore is subsidy and Rs 7279.63 crore as working capital. Details of NCDC assistance are shown in **Appendix 3.2.8**. Sanctions and release of NCDC funds to Kerala are shown in **Appendix 3.2.9**. Year wise release of loans and interest rates are shown in **Appendix 3.2.10**.

Way Forward

The Kerala Bank, the flagship establishment in Kerala's cooperative structure, must refine its development role, broaden its portfolio of banking products and also contribute to the economic growth of the State. The economic relationship between the Kerala Bank and primary cooperative societies must be strengthened and the activities and financial strategies of primary cooperative societies coordinated with the commercial activities of the Kerala Bank.

Cooperatives are self-governing institutions; there is an investment of about more than Rs 2 Lakh Crore in cooperative societies. This sector can channelise this fund to productive sectors for general use of the State. In addition to that, Kerala Bank plays a dominant role in the banking and financial sector of Kerala, therefore they can easily collect the scattered deposits of about two lakh hundred and fifty thousand crore of non-residents into Kerala Bank. Along with this, the Kerala Bank can create a new awakening in the financial sector of Kerala by intervening in the sector of production, construction, storage, distribution and basic facilities.

The cooperative movement has to establish itself as an organisational form of the future, to attract and involve youth in large numbers. The cooperative sector should infuse more technology and funds for new enterprises, including start-ups.

3.3 LIVESTOCK

Livestock is an integral part of agriculture, and it plays a significant role in the nutritional security of the people. It is an important subsector of agriculture in the Indian Economy and plays an important role in the rural economy. India has a huge livestock population reared under diverse production systems and agro climatic conditions. The importance of livestock in Indian agricultural economy has been well recognized and next to land and irrigation, livestock is the single largest asset in rural India. The livestock sector contributes in numerous ways to the socioeconomic development of rural households. Livestock and livelihood have an intimate relationship particularly in arid and semi-arid areas. As the distribution of livestock is more equitable than that of land, livestock production has a positive effect on farm income and, as a result, helps poverty alleviation in rural areas. It is one of the major sources of income for most farmers, provides key inputs to agriculture, contributes to the health and nutrition of the households, and enhances welfare options for the rural economy. The livestock sector is the most promising in the agriculture and allied sectors. Milk, meat, eggs, fish, wool etc. ensures additional income to the Livestock farmers. Government provides substantial allocations to improve the sector's performance in terms of productivity enhancement, disease control, fodder production, value addition, and adoption of scientific breeding practices.

India's livestock sector is one of the largest in the world. As per the 20th Livestock Census (2019),

the total livestock population in the country is 536.76 million, showing an increase of 4.8 per cent over the Livestock Census of 2012.

The 20th Livestock Census (2019) reports the State's livestock population as 29.09 lakh (5.42 per cent). The poultry population in the State was 297.71 lakh, which accounts for 3.50 per cent of total poultry population in the country. The poultry population registered 16.8 per cent increase over that recorded in previous livestock census (2012). The growth rate of poultry population in Kerala (22.61 per cent) is higher than the growth rate recorded at the National-level.

Contribution to the National and State Economy

As per the estimates of National Accounts Statistics (NAS) 2023, the contribution of livestock in total agriculture and allied sector GVA (at constant prices) increased from 29.8 per cent in 2020-21 to 30.5 per cent (2021-22). The contribution of the livestock sector was 4.75 per cent of total GVA in 2021-22.

In Kerala, the livestock sector is one of the fastest growing sectors of the rural economy. The contribution of livestock sector in total agriculture and allied sector GSVA (constant prices 2011-12), was 26.28 per cent (Quick estimates) (DES, 2022-23). The share in the total GSVA of the State was 2.38 per cent in 2021-22. In real terms, GSVA in the Livestock sector at constant prices (2011-12), marginally increased from Rs 11,69,871 crore in 2020-21 to Rs 11,83,059 crore in 2021-22.

Major Department and Agencies under Livestock Sector

The major departments and agencies under the Livestock sector of Kerala are Animal Husbandry Department, Dairy Development Department, Kerala Co-operative Milk Marketing Federation Ltd (MILMA), Kerala Feeds Limited (KFL), Kerala Livestock Development Board (KLDB), Kerala State Poultry Development Corporation (KSPDC), Meat Products of India Ltd. (MPI) and Kerala Veterinary and Animal Sciences University (KVASU)

The Department of Animal Husbandry in Kerala spearheads developmental activities related to this sub-sector. The major activities of the Department are veterinary services, animal healthcare, disease eradication, and development of cattle, goat, pig and poultry, control of zoonotic diseases, conducting and coordinating extension activities and training programmes for farmers and veterinarians, and production of biologicals.

The department's primary objectives are to increase the State's cattle population in terms of both number and quality. The State has implemented cattle development programmes in order to increase milk and meat production. The most significant of these is crossbreeding. Additionally, the department offers programmes for the development of poultry, the breeding

of pigs and rabbits, and the raising of goats and buffalo. It provides farmers with training on scientific production unit management in order to increase output. Women are trained to keep domestic livestock and poultry of a manageable size to supplement their families' incomes. Dairy farming, goat farming, duck farming, pig farming, broiler production, layer management, backyard poultry production, quail farming, and chick sexing are just a few of the trainings the Department offers. The Department also conducts the Quinquennial Animal Census and an Integrated Sample Survey to estimate the production of main livestock products like milk, eggs, and meat annually.

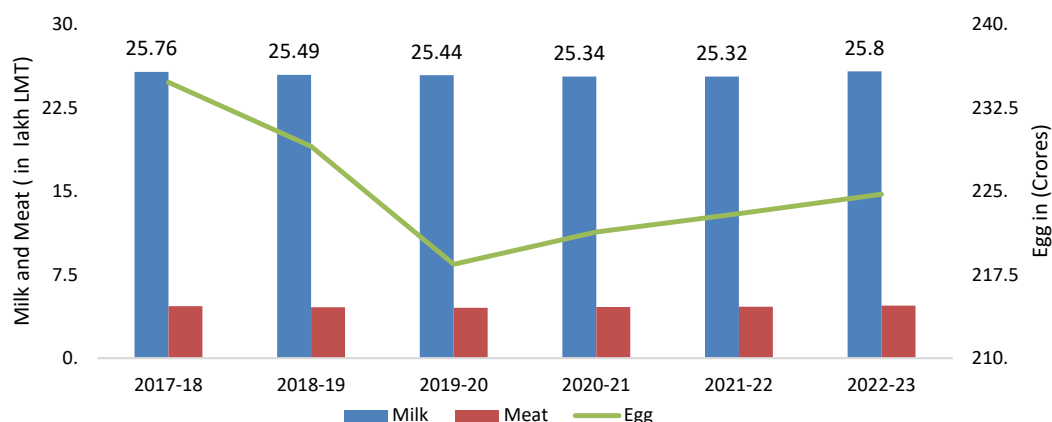
Animal Husbandry Department provides veterinary care mainly through 14 District Veterinary Centres, 214 Veterinary Hospitals, 50 Poly Clinics, 870 Veterinary Dispensaries, 38 Regional Animal Husbandry Centres, 1332 Veterinary Sub Centres, 5 Mobile Veterinary Hospitals, 4 Mobile Veterinary Dispensaries, 20 Veterinary Aid Centre, 5 Mobile Farm Aid Units, 10 Livestock Management Training Centres, and one Motor Boat Veterinary Hospital. 29 Mobile Veterinary units are in service now as part of the existing institutions (VD/VH). Effective and timely action was taken by the Animal Husbandry Department in liaison with Local Governments to eradicate contagious diseases. Mass vaccination campaigns such as foot and mouth disease

Table 3.3.1 Department /agency wise outlay and expenditure during the first two years of the 14th FYP period, in Rs lakh and in per cent

Sl. No.	Dept/PSUs	2022-23			2023-24 as on October 2023		
		Outlay	Exp.	Percent	Outlay	Exp.	Percent
1	Animal Husbandry Department	17434.02	10161.87	58.29	16805.00	3645.01	21.69
2	Dairy Development Department	9931.00	6854.57	69.02	11476.00	2007.06	17.48
3	Kerala Co-operative Milk Marketing Federation (KCMMF)	4022.00	487.5	12.11	750.00	268.78	35.84
4	Kerala Feeds Limited	1000.00	800.00	80.00	2000.00	0.00	0.00
5	Kerala Livestock Development Board(KLDB)	2346.98	1741.1	74.18	2968.00	741.04	24.97
6	Kerala State Poultry Development Corporation(KSPDC)	750.00	595.64	79.42	700.00	104.36	14.86
7	Kerala Veterinary and Animal Sciences University (KVASU)	6342.00	3430.24	54.09	6500.00	130.89	2.01
8	Meat Products of India Limited(MPI)	3950.00	186.00	4.71	1350.00	0.00	0.00
Total		45776.00	24256.92	53.00	42549.0	6897.14	16.21

Source: Kerala State Planning Board

Figure 3.3.1 Production of milk, egg and meat from 2017-18 to 2022-23



Source: Kerala State Animal Husbandry Department, GoK 2022

control programme, rabies-free Kerala vaccination programme, Assistance to States for Control of Animal Diseases (ASCAD), and regular poultry vaccinations are being conducted. Details of outbreaks, attacks and death of major contagious diseases of animals in Kerala from 2015-16 to 2021-22 are given in **Appendix 3.3.1**. The financial performance of the animal husbandry sector is shown in **Table 3.3.1**.

In 2022-23, the total outlay in the Livestock sector was 457.76 crore and the total expenditure was Rs 242.60 crore (53.00 per cent). In 2023-24, the outlay was 425.49 crore with an expenditure of 68.97 crore (16.21 per cent)

Major Livestock Products in Kerala

Milk, meat and egg are the major livestock products in the State. The production of these three livestock products during 2017-18 to 2022-23 is shown in **Figure 3.3.1**.

Milk Production

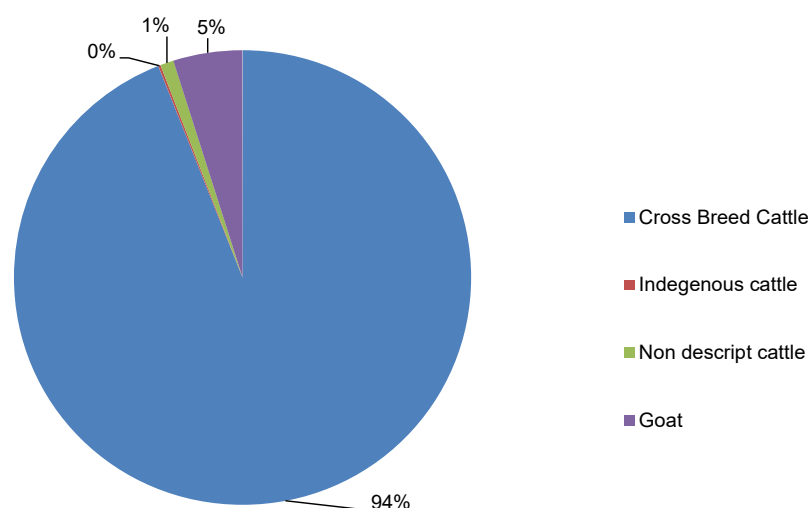
India ranked 1st in milk production, contributing 24 per cent of global milk production. At the national-level, milk production has increased from 22.21 crore tonnes in 2021-22 to 23.06 crore tonnes in 2022-23, registering a growth of 3.83 per cent, sustaining the trend over the past three decades. The highest five milk-producing states in India in 2022-23 were Uttar Pradesh (15.72 percent) Rajasthan (14.44 Percent) Madhya Pradesh (8.73 per cent), Gujarat (7.49 per

cent), and Andhra Pradesh (6.70 per cent), which together contributed 53.08 per cent of total milk production in the country. (The average yield per animal per day for exotic crossbred is 8.55 Kg per day and for indigenous/non-descript is 3.44 Kg per day (Basic Animal Husbandry Statistics, 2023).

The per capita availability of milk has been increasing in India over the years and is estimated at 459 grams/day in 2022-23 (Basic AH Statistics 2023 by DAHD, GOI). The highest per capita availability is in Punjab (1283 grams per day) followed by Rajasthan (1138 grams per day). The species-wise milk production in the country shows that nearly 31.94 per cent of total milk production is contributed by indigenous buffaloes, followed by cross-bred cattle 29.81 per cent. The indigenous cattle contribute 10.73 per cent of the total milk production in the country. Goat milk contributes 3.30 per cent of the total milk production (Basic Basic Animal Husbandry Statistics, 2023).

Kerala ranks 15th among the milk-producing states. Kerala's per capita availability is 198 grams per day (Basic Animal Husbandry Statistics, 2023). The total milk requirement in Kerala in 2022-23 was 33.51 lakh metric tonnes. But the annual production was only 25.32 lakh metric tonnes, which resulted in an average outside purchase of 1.34 lakh litres of milk per day. Out of 25.32 lakh MT of milk produced in the State, a major share was produced by cross bred cattle (93.56 per cent). Indigenous cattle produced only 0.04 MT

Figure 3.3.2 Species-wise milk production in Kerala in 2022-23



Source: Dairy Development Department, GoK 2023

of milk (0.16 per cent). The contribution of non-descript cattle was 0.24 MT (0.95 per cent). The milk production from goats was 1.23 MT (4.86 per cent). Indigenous and non-descript buffaloes contributed the rest. Details of species-wise milk production in Kerala in 2022-23 are provided in **Figure 3.3.2**.

Even though the herd sizes are low compared to major milk-producing states, cattle productivity in Kerala is higher than the national average. The average milk yield per In-Milk animal of Exotic/Crossbred cows in India in 2022-23 is 8.55 Kg/day/animal. For indigenous cattle and non-descript cattle, it is) 3.44 kg/day/animal. The yield rate from Exotic/crossbred in Kerala is 10.77 kg per day, and 3.21 kg/day/animal from Indigenous/Non-Descript. The third highest among the Indian states after Punjab (13.49 kg/day/animal) and Chandigarh 12.22 kg/day/animal (Basic Animal Husbandry Statistics 2023). This advantage for Kerala was due to high per cent of exotic and crossbred animals in the population compared to other states.

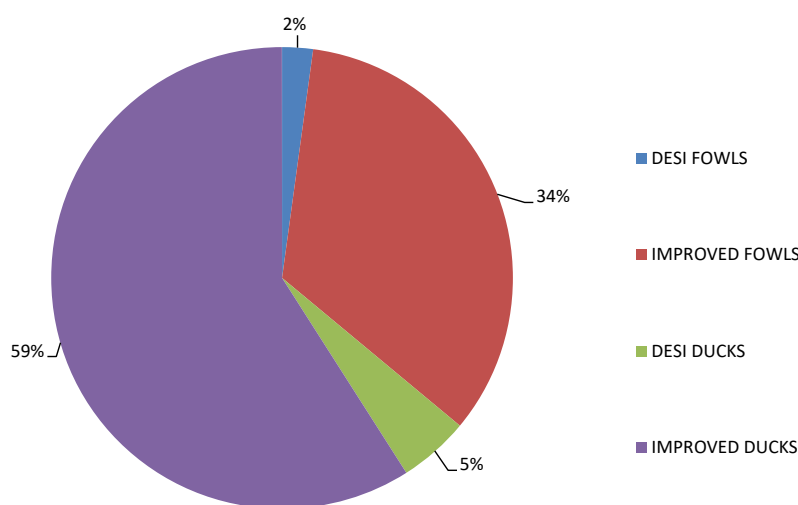
Dairy Co-operatives have procured 5.94 Lakh Metric Tonnes of Milk (16.27 Lakh Litre per day) during the year 2016-17, whereas 7.39 lakh Metric Tonnes of Milk (20.25 Lakh litres per day) is the corresponding figure for the year 2022-23. This hike is a positive indicator as far as the Animal Husbandry and Dairy Development activities of the state is concerned and is a narration of

the various development activities undertaken by the Government to nurture the sector. The implementation of cattle induction schemes like Ksheeragramam-Palkudam and Milk Shed Development Programme (MSDP) of the Dairy Development Department has created an upward trend in milk production since last 5 years.

Egg Production

Egg and meat production in India has taken a quantum leap in the last four decades, emerging from an unscientific farming practice to a commercial production system with state-of-the-art technological interventions. According to Food and Agriculture Organization Statistics (FAOSTAT) production data for 2023, India ranks third globally in egg production. Total egg production in India has increased from 129600 crore in 2021-22 to 138376 crore in 2022-23 registering a growth of 6.77 per cent. There has been a steady increase in the per capita availability of eggs since 2000-01. In 2022-23 the largest producer of eggs was Andhra Pradesh, which produces 20.13 per cent of total egg production in the country, followed by Tamil Nadu (15.58 per cent) and Telangana (12.77 per cent). Other states contributing a major share of the country's egg production include West Bengal (9.93 per cent) and Karnataka (6.51 per cent). Kerala contributes 1.62 per cent to the total egg production in the country. The highest per capita availability of egg is in Andhra Pradesh (526 eggs per annum) followed by Telangana (466 eggs per annum) and

Figure 3.3.3 Species wise egg production in Kerala 2022-23



Source: Basic Animal Husbandry Statistics, 2023

Tamil Nadu (281 eggs per annum) (Basic Animal Husbandry Statistics 2023).

Kerala ranks 14th among the States of India, in egg production. The production of egg increased from 22.30 crore in 2021-22 to 22.475 crore in 2022-23 (Basic Animal Husbandry Statistics, 2023). The per capita availability of eggs in our State was 63 eggs per annum in 2022-23 which is lower than the country average of 101 eggs per annum (Basic Animal Husbandry Statistics 2023).

According to Basic Animal Husbandry Statistics, 2023, about 59 per cent of the total eggs produced in the State are from Improved ducks and around 34 per cent are from improved fowls, 5 per cent from Desi ducks and 2 per cent from Desi fowls. The details of species wise egg production in Kerala is shown in **Figure 3.3.3**.

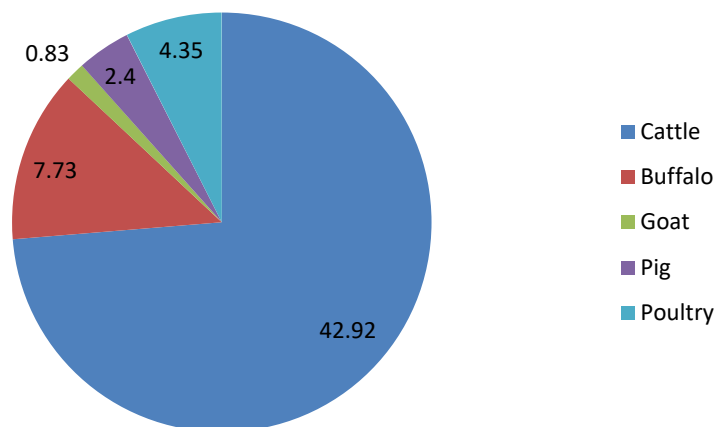
Meat Production

Meat production has witnessed a steady increase over the last ten years in our country. India ranks 8th in meat production in the world. Meat production in the country has increased by 5.13 per cent from 9.29 million tonnes in 2021-22 to 9.77 million tonnes in 2022-23. The largest producer of meat in the country in the year 2022-23 was Uttar Pradesh producing 12.20 per cent of the total meat followed by West Bengal (11.93 per cent), Maharashtra (11.50 per cent), Andhra Pradesh

(11.20 per cent) and Telangana (11.06 per cent). These states together contribute 57.90 per cent of total meat production in the country in this period. Kerala's contribution to the total meat production in the country is 4.84 per cent in 2022-23 (Basic Animal Husbandry Statistics 2023). Species-wise meat contribution shows that 51.14 per cent of meat production in the country is contributed by poultry in the year 2022-23. Uttar Pradesh, West Bengal and Maharashtra are the country's largest meat producers in 2022-23 with 12.20, 11.93 & 11.50 percentage respectively. Kerala contributes 3.19 per cent in total meat production. In India's total meat production, meat from cattle and buffalo accounts for 2.55 per cent and 18.51 per cent, respectively. Meat production from goat, sheep, pig and poultry is 15.21, 11.05, 4.05 percent and 53.76 percent respectively. In Kerala, majority of the meat is produced from cattle with 42.92 per cent in 2022-23 (Basic Animal Husbandry Statistics, 2023).

In the 13th Five-Year Plan, meat production in Kerala was 23.01 lakh MT. The floods of 2018 and 2019 and the impact of COVID-19 pandemic adversely affected the sector. Total meat production in 2022-23 was 4.74 lakh MT. The total requirement of meat in the State in 2022-23 was 8.75 lakh MT. Domestic demand for meat has been growing at a faster rate. In this context, expanding the "Kerala Chicken" scheme

Figure 3.3.4 Species wise meat production in Kerala 2022-23



Source: Animal Husbandry Department, GoK 2023

is essential over the next five years. A scheme to encourage growing of male calves should also be thought of in this regard. Species-wise meat production in Kerala is shown in **Figure 3.3.4**.

The real potential of the meat sector in Kerala has not been fully tapped. The requirement of meat, especially beef in Kerala is met from animals brought for slaughter from outside the State, mainly from Andhra Pradesh, Karnataka and Tamil Nadu.

For the meat sector to be more vibrant, profitable and to be a provider of safe meat, it is necessary to take a perceptible shift from unorganized to organized sector. This necessitates a strategic plan to modernize the meat production sector towards the production of safe and wholesome meat based on a Clean, Green and Ethical (CGE) farming and production system.

For the production of safe and wholesome meat, it is essential to establish modern scientific infrastructure for slaughter operations, promote value addition and strengthen human resource development to have trained human resources in the sector. With the help of LSGs, the Government has set up 40 rendering plants under PPP mode. The scientific infrastructure would eliminate environmental pollution, prevent the spread of infectious and zoonotic diseases and generate economic returns from by products and waste.

Feed and Fodder Base

To support the development of livestock sector, special focus has been given to fodder and feed production considering the wide gap in the availability of critical inputs. The Dairy Development Department is the nodal agency for fodder development activities in the State. Under the scheme, production and conservation of fodder in farmer fields and dairy co-operatives, commercial and massive fodder production in barren lands and wastelands has been initiated. The fertile lands which remain underutilized under the ownership of progressive farmers, other individuals, LSGDs and PSUs are selected and intensive fodder cultivation activities are taken up. In 2022-23, fodder cultivation was taken up in 2277 ha of land and 334.8 lakh fodder root slips/stem cuttings were supplied. Besides, assistance was provided to farmers for Azolla cultivation, mechanisation of fodder cultivation and also for harvesting and irrigation facilities. The total cattle feed production in 2022-23 was 3.64 lakh metric tonnes against 3.58 lakh metric tonnes in 2021-22. The details of production of feed and fodder are shown in **Appendix 3.3.2**, **3.3.3** and **Appendix 3.3.4** respectively.

Presently, there are 8020 fodder plots in the State, of which, 5897 plots (73.54 per cent) are between one acre and 2.5 acres in area. There are 1877 plots (23.4 per cent) with area between 2.5 acres and five acres. There are only 246 plots (3.07 per cent) of

Table 3.3.2 Area under fodder farms, Kerala 2017-18 to 2022-23

Year	Area under Hybrid Napier (ha)
2017-18	2250
2018-19	2750
2019-20	2865
2020-21	2363
2021-22	2397
2022-23	2277

Source: Dairy Development Department

area more than five acres. The area under fodder farms in Kerala is shown in **Table 3.3.2**.

The table indicates that there was a decrease in the area cultivated with fodder over the 2021-22 period

Breeding Support

Breeding is one of the important tools to facilitate production potential and bring about progressive genetic improvement in production on a long-term basis in animals. In our State, cattle breeding have been carried out systematically and we have a well-planned breeding policy. According to the breeding policy of the State, the germ plasm provided by Kerala Livestock Development Board alone is used in the State under the supervision of Director of Animal Husbandry. Animal Husbandry Department is ensuring artificial insemination facilities through veterinary hospitals in every Panchayat. The department also provides door step delivery of AI through Mobile veterinary units.

According to the existing breeding policy, the exotic inheritance-level is limited to around 50 per cent in the small holding population. But the small farmers with good resources and farmers involved in commercial/semi-commercial dairying are provided with semen of high-value pure breed Holstein Friesian bulls (imported/ imported sexed/bulls procured from the outside State) under close monitoring by the State Animal Husbandry Department and the Kerala Livestock Development Board. The conservation programme for indigenous breeds of the State (like Vechur) is also undertaken. KLD Board is supplying semen of indigenous breeds like Vechur, Gir, Kasargod dwarf, Red sindhi, Kangayam, Kangrej. The department is also spending Plan funds for conducting infertility camps and has a separate institution namely, State Institute for Fertility Management for managing the infertility problems in cattle of our State.

The objective of Kerala Livestock Development Board (KLDB) is to develop a breed of dairy cattle suitable for the prevailing dairy environment of the State. The Board's main functions are production of breeding inputs, research and development and training.

KLDB has three bull stations, four bull mother farms and one each of indigenous cattle, goat and pig farms. It has seven regional semen banks, one each catering to two districts. The bulls used for semen production are screened for infectious and genetic diseases as per Minimum Standard Protocols advocated by GoI for production of frozen semen production. All three semen stations

Box 3.3.1 Ksheerasree Portal

The Ksheerasree portal of Dairy Department bagged Digital India Awards 2022 and State e Governance Award 2021-2022. The Digital India Awards 2022 was received by department from the honourable President of India and the State e Governance award was received by department from the Honourable Chief Minister of State. 'Ksheerasree' portal was conceived by the Department of Dairy Development, Govt. of Kerala and was developed by National Informatics Centre to address the needs of the dairy sector in the state. The Dairy Development Department offers several subsidy schemes targeting dairy farmers, most of which are offered through Ksheerasree portal. The components of Fodder scheme and Milk Shed Development Project are implemented through the portal.

The entire workflow is fully automated with fully automated beneficiary selection. Approximately 2.5 lakh dairy farmers and more than 3000 dairy cooperative societies are registered in portal as of now. Portal ensures transparency and efficiency in offering G2C, G2B and G2G services. In Kerala, ksheerasree portal is now widely accepted by the dairy farming community because it makes their life easier.

Source: SC Development Department, 2023

under KLDB have been ISO 9001:2015 certified and have Hazard Analysis and Critical Control Point (HACCP) certification with biosecurity measures in force. KLDB has initiated the production and supply of goat semen to the State livestock holders through Animal Husbandry Department. The Board also undertakes the supply of breeding stock of pigs to Government agencies inside and outside the State and breeding and fattening stock to the pig farmers in the State.

In Kerala, the frozen semen production in 2022-23 was 24.79 lakh doses. The distribution of frozen semen inside the State was 13.39 lakh doses. The distribution of frozen semen outside the State was 6.81 lakh doses in 2022-23. Details of the production and distribution of Frozen Semen in Kerala are shown in **Appendix 3.3.5**. In 2022-23, 11.63 lakh numbers of artificial inseminations (AI) was done in 2504 insemination centres with a calving recorded as 2.69 lakh. The average number of inseminations needed for producing one calf is four. The details of artificial inseminations conducted and recording calving are shown in **Appendix 3.3.6**. The major activities of KLDB are given in **Appendix 3.3.7**. KLDB has developed a new software application for herd book registration electronically in association with Digital University (IITMK). The data could be synched with similar applications of the Animal Husbandry and Dairy Development departments. The Board undertakes Kudumbasree linked forage programmes and establishment of fodder demonstration units and conservation and dissemination of indigenous cattle germplasm. It has taken up genetic upgradation of cattle through field performance recording programme and assisting selection of bulls through genomic selection.

Due to the continued focus on exotic germplasm-based cross-breeding in the livestock sector, the number of indigenous breeds with better adaptability, disease-resistance and feed efficiency ratio is declining. Hence, it is essential to conserve and improve the productivity of Indian indigenous breeds. The Department focuses on complete or total artificial insemination coverage along with the application of advanced cutting-edge reproductive technology developments.

The Special Livestock Breeding Programme (SLBP), a calf rearing program that subsidises cattle feed for rearing cattle up to 32 months

along with health cover and insurance has been under implementation since 1976. In 2006-07, the scheme was extended to buffalo calves to curtail the drastic reduction in the buffalo population. No buffalo calves have been enrolled since 2014-15. The number of new calves (cow) enrolled under the programme in 2022-23 was 60,652 as against 56,373 in 2021-22. Year-wise details of calves enrolled under the Special Livestock Breeding Programme from 2010-11 onwards are shown in **Appendix 3.3.8**.

Production of Vaccine in Institute of Animal Health and Veterinary Biologicals, Palode

The Institute of Animal Health and Veterinary Biologicals, Palode is the sole agency that produces and distributes animal vaccines in Kerala. The production details of vaccines manufactured in the Institute are in **Appendix 3.3.9**. In 2021-22, poultry vaccine production was 195.08 lakh doses and livestock vaccine production was 8.98 lakh doses. Production of poultry vaccine decreased by 1.22 per cent and livestock vaccine increased by 39.42 per cent compared to the previous year. The number of vaccinations done in 2022-23 was 32.17 lakh for livestock and 59.27 lakh for poultry. In comparison to the previous year, vaccination for livestock increased by 240.98 per cent and poultry vaccination decreased by 36.80 per cent. Anti-Rabies vaccinations to dogs increased from 3.04 lakh in 2021-22 to 5.91 Lakh in 2022-23. Details are provided in **Appendix 3.3.10**.

Bhumika – GIS based mapping as a tool for Animal Resource Management System

Animal Husbandry Department has developed GIS-based mapping of farmers “Bhumika” to build a geospatial data base of farmers engaged in animal husbandry activities for effective management and monitoring of health, breeding, production, risk and disaster, and human resource management. The institutions coming under the purview of the Department have been brought under the geo-mapping system. It has been estimated that about 25 lakh households are involved in animal husbandry activities in the State. The Department could cover 5.44 lakh farmers involved in cattle/buffalo rearing till 2022. Animal Husbandry Department has developed Geographic Information System (GIS) based mapping of farmers “Bhoomika” to build a geospatial data base of farmers. It was developed in association with Digital University through which the geographical location of farmers who are engaged in animal

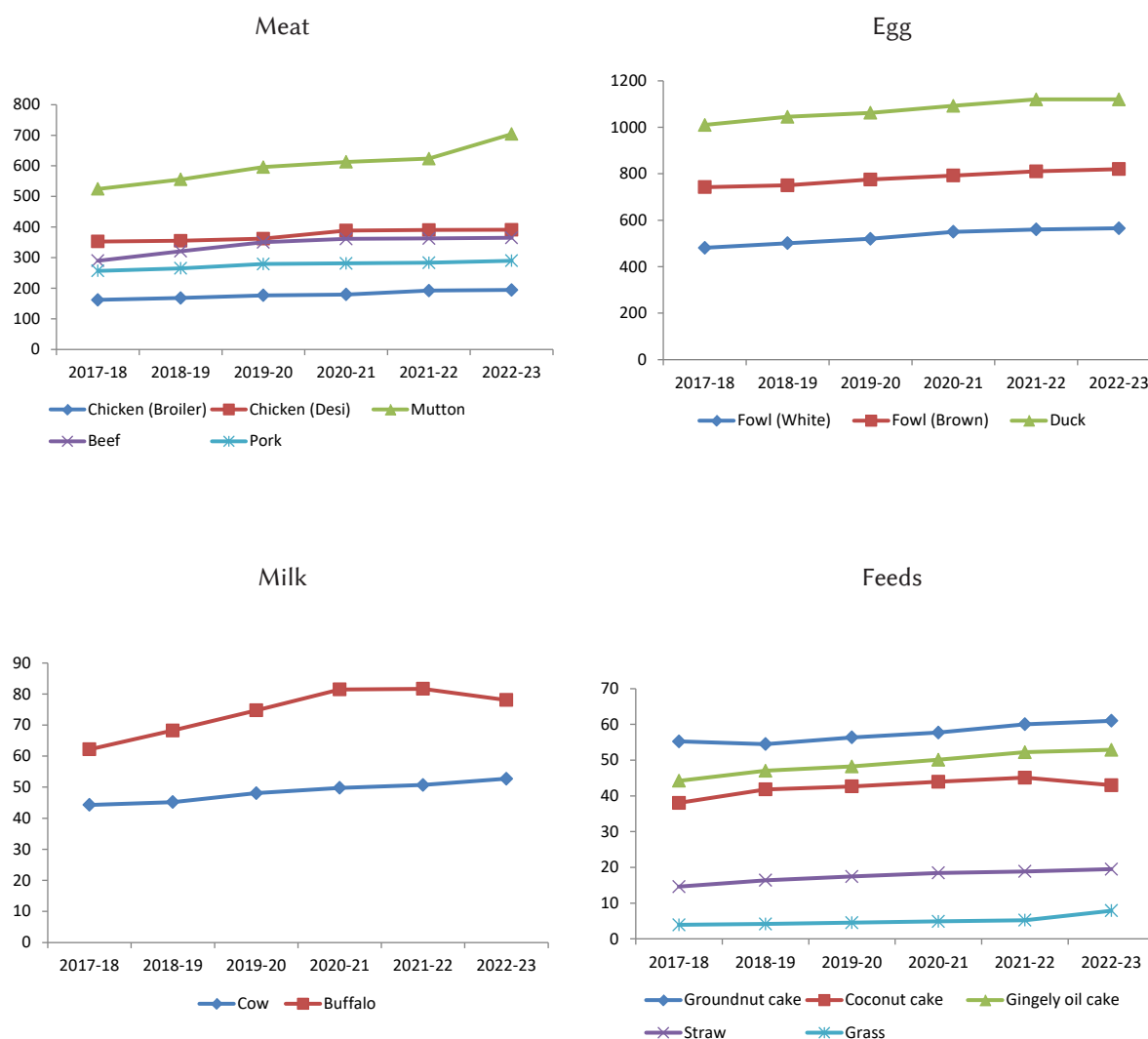
resources activities for effective management and monitoring of health, breeding, production, risk and disaster management, and human resource management. This portal consists of 547329 locations(households).The app is available in Google Play store for download.

Prices

Average price of important inputs and products of livestock sector for the last seven years is presented in **Appendix 3.3.11**. All the products recorded an increase in prices over 2011-12, during

this time period. According to the data from the Department of Animal Husbandry, in the year 2022-23, the price of chicken broiler, chicken desi, mutton, beef and pork increased by 67.15 per cent, 102.13 per cent, 129.86 per cent, 134.7 per cent and 89.4 per cent respectively, compared to the previous year. Compared to 2021-22, the price of fowl-white egg increased by 88.96 per cent, fowl brown egg by 94.77 per cent and duck egg by 118.75 per cent in 2022-23. The price of cow milk increased by 91.82 per cent and buffalo milk decreased by 137.44 per cent in the same period.

Figure 3.3.5 Trend in average prices of livestock products from 2017-18 to 2022-23



Source: Animal Husbandry Department GoK, 2023

On the input side, in 2022-23, the price of straw increased by 143.75 per cent, grass by 224.69 per cent, ground nut cake by 117.4 per cent, gingelly oil cake increased by 152.24 per cent over to 2011-12 and coconut cake decreased by 126.81. The increase in the price of inputs is a serious threat to dairy farming and hence the possibility of indigenous source of feeds is to be explored. The trend in average prices of livestock products from 2017-18 to 2022-23 is shown in the **Figure 3.3.5**.

Physical Achievements of 2022-23

- Emergency night Veterinary service extended to 156 centres.
- Under the Comprehensive Livestock Development Programme, 'Gosamrudhi' 43,953 livestock were insured.
- The laboratory network under Animal Husbandry Department was strengthened with infrastructure development in the labs for improved disease diagnosis facilities.
- The State Institute for Animal Diseases (SIAD),

formerly known as CDIO at Palode, the Avian Disease Diagnosis lab at Thiruvalla, the District lab at Palakkad, and the State Livestock Marine and Agri-Products laboratory at Maradu in Ernakulam was able to obtain NABL accreditation.

- Enrolled 60,652 new calves under 'Govardhini' and 'SLBP' schemes. A total of 85,157 calves were benefitted.
- In the department farms 64.74 lakh eggs and 38.84 lakh chicks were produced.
- Established 700 commercial goatery units and 911 backyard goat rearing units and 500 goat artificial insemination centres in association with KLDB.
- 2300 no of male calf fattening units were established under the National Livestock Mission Programme (NLM).
- An amount of Rs 1.70 crore was disbursed to those farmers as compensation, whose animals are not covered under insurance. E-Samridha Project - A comprehensive data base including

Box 3.3.2 Digital Herd Book Scheme

A breed registry, also known as a herd book, studbook or register, is an official list of animals within a specific breed whose parents are known. Animals are usually registered by their breeders while they are young. Such registries usually issue certificates for each recorded animal, called a pedigree, pedigreed animal documentation, or most commonly, an animal's "papers". Registration papers may consist of a simple certificate or a listing of ancestors in the animal's background, sometimes with a chart showing the lineage.

Though Kerala started the artificial insemination technique as early as in 1970s, the pedigree records of our cows were not available at our fingertips for finding out the best cows in the State, or the bulls whose daughters are the best yielders, or find out the best generation of cows (line) in the State, or suggest the best semen for inseminating a particular cow to produce the best offspring etc. By digitalizing and maintaining a breeding history (digital herd register) along with health and management details, weather correlation on production, the State will be in a position to find the best cow/bull/breed suitable for Kerala and may even become a valuable data repository and a data warehouse to develop a suitable breed for the State in the future.

In order to find out a way out of the problem, as suggested by Kerala State Planning Board, the Government has earmarked Rs 100.00 lakh for the development of a digital Herd Book as a Decision Support System (DSS) under Modernisation and e-Governance scheme of the Animal Husbandry department during the financial year 2021-2022 with the help of the Digital University (formerly IIITM-K). This DSS will capture all details of the dairy animals from birth to death like health, breeding, pedigree, selection, feeding, milk production, vaccinations, agro-climatic correlation in expression of genetic potential, traceability of animal product. This will become the basis of all future animal husbandry development activities.

The Department has developed an animal database with provisions for capturing birth, health, breeding, production and death details with appropriate dashboards and integration with other software maintained by the department, KLDB, NDDDB etc. A mobile application for the farmers with provisions for viewing all the details of their animals including the treatment, breeding have also been developed for entering the daily production details of animals. This database will become a central repository where all the herd management activities of the animals will be captured and act like an animal aadhaar database.

Source: Animal Husbandry Directorate, GoK

productivity, health and owner information of animals tagged by radio frequency identification device will be made available through the e-Samridhi scheme.

- Mobile Veterinary Unit/Night Emergency Veterinary Service Scheme:- 29 Mobile Veterinary Units are being implemented in 29 Blocks of the State under Livestock Health and Disease Control Scheme which is a central initiative. In addition, overnight emergency veterinary services are provided at the farmers' doorsteps from 6 pm to 6 am the next morning. This scheme is being implemented in 156 centers in 152 blocks at Thiruvananthapuram, Kollam, Kochi Corporations and Neyyattinkara Municipality.
- As part of promoting Maize cultivation in Kerala, KFL has started Maize cultivation on experimental basis on the land of Muthalamada East Dairy Cooperative with technical assistance from Indian Institute of Maize Research (IIMR), Punjab.
- Kerala Feeds Ltd. implemented "Feed on Wheels" project in collaboration with KSRTC, a Public Sector Undertaking, to provide quality fodder, poultry feed, goat feed and mineral fertilizer mix to dairy farmers. Under the scheme, farmers are provided an opportunity to purchase produce from their locality from a mobile sales vehicle.
- ADAPT(Application for Data Analysis in Progeny Testing Programme): KLDB has developed a software ADAPT(Application for Data Analysis in Progeny Testing Programme) in collaboration with Digital University, Kerala that can reliably analyze the data of cows available from the field and coordinate field operations through computer/mobile application from farmer homes. This state-of-the-art digital technology will enable the various functions of the progeny testing program to be efficiently carried out under one roof, creating a new generation of cows backed by genetic traits to increase productivity and modernize and strengthen the dairy sector of the future.
- KLDB-IISER Joint Research Project:- set up Genomic Lab with NABL Accreditation at KLD Board Kudappanakunnu to achieve the objectives of selecting bulls based on their Pedigree details and identifying genomic excellence, increasing milk production and genetic excellence of cattle. During the year 2021-22, KLDB had undertaken applied research activities for application of 'CRISPR-

Cas9 gene editing technology' for advancing livestock production in collaboration with IISER-Thiruvananthapuram. The project aims to identify the particular genes associated with the disease resistance traits in cattle and the possibility of incorporating the same into embryos for betterment of the traits after modification using 'CRISPR-Cas9 gene editing technology'.

- Embryo transfer and In-Vitro Fertilization (IVF) implemented for local cows: The KLD Board implements modern technologies related to cattle reproduction such as embryo transfer and In-Vitro Fertilization (IVF). With this technology it is possible to produce high quality calves with high genetic value in a very short period of time. This embryo transfer project is being implemented at Mattupetti Farm of KLD Board. Already 850 embryos have been produced. Moreover, around 38 calves have been born through embryo transfer technology in the farm itself. Ova were collected from the ovaries of a dead Sunandini cow and embryos were created through IVF at the embryo transfer laboratory in Mattupetti. From these embryos, a calf of the dead cow was born. The birth of this calf is one of the many benefits that 'IVF technology' can bring to the dairy sector. The Vechur cow's embryo, produced for the first time in the world through IVF technology, was deep-frozen and deposited in the uterus of other cows and through this, a male calf was born. The birth of this male calf named 'Abhimanyu' is a matter of pride for the state.
- Only KEPCO in Kerala has Matru-Pitru collection of BV-380 variety. During this period, 11 lakh BV-380 chicks were distributed to the farmers. Vaccinated chicks are distributed.
- Under the Re-Build Kerala project, preliminary steps have been initiated to set up a state-of-the-art broiler processing plant and pet food manufacturing unit at Kotukkal in Kollam district, capable of processing 1,000 broilers per hour.
- A value added meat production and processing plant was set up at Erur in Kollam district.
- Kerala Veterinary and Animal Sciences University (KVASU): The establishment of the University on 14th June, 2010 was the result of the recognition of the need to advance animal production sector activities. Twenty animal production-related institutions of Kerala Agricultural University including three colleges were transferred to the newly formed University.

KVASU now undertakes academic, research, extension and entrepreneurship activities in animal production and dairy sector.

- “OPPAM” - Livelihood Enhancement of Wayanad Tribal Colonies Through Need Based Package of Inputs is a novel project aimed at enhancing the social and economic wellbeing of the tribal community of Wayanad by providing sustainable livelihood support through capacity building and campaigns and to augment Entrepreneurial culture among tribal groups.
- “KVASU – PRATHIKSHA” - “Planning, Reintroduction And Timely Intervention of KVASU to Streamline Alternatives in Animal Production” is an innovative programme aimed at developing alternative methods for farmers to improve the growth rate of Desi chicken and also to actively involved in household waste management so as to improve the growth rate of back yard chicken by supplementing them with Black Soldier Fly Larvae produced at the farmer’s premises using the modified KVASU bins.
- “KVASU MIRROR” – University Multimedia Studio was established at KVASU Mannuthy campus for production and recording of audio and video files for dissemination of ideas, knowledge for teaching and extension activities of the University.
- “JEEVANAM JEEVADHANM” - (Livestock Rearing For Sustainable Livelihood) was a flagship programme organised by KVASU in association with State NSS Cell of VHSE involving regular on-line classes and trainings to students and public to inculcate the sense of animal farming and involve them in livelihood security activities during the COVID Lockdown and adjoining months when the students and public were held up at home and were highly in need of support. The follow up of the training was done by supply of chicks and feeds to the selected students who attended the online trainings.
- Established state of the art climate-controlled research facility of global standards for thermal stress assessment in small and large animals at the Centre for Animal Adaptation to Environment & Climate Change Studies of the University. Developed vaccine against Riemerellosis in ducks and technology transferred for vaccine production and Patent granted to KVASU was the achievements that represent first in India.
- Animal husbandry and dairying has undergone transformation over the years from traditional

to modern skill-intensive technology. Artificial insemination, disease and pest management, diversification of milk and meat products are all skill intensive. To attain sustainable growth, it is essential to introduce yield-enhancing and waste-minimising technologies in the sector. While animal nutrition is crucial to maintain and enhance the livestock productivity, vaccination and health care infrastructure and services are equally important. The health, quarantine and hygienic services assume even greater importance in view of the disease outbreaks and for rearing high yielding exotic breeds. Comprehensive entrepreneurship development programmes are essential to tackle the critical production and skill gaps in the livestock sector. Entrepreneurship, innovation, skill development and capacity building have to emerge as potential areas of focus in veterinary extension. Livestock, dairy, and poultry entrepreneurship program can benefit returnee non-resident Keralites (NRKs), unemployed youth, and women interested in establishing commercial livestock enterprises in the post-COVID era.

Dairy Development

Milk and dairy products are vital sources of nutrition and provide livelihoods for millions of people in the dairy value chain worldwide. According to FAO, approximately 150 million households around the globe are engaged in milk production. In most developing countries, milk is produced by smallholders, and milk production contributes to household livelihoods, food security and nutrition. Milk provides relatively quick returns for small-scale producers and is an important source of cash income (FAO). Dairy is the single-largest agri commodity in India. The dairy sector is a major sector of Indian economy which provides employment to millions of rural population and contributes to the income of rural households. The sector plays an important role in achieving food security, reduces poverty, and generates gainful employment opportunities especially to women. Owing to the increasing demand for dairy products driven by the growing population, higher purchasing power of the customer, increased focus on nutrition and growing aversion for unbranded and loose products, milk production in India is set to reach approximately 628 MMT in the next 25 years (i.e., till 2047). The dairy sector plays a vital role in achieving Sustainable Development Goals – especially SDG-1, SDG-3, SDG-5, SDG-8 and SDG-10 thereby plays a significant role in transforming lives of the agrarian sector.

As per FAO's 'Overview of global dairy market developments' in 2022 world milk production is forecast at around 937.3 million tonnes, up by 0.6 percent from 2021, -the slowest growth rate registered during the last two decades-principally due to milk production drops in Europe, Oceania, and Africa, with slowdowns in milk production growth rare in Asia while outputs remained stagnant in North America and South America. In Asia, milk production increased by around 8 million tonnes in 2022, reaching 421 million tonnes (up by 1.9 percent), principally driven by expansions in India, China, Pakistan, Uzbekistan, Kazakhstan and Bangladesh. In India, milk production reached 226 million tonnes in 2022, expanded by 2.3 percent, compared to anearly 6 percent growth rate from 2017-2021. The growth slowdown in 2022 principally reflected the decline in milk output due to the Lumpy Skin Disease(LSD) outbreak, together with poor fodder availability that stemmed from droughts in various parts of the country, heavy rains in other regions and increased input costs..

India ranks first among the world's milk producing nations, achieving an annual production of 221.06 million tonnes during the year 2021-22 as compared to 209.96 million tonnes during 2020-21 recording a growth rate of 5.29 per cent. The per capita availability of milk has reached a level of 444 grams per day during the year 2021-22 which is more than the world average of around 320 grams per day in 2021 (estimates) (Food Outlook November, 2022). Most of the milk in the country is produced by small, marginal farmers and landless labourers. India is home to the highest number of milk cows of any country, at over 61 million head as of 2023. India's cattle inventory amounted to about 308 million in 2022. While the global cattle population stood at over one billion, India had the highest cattle population followed by Brazil, China and the United States that year. Milk production is growing at the Compound Annual Growth Rate (CAGR) of 5.85 per cent over the past 9 years from 146.31 million tonnes during 2014-15 to

230.58 million tonnes during 2022-23. World milk production has grown by 0.51per cent during 2022 in-comparison to the year 2021 (Food Outlook June, 2023). The per capita availability of milk is 459 grams per day in India during 2022-23 as against the world average of 322 grams per day in 2022 (Food Outlook June, 2023).

In India, about 46 per cent of the milk produced is either consumed at the producer level or sold to non-producers in the rural area, the balance 54 per cent of the milk is available for sale to organised and unorganised players. The total size of dairy market was about Rs 13.17 lakh crore in 2021. The dairy market has been growing at about 15 per cent per annum in last 15 years and is expected to reach a market size of about Rs 30.84 lakh crore by 2027 as per IMARC (International Market Analysis Research and Consulting Group) 2021 report. The liquid milk market represents about half of the total dairy market in the country. Of the total liquid milk market, the share of organised sector has increased from 32 per cent to 41 per cent in last three years. It is estimated that the share of organised sector would reach to 54 per cent by 2026 (Annual Report 2022-23, Department of Animal Husbandry and Dairying, GoI).

Programmes and initiatives

Kerala has a separate Department of Dairy Development, which functions as the nodal agency for rural dairy extension, fodder resource development and rural milk marketing in the State. The Department with the financial aid of State Government and Central Government, implements various schemes in the State with the objectives of attaining self-sufficiency in milk production, increasing fodder production, reducing production cost, strengthening of Dairy Co-operatives and ensuring safe and quality milk to the consumers, fair margin to producers and socio-economic benefits to dairy farmers. The objective of the Department is comprehensive and sustainable development of the sector along with well-being of dairy farmers, consumers and other

Table 3.3.4 Financial performance of Dairy sector during the first 2 years of the 14th FYP Rs in lakh

Year	Outlay	Expenditure	Expenditure as per cent of total outlay
2022-23	9931	7342.07	73.93
2023-24	11476	2274.8*	19.82
Total	21407	9616.87	44.92

Source: Kerala State Planning Board/ Annual Plan Accounts

stakeholders. It also acts as the nodal agency for fodder development in the State.

The department has 162 dairy extension service units, 14 quality control units, one State Dairy Lab (NABL accredited) for testing milk and milk products and cattle feed, 3 Regional Dairy Labs, 14 Mobile Quality Control Units, 6 Dairy Training Centres, State Fodder Farm and a State Dairy Management Information Centre attached to the Directorate.

Dairy Co-operatives

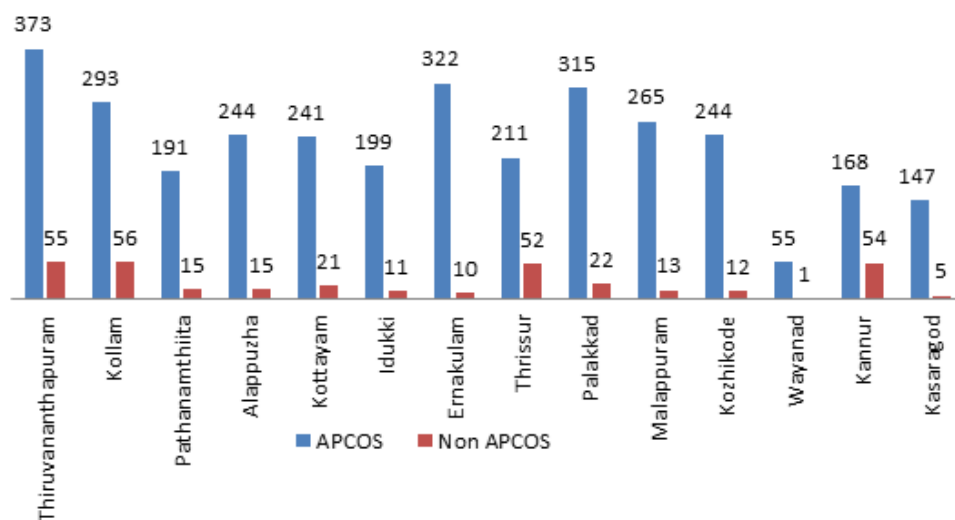
Dairy co-operatives play a pivotal role in achieving self-sufficiency in milk and dairy products in India. Most of India's dairy co-operatives are based on maximising farmers' profit and productivity through cooperative effort. The Dairy Co-operatives in Kerala are one of the top and stable dairy co-operatives in the country. The regional unions in the State extends maximum price to member producers when compared to other unions in the country. The Dairy Co-operatives being the backbone of the dairy industry provide a ready market and steady price to the dairy farmers. There are 3610 registered Dairy Co-operative societies (including Anand Pattern Co-operative Societies (APCOS) and non-APCOS) as on March 2023. Out of the total registered 3610 DCS, 3370 are functional and remaining 240 DCS are dormant. There are 3610 DCS in the State which collect milk twice a day from their farmers and pays the milk value based on the

quality (fat and SNF per cent). The details of Dairy Co-operative Societies are shown in **Figure 3.3.6**.

As per the National Action Plan on Dairy Development Vision 2022 report, it is envisioned to increase milk procurement and processing through setting up of Village-level dairy infrastructure. National Action Plan for Dairy Development is designed to provide technical and financial assistance for the dairy development and thereby creating any infrastructure related to the processing, production, marketing and procurement by the milk federation/unions while extending their activities by providing training facilities to the farmers. It envisages to achieve milk production target of 254.5 MT by 2022 and 300 MT by 2023-24. National Dairy Plan Phase-I will cover the case of States i.e, Andhra Pradesh, Rajasthan, Bihar, Gujarat, Karnataka, Haryana, Kerala, Maharashtra, Madhya Pradesh, Orissa, Tamil Nadu, Punjab, West Bengal, Uttar Pradesh. Under this Plan, organized milk handling increased to 41 per cent by 2022 and 50 per cent by 2023-24. Milk procurement by co-operatives is targeted to increase from the present 23 per cent to around 50 per cent by the end of the 14th Five year plan period.

Indian dairy co-operatives and private players could create additional milk processing capacity of 4.5-4.8 crore litre per day in the next decade. India's milk processing capacity is to be enhanced from the current 12 crore litre per day to around

Figure 3.3.6 Details of APCOS and Non APCOS in Kerala



Source: Dairy Development Directorate GoK, 2023

17 crore litre per day. It is estimated that one lakh litres of milk is procured and distributed to organized players, around 6,000 people get employment annually, and the Animal Husbandry Infrastructure Investment Fund, has the potential to create necessary infrastructure in the sector. Extension of Kisan Credit Card (KCC) scheme to dairy farmers also ensures cash flow and meets the working capital requirement of small farmers. Under this campaign as on 30.12.2022, total 21,51,563 applications received and out of which 20,78,140 applications were accepted by banks and 10,67,779 KCCs were sanctioned in the country. As on 30.12.2022, 25.30 lakh fresh KCC were sanctioned for AHD Farmers in the country. (Annual Report 2022-23, Dept. of Animal Husbandry and Dairying, GoI.)

Under Special Performance Booster Programme for Weaker Dairy Co-operatives, 82 numbers of financially weaker and selected Dairy Co-operatives were assisted to improve the milk procurement and other DCS aspects. Rs 108.68 Lakh was expended as plan fund during the year 2022-23. Managerial assistance was extended to weaker DCS under this programme during the year 2022-23.

Milk Marketing

Kerala pays the farmer a high remunerative price. Kerala Co-operative Milk Marketing Federation (KCMMF), the apex body of the three-tier dairy co-operatives, implements the Operation Flood Programme in the State. The sale of milk by Kerala Co-operative Milk Marketing Federation (MILMA) shows a decrease in the review period. As per the data from Dairy Development Department, in 2022-23, a total of 7392.206 lakh litres per day of milk was procured by the dairy co-operative societies in the State, of which 5073.94 lakh litres were sent to the dairies and 2200.23 lakh litres were marketed locally by the societies. Only 117.97 lakh litres, of the total procurement, was utilized for different product preparation. The

average milk procured per day by APCOS in 2022-23 was 1404.00 MT against the previous year average of 1565.84 MT. The procurement/day/society in 2022-23 was 442.60 litres. In 2022-23, the procurement and sale of milk by Kerala Co-operative Milk Marketing Federation (KCMMF) were 4232.39 lakh litres and 5103.23 lakh litres respectively. Except in Ernakulam, Palakkad, Kozhikode, Kasaragod and Wayanad, sale of milk exceeded procurement. The shortfall between milk procurement and sales was met by arranging milk mostly from State Milk Federations of Karnataka, Tamil Nadu and purchase of skimmed milk powder. Along with the sale of fluid milk, the KCMMF produces a wide array of milk products through the units under them. Ghee, butter, curd, ice cream, paneer, chocolates, flavored milk, gulab jamun, lassi, palada mix, peda, tetra pack products, dairy whitener, mango juice and packaged water are some of the products produced and marketed by MILMA. Details on procurement and sale of milk by different dairies of KCMMF, performance of KCMMF and milk procured by APCOS are shown in **Appendix 3.3.12, 3.3.13 and 3.3.14**. The price revision and price spread of milk from 2010 onwards is given in **Appendix 3.3.15 and Appendix 3.3.16** respectively. To enhance the dairy farmer's income, the Government of Kerala has increased the price of milk by Rs 4 to Rs 6 per litre by December 1, 2022.

Surplus Milk and Product Diversification

One major lesson learnt from the COVID-19 pandemic in the animal husbandry sector in Kerala is the need to attain greater self-sufficiency in handling animal produce. The pandemic has also reminded Kerala that the State is close to attain self-sufficiency in milk. Therefore, it is essential to develop the production of value added commodities from milk such as cheese and yogurt. This necessitated the setting up of advanced product diversification facilities in the existing dairy

Box 3.3.3 Re-Positioning MILMA 2023

As a part of this, the products of MILMA have been consolidated across the state with comprehensive changes in packaging, design and quality to compete with multinational brands. In order to compete with international companies to maintain and expand the market, Milma has undergone a brand image transformation through a project called 'Repositioning Milma 2023', which started with comprehensive changes in the packaging, design and quality of Milma products and introduced the best products in the state-wide market.

plants. The quality of raw milk at farm-level is of great concern. The cold chain maintenance from farm to fork has to be ensured. The milk procured at the farm-level has to be cooled in a short span of time to reduce the bacterial load. This needs more financial support to ensure cold chain maintenance. Currently, there are only 442 Bulk Milk Chilling Centres (BMCC) in the State, with a capacity of 17.7 lakh litre per day. This needs to be increased to suit the milk procurement capacity of dairy cooperatives

Kisan Credit Card (KCC) Campaign

Consequent upon the Budget announcement on inclusion of livestock sector in Kisan Credit Card in February 2020, Dairy Development Department was assigned as the nodal agency for leading the campaign for distribution of Kisan Credit Card to dairy farmers in the State. According to Dairy Development Department, there are 1.96 lakh active farmers in the dairy sector, of which 21,410 farmers possess KCC before the campaign. Around 1.26 lakh farmers have already filled the KCC forms and 1.21 lakh forms submitted to the banks. KCC credit sanctioned for 52,975 farmers and an amount of Rs 335.20 crore was sanctioned by banks as total credit. The credit under KCC is being extended to dairy farmers for meeting the recurring expenditure involved in dairy farming. Credit at nominal interest rate is offered to dairy farmers for purchase of feeds and fodder, dairy farm equipments, construction of scientific cattle sheds to counter environmental stress, repair and maintenance of existing cattle shed, insurance, and meeting veterinary aid.

Way Forward

State envisages a holistic development of the Dairy and Animal Husbandry sector through modernization and mechanisation which is crucial to create an ambient environment for the farmers to continue in the sector with dignity and satisfaction. Kerala needs an appropriate fodder plan to raise fodder production. Promotion of commercial fodder production with an assured market through cooperative societies and linking fodder cultivation with MGNREGS is essential. Fodder cultivation in waste lands should be encouraged through Kudumbasree units or Self-help Groups or entrepreneurs. Government should focus on a feed and fodder policy concurrent with the breeding policy in the State. Dairy farmers should have access to cattle with high genetic potential and good quality fodder and

mechanisation for accelerated development of the dairy sector. Along with food security for the citizens, there is a need to give equal attention to fodder security maintaining the accessibility, availability and sustainability parameters.

In Kerala, the demand for protein food is forecasted to increase manifold in the years to come. The state should take a strategic route forward, encompassing changes to improve productivity while maintaining environmental sustainability. Marketing its products both within the state and outside are vital. This involves heavy investment in physical infrastructure so that the state can tap benefit from the value addition of its livestock produce, mainly milk, meat and egg. Farmers/entrepreneurs need to be trained to increase productivity and learn sustainable practices from a field-level perspective. Milk producers need to be firmly integrated with robust and reliable marketing networks to reap the increased benefits of their efforts. Standard codes, integration farming techniques and waste management techniques are critical for the development of this sector. All policy interventions must be oriented to raise the demand for food “Made in Kerala”.

It is time to restructure and revitalize the present institutional set-up in the livestock sector, enhance institution-level efficiency, and promote new institutional models to handle the emerging challenges in the livestock sector development. The efforts should aim to promote and nurture the grass-root level participatory bodies all over the State as the organic link between the animal husbandry department and the small holders. The demand –driven growth in livestock production will enable millions of poor to escape the poverty trap, as the distribution of livestock is more equitable as compared to land. A growing livestock sector will also contribute towards women empowerment.

3.4 FISHERIES DEVELOPMENT

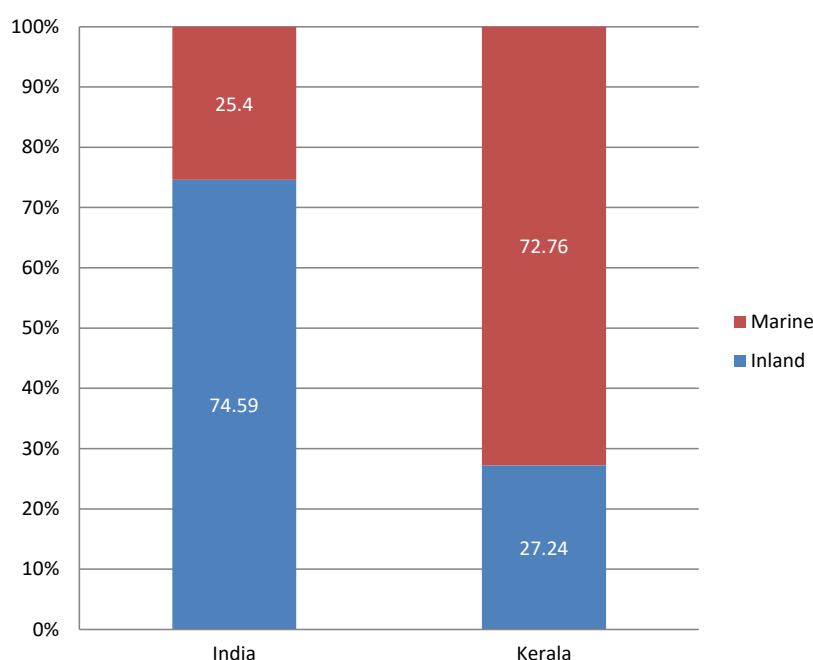
Fisheries is a prime and growing sector that plays a significant role in a developing economy by providing livelihood to millions of fish workers. Besides augmenting nutrition, it helps in generating employment and revenue. It is an intensive sector that is becoming more and more attractive to investors because of its low capital investment requirements, short gestation period and generation of high profit. Currently India is the third largest fish producing country in the world and accounts for 7.96 per cent of the global production. The sector has been one of the major contributors of foreign exchange earnings, with India being one of the leading seafood exporting nations in the world. In 2022-23, the export improved in quantity terms by 26.73 per cent. India is also a major producer of fish through aquaculture and ranks second in the world after China. Fishing industry of Kerala which comprises of fish catching, processing and marketing has the potential to generate employment to the tune of 566 lakh man days per year.

The fisheries sector plays an important role in the economy of the State. The share of fisheries sector in the total Gross State Value Added (GSVA at constant price) in 2022-23 constitutes 0.98 per cent and accounts for 0.84 per cent of Gross State Domestic Product (GSDP). Fisheries and aquaculture contributes 11.47 per cent of the GSVA (constant prices 2022-23 (Q)) from the agriculture and allied sectors. Details regarding the contribution of fisheries sector in GSVA are given in **Appendix 3.4.1**.

Growth Trends

Kerala has a coastline of 590 kilometres and a continental shelf of 39,139 sq. kms and is located at the most productive area of Arabian sea. It is one of the active maritime States in India. As per the Annual Report 2022-23, Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India the fish production in India in 2021-22 is estimated at 162.5 lakh MT with a contribution of 121.21 lakh MT from inland sector and 41.27 lakh MT from marine sector. In 2022-23, Kerala recorded an inland fish production of 2.29 lakh MT and the contribution from the marine sector was 6.9 lakh MT. The high value species among the fish catches are still few and prominent among them are seer fish, prawns, ribbon fish and mackerel. Due to climate change and anthropogenic activities such as juvenile fishing, overfishing and unscientific fishing, the catch of marine fisheries showed a declining trend in the last decade. But the timely amendment of the Kerala Marine Fishing Regulation Act (KMFRA), introduction of KMFR Rule and its strict enforcement led to an increase of 26 per cent in marine capture in 2018-19. The year 2022-23, has registered an increase in marine fish production compared to that of the production obtained in 2020-21 and 2021-22, which demonstrates the revival in the sector and increase in man-days. The inland fish production also increased in 2022-23 due to the introduction of diversified and innovative fish farming practices, across the State.

Figure 3.4.1 Fish production in India and Kerala – Share of Marine and Inland fishing



Source: Annual Report 2022-23, Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India and Department of Fisheries, Government of Kerala

The production of most of the marine fishes like elasmobranchi, oil sardine, lesser sardine, anchoviella, saurida, perches, sciaenid's ribbon fish, other carangids, mackerel soles, seer fish, tuna, leiognathids, penaeid prawn, crabs, and cephalopods have shown an increase in 2022-23. As per the Handbook of Fisheries Statistics, 2022, the per capita fish consumption of Kerala is 17.93 kg per year. Among the Union Territories, the Andaman and Nicobar Islands' per capita fish consumption is 77.84 kg per year. The species-wise marine fish landings in Kerala from 2019-20 to 2022-23 are given in **Appendix 3.4.2**. The difference in the composition of total fish production in India and Kerala is as shown in **Figure 3.4.1** and in **Appendix 3.4.3**. District-wise fish production in Kerala is given in **Appendix 3.4.4**.

Kerala has made vital contributions to export of marine products in the country. In 2022-23, export of marine products from Kerala was 2.18 lakh MT valued at Rs 8,285.00 crore and stands second in seafood exports from the country. The State has recorded an impressive growth rate of 19.8 per cent in quantity and 9.8 per cent in terms of USD value. Details are provided in **Appendix 3.4.5**. Kerala has 218 exporters, 118

seafood processing plants with a processing capacity of 4,926 MT per day and 105 cold storages with a capacity of 95,609 MT. The major seafood items exported from the State are frozen shrimp, frozen fish, frozen squid and frozen cuttlefish. The major export destination is European Union with 30 per cent share followed by China with 23 per cent.

Inland capture and aquaculture

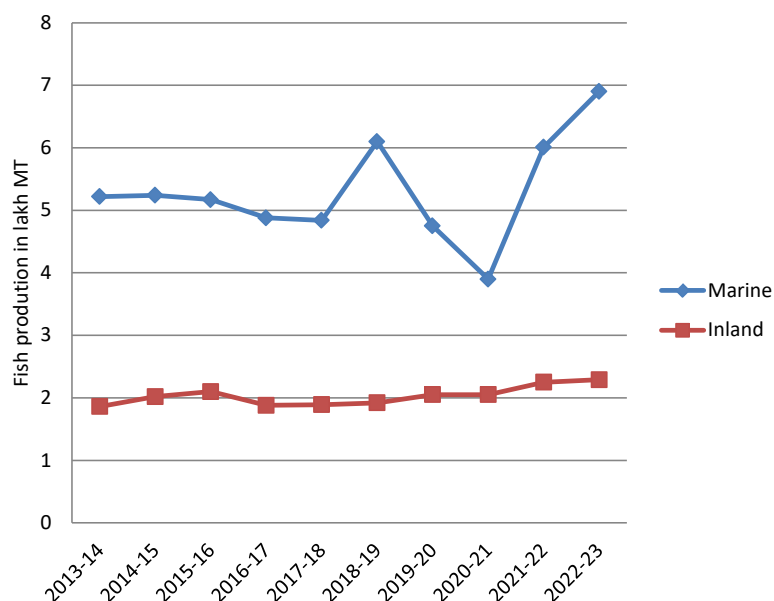
Fisheries and aquaculture contribute in a significant way to food security and to the livelihood of millions of people, as a creator of employment, supplier of nutritious food, generator of income and economic growth through harvesting, processing and marketing. In the backdrop of reclining land and water resources, exploding population and stagnancy in production from capture fisheries sources, the importance of inland capture fisheries and aquaculture has become crucial for meeting the sustainable livelihood approach. It has emerged as a fast growing enterprise and a stable alternative to the declining capture of fisheries. The inland water resources supporting about 2.45 lakh fisher folk population provide not only the component of nutritious food but also constitutes towards employment generation thereby increasing the standard of

living and economic development. The important difference between inland capture fisheries and aquaculture is the question of ownership, official or customary. Capture fisheries utilise open access resources in which the only human intervention is the harvesting of wild fish stocks. Aquaculture on

the other hand, involves systems where the grower exerts control over both the cultured organism and the culturing environment.

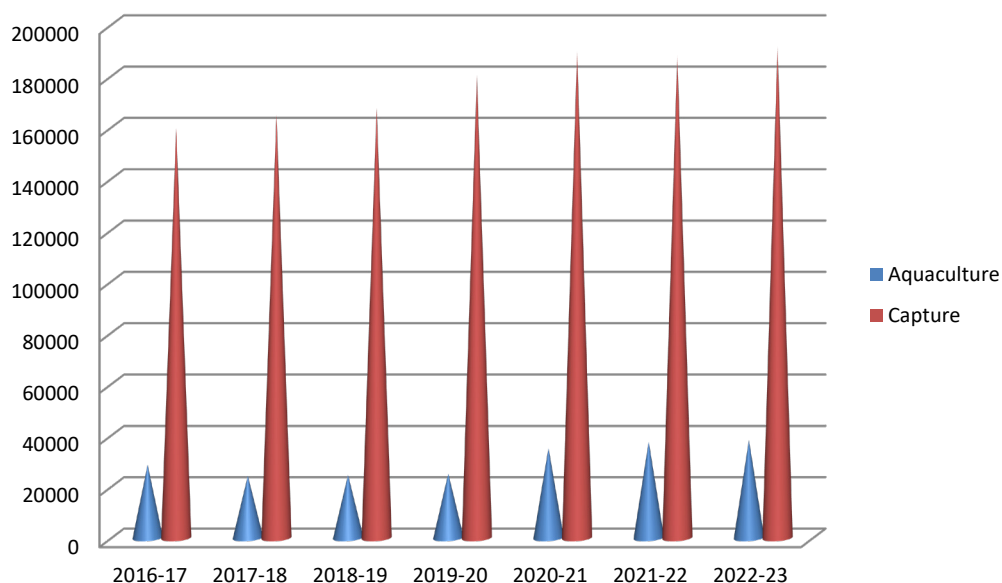
Figure 3.4.2 shows the a steady growth of inland sector from 2013-14 to 2022-23. For a State like

Figure 3.4.2 Fish production in Kerala over the past ten years



Source: Department of Fisheries, Government of Kerala, 2023

Figure 3.4.3 Contribution from aquaculture and capture to inland sector



Source: Department of Fisheries, Government of Kerala, 2023

Kerala where the estimated inland water area comprises of 41 west flowing and 3 east flowing rivers with a total area of 85,000 ha, 9 fresh water lakes with an area of 1,620 ha and 51 backwaters with an area of 46,128.9 ha provides a wide scope for practising and developing aquaculture practices. Aquaculture is also a sustainable option to consumers, especially in comparison to other farmed proteins. Seafood is highly resource efficient and has the highest protein retention compared to chicken, pork and beef. It also has the lowest feed conversion ratio among the same forms of protein. Aquaculture has lower greenhouse gas emissions than other types of farming.

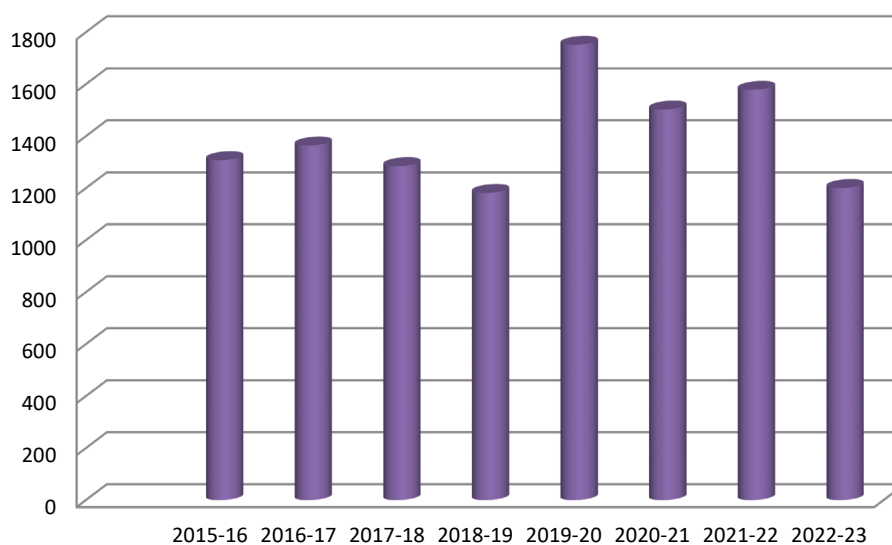
The species that have high potential in Kerala include tilapia, murrel, basa, anabas, carp, giant freshwater prawn, *penaeus vannamei*, *penaeus monodon*, Asian sea bass, pompano, cobia, mullets, crab and mussel. The inland fish production in Kerala has increased gradually during the last four years. Species-wise inland fish production in Kerala from 2019-20 to 2022-23 are shown in **Appendix 3.4.6**. The State has made conscious effort in enhancing the inland fish production through projects like 'Subhikshakeralam'. As part of achieving self-sufficiency in fish production, *Janakeeya Matsyakerishi*, a part of Subhiksha Keralam project was implemented in collaboration with Local Governments. The systems and technology used in aquaculture has developed rapidly from very simple facilities (e.g. family ponds for domestic consumption) to high technology systems (e.g. intensive closed systems for export production). Much of the technology used in aquaculture is relatively simple, often based on small modifications that improve the growth and survival rates of the target species. As part of aquaculture development, scientific fish farming has been undertaken in 6,490 ha, shrimp farming in 2,645 ha, one paddy one fish farming in 23,009 ha and 3,739 units of mussel farming units. As part of introduction of innovative farming techniques, 3,427 units of biofloc fish farming system, 7,884 units of fish farming in padutha ponds, 659 units of circulatory aquaculture system and 2,488 cage fish farming units has also been established. Under reservoirs fisheries development programme, the reservoir fishing has been extended to 28 reservoirs. Cage farming has been undertaken in 6 reservoirs. In 2022-23 under the project *Subhiksha Keralam* Public fish farming an area of 24,800 ha was utilised for the aquaculture practices.

The aquaculture production in the State during the years 2021-22 and 2022-23 was 37,521 MT and 38,172 MT respectively. As a part of protecting the fish resources, patrols were conducted in inland areas and action was taken against law violations. Seven aquatic animal health labs have been established in the State and as part of Aquatic Animal Health Survey, 2,320 fish and water samples were collected and tested.

The State is blessed with abundant water resources for the development of aquaculture. It has immense potential for developing the infrastructure for increasing inland fish production. A host of standardised technologies are available to augment the fish production in different water bodies. There is a great scope for species and system diversification. Several factors like cyclone, flood and drought may adversely affect the production target but with effective disaster management techniques as well as strengthening of institutional mechanisms will protect the sector from incurring financial loss.

The supply of quality seeds is an important factor that influences the growth of any aquaculture sector. Captive breeding and seed production is essential for popularising the cultural practices of commercially important finfish and shellfish species. The supply of quality fish seed is a key factor to the expansion of fish farming. Fish seed demand is strong at present and is expected to expand in the near future. As part of achieving self-sufficiency in fish seed production, a total of 12 crore fish seeds were produced in 2022-23, out of which 4.84 crore was fish seed. To increase the fish seed production, 247 units of backyard fish seed production units for indigenous fishes have been set up in 2022-23. A total of 61.25 lakh fish fingerlings was also produced in the hatcheries. The year-wise seed production achieved by the department and the agencies is shown in **Figure 3.4.4**. The State fish seed centre established at Thevally, Kollam for ensuring the quality of fish seeds is producing and distributing the seeds in the State for undertaking fish farming and stock enhancement programmes. It also provides the facility for registration of fish seed production centres, hatcheries and seed rearing centres. To ensure prompt diagnosis of fish diseases and prevent the spread of the same, aquatic animal health centres were established in the State. Disease diagnostics and surveillance programme was also carried out to prevent economic loss to fish farmers.

Figure 3.4.4 Seed production from 2015-16 to 2022-23 (in lakh)



Source: Department of Fisheries, Government of Kerala, 2023

Livelihood and social security

The fishery-related livelihoods are complex, dynamic and adaptive. The fisherfolk population is estimated to be around 10.6 lakh, which is around 3.2 per cent of the total population of Kerala. The total fisherfolk population includes 8.15 lakh belonging to the marine sector and 2.45 lakh belonging to the inland sector. They reside in 222 marine fishing villages and 113 inland fishing villages of the State. The District-wise details of fisherfolk are given in **Appendix 3.4.7**. Active fish workers are those fish workers who are engaged in fishing for their livelihood and are registered with the Kerala Fishermen's Welfare Fund Board (KFWFB). The number of active fish workers registered with KFWFB in the State in 2022 was 2.4 lakh. The number of active fish workers registered is highest in Thiruvananthapuram followed by Alappuzha. In 2022, the number of allied workers in Kerala was 78,659, who are engaged in allied activities related to fisheries and were registered with KFWFB. The details of District-wise active and allied fish workers is given in **Appendix 3.4.8**.

Government of Kerala implements various schemes to ensure social security and livelihood of fish workers. Apart from the fisheries department, KFWFB and Matsyafed also implement social security and livelihood support schemes. The schemes include those for housing, insurance and pension apart from those which enable

fishworkers to earn livelihood on a continuous basis. During the period, 2.40 lakh fishworkers and 78,659 allied workers benefitted from the Group Accident Insurance Scheme. A total of 1.43 lakh fishworkers and 14,481 allied fishworkers were provided support under the 'Saving cum Relief Scheme'. Details of the schemes implemented by the KFWFB are provided in **Appendix 3.4.9** and **3.4.10** respectively.

In order to provide urgent healthcare at sea, the Government commissioned marine ambulances for three zones, Vizhinjam in Thiruvananthapuram, Vypin in Ernakulam, and Beypore in Kozhikode. The marine ambulances were equipped with all modern facilities required for emergency medical aid for 10 persons at a time. Further, coastal hospitals were constructed in the health sector. The number of fishworkers who lost their life while engaging in fishing has come down from 79 in 2017-18 to 34 in 2022-23.

The fishing fleet of Kerala comprises of 6,474 mechanised vessels, 34,008 motorised non-mechanical vessels and 3,050 non-motorised traditional vessels. The number of fishing crafts insured has increased from 924 in 2020-21 to 2,747 in 2022-23.

Matsyafed is an apex federation of 700 primary-level fishworkers development welfare co-operative societies, of which 355 are in marine

sector, 211 are in inland sector and 134 are women co-operative societies. Total membership in these societies is 4.63 lakh. The authorised share capital of the Federation is Rs 150 crore. The primary societies are clubbed into 52 clusters for administrative convenience based on geographical area. Matsyafed has organised self-help groups (SHGs) within the fishing community and has developed the habit of savings. By providing micro finance and interest free loans, Matsyafed has made an impact in the area of micro credit. In 2022-23, Rs 63.82 crore was distributed to 18,773 beneficiaries as micro finance support to SHGs. In 2022-23, interest free loan to the tune of Rs 16.15 crore was given to 8186 women fish vendors. Matsyafed started the implementation of Kisan Credit Card (KCC) in 2020-21. A total of 790 fishermen were assisted with Rs 930.84 lakh under KCC. Matsyafed has three fish net factories at Ernakulam, Kannur and Thiruvananthapuram with an installed capacity of 1,600 tonnes per annum. The Federation has two fish manure plants at Azhheekode and Kozhikode with a manufacturing capacity of 10,000 tonnes of fish manure per annum. Matsyafed's "*Anthipacha*" sources fish directly from fisherfolk and transports to spots in and around the Trivandrum city in an insulated van. There are 16 units which deliver fresh and chemical-free fish to the consumers. They also launched five new value added products and relaunched two existing products in three brand names, '*Matsyafed Eats*', '*Matsyafed Treats*' and '*Matsyafed Fresh*'.

Matsyafed has three fish farms located at Njarakkal and Malippuram in Ernakulam district and Palaikkari in Kottayam district. Commercial production of pearl spot, milk fish, mullets, prawn, crab etc. is practiced in these farms. Cage culture of pearl spot is also practiced in Njarakkal and Palaikkari farms and Genetically Improved Farmed Tilapia (GIFT) was practiced at Palaikkari farm. Eco-friendly aqua tourism facilities are provided in fish farms at Njarakkal, Malippuram and Palaikkari. There are four prawn hatcheries each with an annual production capacity of 30 million prawn/shrimp seeds situated at Thirumulavaram in Kollam, Kaipamangalam in Thrissur, Veliampcode in Malappuram and Moplabay in Kannur. The achievement of various programmes implemented by Matsyafed is given in **Appendix 3.4.11**.

Ornamental fishery is enhanced by setting up three public aquariums in Kollam, Kottayam and

Vaikkom and by imparting training on ornamental fishery and aquarium maintenance for prospective entrepreneurs. A marine ornamental fish hatchery with recirculating aquaculture system (RAS) was created at Puduveyppu research station. Kerala Aqua Ventures International Limited (KAVIL) is a Government of Kerala undertaking in the area of ornamental fisheries with a vision to create a powerful and dynamic interface between ornamental fish farmers and the domestic and international markets. It is an intervention, to create a common platform for providing strategic services for achieving the quality and quantity requirements of the trade, identifying the possibilities for promoting small, medium and large scale enterprises. The fish produced through Homestead Ornamental fish Units (HOU), medium and large farms registered with KAVIL and other units are collected observing strict quarantine and quality assessment protocols, conditioned and marketed by them. Projects like establishment of brood bank, aquarium fabrication unit, establishment of aquatic plant production unit are implemented by KAVIL. They conducted 70 buyer seller meetings and marketed for an amount of Rs 5.00 lakh ornamental fish.

The Kerala University of Fisheries and Ocean Studies (KUFOS) is the first Fisheries University formed in India, started functioning with effect from 1st April 2011. The University caters to the demand for specialist professionals in the fields of fisheries, aquaculture, fish processing, fisheries engineering, ocean studies, fisheries and coastal zone management, climate studies and disaster management, food technology, management and Maritime Law. The Directorate of Research is co-coordinating the research activities of the University catering to the requirements of the stakeholders. This has helped the University to increase the number of Ph.D. research scholars from less than 10 in 2015 to about 320 in 2023. The department of Aquatic Environment Management in association with State Wetland Authority of Kerala, Govt. of Kerala conducted the ecosystem analysis of Sashthamkotta Lake to restore the population of pearl spot, *Etroplus suratensis* in this Ramsar wetland. Apart from this, research facility in ornamental fish breeding and fish farming has been created at KUFOS headquarters. In a significant boost to innovation and entrepreneurship in the field of fisheries and ocean studies, NITI Aayog, Govt. of India, has sanctioned a grant of Rs 10.00 crore to KUFOS

to establish India's first ATAL Incubation Centre in the field of fisheries and allied sectors at the University. Twenty five innovative technologies/products developed by the Research Projects implemented by the Directorate of Research is released to the stakeholders on December 15, 2022. These technologies/products have potential for commercialisation and are capable of creating entrepreneurship and employment opportunities in coastal areas and MSME sector at large.

Women empowerment

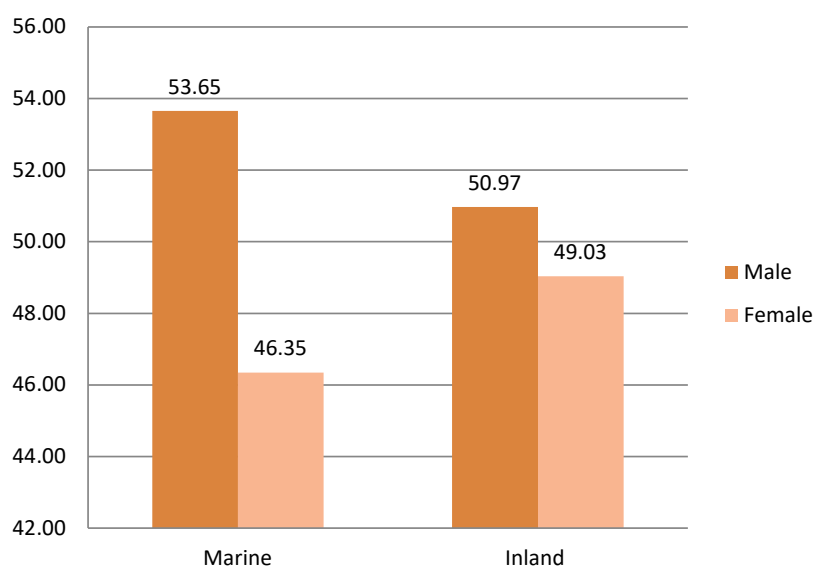
Women play a significant role in the fisheries sector predominantly in post-harvest activities including the construction of fishing gears, fish sorting, fish handling and fish processing. The fisherwomen are the primary players in processing, marketing and selling the catch. They provide an integral link between the producers and consumers. They contribute as an important workforce and contribute to the sustainable use and management of fisheries. About 46.35 per cent of workforce in marine sector is comprised of women, while in inland sector male and female workforce share an equal participation ratio.

The social protection measures which have been instituted by the Government like widow pensions, low interest loans, education grants for the children, housing etc have played a very important role in improving the social and economic wellbeing of fisherwomen.

The major constraint faced by women in the fisheries sector include limited access to modern and innovative technologies. The Society for Assistance to Fisherwomen (SAF) has initiated a programme 'Bridging the Digital Divide-include upskill and innovate'. Through this project, 30 beneficiaries were equipped with skills in digital media and online marketing and providing technical support to the beneficiaries to help them to pursue digital media as a full time profession. SAF also took necessary steps to link the microenterprise units to the social media for the online marketing and sales of *Theeramythri* products. Since October 2022, SAF units achieved a total sales volume of Rs 702 lakh exclusively from the online sales.

To promote gender mainstreaming, SAF augmented the entrepreneurial competency among fisherwomen by encouraging microenterprises by utilising local resources. SAF has formed small activity based groups of fisherwomen and extended financial, technical and managerial support to set up small enterprises suitable for the local area. SAF has disbursed Rs 181.04 lakh as grant for setting up of 119 microenterprise units under the Development of Micro enterprises (DME) project in 2022-23. As a part of Joint Liability Group (JLG) project, 100 JLGs covering 500 fisherwomen beneficiaries in Thiruvananthapuram, Kollam, Allapuzha, Ernakulam, Thrissur and Kasaragod Districts were given interest free revolving fund

Figure 3.4.5 Gender-wise work participation in Fisheries Sector



Source: Handbook of Fisheries Statistics 2022

of Rs 50 lakh. Support was provided to 110 groups for technology improvement in their units. Established 20 kiosks benefitting 43 fisherwomen with the CSR project of Cochin Shipyard Ltd. The achievement of various programmes implemented by SAF is given in **Appendix 3.4.12**. The women in fisheries sector have limited access and control over the availability of credit. Matsyafed has been implementing the scheme 'interest free loans' since 2008-09. In 2022-23, 8186 women fish vendors were assisted with an amount of Rs 16.15 crore.

Women play a critical role in every link of the value chain in small-scale fisheries, particularly in processing and marketing of fish and other fishery products. They also play a significant role in the supply chain activities. An exclusive transportation facility 'Samudra' was initiated for fish vending women as a joint venture by the fisheries department and KSRTC. It provides free logistic support to the fish vending women of Thiruvananthapuram District. An exclusive transportation facility for women fish vendors initiated by Fisheries department and Kerala State Road Transport Corporation in Thiruvananthapuram District is a great endeavour in supporting them and empowering them by providing them free logistic support. The project has multifaceted benefits, improving the livelihood of the community and availability of good quality of fresh fish is ensured.

Infrastructure

A fishing harbour is a point of convergence between production and trade and it offers

enormous opportunity for the promotion of responsible fisheries. The major components of the fishing harbours are breakwaters, wharf, auction hall, loading area, parking area, approach road and internal roads, compound wall, sanitary facilities, water supply and electrification arrangements. Other amenities such as shop buildings, locker rooms, rest sheds, net mending sheds, workshop buildings are also constructed based on the requirements. The location of fishing harbours in Kerala and their status are given in **Appendix 3.4.13**. Total revenue collected from fishing harbours and fish landing centres in 2022-23 was Rs 9.49 crore. Highest revenue collection has been from Thottappally harbour followed by Neendakara fishing harbour. Together, Thottappally, Neendakara and Kayamkulam contributed about 62 per cent of the total revenue collection from fishing harbours and fish landing centres in Kerala. The details of earnings from fishing harbours are given in **Appendix 3.4.14**.

Apart from the construction of new fishing harbours, borrowing from NABARD-RIDF were used for works like modernisation of existing fishing harbours, construction of fish landing centres, roads, bridges, locker rooms and walkways. Under RIDF XXIII, four projects amounting to Rs 25.37 crore was sanctioned and completed for providing additional infrastructure development in Vellayil fishing harbour, Chellanam fishing harbour, Thangassery fishing harbour and Puthiyappa fishing harbour. In RIDF XXV, four projects amounting to Rs 44.33 crore was sanctioned and the department utilised the amount

Box 3.4.1 Some path breaking achievements of Women's Micro Enterprise in Fisheries

Deepam is an activity group of four fisherwomen who started their unit in Kottayam under the development of Micro Enterprises Project of SAF. The unit started functioning in 2019 in Kavanattinkara –Cheeppunkal in Aymanam Grama Panchayat. They started the unit with an amount of Rs 1,95,300/- received as first instalment from SAF. The cooking skills of the members has helped restaurant to make a profit of Rs 1,000 to Rs 2,000 per person a day. The biggest speciality of the Deepam Activity group is the meal consisting of 6 curries and a fish curry which is priced at Rs 50/- only. The unit which is working near Kumarakom, mostly receives order from houseboats. They also cook and serve food for marriages and other functions. Clam meat, prawns, Karimeen roast are also included in the list of Deepam cuisines. Deepam is the only hotel supported by SAF that does not lag behind in taste even at a low price.

The Samudra Activity Group of Neendakara, Kollam started functioning in 2018 with the assistance received from SAF. Various types of fish including anchovies, silver bellies, sole fish, ribbon fish etc are dried in large quantities and is traded within and outside of Kerala. The average production of dry fish is 5 tonnes per month with a turnover of Rs 8.00 lakh. Each member earns more than Rs 20,000/- as wages. The success story of Samudra Activity Group portrays the empowerment of women.

Source: Department of Fisheries

for the extension of south breakwater at Vellayil Fishing Harbour(FH), Thanur Fishing Harbour and the shore protection works at Pallikkadavu in Purathur Grama Panchayat. As part of RIDF XXVI, four projects amounting to Rs 57.4 crore sanctioned for additional facilities in Thangasserry and Neendakara fishing harbour, expansion and refurbishment of Neendakara fishing harbour (Sakthikulangara side) and additional berthing facilities at Kayamkulam fishing harbour. In RIDF XXVII, four projects amounting to Rs 55.55 crore was sanctioned for providing additional infrastructure facilities in Thanur, Vellayil, Chellanam fishing harbours and in Valiyazheekkal fish landing centre. Under RIDF XXVIII, two projects amounting to Rs 50.94 crore is sanctioned for modernisation of Alappad, Azheekal, Karunagappally and modernisation of Azhikal Fishing Harbour, Kannur.

Living up to its stated motto of “Innovate, Transform and Excel”, the Kerala State Coastal Area Development Corporation (KSCADC) has brought tangible improvements in the fisheries sector by creating infrastructure amenities like roads, markets and houses for the fisherfolk. Shore protection works worth Rs 58.59 crore was completed at Manjeswaram, Thalai, Chettuva and Kollam Thanni. KSCADC has also prepared and submitted projects worth Rs 477.00 crore for availing financial assistance from various sources like NABARD. The commercial activities of the company included marketing of various solar dried value-added fish products branded as “Drish Kerala”. They have also introduced a project “Parivarthanam” on pilot basis in Kollam and Pathanamthitta Districts. The project is a stride towards creating a steady income to the marginalised groups by creating a part time job.

Key Initiatives in 2022-23

- Subhikshakeralam project implemented in collaboration with LSGs has helped in increasing the inland fish production. A total of 58,314 farmers were trained in different farming techniques. The project was implemented in an area of 24,800 hectares producing 38,178 MT of fish.
- The Reservoir fisheries development programme was extended to 28 reservoirs. Cage farming was undertaken in 6 reservoirs. As part of this programme 78.88 lakh fish fry have been stocked in 12 reservoirs in Pathanamthitta, Idukki, Thrissur, Palakkad and Kannur Districts in the year 2022-23 for stocking fish fry in reservoirs. 1,848 metric tonnes of fish will be produced through this project.
- The Kerala Inland Fisheries and Aquaculture Act has been timely amended in 2021 for conservation of inland waters, sustainable development and promotion of fish farming. As per the Kerala Fish Procurement Marketing and Quality Management Act 2021, a State-level fish quality management committee is formed to ensure the quality of fish.
- To interact with the people of the coastal region, to understand their problems directly, to take remedial measures and to bring the development and welfare activities of the Government to them, a program called “Theerasadas” has been organised in 47 centers in the coastal constituencies of the State. The program was organised from April 23, 2023 with the participation of people’s representatives and heads of various departments.
- In 2022-23, 776 insulated ice boxes and 548 Mounting Type GPSs have been distributed to traditional fishermen. CCTV cameras were installed in all the important harbours of the State with the aim of protecting fish resources and safety of fishermen, and for the control and coordination of the situation, the master control room at the Directorate of Fisheries and the regional control room at the fisheries stations of Vizhinjam, Vypin and Beypur. 74 life guards and 11 rescue boats are operating in all coastal districts of Kerala to enforce fishing laws and rescue fishermen in danger.
- Sagarmitra project of Rs 3.99 crore was implemented in 222 fishing villages of coastal districts as part of PMMSY from 2021-22 onwards to provide first contact to fishermen for all services and needs related to fishing sector and to collect various information related to fishing sector, 222 youth from fishermen families got employment under the scheme. Four new fisheries stations are established at Thottapally in Alappuzha District, Azhikode in Thrissur District, Ponnani in Malappuram District and at Keezhur in Kasaragod.
- As part of implementation of the scheme on ‘Deep sea fishing and sea safety equipments’, traditional fishermen were provided with 548 GPS (Global Positioning System).
- In a significant boost to innovation and entrepreneurship in the field of fisheries and ocean studies, NITI Aayog, Govt. of India, has sanctioned a grant of Rs 10 crore to the Kerala

University of Fisheries and Ocean Studies (KUFOS) to establish India's first ATAL Incubation Centre in the field of fisheries and allied sectors at the University.

- An ambitious project titled "Suchitwa Sagaram" (Clean Sea), a sanitation campaign was launched to reduce plastic waste build up in the sea by prohibiting and removing all forms of plastic from the sea. From November 2017 to August 2021 a total of 110.236 tonnes of discarded nets, plastic ropes and other plastic items were removed from the sea by the fishermen. The Suchitwa Sagaram team provided 0.5 tonnes of plastic granules for the construction of the Keralapuram-Kovilmukku road in the District.
- As part of the declaration of 2022 as the Year of Traditional Fisheries and Aquaculture by the United Nations and in conjunction with the celebration of World Fisheries Day, the Department of Fisheries from November 18 to 21, 2022 at the Putharikandam Grounds, Thiruvananthapuram, displayed 100 development and welfare activities in the fisheries sector implemented by various departments, agencies, universities and Central Government institutions within and outside the State. "Matsyotsavam 2022" was organised by setting up around 100 exhibition stalls. Also, Fishermen's meet, Fisher women's meet, Business meet and Kids' gallery were also organised in connection with the fair. About 1.5 lakh people participated in this and it was possible to get knowledge about the activities of the department.

Fisheries are recognised as a thriving and flourishing sector. Fish being an affordable and rich source of animal protein, is one of the healthiest options to mitigate hunger and nutrient deficiency. The sector has immense potential to double its exports. Thus sustained and focused attention is essential to accelerate its development in a sustainable, responsible, inclusive and equitable manner. The Government in collaboration with the stakeholders should frame a clear and comprehensive strategy for the development of the fish resources. Digital mapping of maritime and coastal space and natural assets can form the basis for cross sector analysis and planning in order to prevent conflicts and avoid externalities. A more systematic approach based on a better understanding of defined priorities can guide the sector to attain an inclusive blue growth. There has been a paradigm shift from marine

fisheries to inland fisheries in terms of production. The inland fisheries sector remains as a sector of promise. The rapid growth of aquaculture should be enhanced to provide additional employment and to improve the standard of living of the farmers. The prevention and management of aquatic diseases are to be addressed to increase the productivity of aquaculture. Climate change and rise in increasing sea and river water temperature remains the major challenge impacting yields from the sector. Value addition programs in the sector have a great scope in future and by establishing a centralised system in procurement, processing, marketing etc. can increase the scope of the sector. Special emphasis should be placed for an inclusive development by providing special care to fishermen societies and women.

3.5 WATER RESOURCES

Scientific management of water is vital to India's growth and ecosystem sustainability. Appropriate usage of water has a crucial role in managing freshwater resources. World Water Day is celebrated every year on March 22 to raise awareness about the value of fresh water and the wise use of freshwater resources. The theme for World Water Day 2023 was "Accelerating Change" to accelerate the change required to solve the water and sanitation crises, aligning with SDG-6.

Water being a State subject, measures for conservation and efficient management are primarily undertaken by the respective State Governments. NITI Aayog has developed the Composite Water Management Index (CWMI) as a tool to assess and improve the performance of States and Union Territories in the efficient management of water resources.

Need for River Basin Planning

To address the water management issues of a densely populated State like Kerala, the need for Integrated Water Resources Management (IWRM) system has been recognised by the department. Kerala has forty-four rivers, of which forty-one are west flowing. The remaining three flow eastwards. The availability of water varies widely across space. All river basins are not equally productive, as water yield depends on rainfall, catchment characteristics like terrain, soil, drainage pattern, and land use. The catchment character of drainage basins and rainfall distribution trends across the State vary. Further, the social and ecological functions vary depending upon the demographics and ecosystem

of the region. The often-conflicting requirements and priorities of various stakeholders for meeting demands of drinking water, water for domestic use, irrigation, industry, fisheries, tourism etc make the situation more complex. The State requires integrated river basin management and a river basin organisation to plan, monitor, and manage river basins. The State Government has taken a policy decision to constitute a River Basin Conservation Management Authority (RBCMA) for the conservation and management of rivers in Kerala in order to ensure integrated water resources management. The draft bill is under the consideration of the State Government.

During the 14th Five-Year Plan period, the Irrigation Design and Research Board (IDRB) wing of the Irrigation Department has been carrying out work to increase the density of hydro-met network (especially in real time) for assessing the hydrological balance in the river basins of Kerala. This, along with hydrological analysis and decision support systems, will help the Water Resources Department and Government of Kerala in the identification of infrastructure requirements and soft solutions pertaining to water conservation, flood management, reservoir operations, water quality, basin management, water distribution and governance and so on.

The Department also envisages establishing a State Water Informatics Centre (SWIC) as a hub for flow modelling, hydro-met data collection, data integration, and management for sharing with the National Water Informatics Centre

Box 3.5.1 Kerala Water Resources Information System (Kerala WRIS)

Kerala Water Resources Information System (Kerala WRIS) is a web-enabled platform wherein data related to water and its allied sectors is integrated. This includes specific software modules such as weather, water availability, water demand, water budgeting, and auditing. Kerala WRIS was officially launched in August 2022 after the completion of system migration to the State Data Centre, security auditing, domain registration, debugging, and final hosting. It is envisaged to upgrade Kerala WRIS to meet the mandates of data sharing, integration with the Central Government and data dissemination to the public as per the Hydro-Met Data Dissemination Policy. Data integration from line departments is in progress.

Source: Irrigation Department (IDRB), GoK

(NWIC) and also for coordination with the State Disaster Management Authority (SDMA)/KSEBL/ Government during water-related emergencies. In this regard, a MoU has been signed with NWIC, and measures to institutionalise these are in progress. IDRB has also executed a MoU with the National Institute of Hydrology and the Kerala State Council for Science Technology and Environment (KSCSTE) as a consultancy for developing a State Specific Action Plan for the water sector in Kerala State aligned with the objectives of National Water Mission. The Department has also initiated the drafting of the State Hydro –Met Data Dissemination Policy (HDDP) for sharing all classified and non-classified hydro meteorological data collected by the Department. This will act as a framework for sharing data through the Kerala WRIS.

Impact of Climate change

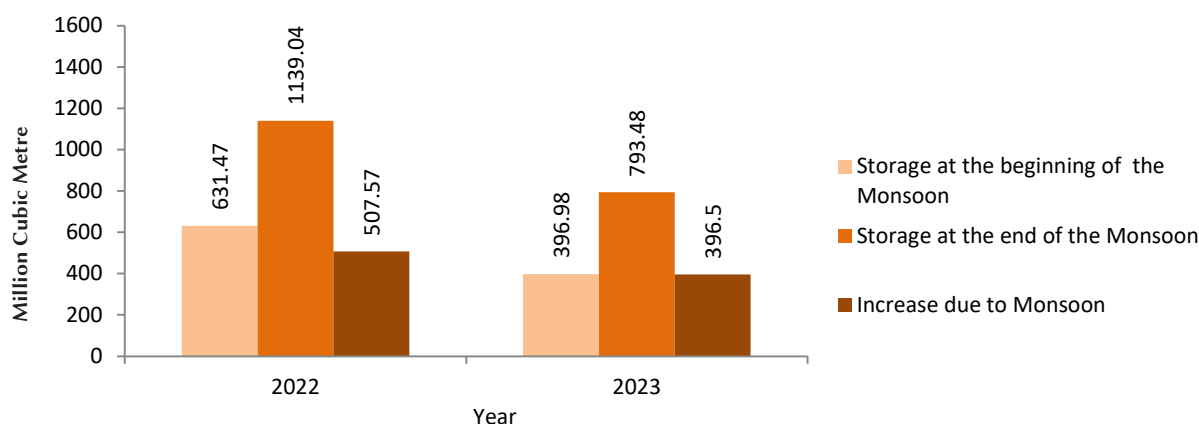
Water and climate change are inevitably linked. Climate change has made extreme weather events such as floods and droughts more likely and more

severe. Drought and flood risks and associated damages are projected to further increase with every degree of global warming, as stated by the Intergovernmental Panel on Climate Change (IPCC).

The rainfall received in the State during the South West (SW) Monsoon season 2023 (June 1, 2023 to September 30, 2023) was 'deficient' with a departure of (-) 34 per cent from the normal. The actual rainfall received was 1,326.5 mm whereas the normal rainfall was 2,018.6 mm. During the season, only four districts (Alappuzha, Kollam, Pathanamthitta, Thiruvananthapuram) received 'normal' rainfall. With a 'deficient' and erratic rainfall pattern during the SW Monsoon 2023, there is a need to initiate measures to combat the possible drought situation ahead.

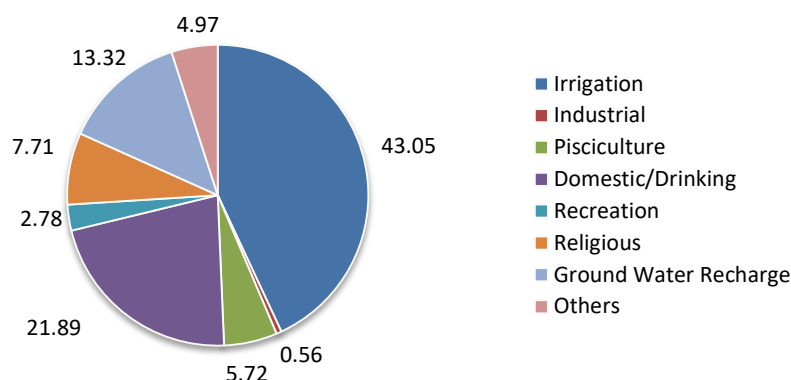
The storage position of dams/reservoirs of Irrigation Department at the beginning and end of monsoon (June and September) is given in **Figure 3.5.1**.

Figure 3.5.1 Storage Position of Dams/Reservoirs under Irrigation Department, Kerala



Source: Irrigation Department (IDRB), GoK

Figure 3.5.2 Percentage distribution of water-bodies by type of use



Source: Report on first census of water bodies, Ministry of Jal Shakti

The storage-level at the end of the monsoon is marked at 1,139.04 million cubic metres and 793.48 million cubic metres in 2022 and 2023 respectively. Post monsoon, the storage-level has increased by 507.57 million cubic metres in 2022, whereas the increase is only by 396.5 million cubic metres in 2023. The 'deficient' SW monsoon in 2023 is also reflected in the dam storage status. **Appendix 3.5.1** shows the dam storage status (before and after monsoon) for the period 2022 and 2023.

Water Conservation – findings of the first census report on water bodies

The possible changes in the water resource scenario due to global warming and climate change will have a serious impact on the State. Hence, water storage is becoming an increasingly important tool for adapting to climate change. For the conservation of water bodies, the Ministry of Jal Shakti has launched the campaign "Catch the Rain" on the occasion of World Water Day 2021. The theme of the campaign is "Catch the Rain – where it falls – when it falls." In order to catch the rain where it falls, there is the need to renovate/repair already existing water bodies/ water harvesting structures and also to construct new water bodies/water harvesting structures, so as to conserve rain water in three forms, i.e., surface water, soil moisture content, and groundwater. The Groundwater Department is the nodal agency in the State for vitalising water conservation activities under the "Catch the Rain" programme.

The first water body census was conducted across the country with reference year 2017-18 by the Ministry of Jal Shakti, with the objective

of developing a national database for all water bodies by collecting information on their size, condition, status of encroachments, use, storage capacity, and status of filling up of storage. This campaign had 5 focused interventions (a) rainwater harvesting and water conservation (b) enumerating, geo-tagging and making inventory of all water bodies, preparation of scientific plans for water conservation (c) setting up Jal Shakti Kendras in all districts (d) intensive afforestation and (e) awareness generation. All natural or man-made units bounded on all sides with some or no masonry work used for storing water for irrigation or other purposes (industrial, pisciculture, domestic/drinking, recreation, religious, ground water recharge etc.) were treated as water bodies in this census.

In this census, 55,734 water bodies have been enumerated in the State of Kerala, of which majority, (49,725) are in rural areas and remaining (6,009) in urban areas. Majority of water bodies are ponds. As reported, in the State, 83.5 per cent of water bodies are 'in use' whereas 16.5 per cent are 'not in use' due to drying up, siltation, destroyed beyond repair, salinity and other reasons. There are 22,811 natural water bodies and 32,923 man-made water bodies in the State. Out of 55,734 water bodies, the information on 'water spread area' was reported for 55,725 water bodies of which 97 per cent of water bodies have water spread area less than 0.5 hectare and 1.9 per cent have water spread area between 0.5 to 1.0 hectares. Water bodies having water spread area more than 50 hectares accounts to only 0.1 per cent. The percentage distribution of water-bodies by the type of use is given in **Figure 3.5.2**

Irrigation Status in the State

As per the assessment of the Directorate of Economics and Statistics, the extent of irrigation in the State in 2022-23 had varied considerably when compared to the previous year. As reported, the net area irrigated in the State in 2022-23 increased to 4.18 lakh ha as compared to 2021-22 figure of 4.03 lakh ha, an increase of 3.72 per cent. The percentage of net area irrigated to net area sown had risen from 19.87 (2021-22) to 21.04 (2022-23).

However, a decline is reflected in the Gross Irrigated area with a fall in the area from 5.61 lakh ha (2021-22) to 5.14 lakh ha (2022-23). This decline is also reflected in the percentage of gross irrigated area to gross cropped area which fell from 22.25 per cent (2021-22) to 20.45 per cent in (2022-23).

Among the various sources of irrigation, the net area irrigated through wells (including bore well) leads with 1.77 lakh ha during the review period, whereas the benefitted area was 1.66 lakh ha in 2021-22. The extent of net area irrigated through Government canals also showed an increase from 0.72 lakh ha (2021-22) to 0.81 lakh ha (2022-23). Details on the net area irrigated (source-wise and District-wise) are given in **Appendix 3.5.2** and **Appendix 3.5.3**.

Crop-wise, paddy and coconut were the crops most benefitted through irrigation. However, the gross area irrigated under paddy had slightly declined to 1.53 lakh ha (2022-23) from 1.54 lakh ha (2021-22). But the area irrigated under coconut shows a significant increase to 1.56 lakh ha (2022-23) from 1.52 lakh ha (2021-22). Similarly, during the period, vegetables and banana were also benefitted through irrigation. The irrigated area of vegetables had increased to 0.29 lakh ha (2022-23) from 0.25 lakh ha (2021-22) and so is the benefitted area under banana reaching 0.40 lakh ha (2022-23) from 0.37 lakh ha (2021-22). Details on gross area irrigated and crops benefitted are given in **Appendix 3.5.4** and **Appendix 3.5.5**.

Status of Major and Medium Irrigation Projects

Agriculture is an integral part of the development system and irrigation holds the key to increase agricultural productivity. Major and medium irrigation occupy an important position in the irrigation scenario. The implementation progress of Karapuzha and Banasurasagar irrigation projects during the first two years of the 14th Five Year Plan period is described below.

In the Karapuzha Irrigation project, the entire Left Bank Main Canal (LBMC) up to the tail end (Ch. 16,740 m) is now made functional for irrigating an ayacut of 245.17 ha. Water distribution up to the tail end of LBMC was done on March 15, 2023 on trial basis. Having completed the rectification works of the breach in the Right Bank Main Canal (RBMC) between Ch.7,673m and 7,888m, water distribution up to the tail end (Ch.8,805m) is being done in 2023, thereby irrigating 331 ha. Thus, the water distribution through main canals and Arimunda distributory (60.31 ha), helped in achieving a total ayacut of 636.48 ha. Moreover, water distribution through Kolliyal Branch Canal (up to Ch. 1,540 m) was also done on trial basis on March 08, 2023. Thus in 2022-23, both the main canals (25.545 km) and the Kolliyal Branch Canal (1.540 km) of the Karapuzha project was made functional for the first time.

A major constraint of the Banasurasagar Irrigation Project was the bottleneck from Ch.1130m to 1,500m in the Main Canal. The Department had succeeded in overcoming this constraint and works are in progress in this stretch. In 2023-24, water test was conducted in the aqueduct portion of the Main Canal from Ch.0m to 150m. Completion of 775m of Kappumkunnu distributory, 409m of Venniyode branch canal, completion of detailed survey of Kuppadithara and Kurumbala distributories and completion of soil investigation for the aqueduct portion of various distributaries were few other project related activities during the period.

Potential of Minor Irrigation

Minor irrigation schemes have contributed substantially to augment the irrigation potential in the State. Minor Irrigation has its own importance due to low gestation, less investment and quick benefit. The importance given to Minor Irrigation during the 13th Five Year Plan period is being continued during the 14th Plan period.

Surface Water

During the XIIIth Five Year Plan period, through various surface water MI schemes, 23,600.81 ha of ayacut was achieved. The net area benefitted through MI schemes (surface water) in 2022-23 was 5,076.09 ha. Details of physical achievement of MI schemes (surface water) during 2020-21 to 2022-23 are given in **Appendix 3.5.6**. Details of completed works under different tranche of

RIDF are given in **Appendix 3.5.7**. NABARD has sanctioned 1,631 schemes under various tranche including RIDF XXIX. Of these, 1,358 schemes are completed and 24 are in progress. Remaining schemes are dropped due to non-feasibility reasons.

Sixth Minor Irrigation Census

The Minor Irrigation Census being conducted by the Govt. of India provides detailed information on various parameters such as irrigation sources (dug well, shallow tube well, medium tube well, deep tube well, surface flow and surface lift schemes), Irrigation Potential Created (I.P.C.), Irrigation Potential Utilised (I.P.U.), various energy sources, and devices for lifting water. As per the 6th Census of Minor Irrigation (MI) schemes with reference year 2017-18, published by the Ministry of Jal Shakthi, the State of Kerala is having 92,574 MI schemes. This includes 67.5 per cent (62,453) Ground Water (GW) schemes and 32.5 per cent (30,121) Surface Water (SW) schemes. As per the 6th MI census, in the State there has been a decrease to the tune of 10.7 per cent with 92,574 schemes as compared to 1,03,657 schemes in the 5th MI census. It is reported that the decline is reflected in GW schemes (24.3 per cent), whereas SW schemes have reported a growth of 42.2 per cent. Out of the total 92,574 MI schemes, majority of schemes i.e. 80,011 (86.4 per cent) are under individual ownership, of which, marginal farmers own a major share (82.5 per cent) and the remaining 17.5 per cent by small farmers, semi medium, medium and big farmers. This emphasises the need for strengthening the network of MI structures for irrigation purposes and thereby improving the livelihood of marginal farmers.

Of the total 92,574 MI schemes, 99.3% (91,881) are 'in use', 0.5% (503) are 'temporarily not

in use' and 0.2% (190) are 'permanently not in use' schemes. It is also observed that there is underutilisation of 'in use' schemes in Kerala. As per the data, there are 1,672 such schemes which are underutilised due to reasons like non availability of adequate power, mechanical breakdown, less discharge of water, non-availability of finance, lack of maintenance and so on.

Data on the Irrigation Potential Created (IPC) through MI structures shows that there is a decrease of 26.9 per cent in the State during 6th MI census as compared to 5th MI Census. IPC during 5th MI Census was 2,48,300 ha whereas it declined to 1,81,611 ha in 6th MI Census. Similarly, Irrigation Potential Utilised (IPU) has also decreased by 23.4 per cent as per the data reflected in the 6th MI census.

Groundwater usage

As per the Dynamic Groundwater Resource Assessment Report for the year 2022, the total annual groundwater recharge for the entire country is 437.60 billion cubic meters (BCM) and the annual extractable groundwater resources for the entire country is 398.08 BCM. Major source of groundwater recharge is the monsoon rainfall, about 55 per cent of the total annual groundwater recharge. The overall stage of Groundwater extraction in the country is 60.08 per cent.

In Kerala, the total annual groundwater recharge has been estimated as 5.73 BCM and the annual extractable groundwater resource is 5.19 BCM. The stage of groundwater extraction for the State is 52.56 per cent. As compared to 2020 assessment, total annual groundwater recharge of the State has increased from 5.65 to 5.73 BCM and annual extractable groundwater resources from 5.12 to 5.19 BCM. The stage of ground water extraction has increased from 51.68 per cent to 52.56 per cent. Out of the total 152 assessment units, 3 units have been categorised as 'Critical', 27 units as 'Semi-critical' and 122 units as 'Safe' categories of assessment units. The number of Semi-critical blocks has decreased from 29 to 27. Two Semi-critical blocks –Kanhangad and Karadka has improved to 'Safe' category mainly due to increase in precipitation, increase in recharge from other sources and increase in surface water supply schemes implemented in the State. Details on the total annual ground water recharge, net annual ground water availability and stages of ground water development in the State are given in

Appendix 3.5.8.

Table: 3.5.1 Scheme-wise ratio of IPU to IPC in Kerala

MI structures	IPC	IPU	Ratio of IPU/IPC
Dugwell	27,711	26,929	0.97
Shallow Tubewell	1,313	1,294	0.98
Medium Tubewell	4,143	4,086	0.98
Deep Tubewell	2,179	2,141	0.98
Surface flow	79,499	76,379	0.96
Surface lift	66,766	64,171	0.96

Source: 6th MI Census Report, Ministry of Jal Shakti

The State Groundwater Department is the nodal agency for groundwater development and management in the State and it extends demand-based services to private individuals and Government agencies. Groundwater conservation and recharge is a major activity being implemented by the Department to sustain groundwater availability. The physical achievement of groundwater development schemes from 2020-21 to 2022-23 is given in **Appendix 3.5.9**.

For ensuring the quality of Groundwater, the Department has initiated measures to formulate a State wide groundwater quality plan. From each district, one block severely affected by water quality issues will be selected for collection of water samples from observation wells. The data thus obtained will help in addressing the issues by suggesting suitable remedial measures and also by making the public aware of the situation. The State-level inauguration of water quality assessment was done by the Hon'ble Minister for Water Resources on September 16, 2023. Also, during the period, the Department has initiated the conduct of well census for the collection of ground water abstraction data. Through Kudumbasree Mission, data collection was carried out partially in 39 blocks, thereby completing 45 per cent of data collection. The validated data will be used for accurate budgeting of water resources of the particular block.

Flood Management

With the assistance of the Rebuild Kerala Initiative, the Irrigation Department has undertaken various flood-related works, such as post-flood repair and maintenance, enhancement of resilience against the impact of climate change and natural disasters, DPR preparation of 'Room for the River', and launch of the Kerala Water Resources Information System. In the context of climate change, the greatest challenge is to forecast hydrologic extremes leading to floods and droughts and salinity intrusion and inundation due to sea-level rise. On this basis, forecasting and flood early warning systems assume importance.

As part of the strategic partnership on water between Kerala and the Netherlands, the officers of the Irrigation Department and other stakeholder Departments were given training on river basin planning. The objective of the first phase of training given by the IHE-Delft Institute for Water Education, Netherlands, in September 2022 was to identify major problems in the Pamba basin, with a specific focus on floods and water security. The second phase training by IHE-Delft was held in May 2023 on stakeholder participation and the effects of climate change.

The flooding in Kuttanad can be controlled to an extent by clearing the obstructions and encroachments in the leading channel and also

Box 3.5.2 Flood Forecasting and Early Warning System (FFEWS)

Flood Forecasting and Early Warning System (FFEWS) acts as an end-to-end system for issuing timely warnings to facilitate disaster preparedness. River basins vulnerable to flooding and damages such as Periyar, Manimala, Chalakudy, Pamba and Achenkovil were identified for the initial development of Flood Early Warning System. Of these, flood early warning systems in Periyar and Chalakudy were successfully developed under National Hydrology Project. The forecast data and bulleting are being disseminated to Kerala State Disaster Management Authority and Inter State Water Cell.

The Resilient Kerala Program for Results (PforR), for implementation in the State during 2021-2026, aims at enhancing Kerala's resilience against the impact of climate change and natural disasters. Pamba Flood Forecasting and Integrated Reservoir Operations System (Pamba FF&IROS) was developed by the Department as part of RK (PforR) DLI-7. This has been approved by World Bank's independent verifying authority. Specific interventions in Pamba basin such as basin investment planning, formulation of a decision support framework for integrated basin investment planning, environment flow assessment and integrated reservoir operation systems are envisaged as part of this. As a separate initiative, Centre for Water Resources Development and Management (CWRDM) has been developing a flood forecasting and early warning system for Meenachil river as part of their Centre of Excellence in water induced disasters.

Source: Irrigation Department (IDRB), GoK and CWRDM Kozhikode

by protecting both sides of the leading channel, for which Administrative Sanction of Rs 70.30 crore has been issued. The works are in the tender stage. For implementing 'Room for the River Project', IIT Chennai has suggested various scenarios through mathematical modelling to alleviate flooding in the Kuttanad region. The activities envisaged through the programme include the construction of flood regulators, construction, renovation and development of bypass channels towards Thottappally, and raising and strengthening the outer bunds along the banks of the leading channel.

As flood control measures, various infrastructural development works such as strengthening of outer bunds, construction of motor thara (platform), motor shed, pile culvert, box culvert, and desiltation of *vachalthodu* (common drain) through the paddy fields are executed for the development of *padasekharams* in Kuttanad, Upper Kuttanad, and Onattukara regions. In 2022-23, 54 works were undertaken of which three have been completed. Physical achievements during the period include bund formation for a length of 8,354 m, desiltation works of *thodu* (2,190 m) and renovation of the retaining wall (1,461.1 m), thereby benefitting an area of 846.1 ha.

Kerala, having a coastline of 576 km, requires efficient coastal management measures with scientific study and site-specific design. The National Centre for Coastal Research (NCCR) was entrusted to undertake site-specific studies for the identified 10 hotspots – Shanghumugham, Kollamkode, Alappad, Ottamassery, Chellanam, Kodungallur, Ponnani, Kappad, Thalassery, and Valiyaparamba. As a priority, the first phase of coastal protection works in Chellanam was done by adopting a hybrid protection system comprising groynes and seawall using tetrapod. The project envisages the reformation of the sea wall for 10 km using tetrapods and the construction of groyne field at Bazaar and Kannamalli in Chellanam Panchayath. In the first phase, reformation work of 7.36 km was done. This has succeeded in controlling the monsoon effects in 2022 and 2023.

Way forward

Kerala faces several challenges in water management due to increasing demand for water in all development sectors. The possible changes in the water resources scenario due to global warming and climate change also have a serious impact

on the State. One of the major challenges in the future will be the increasing extreme climate events leading to floods and droughts in the State. Such alternating extremes can significantly affect riverine ecosystems and its functions. Ensuring sustainable water resource management by following the principles of Integrated Water Resources Management (IWRM) and integrating land use planning with water resource management deserves importance in this context. The consideration of this issue and the accurate assessment of the required flushing amount for cleaning the river are crucial aspects of Integrated Water Resources Management (IWRM). Further, the exceptional biodiversity in the State need to be conserved while implementing any water management practice. The State should focus on developing an efficient data management system for planning, designing, implementing, monitoring and evaluating the projects and programmes of water resources development and management in the State. A river basin specific database needs to be generated, incorporating details of water availability, demand, quality, disaster risk maps, ecological function, environmental flow requirements, and vulnerable population. Such a database may be used as a reference for developing any inter and intra basin management practices. This can be developed through collaboration with academic and research institutions across the country and may be attached with Kerala WRIS. Apart from these, novel strategically important initiatives like water budgeting at local bodies, micro-level climate monitoring using small-scale automatic weather stations coupled with response systems, community micro-irrigation and precision farming systems, change in crop calendar and pattern towards climate resilience, community engaged wetland management, mapping of hotspots and vulnerable areas in terms of disasters and water pollution etc are also assuming a great significance.

3.6 FORESTRY AND WILDLIFE

The United Nation ‘Global Forest Goals Report 2021’ estimated that 1.6 billion people rely on forests for their subsistence needs, livelihoods, employment, and income. Healthy forests, landscapes, and terrestrial ecosystems provide services that are critical for people and economies, such as biodiversity, habitat, clean water, climate regulation, erosion prevention, crop pollination, soil fertility, and flood control. World Bank estimates show that land degradation impacts 3.2 billion people worldwide, with 40 per cent of the world’s poorest live on degraded land.

The World Wild Fund’s (WWF) ‘Living Planet Report 2022’ warns that wildlife population has plummeted by 69 per cent between 1970 and 2018, and urgent actions are required to reverse it. Forests are the largest storehouse of carbon after the oceans. Deforestation and degradation are the largest sources of carbon dioxide emissions after the burning of fossil fuels. Scientists estimate that up to 13 per cent of global carbon emissions are contributed through deforestation. According to United Nations Environment Programme (UNEP), limiting the average global temperature rise to 1.5°C will be possible only through ending deforestation and additional carbon that can be sequestered through improved forest management and reforestation. Eliminating emissions from deforestation and increasing carbon removals by promoting forest regrowth and landscape restoration could reduce global net emissions by 30 per cent, and over the next decade, forests could provide as much as 50 per cent of the cost-effective mitigation available.

The World Bank report ‘State of the World’s Forests 2022’ suggests three interrelated pathways to halt deforestation and maintain forests: restoration of degraded lands and expansion of agroforestry, sustainable use of forests, and building green value chains. The balanced, simultaneous pursuit of these pathways can generate sustainable economic and social benefits for countries and their rural communities help sustainably meet increasing global demand for materials, and address environmental challenges.

Forest cover

The forest cover of the country as per the Forest Survey of India’s (FSI) latest report ‘India State of Forest Report 2021’ was 7.1 lakh sq km, which is 21.7 per cent of the geographical area of the country. The tree cover of the country is estimated as 95,748 sq km, which is 2.9 per cent of the geographical area. Thus the total forest and tree cover of the country is 8.09 lakh sq km and is 24.6 per cent of the geographical area of the country. The assessment in the report shows an increase of 0.28 per cent of forest and tree cover at the national level between 2019 and 2021. The National Forest Policy of India 1988 envisages a goal of achieving 33 per cent of the geographical area of the country under forest and tree cover.

Even though the land area of Kerala is only 1.2 per cent of the country, the forest cover is 2.3 per cent of the national forest area. The recorded area of forest in the State is 11531 sq. km or about 29.6 per cent of the State’s geographical area (38,863 Sq. km). However, the actual forest area including

those outside the reserved forests is much more. As per the 2021 assessment of the Forest Survey of India (FSI), the total area under forests including plantations is 21,253 sq km, which is 54.7 per cent of the State's geographical area. Considering the percentage of area under forests, Kerala is placed relatively in a comfortable setting; however, the higher density of population in the State exerts comparatively more pressure on the forest resources. As per the FSI figures, between 2019 and 2021, the forest cover of the State increased by 0.52 per cent, with an increase of 109 sq km. According to FSI, total Carbon stock of forest in the State (including trees outside forest with a size of more than 1ha) is estimated to be 205.5 million tonnes (equivalent to 753.6 million tonnes of Carbon Dioxide), which is 2.8 per cent of total forest carbon of the country.

District-wise forest cover details are as provided in **Appendix 3.6.1**. Among the districts in the State, Idukki has 3155 sq km of forest land, followed by Palakkad with 2104 sq km and Malappuram (1984 sq km). While considering forest area as a percentage to geographical area, Wayanad district has 74.2 per cent of forest cover, the highest in Kerala, followed by Pathanamthitta and Idukki.

Role of forests in counteracting ecological and economic vulnerabilities is becoming more relevant in the context of climate change. Management of forests for their public good functions such as water security, biodiversity conservation, livelihood of local communities and other social objectives are the major emphasis in Fourteenth Five Year Plan. Water security, management of human wildlife conflicts, livelihood of forest dependent communities, and upkeep of forests as a safeguard against climate change were the major focus areas in the forest sector in 2022-23. Sustainable management of forests and wildlife calls for a landscape-level approach as forests and agricultural landscape are inseparably linked and share valuable common resources in the State.

Management of natural forests

Natural forests in Kerala are managed in order to sustain biodiversity conservation and life support systems. The programmes implemented include protection from encroachments, poaching and tree felling, protection from biotic interference and fire, river bank protection, enhanced involvement of tribal communities in forest management, rehabilitation of degraded forest areas and

protection of fragile eco-systems, and participatory forest management. Management of natural forests in the State also includes survey and demarcation of forests, protection from encroachments and other illegal activities, undertaking forest fire prevention activities, soil and moisture conservation and protection of special habitats, and strengthening of Rapid Response Teams (RRT) and Elephant Driving Teams as a protection to forest dependent communities.

Major activities undertaken in 2022-23 included survey of forest boundaries, forest protection, and regeneration of denuded forests. According to FSI, out of the total forest cover in Kerala, 2.2 per cent is highly fire prone. In 2022-23, fire lines were created and maintained along 1792 km. Fire protection work is done through *Vana Samrakshana Samithis* (VSS) and Eco Development Committees (EDC). Along with the improvement of degraded forests, special attention was given to the protection of fragile and unique ecosystems like shola forest, sandalwood areas, wetlands, mangroves, sacred groves, etc. Consolidation of forest areas and permanent demarcation of forest boundaries are essential for effective management of forest areas. Construction of boundary walls is an effective measure in reducing human-wildlife conflict.

Improving Productivity of Plantations

The Forest Department has around 1,600 sq km (13 per cent of total forest area) of forest plantations of various species, of which hard wood species such as teak, *mangium*, sandalwood, *mahagani*, etc. cover an area of approximately 861.3 sq km (52 per cent of total plantation area). The Department consistently raises new plantations with the aim of raising future incomes. In 2022-23, new plantations were raised in 5.3 sq km, of which teak plantations occupied 55 per cent. Taking advantage of the long history of teak plantation management, a system of improving productivity through the application of scientific management practices is adopted. Forest plantation management was rationalized so that areas with high productivity are subjected to intensive management, to ensure that soil conditions and productivity improve. In 2022-23, maintenance was done in 0.38 sq km of plantation area. Species-wise area under forest plantation is provided in **Appendix 3.6.2**. Area under forest plantations increased marginally by 4.07 per cent from 1,571 sq km in 2021-22 to 1,635 sq km in 2022-23.

Management of human-wildlife interface

Human-wildlife interface is a complex issue, and the conflicts are increasing year after year. The Forest Department and other line departments are taking serious measures to tackle the problem effectively. As part of 14th Five Year Plan, a comprehensive strategy with long term and short term measures are underway. It includes construction of elephant-proof trenches, elephant-proof stone walls, solar power fencing, other preventive measures, payment of compensation to the victims of wildlife attack and crop damages, wildlife habitat improvement, providing fodder and water in interior forest areas for wildlife, support to Rapid Response Teams (RRT), etc. Snake bites are a major cause of human death in 2022-23, and elephant attack the major cause of crop damage. Wildlife population growth, habitat loss and fragmentation, climate change and the resultant environmental impact along with cropping pattern changes are reported as the major causes of the rising human-wildlife conflict (HWC). In 2022-23, 8,873 incidents were reported in the State including, 98 human casualties. Rs 10.49 crore was disbursed as compensation for human death and injury, cattle loss, and crop damages. Details are given in **Table 3.6.1**.

As part of HWC management, the hotspots of frequent HWC are identified and recorded forest division-wise on a secure, GIS-based MIS platform, and joint patrolling operations with the participation of local community representatives are conducted at range and station-level. Integrated landscape-based management involving creation of physical barriers, early warning electronic

systems, use of drones, radio collaring of problematic elephants, creation of corridors for wildlife, creation of Primary Response Teams (PRT) and Rapid Response Teams (RRTs), and relocation of threatened settlements, are the major mitigation measures adopted to solve human-wildlife conflict in 2022-23. Forest Department with the support of *Jana Jagratha Samithies* (JJS), *Vana Samrakshana Samithis* (VSSs) and Eco Development Committees (EDCs) in collaboration with LSGs and line departments manage conflict related issues in the fringe zone. In 2022-23, under the scheme 'measures to reduce human-animal conflict', maintenance of elephant-proof trenches was completed in 158.4 km, solar fencing was constructed in 42.6 km, and 237 meters of compound wall was constructed. In high conflict areas of the State, 15 RRTs are already established- 8 permanent and 7 temporary, and 25 new RRTs have been identified for establishment. At present, the Kerala Forest Department has 427 VSSs and 213 EDCs.

In 2022-23, as part of HWC management, the Forest Department spent Rs 17.2 crore under the scheme 'Measures to reduce human-animal conflict,' Rs 2.4 crore under 'Project elephant', and Rs 10.2 crore under 'Protection of wildlife outside protected areas.' Considering the role of Grama Panchayats in community development and conservation of natural resources, 246 *Jana Jagratha Samithis* (JJS) were formed across the State. The JJS at Panchayat level is composed of people's representatives, farmers' representatives and forest officers. There were initiatives to form ward-level samithis, where local issues are discussed.

Table 3.6.1 Details of adverse incidents of human-wildlife interface reported and compensation paid in 2022-23

Incidents	Snake Bite (in nos)	Elephant Attack (in nos)	Wild Boar Attack (in nos)	Wild Gaur Attack (in nos)	Tiger Attack (in nos)	Leopard Attack (in nos)	Others (in nos)	Total Incidents (in nos)	Compensation paid (in Rs)
Human Death	48	27	7	1	1	0	14	98	3,37,31,013
Human Injured	871	71	261	5	0	0	67	1275	2,45,73,297
Cattle Death	65	8	4	1	191	244	124	637	1,46,66,363
Crop Damage and Property Loss	0	4087	1252	25	1	0	1498	6863	3,19,15,842
Total	984	4193	1524	32	193	244	1703	8873	10,48,86,515

Source: Forest and Wildlife Department, GOK, 2023

Early warning alert system to tackle the HWC issue is presently under way at various divisions including Punalur, Konni, Marayoor, Palakkad, Thiruvananthapuram, Munnar, Wayanad etc. This is found to be very effective in high elephant conflict areas and the Department has proposed 42 more such units in different parts of the State.

Forest Revenue

The revenue from Forest Department by way of sale of timber and other forest produce contributes significantly to the non-tax revenue of the State. Revenue from forestry sector was reported to be Rs 289 crore in 2022-23. A major portion of the forest revenue comes through the sale of timber. In 2022-23, Rs 262 crore was collected towards revenue from the sale of timber alone, which accounted for 91 per cent of the total forest revenue. Production of forest products such as sandalwood and acacia increased in 2022-23, whereas production of timber, firewood, honey, bamboo, reeds, *manjium* and eucalyptus decreased in comparison to 2021-22. Production of major forest produces in 2021-22 and 2022-23 are given in **Appendix 3.6.3**.

Trends in revenue from timber and other forest products during 2020-21 to 2022-23 are given in **Appendix 3.6.4**. Compared to 2020-21, in 2022-23 net revenue from forest products increased from Rs 236 crore to Rs 289 crore. A major reason for this rise is increase in timber revenue.

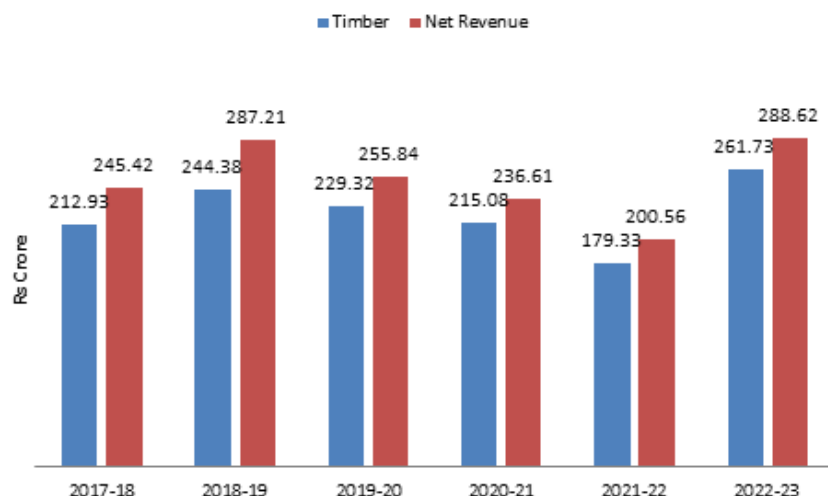
Figure 3.6.1 shows the trend in forest revenue between 2017-18 and 2022-23. From 2017-18 to 2018-19, net revenue from forest increased by 17 per cent, but in 2019-20 it declined by 10.9 per cent and further declined by 7.5 per cent in 2020-21. Between 2020-21 and 2021-22, the net revenue declined by 15 per cent; however in 2022-23, it increased by 44 per cent.

The share of forestry and logging in total GSVA at base prices was 0.92 per cent in 2022-23, whereas it was 0.95 per cent in 2021-22. Similarly, the share of primary sector in GSDP which was 8.15 per cent in 2021-22 has declined to 7.76 per cent in 2022-23. Contribution of forestry sector in GSVA is shown in **Appendix 3.6.5**.

Biodiversity conservation and management of protected areas

The forests of Kerala form part of one of the 36 biodiversity hotspots in the world and are conserved through the network of established protected areas. The Wildlife wing of the Forest Department, constituted in 1985 is involved in the conservation and management of protected areas and also important biodiversity areas outside protected areas. The Wildlife wing manages 3441.2 sq km of forests under its protected area network, which includes national parks, wildlife sanctuaries and community reserve. Kerala has six national parks, 18 wildlife sanctuaries and one community reserve, which together accounts for nearly 30 per

Figure 3.6.1 Trends in forest revenue 2017-18 to 2022-23



Source: Forest and Wildlife Department, GOK, 2023

cent of the forest area in the State. There are three Wildlife Circles and 11 Wildlife Divisions in the State. Habitat improvement works include water source development, eradication of invasive weeds, infrastructure facilities including construction and maintenance of trek paths, provision for communication, fire protection and so on. Details of wildlife sanctuaries, national parks, community reserves and biosphere reserves are provided in **Appendix 3.6.6.**

Major activities under biodiversity conservation include habitat improvement, maintenance of rescue centres, fire protection, water resources management, anti-poaching works, eco-development activities, research, etc. Based on detailed scientific studies, wildlife corridors connecting animal habitats are maintained through acquisition of land. Support is provided to LSGs to conserve biodiversity, especially through supporting the development and update of biodiversity registers and conservation of unique ecosystems such as sacred groves, mangroves, etc. Kerala has two biosphere reserves that harbour exceptional biodiversity- the Agasthyamala biosphere reserve, and the Nilgiri biosphere reserve. The Agasthyamala biosphere reserve was notified in 2001 under UNESCO's 'Man and Biosphere' programme and Nilgiri biosphere reserve was notified in 1986. In addition to the improvement of the degraded forests in general, special protection of unique eco-systems like shola forests, sandalwood areas are also included under this programme. To encourage environmentally conscious and responsible citizens and citizen groups in biodiversity conservation, *Prakrithi Mithra* award was instituted at the Panchayat level.

Sustainable Ecotourism

Kerala's Forest Department has been providing ecotourism services for the last 25 years. Currently, there are 69 ecotourism centres. Ecotourism provide direct employment to about 1150 families. Apart from providing employment opportunities in forestry, including collection and value addition of Non-Timber Forest Produce (NTFP), alternative livelihood enhancement opportunities such as in eco-tourism are promoted (Details are provided in Chapter 5.3, Tourism).

Social Forestry and urban forestry

Population growth and the resultant density of population in the State point to the need for the creation of more green spaces in public areas in urban/semi-urban landscapes. Accordingly, the

Forest Department piloted demonstrative forest patches in the urban and semi-urban landscapes through the *Nagaravanam* project; in 2022-23, 17 *Nagaravanam* were established. The Department introduced forestry clubs in schools to sensitise the importance of forest conservation and to connect children with nature. In 2022-23, 166 forestry clubs were started in schools. Presently there are 1131 forestry clubs registered throughout the State. Mission forestry clubs was an initiative of the Department to revive and expand activities of forestry clubs. One of the activities of forestry clubs is the establishment of miniature forest titled *Vidyavanam* (miniature forests) in schools and colleges; Social Forestry Wing established 28 *Vidyavanam* in 2022-23.

The *Vriksha Samridhi* scheme was implemented to raise seedlings with the support of LSGs. Under the programme, 23.4 lakh seedlings were produced for planting in 2022-23. The Social Forestry Wing of the Forest Department raised 13.4 lakh seedlings for planting. *Haritha Keralam* scheme of the Kerala Forest Department was initiated with the objective of greening Kerala by way of distributing seedlings free of cost to schools and other educational institutions. The scheme also included production of seedlings and supply at subsidised rate to LSGs, media, public and other organizations. The 13th phase of the *Haritha Keralam* scheme was implemented in 2021-22; for which about 46.6 lakh seedlings were raised for distribution. Details of seedlings distributed through social forestry are given in **Appendix 3.6.7.**

Home gardens

Trees outside forests cover diverse land uses including agricultural plantation crops, home gardens, farm forestry, sacred groves, urban green spaces; a significant share of which is in private lands. Home gardens along-with rubber plantations accounts for 82 per cent of wood supply in the State, and the contribution of forests is only 1.6 per cent. The share of home gardens in wood production can be increased significantly so that management of public forests could be more geared to provision of ecological services.

The programme for improving wood production from home gardens was implemented with the involvement of the Local Governments and the technical expertise of the Kerala Agricultural University and other institutions. A programme

to provide cash incentives to farmers was implemented with the objective of encouraging growing more trees and producing timber in private lands. In 2022-23, 42 applications were selected. As part of protection and conservation of sacred groves, 54 sacred groves were selected for incentives in 2022-23. The owners of mangroves were also awarded incentives at the rate of Rs 4000 per acre for conservation efforts and ensuring ecosystem services. *Vanamitra* awards are instituted under biodiversity conservation programme and 14 applications were selected for 2022-23.

To counteract global warming and to promote carbon sequestration, afforestation cover outside forest areas was expanded by planting seedlings on the sides of important roads, institutions and avenues. Stabilisation of major rivers through bamboo planting aims to promote bamboo planting along the banks of streams, rivulets, and rivers, thereby protecting water bodies. The District permanent nursery project was implemented to produce seedlings of important, rare and endangered species by following standard silvicultural practices, and to spread awareness on the importance of environmental services. The implementation process of district permanent nurseries was started in Thiruvananthapuram, Pathanamthitta, Alappuzha, Kottayam, Palakkad, Wayanad, Kozhikode and Kasaragod.

Recognition of Forest Rights Act

Scheduled Tribes Development Department is the nodal agency in the State entrusted with the task of implementation of the Forest Rights Act. The implementation of the Act in the State was done through 511 Grama Sabhas, 14 sub divisional level committees and 12 district level committees. As per the Act, it is the duty of the Forest Department to award development rights. About 28,621 individual titles, 224 community titles, and 535 development rights were issued until July 2023. Numbers of individual rights issued were highest in Idukki district (8488), whereas community rights were highest in Wayanad district (131), and development rights in Thiruvananthapuram district (169).

Livelihood of forest-dependent communities

As part of enhancing the livelihoods of forest dependent tribal communities, the Forest Department, in collaboration with other line departments and agencies, is implementing various programmes. To reduce the dependency on forest

resources, alternate livelihood is provided through the supply of high-yielding cattle, sewing machines, etc. To prevent the exploitation of forests for fuel wood, supply of solar lamps, smokeless *chulas*, LPG, and construction of biogas plants are also envisaged. As part of modernising the Non-Timber Forest Produces (NTFP) management practices, a virtual godown was developed for seamless and updated information. The NTFPs collected by the tribal communities are marketed under the brand name *Vanasree*, and presently, 71 units including two mobile units function in the State.

The National Forest Policy, 1988, envisages managing forests by forming partnership arrangements with forest-dependent communities, especially tribal populations. Participatory Forest Management (PFM) was initiated in 1998 with the formation of grass root level institutions including VSS in territorial forest divisions and EDC in wildlife divisions. Each of VSS and EDC comprises of 200 to 300 forest-dependent families. The VSS and EDC function under the guidance of Forest Development Agencies (FDA)- the federation of VSSs and EDCs at forest division level. Presently, there are 213 EDCs and 423 VSSs formed across the State, under 36 FDAs. The objective of FDA is to involve local communities in the protection and management of forests. The main function of the FDA is to make link the two approaches of integrated forest development and rural employment generation into a single umbrella scheme, for effective conservation of forest.

Minimum Support Price (MSP) for Minor Forest Produce (MFP) seeks to provide fair returns to forest gatherers for their effort in collection and value addition of MFP, as part of their livelihood. Until 2022-23, 26 MFPs available in the State, including honey, are supported under the project. The Van Dhan Vikas Kendras (VDVKs) was initiated by the Ministry of Tribal Affairs (GoI) for supporting the retail marketing and value addition of MFPs. The State Forest Development Agency has established 31 VDVks for the marketing of 44 products. Activities under eco-development programme also focus on hamlet development in tribal areas.

Initiatives under Rebuild Kerala Development Project (RKDP)

The Forest Department has drawn up a project for forest areas, as part of Rebuild Kerala Initiative (RKI) to rebuild flood-affected areas of the

State. The project envisaged relocation of private settlements, and the acquisition of mangroves and private estates. As of August 2023, 536 families are relocated under the programme and an amount of Rs 60.2 crore was spent. Project titled 'Voluntary relocation of inhabitants from *Rosemala* and *Kattilappara* private settlement' was implemented in Shendurney Wildlife Sanctuary under RKDP, and five hectares of land is acquired. Under the Special Investment Plan (KIIFB), the Department is implementing the project 'Fencing along identified areas of forest boundary to reduce human-wildlife conflict', at a cost of Rs 100.6 crore. As of August 2023, 94.2 km of solar fencing, 710 meters of elephant proof wall, and 10 km of rail fences have been completed. The eco-restoration of degraded forest with eradication of invasive alien species is progressing in Wayanad Wildlife Sanctuary and North Wayanad Division with the support of Kerala Forest Research Institute. Scoping studies on 'conservation of mangrove forest' and 'hydrological services of the forest ecosystems' are also progressing.

Outlay and expenditure details of the sector from 2018-19 to 2022-23 are shown in **Appendix 3.6.8**.

Initiatives in the 14th Five Year Plan

As part of the 14th Five Year Plan, the State Planning Board had constituted Working Group on environment and forests; with separate Expert Sub Groups (ESG) for human-wildlife interactions, Forest Rights Act, and sustainable management of forests. Focus areas in the 14th Five Year plan include development of comprehensive action plans for watersheds that cover from ridge to valley, forest ecosystems as well as agro-ecosystems. On the conservation of biodiversity and protection of wildlife, the Plan will support efforts to discourage human interventions inside forests, reduce degradation of vital habitats and also will clear wildlife corridors.

Human-wildlife conflicts are complicated matter, and the Plan will continue to support scientific means to address the problem. Incidents of human-wildlife conflict have increased in recent years, as have demands for higher compensation. The Plan will support the design and implementation of a comprehensive strategy on human-wildlife interface that includes long-term and short-term prevention and mitigation measures. In high conflict zones Rapid Response Teams (RRTs) will be deployed and currently they

are stationed in Kannur, Wayanad, Kozhikode, Nilambur, Palakkad, Mannarkkad, Ranni, and Peppara. Eight more RRTs are temporarily established in Kasaragod, Kalpetta, Punalur, Peerumedu, Chalakkudi, Munnar, Attappady, and Konni. To combat HWC, it is planned to install solar fencing and solar hanging fencing in 75 km each, and will undertake maintenance of 500 km of solar fences during the Plan period. Through voluntary relocation, 500 eligible families are planned to be relocated through RKI and KIIFB Phase 2.

Improvement of livelihood of forest dependent communities will be given special importance through VSSs, EDCs, SHGs, and sustainable ecotourism and eco development. There are nearly 725 tribal settlements located in and around the forests of Kerala. It is planned to provide non-grid solar power connection, where electric connections are not available. As recommended by the ESG on Forest Rights Act, forest rights claims will be settled in a time bound manner.

To promote ecotourism, facilities in the existing eco-tourism sites will be improved in accordance with the provisions of the forest laws. As part of eco-restoration of degraded forests and eradication of alien species, the Department is implementing eradication of '*Senna spectabilis*' (*Manja Konna*) in 1650 ha of North Wayanad and Wayanad Wildlife divisions.

3.7 ENVIRONMENT

Climate change presents a major threat to the environment and has a direct impact on the wellbeing of people around the world. In 2018, the Intergovernmental Panel on Climate Change (IPCC) warned that Green House Gas (GHG) emissions must be halved by 2030, compared with 2010 levels, to have a good chance of limiting temperature rise to 1.5°C. The IPCC's Synthesis Report published in 2023 warns that warming will exceed 1.5°C during the 21st century and make it harder to limit it below 2°C.

The FAO report 'Global forest sector outlook 2050' warns that threats to climate, biodiversity and healthy environment are mainly caused by the excessive use of non-renewable material. International agencies, including the UN and Governments across the world, realize the importance of environmental conservation. The World Bank Report, 'Nature's frontiers: achieving sustainability, efficiency, and prosperity with natural capital' indicates where and how nations can utilise natural resources more efficiently to achieve prosperity without damaging the environment or exceeding the limits of natural resources. Since 2010, the IMF has been offsetting its GHG emissions by purchasing voluntary Gold Standard, Certified Emission Reduction (CER) units, to support projects located in developing countries under the UN Climate Change Clean Development Mechanisms (CDM). CDM projects not only reduce GHG emissions but also support sustainable development.

Among the 36 biodiversity hotspots in the world, four are in India including the Himalayas, the Western Ghats, the North-East, and the Nicobar Islands. These hotspots represent just 2.3 percent of earth's land surface, but they support more than half of the world's endemic plant species. India has provided special emphasis to the environmental conservation in the Constitution. Article 51-A (g), specifies that "It shall be duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures." Prominent environmental issues in India are related to air and water pollution, deforestation, desertification, and waste management. The 2022 Environmental Performance Index (EPI) of Yale Center for Environmental Law & Policy ranked India at 178th position under ecosystem vitality, 178 for health index, and 165 in climate policy. The EPI provides a data-driven summary of the state of sustainability around the world.

Kerala is a state having rich biodiversity with diverse and unique ecosystems viz. forest ecosystem, wetland ecosystem, mangrove ecosystem, marine ecosystem etc. However, climate change poses a serious threat to Kerala's environment and has become an agenda for development planning in recent years.

In the 14th Five-Year Plan, the Government will support coordinated action in achieving the goals of environmental regulation and governance,

especially in coastal zones, wetlands, and fragile eco-systems, and must take note of the imperatives of climate change and the consequent impact on those living close to fragile ecosystems. It will also support efforts to coordinate diverse aspects of environmental management that are currently dispersed across different agencies.

Climate Change

Climate change has a profound impact on the environment and human well-being. The Intergovernmental Panel on Climate Change's (IPCC) 'Climate Change 2023: Synthesis Report' reiterated that humans are responsible for global warming over the last 200 years leading to current temperature rise of 1.1°C above pre-industrial levels. The process of climate change is set to have significant economic impacts on all countries, with a large number of lower income countries being particularly at risk. According to IMF, macroeconomic policies in these countries need to be calibrated to accommodate more frequent weather shocks, including by building policy space to respond to shocks. United Nations Environment Programme's (UNEP) 'Global climate litigation report: 2023 status review' demonstrates the importance of an environmental rule of law in combating the triple planetary crises of climate change, biodiversity loss and pollution.

India is highly vulnerable to climate change because of high physical exposure to climate related disasters and also because the economy depends mainly on climate sensitive sectors like agriculture, forests, and fisheries. India had started its work on action plan in 2007 and the National Action Plan for Climate Change (NAPCC) was released in 2008. The NAPCC sets eight national missions to respond to climate change; these include national mission on solar energy, enhanced energy efficiency, sustainable agriculture, sustainable habitat, water, sustaining Himalayan eco-system, green India mission, and strategic knowledge for climate change covering range of actions including adaptation and mitigations.

Kerala has been experiencing an onslaught of heavy rains, floods, landslides and droughts over the last few years. Environment department is the nodal agency for coordination related to climate change in the State. The first Kerala State Action Plan on Climate Change (SAPCC) was drafted by the Directorate of Environment and Climate

Change (DoECC) with inputs from stakeholder departments, agencies and research institutions, and was endorsed by the Government of India in 2014. In accordance with the revised guidelines of the MoEFCC, the Climate Change Cell revised SAPCC and it was approved by the State Government in January 2023.

The SAPCC 2.0 is envisaged as the pivot of climate action in the state by establishing linkages at national and international levels, and serves as a conduit for coordination between various stakeholders. It address the issue of climate change vulnerability and build resilience, particularly in sectors such as agriculture, livestock, fisheries, health, water resources, forests, and biodiversity. The strategies and interventions for adaptation and mitigation are devised for the 2023-30 period.

As per the revised guidelines of MoEFCC, the State Climate Change Cell in DoECC has prepared the revised SAPCC. In accordance with the Carbon Neutral Initiative of Govt. of Kerala to achieve carbon neutrality by 2050, the Climate Change Cell conducted a consultative workshop to finalize the methodology for the GHGs inventory. Accordingly, mechanisms are developed for the continuous measurement of GHG emissions. As part of promotion of eco-friendly activities, 70 *Bhoo Mithrasena Clubs* are given revolving capital in 2022-23. As part of awareness activities financial assistance was granted to six organizations through the scheme *Paaristhitikam*. Financial assistance was also given to 10 institutions for organizing workshops and training programs on environmental issues.

The State level *Paristhitibi Mithram* awards (2022) for honouring individuals and organizations for their achievements and contributions to environmental conservation activities were presented by the Hon'ble Chief Minister. Under climate change, environmental research and development, and climate resilient farming schemes, 27 projects are implemented.

Under the scheme, 'climate change,' a grid-connected solar-powered electric vehicle charging station was established in Kollam and 100 rainwater harvesting/aquifer recharging structures were established in public buildings and households in *Amboori* village,

Thiruvananthapuram. As part of the notification of wetlands in the State, district level consultation meeting were conducted for LSGs.

An integrated Wetland Inventory Assessment and Monitoring System (WIAMS) web portal and mobile application was developed to ensure the contribution of citizen scientists registered as 'Wetland *Mitras*' in the management of Ramsar wetlands. Draft integrated management plan of *Vembanad-kol* wetland was prepared and initiated the revision of management action plan of *Sasthamkotta* wetland. Bathymetric study of the *Sasthamkotta* wetland was completed and fish diversity of *Sasthamkotta* wetland was assessed with the support of Kerala University of Fisheries and Ocean Studies.

Through climate resilient farming schemes innovative approaches to climate resilient farming in bio-saline agriculture and open water fish farming was promoted in Munro island of Kollam. The project envisaged to develop and promote sustainable farming and land use systems in climate change prone area of Munroe Island through innovations in partnership with the Grama Panchayath and by working closely with farming and fishing communities under participatory approach.

Biodiversity

The Aichi Biodiversity Targets established a comprehensive plan for biodiversity from 2011 to 2020. This plan included 20 global targets that were categorised into different goals. These goals aimed to address various aspects of biodiversity conservation, such as preventing the extinction of known threatened species, reducing the decline of natural habitats, and removing subsidies and incentives that have negative impacts on biodiversity and ecosystems. The Kunming-Montreal global biodiversity framework aims to halt and reverse biodiversity loss by 2030 was adopted in December 2022 and has 23 targets and four goals. UNEP's Intergovernmental Platform on Biodiversity and Ecosystem Services' (IPBES) assessment report on invasive alien species and their control find that more than 37,000 alien species have been introduced by human activities to regions and biomes around the world.

The national mission on biodiversity and human wellbeing is an Indian initiative that involves comprehensive documentation of biodiversity

with the potential for cataloguing and mapping of all life forms in India and assessment of the distribution and conservation of biodiversity in the country. The biological diversity Act 2002 was amended in 2023 with the objective of widening the scope of levying access and benefit sharing with local communities and conservation of biological resources. The Kerala State Biodiversity Strategies and Action plan 2022-32 was formulated considering the emerging national and international developments.

Among the UNESCO World Heritage list inscribed 39 sites of the Western Ghats, 19 are located in Kerala. Around 95 per cent of the flowering plants and 90 per cent of the vertebrate fauna in the Western Ghats are found in Kerala.

The Kerala SAPCC and Kerala State Biodiversity Strategies and Action Plan 2022-32 have emphasised the impact of climate change on biodiversity. Global warming would trigger changes in the growth and regeneration capacity of many species of flora, and also result in significant loss of biodiversity, leading to a shift in boundaries of tropical evergreen forests, sholas, and mangroves. Increased intensity of forest fires, vulnerability and extinction of flora and fauna, disappearance of traditional species of fish in marine ecosystems, reduction in area under mangrove forest habitats, competition from exotics species, increased incidence of human-wildlife conflict are anticipated in the changing scenario.

In accordance with the provisions of National Biological Diversity Act of 2002 the State Biodiversity Board (KSBB) was established in 2004 and accordingly the biodiversity rules were framed. The highlights of the Biodiversity Board's initiatives in 2022-23 are the following.

Strengthening of Biodiversity Management Committees (BMC): Selected BMCs are empowered financially and technically to take up biodiversity conservation programmes. A state level BMC meet was conducted in Kozhikode with the participation of 185 BMCs. During the period 229 local bodies convened BMC meetings and important activities included establishment of biodiversity parks, implementation of biodiversity conservation projects, preparation of local action plans based on People's Biodiversity Register (PBR) and trainings for updating, restoration of degraded ecosystems, technical supports, submission of proposals for

Box 3.7.1 Bhoomithra Sena Clubs and Biodiversity Management Committees

Bhoomithrasena clubs was initiated as part of 'Environmental awareness and incentives' by the DoECC for strengthening the environmental commitment of students. Presently there are 426 *Bhoomithrasena* Clubs across colleges and higher secondary schools in the state. Major objective is to provide environmental education to students and involve them in addressing environmental issues. In 2022-23 a web portal and a mobile app were developed for effective implementation of the programme and some of them have initiated startups such as organic farming, design and popularization of eco-friendly products etc. *Bhoomithrasena* club volunteers were involved in the mega beach cleaning drive organized by DoECC and MoEF&CC on May 21, 2023, in Veli beach of Thiruvananthapuram, Alappuzha beach, and Fort Kochi beach of Ernakulam in conjunction with India's G20 Presidency. *Bhoomithrasena* club volunteers are actively participating in *Malinya Muktham Nava Keralam* campaign of LSG Department. *Bhoomithrasena* clubs also joined hands with Kerala Legislative Assembly, K-LAMPS (PS) and UNICEF to coordinate activities of State platform on climate action for children and youth in Kerala.

The Working group report for 14th Five-Year Plan has given thrust to participatory planning and management of biodiversity and improve the degraded ecosystems through Biodiversity Management Committees and promotion of bio-resources based livelihood. Biodiversity Management Committees are community-based statutory institutional structures bestowed with regulatory functions contributing to the local governance of biodiversity. The statutory powers vested with the BMCs are significant, starting from preparation of People's Biodiversity Registers to biodiversity conservation and providing access to the biological resources and traditional knowledge. Kerala's highly decentralized governance approach vests LSGs with independent decision-making has enabled formation of Biodiversity Management Committees in 1,200 local bodies, which includes 941 *Gram Panchayats*, 152 *block Panchayats*, 14 *district Panchayats*, 87 municipalities and six municipal corporations. In Kerala, the Biodiversity Management Committees are being empowered to function as environmental watch groups to prevent local environment depletion. The District Biodiversity Coordination Committees were also been constituted to monitor the functioning of the Biodiversity Management Committees and make it more effective.

declaration of biodiversity heritage sites of Calicut University botanical garden and Idayilakadukavu, Kasargod.

Research/Access and Benefit Sharing (ABS) Projects: Under Rebuild Kerala Initiative, three projects including riverine biodiversity monitoring, conservation of agro-biodiversity, and database of traded bio-resources of Kerala and their economic valuation were completed in 2022-23. KSBB in 2020 initiated a project for listing comprehensive details of floral and faunal species under various threatened categories of International Union for Conservation of Nature (IUCN) with the support of research institutes and completed in 2022-23. Under ABS, obligations realized from foreign entities were shared by National Biodiversity Authority with KSBB and 18 BMCs were supported through the Kerala Biodiversity Fund. Project for identification, creation of database, propagation, conservation and value addition of wild crops such as wild edible fruits, vegetables, tubers, rhizomes, legumes, millets, pulses etc were launched in association with 18 partners including agriculture universities and research institutes. Project for ecological restoration and agro-diversity conservation at College of Agriculture,

Vellayani was launched. During the period national conference on 'Bio-invasions- trends, threats and management' was conducted, which was inaugurated by the Hon'ble Chief Minister.

Biodiversity Awareness and Education: Assistance was provided to establish network of knowledge centres through State Library Council to promote biodiversity awareness. Biodiversity Board Conducted the second Kerala Biodiversity Congress in February 2023 with the focal theme 'Biodiversity and livelihood' at Government Arts and Science College, Kozhikode. Biodiversity awards in different categories were distributed and supported 130 biodiversity clubs as part of awareness creation. Important commemorative days such as International Biological Diversity day and World Environment day were celebrated.

District level Coordination Committee: District biodiversity coordination committee was constituted with District Planning Committee chairperson as the Chairperson. A virtual biodiversity cadre consisting of 28 government institutions and boards for obtaining relevant data was constituted.

Pollution Control

The UNEP's Beat Pollution warns that by 2025, the world's cities will produce 2.2 billion tonnes of waste every year, more than three times the amount produced in 2009. According to World Bank estimates, environmental degradation costs 5-10 percent of GDP in India. Addressing pollution is not only an environmental priority; it's a priority for the achievement of the SDGs.

One of the fastest growing economies in the world, India contributes nearly seven percent of the GHG emissions in the world and ranked third after China and US in GHG emission. The State of India's Environment Report 2023 published by the Centre for Science and Environment warns that four years and 11 months is the average duration of life lost to air pollution in India; over 30,000 water bodies are encroached in the country and India is generating 1.5 lakh tons of Municipal Solid Waste (MSW) every day, more than half of which is either dumped in landfills or remains unattended.

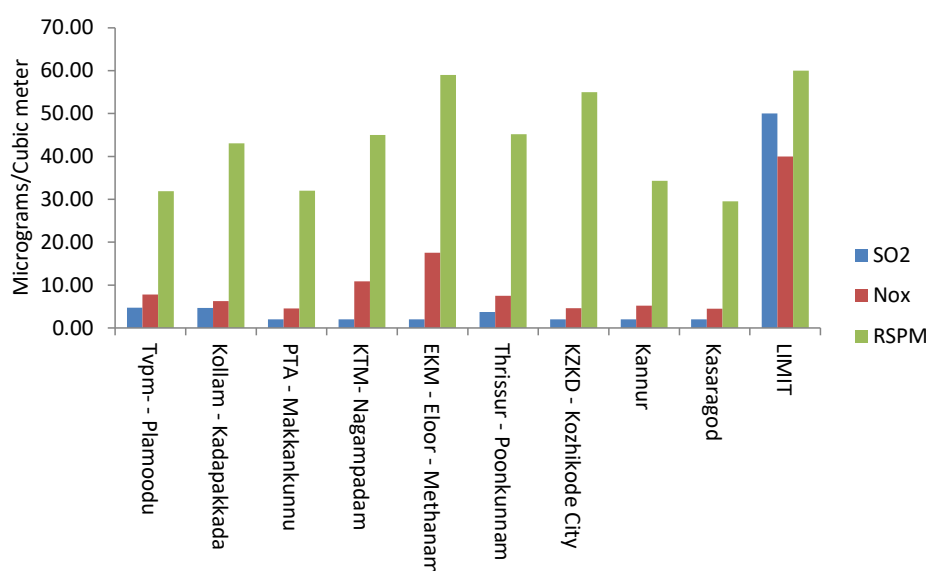
Kerala State Pollution Control Board is the statutory authority for planning, supervising and implementing a comprehensive programme for the prevention and control of pollution in the State. The Board is the statutory authority to implement the Acts and Rules of water, air (Prevention and control of pollution) Act, Environment (Protection) Acts and related rules.

Major components implemented through annual plan schemes are infrastructure up-gradation, public awareness, environment monitoring and management and capacity building.

The Kerala State Pollution Control Board (KSPCB) is monitoring ambient air quality in 34 stations all-round the State, of which 28 stations come under the National Ambient Air Quality Monitoring Programme (NAMP). The average values of air pollutants at major monitoring stations in residential areas in sensitive areas and industrial areas of Kerala in 2022 are shown in **Figures 3.7.1, Figure 3.7.2. and Figure 3.7.3** respectively.

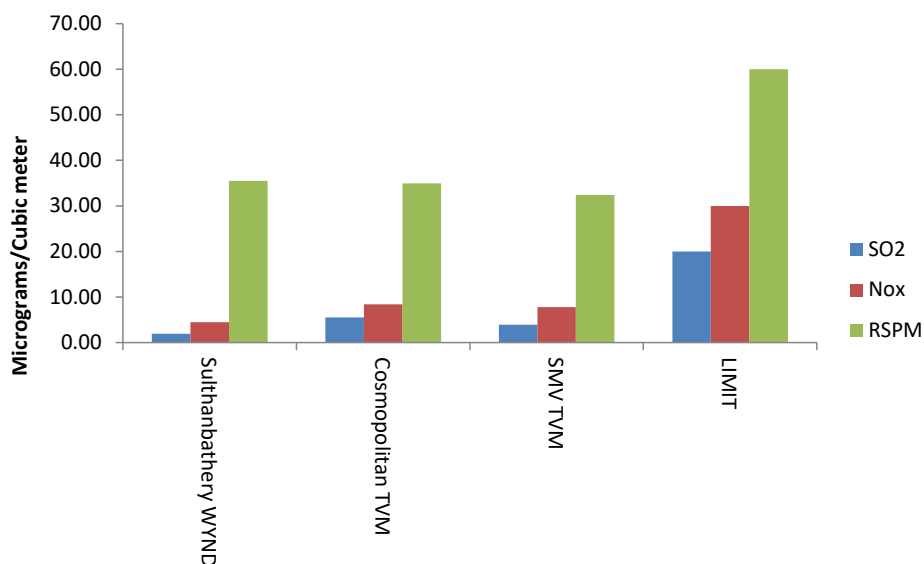
There are 128 water quality monitoring stations under National Water Quality Monitoring Programme (NWMP) in the State. It includes 72 stations in 48 rivers (major, medium and minor rivers), six in reservoirs, three in fresh water lakes, eight in estuarine lakes, three in canals, two in ponds and 34 stations in ground water. State Water Quality Monitoring Programme (SWMP) operates at 115 stations in 23 rivers and 23 stations in four lakes. The rivers having high Biochemical Oxygen Demand (BOD) values are reported to be in river Pamba during Sabarimala festival seasons and downstream of river Karamana, Periyar, Bharathapuzha, Vamanapuram and Kadalundi. Coliform counts are reported to be very high at

Figure 3.7.1 Annual average values of air pollutants at major monitoring stations in residential areas of Kerala 2022



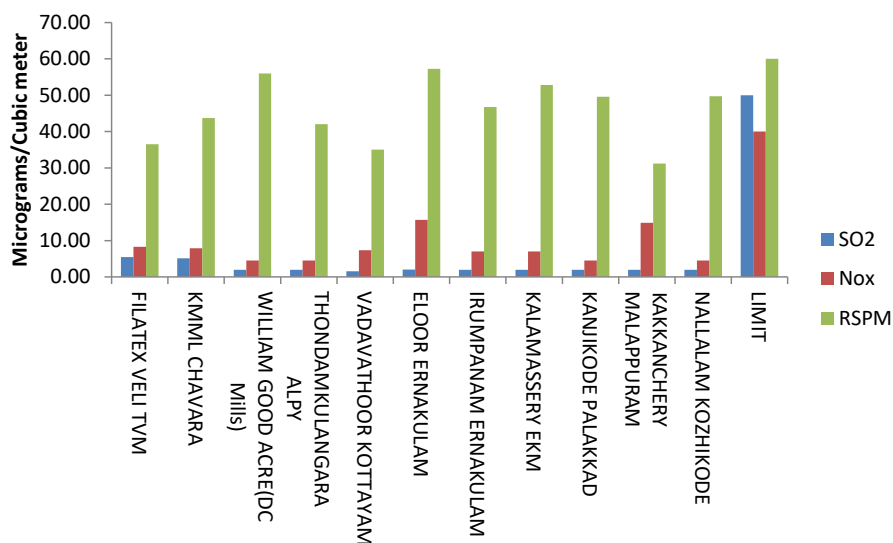
Source: Kerala State Pollution Control Board, 2023

Figure 3.7.2 Annual average values of air pollutants at major monitoring stations in sensitive areas of Kerala 2022



Source: Kerala State Pollution Control Board, 2023

Figure 3.7.3 Annual average values of air pollutants at major monitoring stations in industrial areas of Kerala 2022



Source: Kerala State Pollution Control Board, 2023

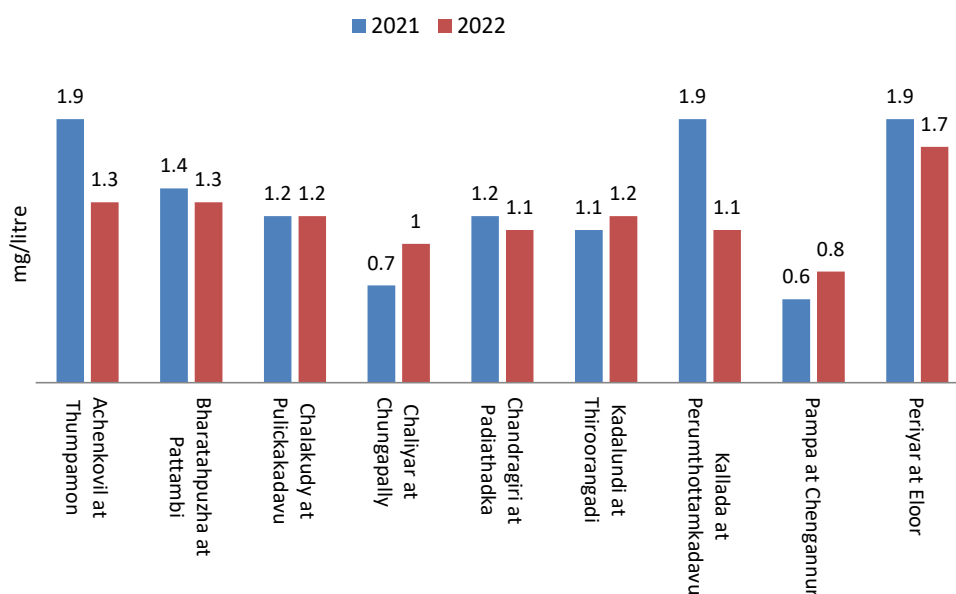
Munnattumukku in Karamana river, Kallayi river, Pamba river, Purakatteri in Korapuzha river, Thodupuzha river and Munnar river.

river stations in Kerala. Compared to 2021, BOD levels were high in Chaliyar, Kadalundi, and at Pamba in 2022.

Pollution Control Board took initiatives in the implementation of Kerala Antimicrobial Resistance Strategic Action Plan (KARSAP). Consent administration was done through Online Consent Management & Monitoring System (OCMMS), software developed by National Informatics Centre (NIC). **Figure 3.7.4** depicts BOD levels at selected

Solid waste management in the State has improved to a great extent during the period. Details of Municipal Solid Waste (MSW) generation and treatment are shown in **Figure 3.7.5**. MSW treatment was 52 per cent in 2019-20, which has increased to 93 per cent in 2022-23.

Figure 3.7.4 BOD levels at selected river stations in 2021 and 2022



Source: Kerala State Pollution Control Board, 2023

Figure 3.7.5 MSW Generation and Treatment in Kerala, 2019-20 to 2022-23



Source: Kerala State Pollution Control Board, 2023

In 2022-23, Real Time Water Quality Monitoring was installed at the upstream of *Pathalam* bund in Ernakulam. A night vision camera has been installed in the *Eloor - Edayar* industrial belt, which will help in effective control of industrial pollution and also to find out violation and unauthorized discharge by industries. A centralized digital platform titled Phoenix was established in the State Pollution Control Board to facilitate faster and efficient processing of services. As part of

strengthening of Board's laboratories various instruments and equipment were procured for regional and district offices, and laboratories. Latest cutting edge technologies including liquid chromatography- mass spectrometry, polymerase chain reaction (PCR), real time polymerase chain reaction (Quantitative PCR), biosafety cabinet, gel electrophoresis unit, gel documentation system, nano-drop spectrophotometer are installed in the AMR Lab.

Initiatives under the 14th Five Year Plan

The State Climate Change Cell (SCCC) constituted in the DoECC will be the nodal body for supporting stakeholder departments and agencies to embed adaptation and mitigation measures within their action plans and their annual budgets. As per the revised guidelines for the revision of SAPCC issued by MoEFCC, the SCCC has prepared the revised SAPCC. Under climate change, research and development, and climate resilient farming schemes, 27 projects are progressing. An integrated wetland web portal and mobile application was developed to ensure the contribution of 'citizen scientists registered as *Wetland Mitras*' in the management of Ramsar wetlands.

The UN post-disaster needs assessment report and Rebuild Kerala Development Programme report following the post 2018 Kerala floods had pointed out the necessity of an eco-sensitive area conservation policy for the state. The Working Group on environment and biodiversity, constituted as part of the 14th Five Year Plan recommended for decentralization and skill development of BMCs, ecosystem conservation, rejuvenation and management, access and benefit sharing and livelihood enhancement, strengthening scientific base of biodiversity conservation, creating communication, education and public awareness on biodiversity, and securing needed financial, human resource and technical expertise.

Box 3.7.2 Kerala's Response to Climate Change

The Government of Kerala is dedicated to continuing its efforts in addressing the problems of climate change and associated climate extremes. Its effort is to focus on adaptation measures with a focus on imparting resilience to its critical productive sector activities, as well as protecting human security. Important initiatives/activities employed in various sectors to address climate change are outlined below.

- **State Action Plan on Climate Change 2.0:** Planning to address climate change in Kerala began in 2014 with the rolling out of the SAPCC 1.0 as per the framework of the National Action Plan for Climate Change. The State Climate Change Cell revised the State Action Plan on Climate Change 2.0 by establishing linkages at national and international levels, and serve as a conduit for coordination between various stakeholders.
- **Agriculture:** State crop insurance and weather-based insurance schemes were introduced to mitigate the risk of loss. Initiatives such as *Krishipadasalas* were established as part of public awareness creation on climate-friendly farming systems. The *Punarjani* scheme was implemented to mitigate post-flood loss. Sustainable farm development programmes were implemented in *Kuttanad* and the *Thrissur, Ponnani Kole* areas. Other important interventions in the sector included preparation of crop calendar for *Kuttanad*, development of short-duration paddy varieties, usage of energy efficient submersible axial pumps in *Kuttanad* along with solarisation of farm pumps as part of PM Kusum.
- **Livestock sector:** Schemes like the comprehensive production and conservation of fodder in farmer's fields and dairy cooperatives promote the cultivation of drought resistant hybrid Napier grass to cope with water scarcity, emphasizing sustainable farming practices, mechanization, and soil conservation. Schemes including strengthening of veterinary services, special livestock development programme (*Govardhini*), and comprehensive livestock insurance programme are targeted to reduce climate stress on livestock. The Centre for Animal Adaptation to Environment and Climate Change Research, established under the Kerala Veterinary and Animal Sciences University, focuses on research and capacity building for climate risk management in livestock. To counter flood disaster in *Kuttanad*, elevated cattle sheds are established in selected areas. Mobile veterinary services and 24 hour emergency services are established at the block level.
- **Health care:** As part of the Rebuild Kerala Initiative, disaster-resilient healthcare institutions were built, including a Health Centre for Nipah Research. National Programme on Climate Change and Human Health (NPCCHH) emphasizes creating environment friendly, resilient healthcare infrastructure.
- **Waste management:** Solid waste management programmes are implemented in the state through the Haritha Keralam Mission and the *Navakeralam Karma Padhathi's* litter-free Kerala campaign focus on reducing GHGs emission. The *Haritha Keralam Mission* deployed a dedicated workforce known as *Haritha Karma Sena* for solid waste management.
- **Forest Conservation:** The National afforestation programme and Green India Mission initiatives contribute to the restoration and enhancement of forests. The intensification of forest management scheme focuses on controlling and managing forest fires. Other schemes such as minimum support price for minor forest produce, conservation of natural resources and ecosystem, forest protection, regeneration of denuded forest, biodiversity conservation, and eco-development programme aim at protecting and conserving existing forests, increasing forest coverage, and protecting forest flora and fauna. As per the Forest Survey of India figures, forest cover of the State increased by 0.52 per cent between 2019 and 2021.

- **Fisheries:** Conservation and management of fish resources and the reservoir fisheries development project plays a crucial role in enhancing fish and aquaculture production. Weather warnings are prominently displayed in major harbors, and rescue teams are mobilized at all fishing stations. Strategies aimed at reducing kerosene consumption in vessels and transitioning them to petroleum and LPG were initiated. Initiatives like group insurance for fishermen and the *Punargeham* project, focused on rehabilitating vulnerable coastal communities have strengthened the sector's resilience to climate change. To ensure emergency healthcare support marine ambulances equipped with all modern facilities was initiated in three zones.
- **Water resources management:** The flood forecasting and early warning system and integrated reservoir operations enhances response to the incoming hazards and minimizes loss of life and property. Community micro-irrigation project was implemented to address the droughts in the State. Real-time data acquisition systems were initiated as part of the national hydrology project to monitor rainfall, weather, and reservoir water levels. To address drinking water problems in *Kuttanad*, a drinking water project is under implementation in *Neerettupuram*.
- **Coastal management:** Kerala, having a coastline of 576 km, which requires efficient, scientific and site-specific coastal management measures. The National Centre for Coastal Research was entrusted to undertake site-specific studies for identified 10 hotspots in the State. The first phase of coastal protection works in Chellanam was done by adopting a hybrid protection system comprising groynes and seawall using tetrapod. Kerala State Coastal Area Development Corporation is involved in shore-protection works in vulnerable areas.
- **Energy management:** Energy efficiency programs like *Angan Jyothi*, *Chaithanyam*, and *Urjjayan* significantly contributed to reducing carbon emissions. The establishment of clean energy tech focused innovation and business incubation centre played a pivotal role in implementing the energy conservation building code in Kerala.

Besides the sector specific interventions, adaptation strategies having priority concerns and cross-sector implications such as land use planning and zoning, sustainable shore protection and stabilization, rehabilitation of vulnerable communities, sustainable drainage systems, integrated coastal zone management, climate change monitoring and database management, and climate responsive local governance are also implemented to counteract climate change. State's efforts are aligned to national commitments of achieving net zero emissions by 2070.

Haritha Keralam Mission

Haritha Keralam Mission is one of the four development missions spearheaded by the Government of Kerala for implementing the Navakeralam Karma Padhathi, which broadly aims to achieve the development goals of the State. The Mission was launched in December 2016 with the objective of ensuring hygiene, water abundance, water security, and production of safe food. The focus areas of the Mission are:

- To formulate methods for various levels of coordination of development plans of Local Self-Governments (LSG) and other departments to address the major development issues in every District.
- To provide scientific and technical advice to LSGs.
- Provide leadership to ensure people's participation and social inclusion for creating 'Haritha Keralam'.

It has three sub-missions, namely, (i) Sanitation and waste management, (ii) Water conservation and (iii) Agricultural development. The Haritha Keralam Mission has carried out various activities

in these spheres in coordination with Local Governments, development departments and other agencies.

The ongoing projects under the Haritha Keralam Mission encompass a range of critical initiatives. The Mapathon project focuses on revitalising canals, while the Carbon Neutral project is dedicated to achieving carbon net-zero status for Kerala.

Local Self-Governments are actively involved in these efforts. The Mission is also involved in the preparation of a water budget, which is based on a thorough analysis of available water resources and the region's water requirements.

Sanitation and Waste Management

The Mission has made significant strides in promoting the adoption of environmental friendly practices in daily life. As a result, a majority of the LSGs in the State have attained the 'Suchitwa Padavi' status. The Haritha Karma Sena Self-Help Groups (SHGs) have played a pivotal role in collecting and segregating waste. Notably, initiatives like the Green Law Awareness Campaign have been instrumental in raising public awareness

about eco-friendly practices. In the pursuit of creating garbage-free tourist destinations within the State, a Green Tourism Project has been initiated in Munnar, modelled after the successful 'Vazhikattan Vagamon' initiative. During the last year, several important and targeted actions have been undertaken in this domain.

The Malinya Muktam Nava Kerala campaign launched in March 2023 with the aim of making Kerala a completely garbage-free State by 2024 has made remarkable progress in the State.

- There are 1,236 Material Collection Facilities (MCFs), 16,096 Mini MCFs and 166 Resource Recovery Facilities (RRF) centres in LSGs across the State.
- Specific interventions for the disposal of special wastes such as construction waste, meat waste, hair waste, domestic, medical/sanitary waste etc. are also in progress.
- A total of 592 LSGs have implemented Harithamitram App, an online monitoring system to monitor the collection of non – organic waste.
- Haritha Karma Sena provides door-to-door collection services to 7.5 lakh establishments within Kerala.
- A total of 34,557 Haritha Karma Sena members have been deployed for doorstep collection of non-organic waste, and they are working in LSGs in the State.
- About 83 tourist destinations are being converted into green tourism destinations
- A total of 7,326 institutions have been selected for conversion to green institutions.

Agriculture Development

The Haritha Keralam Mission, under the leadership of the Department of Agriculture and in collaboration with LSGs, has envisaged and implemented a set of initiatives to promote agricultural development in the State. These include the promotion of agriculture on fallow lands, providing assistance to LSGs in designating Haritha Samridhi wards, encouraging activities like paddy farming and dry land rice cultivation, fostering organic vegetable production, promoting vegetable cultivation on school grounds and institutional properties, and advancing integrated farming practices.

'Pachathuruth' the project to make green islets across the State has been appreciated as an

innovative venture of Haritha Keralam Mission. The project aims to protect natural biodiversity by planting unique trees and indigenous plants with specified density and diversity in patches of land identified in public places and the premises of public institutions. This programme has attracted public attention and support as a practical intervention to reduce the adverse effects of climate change due to global warming. During the reporting period, 387 new Pachathuruth (green islets) have been established. At present, there are 2,700 pachathuruth sites spread over 816 acres. Some of the major interventions by Haritha Keralam Mission in the field of agriculture are:

- *Tharishu rabitha gramam* (fallow free village) campaign was carried out with the aim of cultivating any suitable crop in all the cultivable land including fallow lands in a Grama Panchayat. A total of 95 Grama Panchayats were selected for this programme during the reviewing period. The project is underway in an area of 18,375 acres.
- As part of the Devaharitham project, which aims at cultivation and greening in the vacant lands of temples and other places of worship, 126 sites have been identified, and farming is done in 119 acres.
- For institutional farming, another major activity of the Mission, 62 industries have been selected, and the work is progressing in 140 acres.

Soil and Water Conservation

In recent years, the Haritha Keralam Mission has launched numerous water conservation initiatives. These efforts encompassed extensive river revitalization projects across the State, as well as the successful refurbishment and replenishment of wells and ponds. These water conservation programs have significantly contributed to the improvement of the agricultural sector. Key activities of the Mission in this realm involve monitoring water levels in various water bodies through the installation of water-level scales, conducting Mapathon exercises to pinpoint water sources digitally, and the establishment of water quality testing laboratories for assessing the quality of drinking water. The major interventions in this area are briefly mentioned below:

- Rejuvenation of streams was initiated under the 'Ini njan ozhukatte' (Now, let me flow) campaign, which is being actively implemented in all the Districts. During this period, 25,453 kms of streams have been rejuvenated
- Apart from this, the Mission has been able to

facilitate the revival of 2,618 ponds, building of 4,222 new ponds, recharging of 7,223 wells, and construction of 14,412 new wells.

- A total of 437 permanent check dams have been built, along with 44,106 temporary check dams.
- In LSGs across the State, 85 new water quality testing laboratories have been established, complementing the 254 labs that were previously set up. A total of 17,204 samples have already been analysed in these new facilities.
- The Rock Quarry Recharging Project, designed to harness water from abandoned quarries, has been successfully completed and put to operation in Kareepra Gram Panchayat, Kollam District. Efforts are also underway to extend this project to other quarries.
- A total of 36,86,849 square meters of coir geotextiles have been laid to protect the ridges of water streams.

Other major initiatives

1. Net Zero Carbon Efforts

Under the Nava Keralam Karma Padhathi, the Haritha Keralam Mission is spearheading the “Net Zero Carbon Keralam” campaign, aimed at making Kerala carbon-neutral by 2050. This initiative focuses on reducing greenhouse gas emissions and achieving a carbon balance. To realise the Net Zero Carbon Kerala project through community engagement, various energy conservation projects are planned in collaboration with the Energy Management Centre. These projects include the Angan Jyoti scheme to enhance energy self-sufficiency and efficiency in Anganwadis, home energy audits, energy audits in government institutions, technical support for electric vehicle purchases, and training programs for students, teachers, and volunteers.

The Net Zero Carbon Project Angan Jyoti is set to be implemented in 2,211 Anganwadis across 85 different LSGs. These selected Anganwadis will receive electric induction cookers, cookware, LED bulbs, BLDC fans, and electric vehicle charging systems from the EMC. The tender process for this has already been completed, with activities scheduled for completion by December 31, 2023 in 251 LSGs.

2. Conservation of the Western Ghats

Efforts are underway to revive streams and facilitate water flow to mitigate erosion and

landslides in the Western Ghats region. The initial phase involves the scientific mapping of watersheds, a process known as “Mapathon,” which is nearing completion. In areas where the Mapathon is finished, activities such as reclaiming drains to enhance water flow and subsequent measures to prevent landslides have been initiated in all districts bordering Western Ghats. The second phase began in Alayaman Grama Panchayat in Kollam district, and currently, the third phase is in progress in 19 Gram Panchayats.

3. Green Tourism

The implementation of green protocols, specifically the green code of conduct, has become essential in popular tourist destinations to accommodate the increasing number of tourists. Tourist centres and their access routes need to adhere to the green code of conduct. In collaboration with the Haritha Keralam Mission and relevant LSGs, efforts are underway to transform 83 selected tourist destinations in Kerala into model green tourism destinations, focusing on environmental sustainability.

Through diverse and innovative projects, activities, and campaigns undertaken under these three sub-missions, Haritha Keralam Mission has been able to bring about positive and sustainable changes in agriculture and allied sectors, sanitation and waste management, and water conservation. It has been able to harness the activities of various agencies working in these sectors.

3.8 FOOD SECURITY AND PUBLIC DISTRIBUTION SYSTEM

The Global Hunger Index (GHI) 2023 score for the world is 18.3, considered moderate — less than one point below the world's 2015 GHI score of 19.1. Since 2017, the prevalence of undernourishment, one of the indicators used in the calculation of GHI scores, has been on the rise, and the number of undernourished people has climbed from 572 million to about 735 million. World Food Programme (WFP) estimates show that more than 345 million people are facing acute levels of food insecurity in 2023, and that is more than double the number in 2020. This constitutes a staggering rise of more than 200 million people as hunger stoke compared to pre-COVID-19 pandemic levels.

Seventy per cent of the world's hungry people live in areas afflicted by war and violence. In addition, climate shocks destroy lives, crops, and livelihoods and undermine people's ability to feed themselves. Global fertilizer prices rise even faster than food prices. The effects of the war in Ukraine, including higher natural gas prices, have further disrupted global fertilizer production and exports, reducing supplies, raising prices, and threatening to reduce harvests.

The basic concept of food security globally is to ensure that all people, at all times, get access to enough food for active and healthy lives. The National Food Security Act of 2013 provides for food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity. The Act covers the Public

Distribution System (PDS), the mid-day meals program in schools, and integrated services related to child development.

The Public Distribution System (PDS) evolved as a system for managing scarcity through the distribution of food grains at affordable prices. In pursuance of the Essential Commodities Act 1955 by the Government of India, the Public Distribution System formally came into existence on July 1, 1965. It has since grown into a universal rationing system across India. Over the years, PDS has become an important part of the government's policy for managing the food economy in the country. The PDS is managed jointly by the Union Government and the State Governments. The Union Government, through the Food Corporation of India (FCI), procures, stores, transports, and allocates food grains to the State Governments. The State Governments identify eligible families, issue ration cards, operate a chain of Fair Price Shops (FPSs) owned by private vendors, allocate food grains, manage, supervise, and operationalise the PDS system within their territory.

The Public Distribution System in the State

Kerala has one of the most effective and best-run public distribution systems in India and has marked pioneering achievements in implementing the Universal Rationing System. The origins of the public distribution of food grains in Kerala can be traced back to the period of the Second World War. Later, the State government introduced its own system of distribution of rice at subsidy

rates to the lower-income group in 1957. The State introduced the Targeted Public Distribution System in 1997 based on policy changes made by the Government of India. The Department of Food and Civil Supplies discharges the important responsibilities of ensuring the availability of essential commodities through the network of PDS outlets, enforcing market discipline, promoting consumer awareness, and protecting their interests. The Kerala State Civil Supplies Corporation (Supplyco) takes charge of lifting the food grains from Food Corporation of India godowns and Custom Milled Rice (CMR) mills and delivering them to FPS. They also own and manage intermediary godowns for food grains across the State.

The coverage of PDS under NFSA is determined by the erstwhile Planning Commission (now NITI Aayog) by using the NSS Household Consumption Survey data of 2011-12. Corresponding to the all-India coverage of 75 per cent and 50 per cent in the rural and urban areas, the coverage in Kerala is limited to 52.63 per cent in rural area and 39.50 per cent in urban area. Accordingly, 1,54,80,040 people are eligible for the PDS in Kerala.

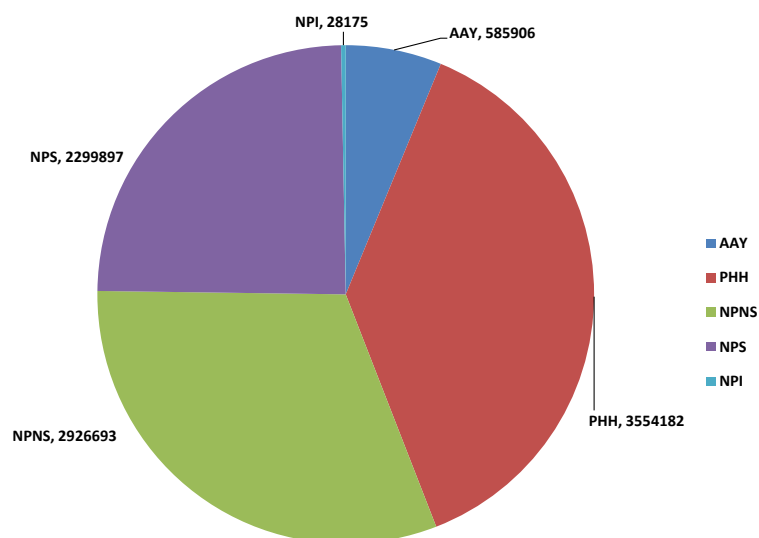
Distribution of Ration Cards

A ration card is an official document issued by the State Government for the purchase of essential commodities from the fair price shops under the Targeted Public Distribution System. Currently, the State governments that have implemented the NFSA issue two types of ration cards to

the qualifying families in their respective States, Priority Household (PHH) ration card and Non-priority Household (NPHH) ration card. The Government of Kerala took professional measures to identify eligible households by introducing a “mark based” system which is proved highly effective. Four types of ration cards are issued in the State – Antyodaya Anna Yojana (yellow), Priority Household (pink), Non-Priority Subsidy (blue) and Non-Priority Non-Subsidy (white) cards. There are 93,94,853 valid ration cards in the State, as on October 31, 2023.

Antyodaya Anna Yojana (AAY) is a scheme to reduce hunger among the poorest of the poor. The State government identifies families that do not have a stable income as Antyodaya families and issue AAY cards. There are 5.91 lakh AAY cards in the State as on March, 2023. They are eligible for 30 kg of rice and 5 kg of wheat per family per month. In previous years, Government of India supplied foodgrains to the State at Rs 3 per kg for rice and Rs 2 per kg for wheat. The State Government bore the cost and provided it free of charge to the beneficiaries in the State. In 2023, the Government of India supplied food grains free of cost to AAY card holders. The families that are identified as priority families and are not covered under AAY fall under Priority Households (PHH). There are 33.79 lakh PHH cards in the State. The PHH cardholders receive 5kg of food grains per person per month, and the State government provides the supplies at a subsidised rate, at a price lower than what the Government of India

Figure 3.8.1 Category-wise number and share of card holders in Kerala, as on October, 2023



Source: Civil Supplies Department

provides. There are also Non-Priority Subsidy (NPS) cards, and Non-Priority Non Subsidy (NPNS) cards. In addition to this, the department issues Non-Priority Institution (NPI) cards for institutions such as destitute homes. Priority cards, both AAY and PHH cards together, constitute 42.32 per cent of the total cards in the State. The number and share of all the types of cards are detailed in **Figure 3.8.1**.

Distribution of PDS Supplies

The grains and other supplies are distributed through the Fair Price Shops. There are 14, 157 Fair Price Shops in the State, as of October 2023. The total food grain distribution through PDS in the State in 2022-23 is 13,96,185 MT, including 2,40,227.3 MT of grains to AAY card holders, 7,56,427.1 MT of grains to PHH card holders, 3,99,530.373 MT to non-priority card holders. An amount of Rs 17,650.25 lakh was spent on various card holders as subsidy in 2021-22, including Rs 5,097.75 lakh for AAY cards, Rs 4504.23 lakh for priority cards, and Rs 8048.27 lakh for non-priority cards. The category-wise card holders and subsidy amount spent by the Government of Kerala for the distribution of food grains is given in **Table 3.8.1** and further details in **Appendix 3.8.1**.

Antyodaya Anna Yojana (AAY) families are entitled to get sugar and kerosene through PDS. The sugar allotted for each card is one kg per month at Rs 21 per kg. The State Government is incurring the differential cost and the implementation cost for the supply from the Government of India. In 2022-23, a total of 7133 MT of sugar were distributed in the State, compared to 6604 MT in 2021-22. As of August 2023, a total of 2775 MT of sugar had been distributed from the quota of 2023-24. In the case of the kerosene allotment, there exists a wide gap between the actual requirements and the

allotment received by the State. The traditional sector, especially fisheries, heavily depends on kerosene supply. The supply of kerosene was 6,604 KL in 2021-22 and received an increased allocation of 7,133 KL in 2022-23. As of August 2023, the State had received 2,775 KL of kerosene from the allotment for 2023-24. In addition to the supply of the grains, the Government of India has permitted converting a specified amount wheat supply of Above Poverty Line (APL) cards to atta and distributing through FPS since 2006. This was extended to AAY and PHH cards in 2020.

As part of the International Millet Year 2023, Ragi is distributed through ration stores with the intention of diversifying the food basket. Ragi is converted to powder in the first phase and distributed in packets to 948 FPS located in tribal regions of Idukki, Palakkad, and Wayanad districts, as well as to 6,300 selected FPSs in the State.

The allocation of food grains is highest in Thiruvananthapuram, and lowest in Pathanamthitta. The State average off-take of food grains from FPS is 99 per cent, varying between 95 and 111 per cent across districts. The opening balances are also accounted for in the off-take figures. The details of food grains, kerosene, and sugar supply are given in **Appendices 3.8.2, 3.8.3, 3.8.4, 3.8.5, and 3.8.6**.

The State Government provided essential article kits at no cost to all ration card holders since 2020 through Kerala State Civil Supplies Corporation Ltd. to tide over the impact of COVID-19. The distribution was continued in 2021 and 2022. This is in addition to the free supply of rations through FPS for eligible beneficiaries. In 2023, a total of 5.74 lakh Onam food kits with 14 essential items including pulses, curry powders and edible oil have been distributed to AAY card holders and

Table 3.8.1 Subsidy spent by Government of Kerala for various categories of card holders, Rs in lakh

Sl. No.	Category	Grains Distribution in MT		Subsidy Amount Spent in Rs Lakh	
		2021-22	2022-23	2021-22	2022-23
1	Antyodaya Anna Yojana (AAY)	250235.7	240227.27	7096.63	5097.75
2	Priority (PHH)	775363.3	756427.088	6249.44	4504.23
3	Non-Priority (NPS)	399530.4	399530.373	9879.76	8048.27
Total		1425129	1396185	23225.8	17650.3

Source: Civil Supplies Department

residents of welfare institutions. The details of the district-wise distribution of Onam food kits in 2023 are given in **Appendix 3.8.7**.

Price Stabilisation and State Intervention in Retail Market

Kerala being a consumer-oriented State, the scope of artificial price inflation of essential commodities by private retailing is very high. The Kerala State Civil Supplies Corporation, known as *Supplyco*, has been effectively involving in the PDS in the State and in the open market for stabilising the price of 13 essential commodities including pulses, grains, rice, atta, and sugar, which are sold at a fifty per cent lower price than the open market. *Supplyco* is engaged in the retailing of more than 6,000 fast-moving consumer goods items at an average price that is 10 per cent less than the open market. *Supplyco* sells its own products including curry powder, coconut oil, tea, and coffee in the retail market under the brand name “Sabari”, retails medicines through 95 medical stores and 5 whole sale divisions at an average of 15 per cent discount, and conducts special fairs during festival seasons. It is a dealer of petroleum products like kerosene, petrol, diesel, and LPG through 11 petrol bunkers, 3 LPG outlets, and 1 kerosene whole sale depot.

Supplyco owns 56 depots, 5 medical wholesale divisions, and 1,632 retail outlets. In 2022–23, 8 Maveli stores and one supermarket were started anew, and 5 stores were upgraded as Super Markets and one as Maveli Super Store. Details of the outlets operational are given in **Appendix 3.8.8**.

The Success Trails of Public Distribution System in Kerala

Process Upgradation and Improvements in Service Delivery - The State government succeeded in modernising and digitising service delivery of PDS, including the renovation and automation of ration shops in a unified pattern, the implementation of the E-Ration Card Project, the issuance of ATM-sized ration cards, and the introduction of the One Nation One Ration Card for easy accessibility of ration from anywhere. E-PoS machines were installed in all fair-priced shops in the State and enforcement mechanisms have been strengthened to ensure the supply of food grains in the right quantity. The entitlement to rations for each card in each month is communicated to them through SMS.

The Department was able to continue its

successful projects including mobile ration shops in remote tribal and inaccessible coastal areas to complete the reach of ration distribution. In addition to this, ‘Any Time Anywhere Ration Shop’ facilities were started by installing vending machines at selected places, initially at the city centers of municipal corporations. An initiative for grading restaurants, provision stores, and supermarkets was also started to improve and standardise the service of such establishments.

Software with GPS tracking of vehicles plying between warehouses and the FPS and a mobile app for officers’ regular inspection management adds to accuracy and efficiency in ration stocking and distribution. The Department has also succeeded in continuing the non-priority institutional (NPI) card scheme this year by issuing PDS rations to various welfare institutions, including destitute homes, which started in the previous fiscal year. So far 6,560 cards have been distributed to welfare institutions. The Civil Supplies Manual has been revised to incorporate all these changes in the processes and systems of the PDS.

A great leap from the department is its initiative to switch to online services that can be accessed from one’s own computer or from a nearby Akshaya Center. Moving to digital ration cards is another important step that practically stops the repeated visits to Taluk Supply Offices and long waiting periods. The Integrated Management of PDS and One India One Ration Card System implemented in the State permits ration card holders from any State in India to receive their eligible ration from any FPS.

In the first two years of the current government, 35,33,129 new ration cards were issued in the State, including transgenders, and street dwellers, on the basis of Aadhaar cards. Kerala is the first State in India to link all ration cards with Aadhaar. Another progressive step is the issuance of Rights Card to migrant workers for ensuring their ration.

Milestones in Implementation of NFSA - The government has achieved universal coverage for ration supply, even for families beyond the scope of NFSA. Ration is being delivered at the doorsteps of remote tribal hamlets, inaccessible coastal areas, and places of natural calamities. There is also an efficient grievance redressal mechanism in the State and the State Food Commission, as per the provisions of the Act.

The National Food Security Act (NFSA) was effectively implemented in the State by setting up end-to-end computerisation, a grievance redressal portal, supply chain management from the Food Corporation of India to the authorised ration dealers level, GPS tracking of vehicles carrying food grains, CCTV installation for efficient and transparent service delivery, quality infrastructure and connectivity, social auditing of 500 fair price shops, Information, Education and Communication activities, and setting up intermediary godowns. In line with other government departments, the Civil Supplies department also shifted to the e-Office file system, which expedites file movement and helps in speedy settlement of cases.

The NFSA Act 2013 envisages the Fair Price Shops as the final public interface unit of the public distribution chain. The transparency and social benefit of the entire system depends on the quality of their service. Therefore, the act advocates for far-reaching progressive reforms in the existing Public Distribution System by giving preference to public institutions or public bodies such as Panchayats in opening FPSs by self-help groups and co-operatives, especially those run by women and women collectives. As a first step towards the enactment of this provision in the Act, the Department moved ahead with the setting up of model fair price shops in all local governments from the reference year onwards.

No Hunger - The Department of Civil Supplies is all set to achieve the second goal, 'No Hunger', of the United Nations Sustainable Development Goals 2030. The Subhiksha Hotels under the Hunger-Free Kerala scheme is a milestone in this pursuit; with 53 hotels in 53 assembly segments (LACs) by the end of 2022-23, and they are working efficiently. Lunch is provided there for Rs 20. The government gives a subsidy at the rate of Rs 5.00 for every meal to the subhiksha hotels. Additionally, the Civil Supplies Department provides 600 kg of rice per month to hotels at a rate of Rs 10.90 per kg.

K-Store - The Department is also planning to convert Fair Price Shops into a lifeline for the general public by providing a vast set of public utility services under one umbrella. As a first step, the department selected 108 shops, renovated them, and started activities. These FPSs are being equipped with modern technology to diversify their

services to other areas, including financial services with withdrawal limit up to Rs 10,000, utility payment services, sale of products from various PSUs like MILMA, and the delivery of IT-based services, in lieu of their mandate.

Due to the increased role of the Department through the enactment of the NFSA Act, it can now undertake the procurement and sale of various crops through the vast network of Fair Price Shops spanning across the State. Procurement of crops like bananas, tapioca, and vegetables, for which the government has already fixed minimum support prices, can be procured and sold locally through these shops under the Public Distribution System. This can be extended to various value-added products of these crops as well.

Operation Yellow – As per the NFSA 2013, 1,54,80,040 people are eligible for the priority card in Kerala. To ensure that the beneficiaries are properly identified, the government called for a voluntary surrender of priority cards from ineligible people. 17,23,312 responded to the call and returned their priority cards. Subsequently, the department launched Operation Yellow - an inspection carried out by the state food and civil supplies department to identify individuals who hold priority ration cards without eligibility. 17,736 ineligible cards were seized with a fine of Rs 422.43 lakh altogether. In the previous two years, the department was able to transfer 3,43,174 priority cards to deserving families.

Project OPPAM - Ration articles are delivered at the doorsteps of families with bedridden patients, with unpaid voluntary help of autorishaw drivers. The project runs successfully in all 77 taluks and 6 city rationing offices in the State.

Telima Project - The department accomplished 100% Aadhaar linking of ration cards by concerted efforts. From November 15 to December 15 every year, corrections in ration cards can be made. During this period, drop boxes are set up in all ration shops to receive ration card-related applications, complaints, and suggestions for the immediate redressal of complaints.

SAMART PDS – This is a new initiative of the department to consolidate the already accomplished goals of the National Food Security Act 2013 with the help of modern technology and

to make the Public Distribution System efficient and transparent.

Mid-Day Meal Programme – Kerala is a pioneer having launched the Scheme in 1984 well before it was introduced by the Central Government. The Mid-day Meal programme in schools is implemented in the State with the financial support of the State and Central Government, since Government of India launched the Scheme as a centrally sponsored scheme in 1995. Supplyco is entrusted with the responsibility of providing commodities to the Mid-Day Meal programme in the State. In 2022–23, the FCI supplied 6.61 lakh quintals of rice, benefiting 27.31 lakh students, as against to 6.71 lakh quintals of rice supplied to 25.97 lakh students in 2021–22. In 2023–24 (as of August 2022), 2.29 lakh quintals of rice was supplied to 12,327 schools. The details of the supply of food grains for Mid-Day Meal Programme from 2015-16 to 2023-24 (as on 31.8.2023) are given in **Appendix 3.8.9**.

Centre for Price Research – A Price Monitoring Cell for monitoring the fluctuation in the prices of essential commodities was set up in the Civil Supplies Department in 2017. The Cell collects data daily and gives regular reflections on price movements to the Government and other agencies concerned. From January 2023 onwards, a publication titled Weekly Price Analysis Report is being prepared and published, incorporating the whole sale and retail prices of 13 essential commodities across more than 70 markets in the State.

Paddy procurement - Supplyco has been designated as the implementing agency for paddy procurement, processing, and distribution in the State as envisaged under the decentralised procurement of the Ministry of Food and Public Distribution. Supplyco procures paddy directly from registered farmers, and the cost of paddy, both the Minimum Support Price (MSP) declared by the Government of India and the State Incentive Bonus (SIB) declared by the State Government, is transferred to the bank accounts of the individual beneficiaries. The procurement rate is Rs 28.20 per kg for season 2022–23, of which Rs 20.40 is MSP and Rs 7.80 is SIB. Supplyco procured 7.31 lakh MT of paddy in the 2022 season, and it is expected to procure the same quantity for the ensuing 2023-24 Kharif Marketing Season. The procured paddy is processed and

supplied through the PDS free of charge for PHH, and at subsidized rate to other cards.

Modernisation of Supplyco – The department is in the process of revamping 241 outlets and other activities including depot management systems, outlet management systems, software development, and mechanisation of tea blending operations. Construction of two godowns, one each at Thiruvananthapuram (Valiyathura) and Kollam (near the railway station) has been completed, and the works on two godowns, one each at Thiruvalla and Kochi is progressing.

A way forward

The NFS Act 2013 stipulates the establishment of intermediary godowns that are capable of hygienically storing food grains in Public Distribution System, allocation stock for a minimum three-month period in each block as the joint responsibility of the State and Central Governments. However, the construction of scientifically designed intermediary godowns has only materialised in two out of the 77 taluks in the State. The lack of scientifically constructed godowns and the limited storage space of ration shops (FPS) are obstacles in the implementation of the PDS in the State. This is necessary to ensure that PDS in the State is up to the desired standards and achieve the twin aim of safely storing sufficient buffer stock equal to the central food grain allocation for three months as well as logistical transportation of rationed articles at minimum expenditure.

The National Food Security Act also envisions the establishment of a statutory distress redressal mechanism at the State level, with the State Food Commission at the top and district-level offices at the bottom. The State Food Commission was established in 2019, but the district-level distress grievance redressal offices have not come true so far. The State forum was envisaged as an appellate and overflows mechanism, but it is overwhelmed with cases that can be resolved at districts.

The Central Government has mandated that GPS tracking in PDS food grain transportation vehicles and connecting ePOS machines in Fair Price Shops to standard weighing balance as the pre-requisite conditions for allotting central assistance to the NFSA scheme. This is a priority item to be attended by the State Government.

CHAPTER

04

MANUFACTURING SECTOR

MANUFACTURING SECTOR

4.1 KERALA'S INDUSTRIALISATION

The industrial and manufacturing sector helps in promoting domestic production, enhancing exports, creating employment and generating income, all of which are significant for all round economic development. The industrial sector is significant for the Indian economy both in terms of its contribution to gross value added and employment generation. The share of the secondary sector (including manufacturing, electricity, gas, water supply, utilities and construction) in the provisional estimates of GVA (at 2011-12 prices) of India was 28.47 per cent in 2022-23.

Over the years, Kerala has achieved substantial progress with respect to modernising and diversifying its industrial sector. This has resulted in the development of a vibrant industrial ecosystem in the State. In the secondary sector, construction is the predominant activity followed by manufacturing.

Construction and Manufacturing sub-sectors contribute about 48.5 per cent and 45.7 per cent respectively within the secondary sector. The respective share of construction and manufacturing in the total GSVA was 13.7 per cent and 13.0 per cent in 2022-23(QE). The growth rate of secondary sector in GSDP wise 7.72 per cent (at 2011-12 prices) and 14.19 per cent (at current prices) in 2022-23 (QE). The corresponding

growth rates were 7.26 per cent (at 2011-12 prices) and 20.79 per cent (at current prices) in 2021-22 (provisional). According to PLFS 2021-22 data, about 10.45 per cent of total workers of the State are engaged in the manufacturing activities as against 11.6 per cent at the all - India level.

A Revival in Manufacturing in Kerala

The manufacturing sector in Kerala is relatively small in size. It accounted for about 13 per cent of Kerala's GSVA (at 2011-12 prices) in 2022-23 (Quick Estimates). At national level, manufacturing sector accounted for 17.7 per cent of GVA (at Constant 2011-12 Prices) in 2022-23 (Provisional Estimates). Kerala's manufacturing sector has consistently been growing in value terms especially in recent years. Its share in GSVA (at 2011-12 Prices) has increased from 9.78 per cent in 2014-15 to 13.1 per cent in 2022-23. According to data from Annual Survey of Industries India/Kerala 2019-20, Kerala's share in Gross Value Added by factory sector has increased from 1.2 per cent in 2014-15 to 1.6 per cent in 2019-20.

The factory sector is almost identical to the organised manufacturing sector in Kerala. The factory sector comprises factories that employ more than 10 workers and operate with the aid of electric power (as well as factories that employ more than 20 workers without the aid of electric power). Annual Survey of Industries (ASI)

Table 4.1.1 Comparison of the factory sector in India and Kerala, based on major types of industries, 2019-20

Industries	Kerala's total factory sector		Shares in Kerala's total factory sector		India's total factory sector		Shares in India's factory sector	
	Employment (No's)	Total Output (₹. lakh)	Employment (%)	Value added (%)	Employment (No's)	Total Output (₹ lakh)	Employment (%)	Total Output (%)
1	2	3	4	5	6	7	8	9
Food Products and beverages (10, 11)	102306	3474733	29.53	15.88	15,58,381	13,36,01,635	11.93	14.87
Tobacco products (12)	13274	13736	3.83	0.06	4,29,596	42,42,699	3.29	0.47
Textiles (13)	22045	383538	6.36	1.75	13,84,086	3,97,44,643	10.60	4.42
Garments (14)	14147	132621	4.08	0.61	10,91,031	1,60,36,338	8.36	1.79
Footwear (15)	6187	179591	1.79	0.82	3,60,093	66,87,321	2.76	0.74
Wood and wood products (16)	9636	304084	2.78	1.39	70,288	28,38,114	0.54	0.32
Paper and paper products (17)	4378	93201	1.26	0.43	2,57,565	1,36,94,335	1.97	1.52
Printing and reproduction of recorded media(18)	6798	208957	1.96	0.95	1,00,379	42,49,223	0.77	0.47
Refined petroleum products (19)	7546	6939832	2.18	31.71	1,19,112	10,87,57,631	0.91	12.11
Chemical products and pharmaceuticals (20, 21)	26621	1136891	7.68	5.20	12,09,960	11,41,75,367	9.27	12.71
Rubber and plastics products (22)	29428	1213150	8.49	5.54	6,64,914	3,35,21,363	5.09	3.73
Other non-metallic mineral products (23)	20831	579232	6.01	2.65	8,60,617	3,26,24,987	6.59	3.63
Basic metals (24)	5592	390761	1.61	1.79	9,67,242	11,94,79,836	7.41	13.30
Fabricated metal products (25)	6020	172594	1.74	0.79	5,45,938	2,31,39,983	4.18	2.58
Electronic, computer and optical Products (26)	9918	280044	2.86	1.28	2,06,678	2,15,27,624	1.58	2.40
Electrical Equipment (27)	6051	163590	1.75	0.75	4,85,074	3,19,29,192	3.71	3.55
Machinery and equipment (28)	3704	88358	1.07	0.40	6,66,460	3,92,31,342	5.10	4.37
Motor vehicles (29)	529	5661	0.15	0.03	8,45,265	6,28,42,564	6.47	7.00
Other transport equipment (ships and boats (30)	7415	402707	2.14	1.84	3,46,481	2,34,11,876	2.65	2.61
Furniture, jewellery, medical and dental instruments, toys (31, 32)	10581	4873945	3.05	22.27	4,13,000	2,50,39,572	3.16	2.79
Repair and installation of machinery and equipment (33)	3094	59135	0.89	0.27	23,614	14,31,684	0.18	0.16
Waste Collection, treatment and disposal activities; materials recovery (38)	55	5597	0.02	0.03	16,487	11,08,912	0.13	0.12
Publishing activities (58)	2484	69968	0.72	0.32	11,072	6,82,544	0.08	0.08
Others	27809	709936	8.03	3.24	4,24,823	3,83,31,344	3.25	4.27
All Industries	3,46,449	2,18,81,862	100.00	100.00	1,30,58,156	89,83,30,129	100.00	100.00

Note: Figures in brackets refer to the divisions (in two digits) to which each of these industries belong according to National Industrial Classification (NIC)-2008

Source: Annual Survey of Industries India 2019-20, MOSPI, GoI & Annual Survey of Industries Kerala 2019-20, DES, GoK

published by the Government of India's Ministry of Statistics and Programme Implementation (MOSPI) is the main source of data on the factory sector. The Annual Survey of Industries (ASI) for the State of Kerala is published by Department of Economics and Statistics, Government of Kerala. The workforce participation in Kerala's manufacturing sector is dominated by Workers of traditional industries like coir, cashew and handloom. Resource based industries like food products and beverages (including cashew processing), beedi manufacturing, and textiles (which include coir processing and handlooms) etc shares significant part of workforce participation in Kerala's factory sector. A comparison of the factory sector in India and Kerala, based on major types of industries for 2019-20 is provided in **Table 4.1.1**.

Over the years, there has been reduction in the size of the workforce engaged in traditional industries in Kerala. This is due to the structural problems faced by some of these industries (such as cashew) as well as the withdrawal of younger generation of educated workers from the traditional industries. At the same time, it is remarkable that a new set of modern industries are growing in size in Kerala, such value-added industries include chemicals, refined petroleum products, rubber and plastic products, electronic products, and pharmaceuticals and medicinal botanical products.

Turnaround in Performance of Public Sector Units

One of the unique features of Kerala's industrial landscape is the presence of large number of State and Central public sector units and strong State Government support to these units. These units are engaged in diverse areas of manufacturing, like chemicals, engineering and electronics. Some of the PSUs like Travancore Cochin Chemicals (TCC) and Keltron have been pioneers in the country in their respective fields of production (caustic soda and electronics respectively). The State Government is actively pursuing steps to improve the performance of PSUs. However, the performance of many of the PSUs in Kerala need to be further improved. There occurred turnaround in the performance of some of these PSUs, particularly those who engaged mainly in the production of chemicals and electrical machinery.

Out of 51 PSUs under Industries Department, 13

units have reported operating profit in 2022-23 compared to 12 in 2021-22. In 2022-23, the PSUs under Industries Department have reported a total turnover of ₹ 4,311 crore with an operating profit of ₹206.29 crore. The volume of profits has reduced sharply. The major profit-making PSUs in the year includes Kerala Minerals and Metals Ltd (KMML), Kerala State Drugs and Pharmaceuticals limited, Kerala State Electronics Development Corporation Ltd (KELTRON), Kerala State Industrial Enterprises Ltd and Kerala State Industrial Development Corporation. Government of Kerala has taken over the erstwhile Hindustan Newsprints Limited at Kottayam, a central PSU. It has been renamed the Kerala Paper Products Limited (KPPL) and is being revived and has started commercial production. The State has also taken over the central PSU BHEL – EML, at Kasargode. It is also being revived and has started commercial production. Government of Kerala has also established the Kerala Rubber Limited, a Public Private Partnership (PPP) company based on CIAL model for promotion of value addition in natural rubber sector in Kerala.

New Opportunities in Modern Industries

The emergence of few modern industries in the State is another positive development in Kerala's industrial landscape. Industries in electronics, medical devices and supplies are some of them. The number of workers engaged in the manufacture of electronic components in Kerala rose from 2930 only in 2012-13 to 7,500 by 2019-20. Workers engaged in the manufacture of medical and dental instruments and supplies increased from only 1,023 in 2012-13 to 5,863 in 2019-20. Details regarding employment in some major industries are provided in **Table 4.1.2**.

Large demand within the State for medicines and healthcare products means that pharmaceuticals, biotechnology, life sciences, and medical-equipment manufacturing industries have great growth potential in Kerala. The large numbers of hospitals, doctors and nurses in Kerala are factors conducive for these industries.

The IT and electronic sectors and software and hardware production are witnessing growing integration at the global level. The IT sector itself going through fundamental changes and the State has to be prepared in this direction. Kerala can make inroads by diversifying into hardware manufacturing. There exists the potential to build

Table 4.1.2 Employment in selected major industries, Kerala and India, 2019-20

Industries	Kerala	India
Rubber products (221)	18,190	4,36,644
Refined petroleum products (192)	7,233	3,84,801
Chemical products (201, 202)	13,913	12,85,178
Manufacture of electronic components (261)	7,500	80,965
Pharmaceuticals, medicinal chemical and botanical products (210)	12,707	11,75,364
Footwear (152)	5,962	2,52,996
Garments (141)	13,739	7,44,525
Plastic products (222)	11,238	6,98,049
Printing and services related to printing (181)	6,798	1,87,597
Ships and boats (301)	6,447	10,915
Electric motors, transformers and generators (271)	4,828	1,58,297
Medical and dental instruments and supplies (325)	5,863	53,278
Furniture (310)	3,311	64,204

a large electronics hardware manufacturing sector. The State should build on the unique advantages of the IT sector in the State and also make good use of the skill sets of its professionally qualified workforce.

Modernising the traditional sector will also bring new opportunities to the State. The Government is taking steps to modernise the traditional industries in the State, including coir, cashew, handloom and the Khadi and village industries. Modernisation of traditional industries includes (but not limited to) mechanisation of production processes in these industries. Kerala's traditional industries are encouraged to diversify into new products and evolve effective marketing and distribution strategies. Steps are on to develop greater synergy among the traditional, food and agro-based industries, feeding on each other to create a globally recognised niche for the State in these sectors.

Industrial Promotion and Investment Facilitation Activities

The State strongly believes in having sound policy backing for efforts to develop industries in the State. Time bound review of policies is also being pursued seriously by the Government of Kerala. The State has brought out the new Kerala Industrial and Commercial Policy 2022. Among others, the policy has initiatives and incentives for fostering entrepreneurship, developing enabling

infrastructure, developing high tech industries, building futuristic employment skillsets for employment, nurturing business environment, creating sectoral ecosystem and enhancing 'Kerala' brand equity.

To promote industries and facilitate investment, the State Government has made business friendly amendments to the relevant laws and regulations. The Act seeks to avoid delays in granting various licenses, permissions, approvals and clearances required under the various enactments and make the State investor friendly.

One of the key initiatives under the Ease of Doing Business Reforms for establishing and operating MSME units is the Kerala Micro Small Medium Enterprises Facilitation Act 2019 and the rules made there in under Section 14 of the Act dated 06/01/2020 vide G.O. (P)No.2/2020/ID. This forms part of the online single window clearance mechanism which includes central inspection system for compliance inspections, introduction of self-certification regime, parallel processing of applications by various departments, deemed approvals post the mandated timelines, elimination of redundant clearances and spot approval for registration through nodal agencies. The Single Window Clearance mechanism exists at three levels namely Industrial Area Single Window Clearance Boards at every industrial area, District Single Window Clearance Boards and Kerala State Single

Window Clearance Board (KSSWCB).

Industrial promotion and investment facilitation activities of the State have started showing encouraging results. Given the unique situations in Kerala, the park model of industrial development is being pursued by the State Government. At the forefront of these activities is the Kerala State Industrial Development Corporation (KSIDC) and Kerala Industrial Infrastructure Development (KINFRA) which has come up with a number of innovative schemes to facilitate industrial investment and ensure Ease of Doing Business. This has simplified and made it easier for investors to start a business.

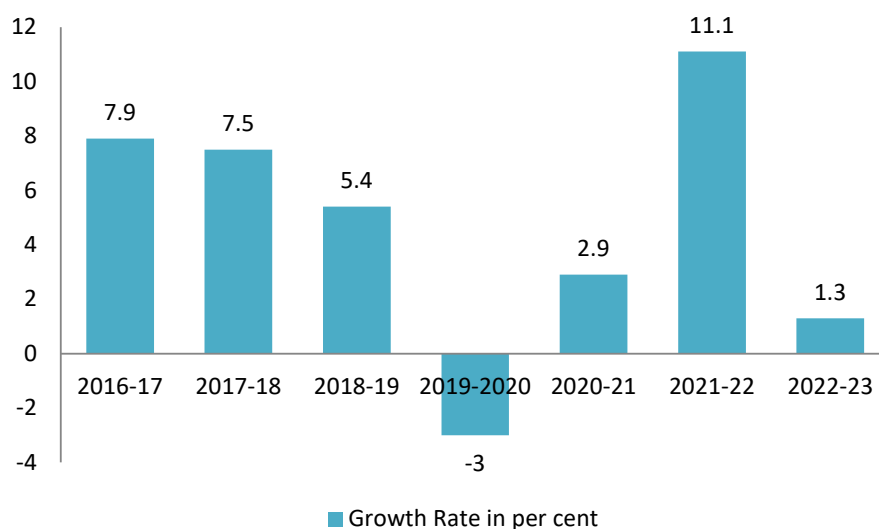
4.2 MANUFACTURING SECTOR

Manufacturing Sector in India

The manufacturing sector in India has garnered a lot of attention in recent years. Factors like the availability of large pool of skilled workforce, abundance of natural resources, low cost of labour and huge domestic demand have contributed significantly to the growth of the India's manufacturing capabilities. Like elsewhere around the world, industries in India, especially manufacturing in particular are looked upon with great interest due to their potential to create jobs, generate income, make available goods for consumption and drive economic growth.

Several factors including policy changes (like opening up to competition), changes in global supply chains, and advances in technology have facilitated India to develop greater engagements with international markets. While India gains from such trade, these value chains are also well positioned to benefit from India's advantages in terms of raw materials, industrial expertise and entrepreneurship. Digital transformation and use of latest technology are important to gain a competitive edge in the highly competitive manufacturing sector. The manufacturing sector in India is constantly moving towards technology

Figure 4.2.1 Growth rate of Gross Value Added by the Manufacturing Sector in India, at constant prices,



Source: Central Statistics Office

upgradation, automation and process driven manufacturing; which is expected to enhance efficiency and amplify production from the manufacturing sector.

According to Provisional data released by the Central Statistics Office (CSO, May 2023), India's manufacturing sector is projected an annual growth of 1.3 per cent in 2022-23, a significant drop from the previous year's growth rate of 11.1 per cent. **Figure 4.2.1** displays the annual growth of Gross Value Added (GVA) by the manufacturing sector in India, at constant prices from 2016-17 to 2022-23.

Manufacturing Sector in Kerala

There has been a steady increase in the size of Kerala's manufacturing sector, in nominal terms, especially over the last four years. More importantly, Kerala has achieved substantial progress with respect to modernising and diversifying its industrial sector.

According to the quick estimates by Department of Economics and Statistics, Government of Kerala, the Gross State Value Added (GSVA) of manufacturing sector at constant prices (2011-12) increased by 8.9 per cent in 2022-23 over the previous year. The GSVA from manufacturing sector has shown remarkable increase of Rs 69,226.37 crore in 2022-23 (Quick Estimate), compared to Rs 36680.87 crore in

2013-14. In 2022-23, the shares of manufacturing sector to GSVA of Kerala at constant and current prices were 13.00 per cent and 9.51 per cent respectively. For details on the manufacturing sector's growth in Kerala from 2013-14 to 2021-22, please refer to **Appendix 4.2.1**.

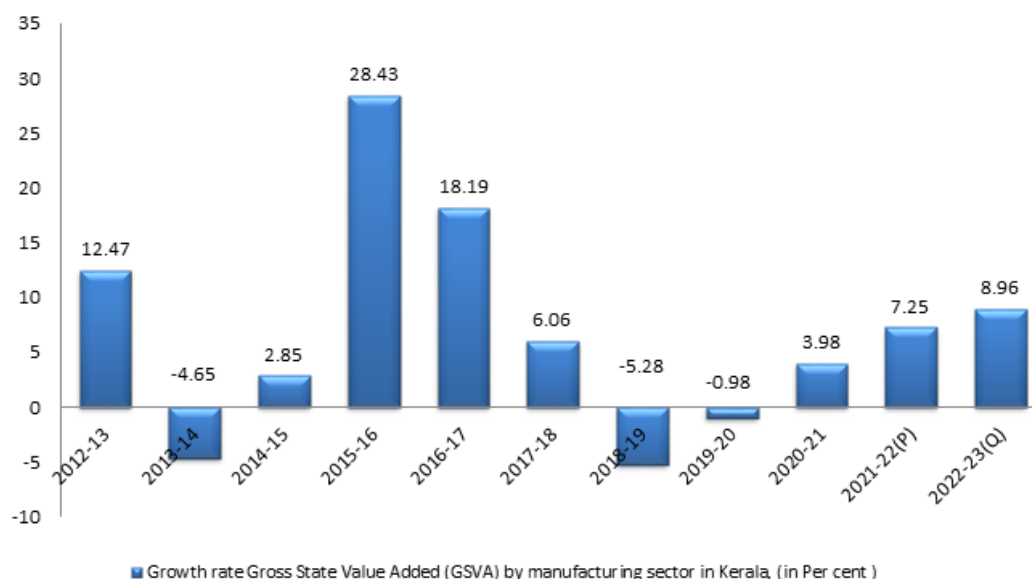
The trend in growth rate of GSVA of manufacturing sector in Kerala (at constant prices) for the period from 2012-23 to 2021-22 is shown in **Figure 4.2.2**.

Mining Sector in Kerala

Kerala is endowed with the deposits of minerals such as Heavy Mineral Sands (Ilmenite, Rutile Zircon, Monazite, Sillimanite) Iron ore, Bauxite, Graphite, China Clay, Tile and Brick clay, Silica sand, Lignite, Limestone etc. However, mining activities on large scale are confined to a few minerals like Heavy mineral sands, China clay and to a lesser extent Limestone/Limeshell, Slica sand and Granite.

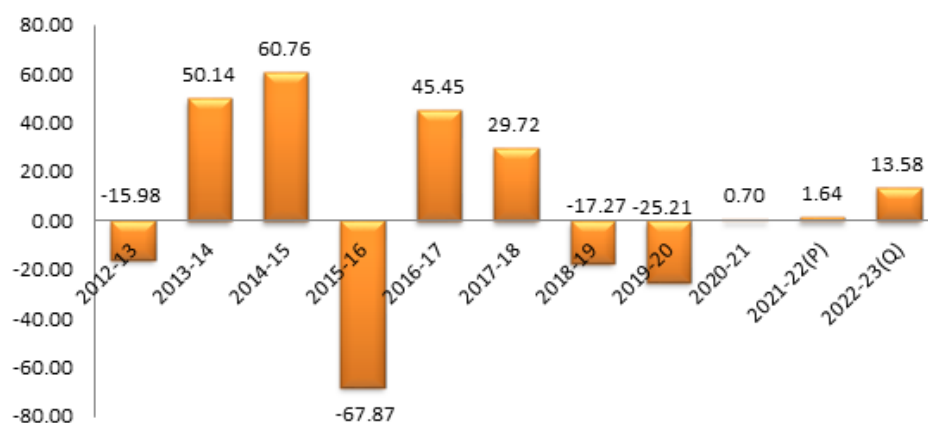
In 2022-23, the mining and quarrying sector in Kerala contribute significantly to the Gross State Value Added (GSVA) with an estimated value of Rs 2,409.39 crore (Quick Estimate) at constant prices. This sector registered 13.58 growth in 2022-23 (QE) compared to the previous year. The growth of income from the mining and quarrying sector in Kerala at constant prices from 2012-13 to 2022-23 is depicted in **Figure 4.2.3**.

Figure 4.2.2 Growth rate of Gross State Value Added (GSVA) by manufacturing sector in Kerala, at constant prices (2011-12), in per cent



Source: Directorate of Economics and Statistics

Figure 4.2.3 Annual share of Mining and Quarrying sector in Kerala to GSVA, at constant prices (2011-12), in per cent



Source: Directorate of Economics and Statistics

Mineral wise Production and Revenue Collection 2022-23

The Government gets revenue from minerals mainly by way of royalty. About 95 per cent of the revenue comes from minor minerals and rest from major minerals. In 2022-23, the revenue from minerals amounted to Rs 325.78 crore, indicating a significant annual growth of 56.94 per cent as compared to the previous year's figure of Rs 207.6 crore. In 2022-23, out of the total revenue of Rs 325.78 crore, Rs 17.3 crore was contributed by major minerals and the rest of Rs 308.5 crore was from minor minerals. In 2022-23, Ilmenite and Sillimanite generated the highest revenue among major minerals, accounting for Rs 7.64 crore and Rs 3.01 crore respectively. On the other hand, Granite Building Stone and ordinary earth were the top contributors among minor minerals, generating

Rs 74.11 crore and Rs 39.07 crore respectively in 2022-23. The revenue from minerals from 2017-18 to 2022-23 is given in **Table 4.2.1**.

In 2022-23, Kerala witnessed significant increase in production of major and minor minerals, amounting to 520.88 lakh tonne. Among the major minerals, limestone emerged as the top contributor with a production of 3.6 lakh tonne, followed by Ilmenite with 1.18 lakh tonne. When it comes to minor minerals, Granite Building Stone took the lead with a remarkable production of 299.94 lakh tonne, while Ordinary Earth stood at a commendable 195.33 lakh tonnes. The production and royalty obtained from major and minor minerals in 2022-23 and 2023-24(July 31st 2023) are exhibited in **Appendix 4.2.2**.

Table 4.2.1 Revenue from Minerals (Rs in crore)

Sl No	Year	Major Minerals	Minor Minerals	Total
1	2017-18	8.5	143.5	152.0
2	2018-19	5.4	165.9	171.3
3	2019-20	8.8	151.3	160.1
4	2020-21	8.4	183.8	192.2
5	2021-22	10.8	196.8	207.6
6	2022-23	17.3	308.5	325.78

Source: Department of Mining and Geology

Table 4.2.2 Plan Outlay and Expenditure of Mining Department (Rs in lakh)

Sl. No	Year	Outlay	Expenditure
1	2016-17	84.00	48.82
2	2017-18	135.00	123.03
3	2018-19	149.00	61.46
4	2019-20	149.00	75.92
5	2020-21	132.00	117.73
6	2021-22	132.00	111.29
7	2022-23	405.00	229.3
8	2023-24	605.00	*107.59

Source: Budget Estimates

*till September 2023

District Wise analysis of Revenue Collected from Major/Minor Minerals

In 2022-23, Kerala achieved a remarkable feat by generating record-breaking revenue of Rs 325.79 crore from the royalty of minerals. In District-wise analysis of revenue collection, Thiruvananthapuram district emerged as the frontrunner with a collection of Rs 58.12 crores. Following behind were Malappuram with Rs 48.62 crore and Palakkad with Rs 33.00 crore. On the other end of the spectrum, Wayanad witnessed the lowest revenue collection of Rs 3.12 crore. The detailed breakdown of the district-wise revenue collection from both major and minor minerals is depicted in **Appendix 4.2.3**.

a recent increase in the establishment of granite building stone crushers and sand production units, which can be attributed to the growth in infrastructure development.

Mining and quarrying are important economic activities, although the impact they may have on the environment needs to be closely monitored. The Government is therefore diligent in adopting and implementing Lidar based Drone Survey to moderate the negative impacts of mining operations. Modern technologies and practices have, reduced to some extent, the risks associated with mining and quarrying to the environment and economy.

The Plan outlay and expenditure of Mining and Geology Department from 2016-17 to 2021-22 is Shown in **Table 4.2.2**

Implementation of e-governance projects

The Kerala Online Mining Permit Awarding Services (KOMPAS) is an online system implemented through National Informatics Centre in all districts.

Mineral Based Industries in Kerala

Indian Rare Earths Ltd, Kerala Minerals and Metals Ltd, Travancore Titanium Products, Malabar Cements, Travancore Cements Ltd, Kundara Ceramics, English Indian Clays Ltd, and Kerala Clays and Ceramic Products Ltd are some of the industries that are based on major minerals. On the other hand, the major industries that rely on minor minerals include stone crushers, units for the production of manufactured sand, brick factories, and tile factories. The State has witnessed

4.3 PUBLIC SECTOR UNDERTAKINGS

The Government of Kerala aims to enhance the efficiency of public sector undertakings (PSUs) by ensuring their professional management, profitability, and significant contribution towards the growth of the industrial sector and the economy. The modernization progress made by the industrial sector in Kerala in recent years can be attributed, in part, to the enhanced performance of Public Sector Units (PSUs), particularly State Public Sector Units. Kerala has a number of State and Central Public Sector Units that operate in various manufacturing sectors, including chemicals, engineering, and electronics. Notably, certain PSUs in the state, like Travancore Cochin Chemicals (TCC) and Keltron, have been at the forefront of production in their respective fields, serving as pioneers in the country.

In addition to State PSU's, Kerala also has a number of Central PSU's. They include Fertilizers and Chemicals Travancore Limited (FACT) in Kochi, Bharath Petroleum Corporation Limited (BPCL), Cochin Shipyard Limited (CSL) and Instrumentation Limited (IL) in Palakkad.

Central Public Sector Undertakings

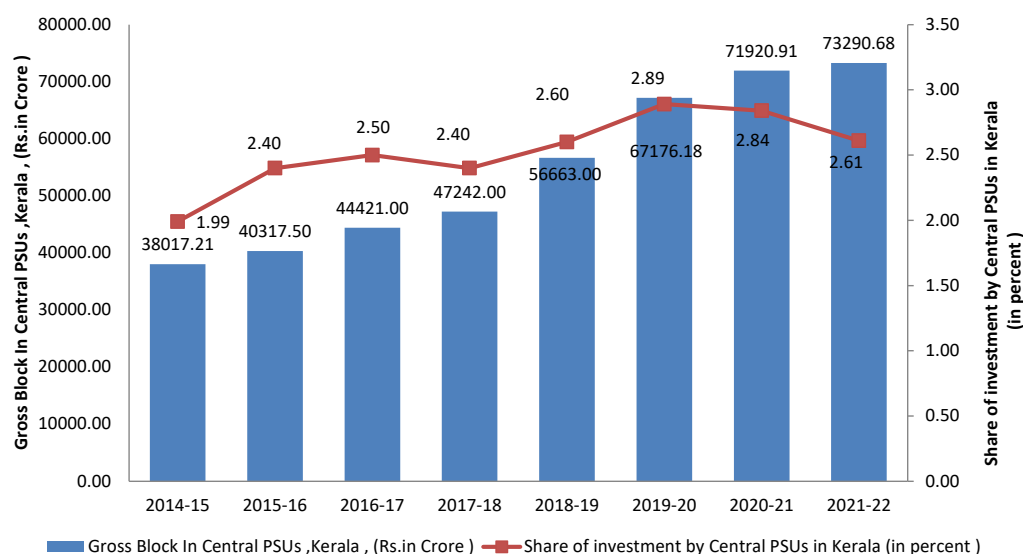
As on March 31, 2022, there were 389 PSUs under the administrative control of various ministries/departments of the Government of India (GoI). In 2021-22, profit making CPSEs in India generated a net profit of Rs 2.64 lakh crore as compared to Rs 1.89 Lakhs crore in 2020-21 showing

an increase of 39.85 per cent. Loss making CPSEs incurred a loss of Rs 0.15 lakh crores in 2021-22 as compared to Rs 0.23 Lakh crore in 2020-21, showing a decrease by 37.82 per cent (Public Enterprises Survey 2021-22). In 2021-22, operating CPSEs generated an overall net profit of Rs 2.49 lakh crore as against Rs 1.65 lakh crore in 2020-21 showing an increase of 50.87 per cent.

Central Sector Investment

The total financial investment in Central PSUs in India increased from Rs 21.58 lakh crore in 2020-21 to Rs 22.81 lakh crore in 2021-22, registering a growth of 5.71 per cent over the previous year (Public Enterprises Survey, 2021-22). The total gross block by Central PSUs in Kerala increased by 1.9 per cent from Rs 71920.91 crore in 2020-21 to Rs 73290.68 crore in 2021-22. The share of investments in Central PSUs in the State decreased marginally from 2.84 per cent in 2020-21 to 2.61 per cent in 2021-22. The investment by central PSUs as on March 31, 2022 is highest in Maharashtra (8.4 per cent of investment), followed by Uttar Pradesh (7.7 per cent of investment) and Tamil Nadu (6.6 per cent of investment). (Public Enterprises Survey 2021-22). Details of central sector investment in Kerala from 2014-15 to 2021-2022 are given in **Appendix 4.3.1** and central sector investment in selected States as on March 31, 2022 are given in **Appendix 4.3.2**.

Figure 4.3.1 Total amount of gross blocks in Central PSUs and the total Share of investment in Central PSUs



Source: Public Enterprises Survey 2021-22

The total amount of gross blocks in Central PSUs and the total Share of investment in Central PSUs in Kerala from 2014-15 to 2021-22 is shown in **Figure 4.3.1**.

Joint Stock Companies

As of March 2023, the total count of Joint Stock Companies in Kerala was 56290. In the year 2022-23, a total of 5773 new Joint Stock Companies were registered in Kerala. Out of these, 14 companies were transferred from other states, while 10 companies were transferred to other states. Additionally, 1594 companies were dissolved, struck off, or amalgamated in 2022-23. The Registrar of Companies, Kerala and Lakshadweep reported a total of 176 Government companies registered as of March 2023. Details on joint stock companies operating in Kerala is shown in **Appendix 4.3.3**.

State Public Sector Undertakings under Industries Department

There are 42 Public Sector Units including eight cooperative Spinning Mills under the Department of Industries and Commerce, spread across seven sectors.

The PSUs under Industries Department reported an altogether turnover of Rs 4310.99 crore with an operating profit of Rs 60.71 crore. The turnover has decreased 5.1 per cent compared to previous

year. The number of profit making PSUs in Kerala has increased from 12 PSUs in 2021-22 to 13 PSUs in 2022-23. The performance of State PSUs under Industries Department during the last 7 years is given in **Appendix 4.3.4** The major profit making PSUs during the year includes Kerala Minerals and Metals Ltd (KMML), Travancore Cochin Chemicals Ltd (TCC), Kerala State Electronics Development Corporation Ltd and Travancore Titanium products (ITP).

In 2022-23 the Budget provision for PSUs under Industries Department Rs 268.31 crore, which includes working capital support to PSUs. Of this amount, Rs 142.22 crore, which accounts for 53 per cent, has been expended for completing the ongoing projects.

Major achievements of the PSUs

- Travancore Cochin Chemicals Ltd achieved record turnover of Rs 371 crore and operating profit of Rs 87 crore during 2022-23. Travancore Cochin Chemicals Ltd- Bagged 1st price for “Kerala State Safety Awards” from Factories & Boilers Department, Government of Kerala under major Industries Sector
- Steel & Industrial Forgings Ltd achieved record turnover of Rs 67.02 crore with an operating profit of Rs 5.57 crore during 2022-23
- PSUs under Industries Department played significant role in, India’s lunar exploration

mission, 'Chandrayaan 3'. (Steel & Industrial Forgings Ltd - Complex Forgings items, Travancore Cochin Chemicals -Sodium Crystals, Kerala Minerals Metals Ltd -Alloys made of Titanium sponge, KELTRON- 41 different electronic modules). Apart from 'Chandrayaan 3' SIFL, TCC, KELTRON and KAL contributed significant role in 'Aditya L1' solar mission.

- Kerala Minerals & Metals Ltd internally developed a technology to separate iron from iron oxide and successfully implemented in the plant which leads to the disposal of iron oxide stored in ponds to resolve the current environmental issues.
- Kerala Minerals & Metals Ltd bagged orders of titanium sponge worth Rs 105.00 crore from Defence sector.
- Malabar Cements Ltd has launched two new products 'Vega Cements' & 'Malabar Dry Mix Cement Plaster' as part of the market expansion
- 'Kerala State Industrial Enterprises' obtained Regulated Agent Status (RA status) for Calicut Air Cargo Complex from Bureau of Civil Aviation and Security (BCAS).
- Formation of joint venture between KELTRON and KRASNY Defense System Pvt Ltd as part of expansion of operations in the field of defense electronics. Keltron as part of the Safe Kerala project has commissioned the Automated Traffic Enforcement System for the state government. Revived Coconics, a public-private company setup in 2018 in Kerala by UST Global, KELTRON, KSIDC and Acceleron Labs, manufactures laptops, desktops, servers in Kerala. as deemed Government Company
- The Kerala Ceramics Ltd started export of their products to South East Asia.
- KELPALM- Carbonated Soft Drink production increased from 650 cases to 2,635 cases per month (2023-24). Also new palm pine sarbath production and sale launched.
- Taken over the divested Central PSUs namely Hindustan Newsprint Limited, Vellore and BHEL-EML, Kasargode and converted as state PSUs namely Kerala Paper Products Ltd (KPPL) and KEL- EML respectively and resumed production
- The preliminary works to establish a natural rubber based industrial hub with an investment to the tune of Rs 1,050 crore by Kerala Rubber Ltd (KRL) in the 164 acres land at Vellore is under progress.
- Steel and Industrial Forgings Ltd- Signed Long

term contract with BHEL Thiruchirappally for order worth of Rs 35.00 crore. Received 1st Prize in 'Stores Management Award' by Institute of Material Management

- As part of widening the marketing networks of traditional sector PSUs, on boarded the 'ONDC online portal'.
- To ensure more transparency in recruitment procedures in Public Sector Undertakings except those for which appointments are made by the Kerala Public Service Commission, The Kerala State Public Enterprises Selection and Recruitment Board (KPESRB) has been established.
- In principal approval obtained for the recommendations of Shri.Paul Antony committee report on granting autonomy with accountability to Public Sector Units.
- Formed 'Cotton Board' to ensure good quality cotton at low price during crop seasons to ensure continuous raw material supply to textile Mills
- Bankers Meet and Bankers Working Group has been conducted, in order to ensure required financial support from Bank/Financial Institutions other than plan allocation to implement the Master plan projects of PSUs.
- B2B summit with Central PSUs has been conducted for exploring Business Alliance with CPSUs

PSUs under chemical and electronic sectors contributed to the better performance of State PSUs in the industrial sector in 2022-23, generated a net profit of Rs 78.38 crore and Rs 15.55 crore respectively. At the same time, PSUs in the textile sector recorded losses, the sector incurred a net loss of Rs 146.09 crore in 2022-23 which pulling down the overall performance of the State PSUs. The State Government has launched efforts to revive the PSUs and help them emerge as agents of technological transformation of Kerala's industrial sector. The sector-wise financial performance of State PSUs under Industries Department during the last seven years is shown in **Appendix 4.3.5**.

Details of PSU-wise turnover and profit/loss in 2022-23 and 2023-24 (as on August 2023) are shown in **Appendix 4.3.6**.

Future Plans

PSUs need transformation from purely profit-making ventures to institutions that create an enabling environment for high technology

enterprises, in private and public sector. There is need to increase the linkages between PSUs and the State's economy. For this, raw material should be procured as much as possible from the State itself and measures should be taken to help and support the development of ancillary and downstream industries. PSUs in Kerala should play the role of facilitators for the promotion of entrepreneurship, especially high technology entrepreneurship.

Government of Kerala is committed to the development and rejuvenation of PSUs. Professional managers have been appointed to oversee the operations of PSUs. A permanent Public Enterprises Selection Board has been set up for selecting a cadre of top managers in a transparent manner. Convergence and mergers of PSUs manufacturing similar products will be undertaken to bring about efficiency in their operations.

Board for Public Sector Transformation (BPT) (Public Sector Restructuring and Internal Audit Board (RIAB))

Government have re-named Public Sector Restructuring & Internal Audit Board (RIAB) as Board for Public Sector Transformation (BPT) and re-constituted the Governing Board. BPT is functioning under the Industries Department, as a responsible agency for undertaking reform initiatives in State PSUs. BPT has been playing a major role in the rejuvenation and revival of PSUs under the Industries Department. Major responsibilities of the agency include performance planning and monitoring of PSUs, enterprise reconstruction, capacity building, and governance advisory support to State PSUs.

Industrial Promotion and Investment Facilitation

The main industrial financing agencies in the State are Kerala State Industrial Development Corporation (KSIDC) and Kerala Financial Corporation (KFC). In addition to industrial financing, KSIDC promotes and facilitates physical and social infrastructure required for industrial growth in the State. Kerala Industrial Infrastructure Development Corporation is the agency focusing on industrial infrastructure development.

Kerala State Industrial Development Corporation (KSIDC)

KSIDC is a wholly owned company of the

Government of Kerala, established in 1961, for the promotion and development of medium and large scale units in the State. KSIDC initiated major industrial and infrastructure projects, which are strategically important for Kerala's economic development. KSIDC also plays a vital role in the State by financing and promoting private industrial projects, spearheading investment promotion initiatives, creating sector-specific industrial infrastructure and ecosystem, and nurturing entrepreneurship and start-ups. As the nodal agency for attracting foreign and domestic investment in Kerala, KSIDC provides comprehensive support for investors, helping them access various incentives and schemes, and facilitating constant interaction between the Government and the industrial sector.

The Kerala State Industrial Development Corporation (KSIDC) serves as the primary interface for investors who wish to establish their businesses in the state. KSIDC provides a wide range of services that encompass the entire process of transforming business ideas into successful ventures. These services include aiding in the formulation of feasible projects, conducting thorough feasibility studies, offering well-developed infrastructure facilities, expediting necessary approvals and clearances, and providing continuous support to investors from the initial conceptualization of their projects to their ultimate realization. KSIDC has strived to create an enabling ecosystem for start-ups by establishing Business Incubation Centers, organizing mentoring sessions, and offering seed funding to foster their growth.

Major initiatives and achievements (2022-23)

- Kerala Industrial Policy 2023 launched.
- The construction work for the Biotech Lab at the Bio 360 Life Sciences Park in Thonnackal has been successfully completed.
- During the financial year 2022-23, a loan sanction of Rs 483 crores was recorded.
- Formulated and released 3 important policies towards strengthening the lending portfolio of the Corporation: Loan Credit Policy, Fair Practice Code and Interest Rate policy (2022-23)
- Draft ESG (Environmental, Social and Governance) policy and Export policy prepared & submitted to Government for approval. Draft Export policy notified among general public seeking comments and suggestions.
- Implemented 340 out of 352 reforms prescribed

by Department for Promotion of Industry and Internal Trade in the State Business Reform Action Plan 2022 exercise for determining Ease of Doing Business (EoDB) ranking

- Organized Regional Industry Meet 2023 in the food processing sector and MSME day interactive conference.
- Coordinated the investor meeting with Investor delegation meeting held in Kochi in association with FICCI
- Conducted personal investor pitch meeting cum interactions with KOTRA delegation
- Arranged the investor visit led by the Mayors of Sanin Region of Japan for an investor pitch meeting and meetings with Hon'ble Chief Minister & Hon'ble Industries Minister.
- KSIDC has actively participated in numerous national and international events, including AIM Global, Investor Summit 2023, FIFEX FUMMA 2023, TRIMA 2023, Bio Connect 2023, KSIDC Metro MSME Award, Vibrant India, Water Expo, Drone International Expo, Reinvent Kozhikode, Semicon India, India Foodex, Hoteltech Kerala, Global Travel Mart, and Defence & Technology Expo. We have also set up stalls at these events to showcase our products and services.

- Coordinated the entire set of activities in connection with availing and setting up of stalls in Ente Kerala Exhibition 2023.
- Conducted over 35 investor pitch meetings & numerous one to one interactions with promoters of various identified investor companies.
- Ensured production of publicity materials like brochures, videos, posters etc.
- Completed sector profile preparation of identified 22 priority sectors.
- Completed empanelment of startup agencies for preparation of videos, presentations etc.

Besides financing several industrial units and implementing various mega projects, KSIDC had also taken up many activities. The major activities and ongoing projects initiated by KSIDC are shown in **Box. 4.3.1**.

Financial Status

The Corporation reported a net profit of Rs 54.9 crore in 2021-22. Certain key financial parameters of KSIDC for the past three years are given in **Table 4.3.1**.

Box No.4.3.1 KSIDC: Major Activities and On-going Projects

- Financial assistance and support to Medium and Large-Scale Industries
- Investment promotion in Kerala
- Industrial infrastructure development, including Industrial Growth Centres
- Promoting Ease of Doing Business (EoDB) in Kerala
- Providing support for various start-up initiatives
- Entrepreneur support through mentoring
- Angel/seed fund scheme
- Electronic Hardware Park at Kochi
- Life Science Park for promoting private industries and R&D institutions in the life sciences sector.
- Second phase of Light Engineering Industrial Park, Palakkad
- Business Incubators
- Medical devices Park (Med Spark)
- Mega Food park
- Sustainable Industry Investment scheme

Table: 4.3.1 Key Financial Parameters of KSIDC (Rs in Crore)

Particulars	2018-19	2019-20	2020-21	2021-22
Net Worth	725.1	643.2	809.8	869.12
Total expenditure	14.4	16.2	20.4	13.6
Employee Expenses	8.9	10.7	10.7	9.02
Net Profit/Loss (+/-)	33.8	39.6	25.5	54.9
Audit Status	Audit up-to-date			

Source: BPE Review 2021-22

Industrial Financing by KSIDC

In 2022-23, KSIDC sanctioned projects worth of Rs 483.16 crore. The Corporation achieved Rs 289.92 crore of disbursements, and a total amount of Rs 302.02 crore was recovered by way of principal and interest. There are 78 projects under various stages of implementation with a total investment of Rs .888.82 crore, which would create employment for around 2,235 persons. The physical and financial performance of KSIDC in 2022-23 and 2023-24(as on August 2023) is given in **Appendix 4.3.7**.

The plan outlay and expenditure of KSIDC from 2016-17 to 2022-23 are shown in **Table 4.3.2**.

Table 4.3.2 Plan Outlay and Expenditure, KSIDC, Rs in crores

Sl. No	Year	Outlay	Expenditure	Per cent
1	2016-17	87.5	75.5	86.3
2	2017-18	96.3	171.7	178.4
3	2018-19	134.4	77.5	57.7
4	2019-20	116.0	15.9	13.7
5	2020-21	109	84.32	77.36
6	2021-22	109	48.74	44.72
7	2022-23	113	50.53	44.73
8	2023-24*	122.50	24.30	19.8*

Source:-Budget Estimate

*As on September 2023

Major Promotional Activities of KSIDC

1. Investment Facilitation and Industrial Promotion Activities

- Industrial Promotion Division - Conducted meetings with Australia India Business council (on 11.01.2023), Ambassador of Republic of Turkey to India (on 11.01.2023), and with Maritime Monitoring Group, Norway (on 17.01.2023). Stalls were set up in Samrambaka Mahasangamam on 21.01.2023 and India boat and marine show 2023 on 27-29/01/2023. Participated in Arab Health 2023 Dubai and stalls set up organized business meetings 30.01.2023-02.02.2023. Industrial Promotion plan fund expenditure reached 3.5 crore.
- Investment Facilitation Division - As part of EoDB SBRAP implementation, we have

uploaded proof of implementation for 340 action points out of 352, in the DPIIT EoDB portal. DPIIT is in the process of initiating Feedback Survey among the beneficiaries. The Media campaign on K-SWIFT was successfully conducted, which included TV Commercials, Movie Theatre Ads, FM jingles, Railway Station/ Train Ads, Advertorials in Periodicals, Metro Pillar Ads, Social Media campaign, etc. Financial assistance of Rs 96 crore was obtained under PM Gati Shakti Part II Scheme. Integration of KSWIFT with new Kerala State Pollution Control Board portal has been completed. Investment Facilitation plan fund expenditure reached Rs 8.96crore.

2. Innovation Acceleration Scheme: A total of 12 seed fund loans and 11 scale-up loans were approved during the fiscal year 2022-2023. An amount of Rs 149.52 lakhs was disbursed under the Seed Fund scheme, while Rs 200 lakhs was disbursed under the Scale-Up Support scheme.

3. Women Entrepreneurship mission: A total of 15 proposals have been officially approved under the WE Mission Financial Assistance Scheme for the financial year 2022-2023. Subsequently, funds amounting to Rs 300.65 lakhs have been disbursed to these 15 units during the aforementioned financial year.

4. Chief Minister's Special Assistance Scheme: A sum of Rs 195.91 crores has been allocated as financial assistance to a total of 96 entities.

5. Covid Samashwasa Padhathi: A sum of Rs 13.78 crores has been allocated as financial assistance to a total of 11 entities.

6. Medical Devices Park (Medspark): The civil structure of two buildings, namely, Prototype & Incubation Centre and Animal House has been completed. Construction of Knowledge Resource Centre commenced and is in progress.

7. Life Sciences Park, Trivandrum: The Admin Block & Biotech Lab Block with built-up area of 80,827 sq. feet has been completed in all respects in March 2023. Development of Road and basic amenities-IIInd phase of Life Science Park. PMC finalised and LOA has been issued to M/s KITCO Ltd

8. The infrastructural development in different industrial parks such as Coconut Industrial Park, Kuttyadi, Co-working space cum office complex, Kakkanad, IGC Cherthala, IGC Kannur, and IGC Kozhikode has been successfully accomplished.

Kerala Rubber Limited

Government of Kerala formed KRL for promoting manufacturing of intermediate and final rubber products and coordinating related activities with prime focus on MSME sector. KRL is now nominated as the State Level Implementing Agency for the development of Rubber/Rubber Wood based CFCs in Kerala. The following are the mandate Kerala Rubber Limited

- To serve as an umbrella organization providing services to all rubber-based industries in the State and act as a link between existing rubber industry promotion agencies at state and national levels and entrepreneurs.
- To set up a Central Rubber Industrial Complex in the part of the land allotted at Velloor in Kottayam District for setting up units by investors including ancillary industries and establishing common facilities.
- To establish links with rubber growers through Rubber Producers Societies (RPS) and co-operatives involved in procurement, processing, aggregation and marketing of rubber to enhance returns to farmers jointly with Rubber Board and other agencies.

Physical achievements

- Construction of Compound wall, Roads, Drains and Culverts are under progress.
- Construction of 110KV substation is under progress
- Financial evaluation of the tender for construction of specialised buildings (Estimate of Rs 102 Crore) and allied infrastructure is under process.
- KIIFCON is engaged as the Project Management Consultant of KRL project.
- KRL has received Expression of Interest from 15 persons/companies for starting manufacturing units in the Industrial Complex and proposes to conduct stakeholder's meeting/road-show to attract investment in the Company and in the Complex once land is transferred to KRL and the civil works progress.

- An Industry Interactive Forum for Moulded Rubber Goods Manufactures was organized by KRL on 23.06.2023 at Kottayam.

Kerala Industrial Infrastructure Development Corporation (KINFRA)

KINFRA was set up in 1993 with the objective of building industry-specific infrastructure across the State and thereby promoting private investment and employment creation, and creating a land bank for future industrial growth. KINFRA has promoted economic development of industrially backward regions of the State by setting up industrial parks/townships/zones, which provide most of the facilities required for entrepreneurs to start an industry. The industrial parks developed by KINFRA have facilities such as developed land on built up space, dedicated power and water supply, and communication facilities.

KINFRA offers entrepreneurs a readymade manufacturing environment, assisting them in minimizing the time and expenses required for establishing a unit. KINFRA has played a crucial role in implementing the idea of an investment-friendly Kerala and propelling the state's industrial growth towards excellence. The primary objective of KINFRA is to develop infrastructure and attract investments by providing land or built-up spaces. The **Table 4.3.3** illustrates the physical performance of the KINFRA Park over the past decade.

In 2022-23, a number of well-known companies, both local and from other areas, have set up their business operations in various KINFRA parks. **Table 4.3.4** presents a detailed list of some of the major companies, including their investment details and the number of job opportunities created. This data emphasizes the substantial economic influence and potential for growth that these companies bring to the region.

Table: 4.3.3 Performance of KINFRA (2011-2023)

Sl No.	Particulars	2011-2016	2016-2021	2021-22	1st April 2022-31st August 2023
1	Allotment of land (acres)	187.91	443.21	125.16	52.67
2	Allotment of Space (sq.ft.)	98,637	6,60,619.06	222108.42	146260.42
3	No. of Units(Nos)	263	485	186	143
4	Employment(Nos)	4488	17264	21065	4096
5	Investment(Rs in crore)	786.87	1511.044	1436.66	397.53

Source: KINFRA

Table: 4.3.4 Major Companies, investment and employment in KINFRA parks during 2022-23

Sl No	Company	KINFRA Park	Investment (in crore)	Employment Generation(in Nos)
1	TCS	EMC, Kochi	600	3000
2	TATA Elxsi	KFVP, Trivandrum	75	2500
3	GenRoboticInnovations Pvt Ltd	KINFRA, Film & Video Park	10.31	100
4	V – Guard	EMC, Kochi	50	350
5	Agappe Diagnostics	EMC, Kochi	9.3	200
6	Trans-Asian Shipping Co.	EMC, Kochi	29.03	80
7	Hykon	EMC, Kochi	40	100
8	Vinvish Technologies	KIAP, Trivandrum	155	1000
9	Jolly Coates	Petrochemical Park, Kochi	38	130
10	Vensure	KFVP, Trivandrum	5	150
Total			1011.64	7610

Source: KINFRA

Financial Status

The Corporation reported a net profit of Rs 4.03 crore in 2021-22. Certain key financial parameters for the past three years are shown in **Table 4.3.5**.

The plan outlay and expenditure of KINFRA from 2018-19 to 2022-23 are shown in **Table 4.3.6**.

Land available with KINFRA

KINFRA has a total of 3655.62 acres of land available for industrial development, Out of this total area, 2121.44 acre were developed for allotment. Out of this total allottable area of land 1838.13 acres has already been allocated to industrial units. In terms of build-up space, out of the total 17,66,771 square feet, 10,76,194 square feet have been allotted to the different Industrial units . The details of allotments in KINFRA industrial parks as on 31 August 2023 are given in **Appendix 4.3.8**.

KINFRA has promoted investments in the State and created investment friendly climate within its parks, contributing significantly to the State's

Table 4.3.6 Plan Outlay and Expenditure, KINFRA (Rs in crore)

Sl. No	Year	Outlay	Expenditure	%
1	2018-19	96.0	47.0	49.0
2	2019-20	107.0	31.0	29.0
3	2020-21	92.53	85.14	92.0
4	2021-22	302.53	177.88	58.80
5	2022-23	332.53	62.92	18.92
6	2023-24	335.56	17.30	5.15

Source: Budget Estimate

*As on September 2023

economy.

- KINFRA has successfully completed India's first International Apparel Park at Thiruvananthapuram, Export Promotion Industrial Park at Ernakulam; Infotainment Park, the Film and Video Park at Thiruvananthapuram, and Food Processing Industrial Park at Malappuram.
- KINFRA has developed Small Industries

Table: 4.3.5 Key Financial Parameters of KINFRA (Rs in crore)

Particulars	2018-19	2019-20	2020-21	2021-22
Net Worth	1230.2	1427.4	1548.7	1749.8
Total expenditure	43.4	506.9	38.66	48.79
Net Profit/Loss (+/-)	6.4	2.3	17.04	4.03
Audit Status	Complete and up to date			Not completed

Source: BPE Review 2021-22

*Cost of land on long lease.

Park at Thiruvananthapuram, Pathanamthitta, Ernakulum, Thrissur, Kannur, Wayanad and Kasaragod.

- With regard to the industrial Park at Ottapalam, construction of Standard Design Factory has been completed and allocation of built-up space is under progress. Internal roads and other common facilities have been completed.
- The major on-going projects of KINFRA are shown in **Box. 4.3.2**

KINFRA has played a vital role in attracting investments to the State and fostering a favourable investment environment within its parks, thereby making a significant contribution to the state's economy. To this end, KINFRA has allocated land to 1292 industrial units in its various industrial parks, with a total committed investment of Rs 4,723.22 crore and direct employment opportunities for 68,845 individuals. Additionally, KINFRA has effectively implemented a single window clearance system across all its parks.

Industrial Park Rating System (IPRS) Government of India

As per IPRS rating system, KINFRA has made giant strides in the manner in which the industrial parks are being implemented. The following five KINFRA parks have emerging among the top performing parks in the South region in terms of excellence as per the 4 growth pillars of IPRS introduced by Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce

1. KINFRA High Tech Park, Kochi
2. KINFRA Mega Food park, Palakkad
3. KINFRA Film and Video park, Kazhakoottam
4. KINFRA Small Industries park, Mazhuvanoor
5. KINFRA Integrated Industrial Park, Kanjikode

Kerala Financial Corporation (KFC) (Industrial Financing)

KFC incorporated under the State Financial Corporations Act of 1951, is a leading State Financial Corporation in India, playing a vital role in the industrialization of the State by providing financial assistance to Micro, Small and Medium Enterprises in the manufacturing and service sector. The Corporation provides financial assistance for setting up of new units and for the expansion/modernisation/diversification of existing units in both manufacturing and service sectors. Financial assistance is provided in the form of term loans, working capital loans and special schemes. KFC is a member of Credit Guarantee Fund Trust for Micro and Small Enterprises.

The major activities of the Corporation are the following:

- Sanction of term loans to new micro, small and medium enterprises in the manufacturing and services sector.
- Sanction of term loans to existing industrial concerns and services sector units for expansion/modernisation/diversification.
- Sanction of working capital loans to meet working capital requirements of industrial/service enterprises under special schemes.

Box No.4.3.2 On-going Projects of KINFRA

- Water supply and road works for Info park, Smart City and KEPIP
- Industrial Park, Mattannur, Kannur
- Food and Spices Park, Muttam, Thodupuzha
- Special Economic Zone for Animation/IT/ITES in KINFRA Film and Video Park, Kazhakuttam, Thiruvananthapuram,
- Construction of Standard Design Factory in Neo Space at KINFRA Techno Industrial park, Kakkancherry, Malappuram
- Petrochemical Park, Kochi
- Standard Design Factory, Koratty, Thrissur
- Advanced Technology Park, Ramanattukara, Kozhikode
- Global Ayurveda Village, Thonnakkal and Varkala, Thiruvananthapuram
- International Trade and Convention centre (JV with ITPO), Kochi
- Defence Park, Ottapalam, Palakkad
- Mega Food Park, Palakkad
- Upgradation of infrastructure in existing industrial parks
- Electronic manufacturing Cluster (EMC Kochi)

- Special schemes for financial assistance to civil contractors.
- Special scheme for financial assistance for producing feature film and TV serials.
- Special scheme for modernisation, up gradation and expansion of existing cinema theatres and establishment of new multiplexes.
- Special scheme for purchase of lab equipments/ waste management.
- Scheme for Funding Venture Debt for IT Hardware and Software Enterprises.
- Scheme for Financing Working Capital Requirements of Start-ups for Executing Purchase Orders.

Key Business Initiatives

In 2022-23, the Corporation has launched new loan schemes and products and also fine-tuned the existing processes to remain competitive. The key initiatives taken up are given below:

- **Enhancement of Loan Limit of CMEDP Edition-II-** The loan limit under the Chief Minister's Entrepreneurship Development Programme (CMEDP Edition-II) scheme has been increased from Rs 100 lakh to Rs 200 lakh.
- **Launched KFC Agro-based MSME Loan Scheme (KAMS).** A loan scheme called 'KAMS' has been introduced to support MSMEs in the Agriculture sector. The scheme offers a maximum term loan of 90 per cent of the project cost, with a minimum loan amount of Rs 5 lakh. The gross interest rate for this loan is 10 per cent. Additionally, for loans up to Rs 1000 lakh, the State Government provides a 3 per cent interest subvention, while KFC offers a 2 per cent rebate for prompt repayment. As a result, the net effective interest rate is reduced to 5 per cent.
- **Launched KFC Working Capital Loan Scheme in association with City Union Bank (CUB).** The entire Working Capital facilities sanctioned by KFC to the borrower are provided by using the banking infrastructure of CUB. The Working Capital facilities are operated through a designated Working Capital Transaction Account (WCTA) opened by the borrower with CUB.
- **Streamlining of Loan Processing & Sanction.**
- **Special Campaign for Business Development.** During June & July 2022, a special business development campaign was conducted with attractive offers including 50 per cent processing fee waiver for new MSME applications, 0.25% interest discount for new MSME clients, etc.
- **Including GST in the Agreed Contract Value for arriving at the Eligibility of Work Execution Facility for Contractors.** The loan eligibility for contractors under the Work Execution Facility has been revised to 75 per cent of the awarded work cost, which includes GST. This calculation excludes the cost of materials supplied or any advance payments made by the Work Issuing Authority.
- **Monitoring of Loans above Rs 2000 lakh.**
- **Assistance to Infrastructure Projects.** As the Corporation has been appointed as the agent of the Government to assist large projects, to facilitate the projects coming under the Infrastructure category as per RBI guidelines, scheme-level amendments were done by adding the Infrastructure sector to the sector classification. The sector exposure was set without any upper cap as applicable to the Manufacturing sector.
- **Scheme for Assisting Procurement of Deep-Sea Fishing Vessels.** The maximum loan amount is 90 per cent of the project cost subject to an upper cap of Rs 70 lakh per society per vessel. The rate of interest is the rate applicable to the CMEDP scheme. The State Level Committee, with the Director of Fisheries as the Chairman, approves and finalizes the list of beneficiaries.
- **Creating a Guarantee Pool through Bank for KFC Customers.** The Corporation started a guarantee limit (KFC Guarantee Pool) with Federal Bank by keeping an Fixed Deposit as 100 per cent cash margin, so that KFC customers can avail of guarantee facility from the KFC Guarantee Pool of the Bank, wherever the guarantees issued by KFC are not accepted, especially in the case of large projects awarded by Central Government/ outside the State agencies.
- **Implementation of e-NACH Facility for Collection.** To streamline the monthly repayment in the loan accounts, the NACH facility was already implemented in the Corporation. During the Financial Year 2022-23, an improved version of this facility, viz., e-NACH, was implemented and thereby the requirement of manually signed forms from the customer and the issues with regard to mandate rejections were avoided. Customers can get registered to e-NACH using their internet

banking/ debit cards by authenticating the OTP received in their registered mobile numbers.

- **Special Recovery Drive for Doubtful Loans.** With the aim of increasing the profitability of the Corporation, the income from assets under doubtful category was targeted and a special recovery drive was conducted during Financial Year 2022-23, providing a one-time window to settle doubtful category loan accounts at liberal terms.
- **Setting up Stressed Assets Recovery Branch.** In order to have a focused recovery mechanism, the Corporation decided to have Stressed Assets Recovery Branches (SARB) and the first of such branches was set up at Ernakulam. The main function of the SARB is the resolution of bad loans through the Insolvency & Bankruptcy Code (IBC) 2016 for companies and other recovery measures for non-companies.

In the financial year 2022-23, the KFC has sanctioned financial assistance totaling Rs 3207.22 crore, which represents an increase from the previous year's amount of Rs 2876.78 crore. Furthermore, a total of Rs 3555.94 crore was disbursed during the Financial Year. 2022-23, compared to Rs 2175.20 crore in the previous Financial Year. The performance of KFC over the past five years is outlined in **Appendix 4.3.9**, while **Appendix 4.3.10** and **Appendix 4.3.11** provide

details on loan operations and industry-wise loan classification for the year 2022-23. The overall performance of the Corporation is presented below.

PERFORMANCE OF THE CORPORATION

Table 4.3.7 displays the notable achievements of the Corporation during the previous two Financial Years.

Kerala Bureau of Industrial Promotion (KBIP)

Kerala Bureau of Industrial Promotion (KBIP) is an autonomous body under Department of Industries and Commerce. KBIP established in 1991 is a registered society under the Travancore Cochin Scientific Literary and Charitable Societies Act 1955. They are involved with MSME and Medium and Large enterprises in Kerala.

The various industrial promotion activities undertaken by KBIP are classified as follows.

- Industrial cluster development.
- Activities of Kerala State Bamboo Mission.
- Implementation of PM Formalisation of Micro Food Processing Enterprises Scheme.
- Activities of Commerce Mission.
- Audit and Certification of Food Processing and related units.
- National Scheduled Caste/Scheduled Tribe Hub activities in Kerala.

Table 4.3.7 Performance Of The Corporation (Rs in lakh)

Sl.No	Key Parameters	2021-22	2022-23
1	Portfolio Size	4,75,071.41	6,52,940.30
2	Sanctions	2,87,678.86	3,20,722.18
3	Disbursements	2,17,520.16	3,55,594.61
4	Recovery	2,43,046.80	2,33,241.69
5	Interest Income	39,264.66	54,364.41
6	Total Income	51,816.81	69,437.51
7	Total Expenditure	42,634.65	55,835.81
8	Op. Profit before technical write off of bad debts	19,197.91	24,142.60
9	Op. Profit after technical write off of bad debts	9,182.16	13,601.70
10	Net Profit before Tax	3,501.07	8,602.95
11	Net profit after tax	1,319.80	5,018.64
12	Net worth	69,402.63	92,570.25
13	Capital Adequacy Ratio %	22.41	25.58
14	Gross NPA as percent of Gross advance	3.27	3.11
15	Net NPA as percent of Net advance	1.28	0.74

Source :Kerala Financial corporation

- Participation in Regional, National and International Events.
- General Promotional Activities.
- Kerala B2B Online Portal.
- Maintenance of Official Websites.

Centre for Management Development (CMD)

Centre for Management Development (CMD) is an autonomous institution sponsored by the Government of Kerala and attached to the Department of Industries and Commerce. The Centre was established during 1979 as a professional registered society with the objective of providing professional management support to public enterprises in the State. Over the years, CMD has broadened its sphere of activities and it provides support to the Development Agencies, Corporate Section and the Government both at the National and State levels through consultancy, project management, Monitoring & Evaluation, Human Resource Management, Training, Education & Research and Public Private partnership (PPPs).

Major achievements of department in 2022-23 are

- **National Level Institutional Monitoring (NLM):** The National Level Institutional Monitoring (NLM) initiative oversees the monitoring of all significant rural development programs and schemes of the Ministry of rural Development (GoI). The CMD conducts three types of monitoring, namely Regular Monitoring, Special Monitoring, and Complaint Monitoring. In the previous year, the CMD conducted monitoring visits in six districts of Tamil Nadu.
- **Consulting and Project Management support to KIIFB:** CMD has been providing advisory and consultancy services to the Kerala Infrastructure Investment Fund Board (KIIFB). In the last year CMD has been assisting KIIFB in various activities such as Technical Appraisal of projects, DPR Support Services to KIIFB, Administration and Facility management support to Technical Resource Centre of KIIFB, Procurement services to KIIFB
- **Project Management and Manpower support to K-DISC:** Programme Management Unit – Emerging Technology Division, Programme Management Unit – Planning, Competency Development and Innovation Systems (PCDIS), Technical Resource Centre for K-DISC for the implementation of Kerala Knowledge Economy Mission (KKEM) are the projects being run by the CMD to support Kerala Development

Innovation and Strategic Council (K-DISC) in implementing various activities in a smooth manner.

- **Project Management support for implementation of the Norka Department Project for Returned Emigrants:** CMD is providing management support services for the implementation of the NDPREM scheme of NORKA .
- **Sustainable Livelihood Generation Programme for Scheduled Tribe Community (Gothrajeevika):** The project, which was conceptualized and executed by CMD with the backing of the Scheduled Tribes Development Department. The scheme ensures skill development, sustainable livelihood, and economic and social empowerment of the members of the tribal community.
- **Successfully completed 22 Social impact Assessment studies covering 8 districts**

Way forward

Recent years have witnessed a steady increase in the size of Kerala's manufacturing sector, in value terms. Kerala has achieved substantial progress with respect to modernising and diversifying its industrial sector. A new set of modern industries have emerged and are growing in Kerala. There has been a growing interest on food and agro-based industries; and industries using advanced technology like medical devices. There is renewed interest and vibrancy in the manufacturing sector in the state. The sector is believed to hold great potential and is seen as a key player in Kerala's economic development.

The vision of the Government is to achieve an industrial transformation in Kerala that is socially and environmentally sustainable. Facilitation of industrial investment especially from the private sector, adoption of new technologies, application of research, continuous upskilling, use of strength in human resource and encouragement to innovation are significant components of Kerala's strategy for industrial progress. With continued Government support and favourable industrial climate, the state is poised to do well in manufacturing in the coming years.

4.4 MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs)

Micro, Small & Medium Enterprises (MSMEs) are an essential force that drives entrepreneurial expansion through their innovative business practices. These enterprises are rapidly expanding their domain across various sectors of the economy, producing a diverse range of products and services to meet the demands of both domestic and global markets. In India, MSMEs are playing a critical role in providing large-scale employment opportunities at a significantly higher labour to capital ratio than large industries. The Government of Kerala recognises the immense potential of this sector and has assigned it a high priority. MSMEs also contributing significantly to the industrialisation of rural and backward areas, thereby reducing regional imbalances and ensuring a more equitable distribution of national income and wealth.

The 73rd round of NSS reported 633.88 lakh unincorporated non-agricultural MSMEs engaged in different activities in India. Of which, 31 per cent of MSMEs were engaged in manufacturing activities, 32 per cent in trade and 33 per cent in other services (196.65 lakh in manufacturing, 230.35 lakh in trade, 206.85 lakh in other services and 0.03 lakh in non-captive electricity generation and transmission) Excluding those registered under “(a) Sections 2m(i) and 2m (ii) of the Factories Act, 1948, (b) Companies Act, 1956 and (c) Construction activities falling under Section

F of National Industrial Classification (NIC) 2008.” MSMEs shares about 45 per cent of India’s manufacturing output and contribute more than 40 per cent to country’s exports. About 28 per cent of the GDP is generated by this sector. MSMEs provide employment to about 11.1 crore people (3.60 crore in manufacturing, 3.87 crore in trade and 3.62 crore in other services and 0.0007 crore in non-captive electricity generation and transmission) in the rural and urban areas across the country¹. Out of the 633.88 lakh MSMEs, 324.88 lakh (51 per cent) were in rural areas and 309 lakh MSMEs (49 per cent) were in urban areas.

As on 31st December 2022, a total number of 1,30,93,698 enterprises were registered in Udyam Registration online portal as classified, consisting of 36,66,235 enterprises registered under Manufacturing category and 94,27,463 enterprises registered under Service sector (Government of India, 2023).² This is the second largest employing sector after Agriculture. The sector is diverse in terms of size, levels of technology employed, and products. Existing classification of MSME units based on investment in plant/machinery/equipment and annual turnover is shown in **Table 4.4.1**.

¹ Report of the expert committee on Micro, Small & Medium Enterprises, RBI, 2019

² Annual Report 2022-23, Ministry of Micro, Small & Medium Enterprises, Government of India, 2023.

Table 4.4.1 Classification of MSMEs

Composite Criteria: Investment in plant / machinery / equipment and Annual Turnover			
Classification	Micro	Small	Medium
Manufacturing Enterprises and enterprises rendering Services	Investment <Rs 1 Crore	Investment <Rs10 Crore	Investment <Rs50 Crore
	Turn over <Rs 5 Crore	Turn over <Rs 50 Crore	Turn over <Rs250 Crore

Source: Ministry of MSME, Government of India

MSME Sector in Kerala

The MSME sector in Kerala is gaining prominence as a key player in generating income and providing employment opportunities. However, the investment levels in the sector are still relatively low. According to the MSME Survey and Quick Results of the 4th Census, Kerala accounts for 5.62 per cent of MSME enterprises in India and as per the MSME Annual Report 2022-23, a high share of MSMEs in the country operates in Kerala, ranks 12th in terms of number of MSMEs. The State is renowned for its unique mix of traditional and modern industries, ranging from agriculture and tourism to IT and healthcare. The MSME sector plays a crucial role in developing rural and backward areas and provides job opportunities to marginalised groups such as SC, ST, women, and people with physical disabilities.

Within the MSME sector, there is a significant increase of micro enterprises, both in terms of working enterprises and employment. The industries coming under this sector are handicrafts, handloom, khadi, food processing industries, garment making and textile industries and industries related to coir, wood, bamboo, plastic, rubber, leather, and clay products. MSMEs produce over 8000 various MSME products

ranging from traditional to high-tech items are manufactured by MSMEs.

The Government and banks in Kerala facilitate and support MSMEs. To promote the growth of the MSME and traditional industrial sectors, the District Industries Centres (DIC) acts as a facilitator. DIC implements various schemes to develop an entrepreneurial culture in the State. The Industries Department provides financial assistance to start Entrepreneurship Development clubs at school and college levels to foster entrepreneurship among the youth. The Department also prioritises providing services to Start-ups and establishing business incubation centres in District Industries Centres.

The economic growth of Kerala is related to the development of MSMEs. Directorate of Industries and Commerce (DIC) is implementing various schemes to increase production and employment in this sector. The agencies under the Directorate are the Directorate of Handloom & Textiles, which aims at evolving policies for the promotion and development of handloom and textile sector in the State; Directorate of Coir Development, the implementing agency for all policy decisions of the Government of Kerala related to coir industry;

Table 4.4.2 Plan Outlay and Expenditure of Directorate of Industries and Commerce, 2021-22 to 2023-24*, Rs in lakh

Sector	2021-22		2022-23		2023-24	
	Outlay	Exp	Outlay	Exp	Outlay	Exp*
Small Scale Industries	13894.00	13680.47	20040.00	12956.57	21270.00	6900.04
Commerce	1200.00	1193.00	700.00	653.42	700.00	16.00
Handicrafts	385.00	321.53	350.00	226.18	420.00	56.60
Total	15,479.00	15,195.00	21,090.00	13,836.17	22,390.00	6,973.44

* as on 08.10.2023

Source: Plan space Kerala

Box 4.4.1 Year of Enterprises 2022-23

To encourage and promote Micro, Small and Medium level entrepreneurs in the State, the Government declared the Financial Year 2022-23 as the “Year of Enterprises” with the motto “My enterprise, Nation’s pride”. The Directorate of Industries & Commerce is entrusted with the initiative of “Setting up of One Lakh Enterprises in 2022-23”. The targets are to establish one lakh enterprises through joint efforts of various departments and to create three lakh employments in the year 2022-23. The broad strategy adopted encompasses the creation of enterprise facilitation systems at the grassroots level, the convergence of activities of various industrial stakeholders, introduction of new incentive schemes and policies, and thereby create a conducive ecosystem to foster the establishment of new enterprises as well as the scaling up of existing enterprises in the State.

Some of the key systems that were established as part of this initiative include the appointment of 1,153 professionally qualified interns and setting up Enterprises Help Desks at all local bodies, setting up MSME Clinics at all Districts, establishing Taluk level Enterprise Facilitation Centres with the services of professional resource persons, constituting committees at State, District and local body level for the monitoring the activities under the initiative. Specific schemes were introduced to address the key constraints to industrial development in the State – to ensure adequate access to affordable finance to enterprises, a new subsidy scheme was introduced to provide all enterprise loans at 4 per cent interest through interest subvention, to ensure adequate availability of industrial land/infrastructure, Private Industrial Estate Scheme was introduced to grant developer permit to private entities. A robust and dynamic online portal was developed to offer Industries Department’s services. Continuous campaigns starting from General Orientation Training to potential entrepreneurs, Loans, License, Subsidy mela for entrepreneurs, and Marketing festivals for providing marketing avenues to newly formed enterprises were conducted at all local bodies.

The Department has launched the One Local Body One Product (OLOP) scheme as part of the “Year of Enterprises” initiative. The aim of this scheme is to promote domestic production by creating indigenous products using the resources readily available within local communities. Out of a total of 1,034 local bodies, more than 680 have actively identified products that are suitable for integration into the OLOP framework.

The Government was able to achieve the ambitious target of commencing one lakh new enterprises within a remarkable period of 250 days from April 1 to December 7, 2022. In 2022-23, the State witnessed a remarkable achievement with the launch of 1,39,840 new enterprises, backed by a staggering investment of Rs 8,421.63 crore. This unprecedented growth has led to the creation of 3,00,051 new employment opportunities in the State. Around one-third of these newly formed enterprises are promoted by women entrepreneurs. The top sectors in which new units have been established include Agro & Food Processing, Textiles and Garments and Service Activities. This is a testament to the State’s entrepreneurial spirit and its commitment to fostering a thriving business ecosystem. With such impressive progress, the State is setting an example for others to follow.

Source: Directorate of Industries and Commerce, Kerala.

Khadi & Village Industries Board, vested with the responsibility of organising and promoting Khadi and Village Industries in the State, and the Directorate of Plantation, set up in 2022-23 for the development of the plantation sector in the State.

Udyog Aadhar Memorandum (UAM) in the State

Kerala has discontinued the practice of filing Entrepreneurs Memorandum Part II from September 18, 2015, and in its place, started online registration in Udyog Aadhar. As on March 31, 2023, there were, 3,72,227 UAMs filed which include 1,08,913 manufacturing units and 2,63,314 units in the Service Sector. Manufacturing units

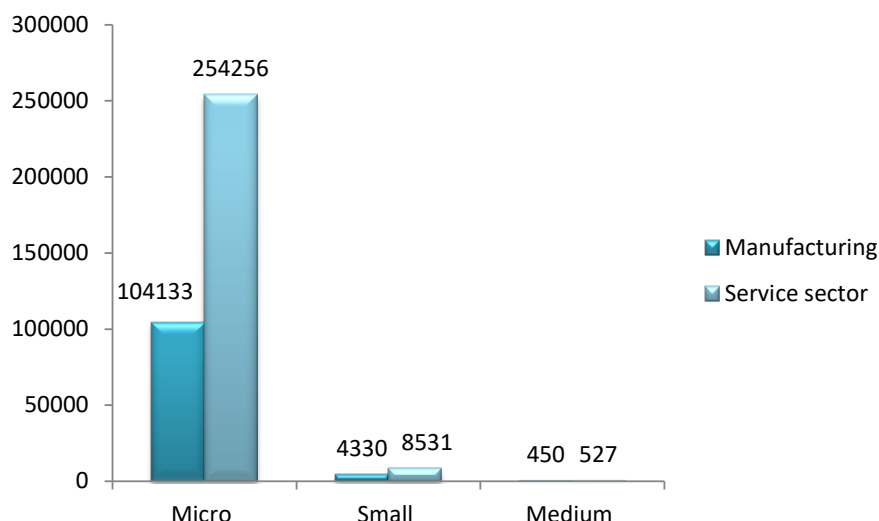
comprised of 1,04,133 micro units, 4,330 small units and 450 medium units. Out of 2,63,314 UAMs in the service sector, 2,54,256 are micro, 8,531 small and 527 medium units³. The district-wise number of Micro, Small and Medium units registered under manufacturing and service sectors in 2022-23 is given in **Appendix 4.4.1**.

Performance of the Sector

The State achieved remarkable surge in the number of new MSME units established in 2022-23. A total of 1,39,840 new MSME units were set up in 2022-23 with investment of Rs 8,421.63 crore, registering an increase of about 449 per cent

³Directorate of Industries and Commerce, GoK

Figure. 4.4.1. Number of Micro, Small and Medium units registered under Manufacturing and Service Sectors in Kerala, 2022-23



Source: Directorate of Industries and Commerce

Table 4.4.3 Achievement in MSME sector, 2017-18 to 2022-23 (As on August 31, 2023)

Year	No. of MSME units	Investment (Rs in crore)	Employment (in number)
2017-18	15,468	1,249.61	51,244
2018-19	13,826	1,321.94	49,068
2019-20	13,695	1,338.65	46,081
2020-21	11,540	1,221.86	44,975
2021-22	15,285	1,535.09	56,233
2022-23	1,39,840	8,421.63	3,00,051
Total	2, 09,654	15,089.62	5,47,652

Source: Directorate of Industries and Commerce

over previous year. These units have created employment opportunities for 3,00,051 individuals, registering about 244 per cent increase over previous year. Such a massive expansion in the MSME sector is an encouraging sign for the State's economy and a testament to its potential for growth and development. The details of new MSME units for the last five years are given in **Table 4.4.3**.

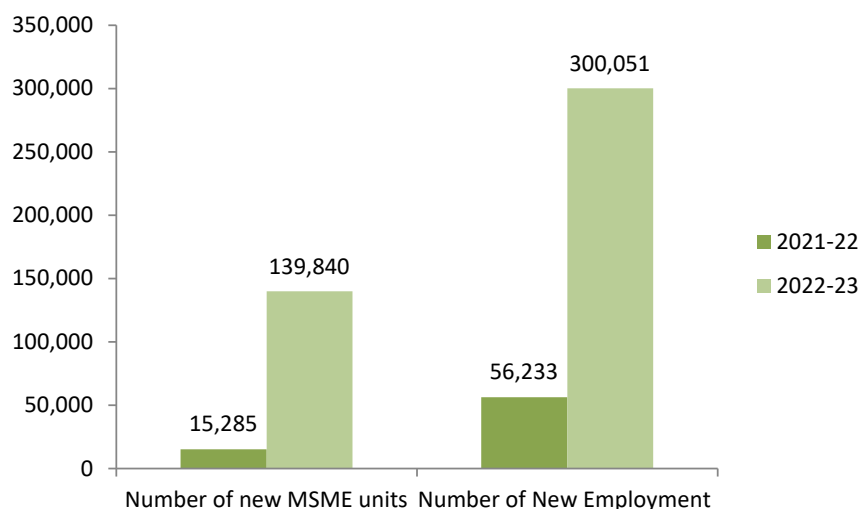
The number of new MSME units and employment provided for the last two years is shown in **Figure.4.4.2**

In 2022-23, the district with the largest numbers of new MSME units was Thiruvananthapuram (14,434 units) with an investment of

Rs 840.89 crore, generating 29,878 employment opportunities, followed by Ernakulam (14,128 units) with an investment of Rs 1,172.46 crore generating 33,765 employment opportunities and Thrissur (14,123 units) with an investment of Rs 752.42 crore providing employment to 29,536 persons. Wayanad (3,950 units) had the lowest number with an investment of 236.58 crore generating employment for 8,234 persons. The district-wise details of new MSME units started in Kerala in 2022-23 is given in **Appendix 4.4.2**

In 2021-22, Thrissur was the district with the largest number of new units (1,789 units) generating 5,200 jobs, followed by Kozhikode with 1,455 units generating 4,738 jobs and Palakkad with 1,413 MSME units with 5,850 jobs.

Figure.4.4.2 Number of new Micro, Small and Medium units and employment created in MSMEs in 2021-22 and 2022-23



Source: Directorate of Industries and Commerce

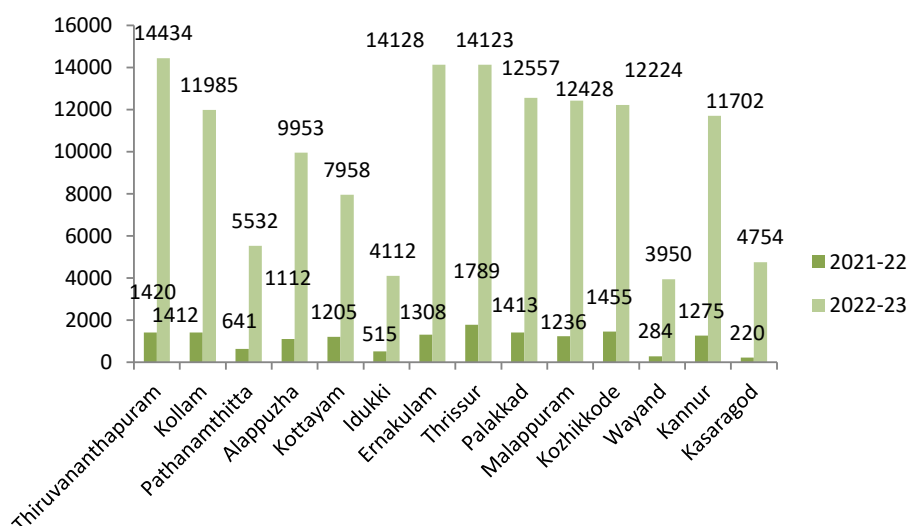
Kasaragod (220 units) had the lowest number with an investment of 17.09 crore generating employment for 959 persons. **Figure 4.4.3** shows district-wise details of new MSME units in the State in 2021-22 and 2022-23.

The sector-wise growth of MSME units over the last five years reveals an increase in the number of agro and food-based units from 2,712 in 2018-19 to 23,474 in 2022-23. The number of

service related MSME units has increased from 3,259 in 2018-19 to 26,159 in 2022-23. The subsector -wise details of MSME units started in the last five years is given in **Table 4.4.4**.

The top five subsectors together consist of over 80 per cent of the MSME units in the last five years. Trade Activity based units (35%), Agro and food based (17%) units and Service Activities (19%) dominate in MSMEs. Units making plastic

Figure 4.4.3 District wise new MSME units in Kerala in 2021-22 and 2022-23



Source: Directorate of Industries and Commerce

Table 4.4.4 Subsector wise details of new MSME units started in Kerala

Sl. No.	Name of subsector	2018-19	2019-20	2020-21	2021-22	2022-23
1	Agro and Food- based	2,712	2,582	3,359	4297	23,474
2	Textiles and Garments	1858	1,904	1276	1564	14,702
3	General /mechanical/light Engineering	1533	1,334	959	1193	1,988
4	Service Activities	3259	4,036	2725	4097	26,159
5	Wood Products	644	5,32	436	517	1,529
6	Cement Products	329	3,09	233	368	0
7	Printing & Allied	348	2,80	188	198	3,795
8	Paper Products	192	1,88	198	234	659
9	Information Technology	294	2,40	187	348	6,091
10	Trade activity	-	-	-	-	48,945
11	Others	2657	2,290	1949	2469	12,498
	Total	13,826	13,695	11,540	15,285	1,39,840

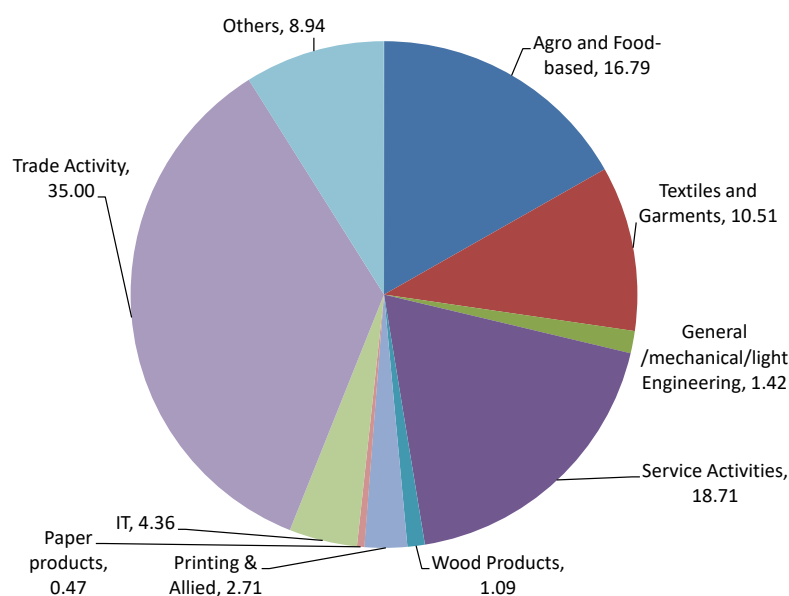
Source: Directorate of Industries and commerce

*From 2022-23 onwards the data of trade activity included

containers, gold ornaments, rubber products, handicrafts products are classified as “Others” (9%). Textiles and garments (10%), Information Technology (4%) and General/Mechanical/Light Engineering (1%) are the other leading subsectors. The share of each subsector is given in **Figure 4.4.4**.

Industrial Co-operative Societies

There were 367 working industrial co-operative societies as on March 31, 2023 in the State of which 101 are women cooperative societies. 15 societies were registered in 2022-23. Kannur has the larger number of working societies (68). The district-wise number of Industrial Cooperative Societies in the State is given in **Appendix 4.4.3**.

Figure 4.4.4 Subsector wise details of new MSME units in 2022-23

Source: Directorate of Industries and commerce

Improving infrastructure in existing Development Plots/Areas

The Directorate of Industries and Commerce (DIC) develop infrastructure facilities for small-scale industries in the State. At present, there are 40 Development Area/Development Plots under DIC, having a total area of 2,460.08 acre. In 2022-23, a total of 2,653 units employing 47,632 persons generating an income of Rs 4,67,990.73 lakh are functioning in these DA/DPs. The district-wise details are given in **Appendix 4.4.4**.

Industrial Estates

Industrial estates are being utilised as an effective tool for the promotion and growth of small-scale industries in the State and also as an effective tool to decentralise industrial activity to rural and backward areas. Industrial estates are specific areas zoned for industrial activities in which infrastructure such as roads, power and other utility services are provided to facilitate the growth of industries and to minimise impacts on the environment. The number of major and mini industrial estates in Kerala as on March 31, 2023 is given in **Table 4.4.5**.

Industrial Estates under District Industries Centers

The District Industries Centre is a permanent set up at the district level. They provide all the services and support facilities to the entrepreneur for setting up micro, small and medium enterprises. This includes end-to-end support like identification of suitable projects, preparation of feasibility report, arrangements of credit, machinery and equipment, and raw materials and also connecting the units into industrial clusters. They also cater registration and development of industrial cooperatives. There are 92 mini-industrial estates under District Industries Centres with 849 Small Scale Industrial units as on March 31, 2023. There are 752 working units in these estates employing 3,138 persons. The district-wise details are given in **Appendix 4.4.5**.

Industrial Estates under SIDCO

Kerala Small Industries Development Corporation (SIDCO) is playing a vital role for the promotion of Small, Micro and Medium Industries in the State. The Industrial Estate under SIDCO provides infrastructure facilities such as land, work shed, water and raw material to the units in the small scale sector. SIDCO has developed 17 major industrial estates in 233.86 acre of land. 195.75 acre have been allotted to 884 working units employing 7,762 workers (as on March 31, 2023). Besides, there are 7 industrial parks and 36 mini industrial estates under SIDCO. The total income generated by 36 mini industrial estates under SIDCO in 2022-23 was Rs 40.51 lakh. District-wise details of industrial estates under SIDCO are given in **Appendix 4.4.6, 4.4.7 and 4.4.8**.

Industrial Cluster Development

Industrial clusters play an important role in the promotion of small and medium-sized enterprises mainly because of their inclusiveness, technology absorption, efficiency improvement, and availability of common resources. The Ministry of Micro, Small and Medium Enterprises (MSMEs) has adopted the cluster approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of small enterprises.

MSME-Development Institute (MSME-DI), Thrissur is actively engaged in the promotion and development of clusters in the State in close liaison with the State Government and other stakeholders. Promotion of local entrepreneurship is important for the creation of sustainable consumption and production systems. MSME-DI, Thrissur, Government of India has conducted 24 trainings/courses in 2022-23, benefitting 2,011 persons. The details are given in **Appendix 4.4.9**.

Kerala Bureau of Industrial Promotion (K-BIP)

The State has also adopted the cluster development approach for industrialisation to reap the benefits of agglomerations. The State supports cluster development through MSME-DI, Government

Table 4.4.5 Industrial Estates in Kerala, 2022-23

Sl No	Agency	No. of Industrial Estates	
		Major Estates	Mini Estates
1	District Industries Centre		92
2	SIDCO	17	36
Total		17	128

of India, Thrissur and Kerala Bureau of Industrial Promotion (K-BIP). The Common Facility Centres (CFC) is in various stages of development in the State. CFCs are deployed in the areas of wood, plywood, furniture, rubber, textile, rice mill, plastic, printers, ethnic food, agriculture implements and general engineering. Ministry of MSME, Government of India has sanctioned 16 CFC Projects to the State, of which 12 projects worth Rs 7,552.45 lakh has been completed and 4 CFC projects worth Rs 4,997.30 lakh are in various stages of implementation.

K-BIP undertake and coordinate various industrial promotional activities in Kerala for improving ease of doing business in the State and achieve UN sustainable development goals. The various industrial promotional activities of KBIP include industrial cluster development, coordination of activities of Kerala bamboo mission, implementation of PM formalisation of micro food processing enterprises scheme, channelising of national scheduled caste/ scheduled tribe hub activities, integration of commerce mission activities, audit and certification of food processing and related units, participation in regional, national and international events, operation of Kerala B2B online portal. Four common facility centres are under implementation stage: (i) Wooden furniture centre in Kozhikode, (ii) steel furniture cluster in Ernakulam, (iii) Plywood cluster in Ernakulam, and (iv) Papad cluster in Thiruvananthapuram.

KBIP is the State Nodal Agency of the Centrally Sponsored Pradhan Mantri Formalisation of Micro Food Processing Enterprises Scheme (PM FME Scheme) launched in June 2020 by the Ministry of Food Processing Industries, Government of India. The Scheme provides financial, technical and business support for the upgradation of existing Micro Food Processing Enterprises. Kerala ranks fourth in the State wise ranking of number of Loans sanctioned under Individual Category, 1,500 loans with 35 per cent Credit linked Grant sanctioned and Rs 19.5 crore was released as Subsidy to 751 beneficiaries. Kerala ranks first in providing seed capital assistance to SULM members under the Scheme in FY 2022-23. Seed Capital Assistance of Rs 10.62 crores released to 3,287 members of Kudumbashree Mission (SRLM/SULM).

Package for Rural Industries- Prime Minister's Employment Generation Programme (PMEGP)

Prime Minister's Employment Generation Programme (PMEGP) is a credit linked subsidy scheme at the national level. The scheme aims to generate employment opportunities by setting up micro-enterprises in the non-farm sector. In 2022-23, the banks sanctioned 5,180 projects and provided margin money of Rs 5,298.19 lakh. District-wise details are given in **Appendix 4.4.10**.

Industrial Financing in MSME Sector

State Level Bankers' Committee (SLBC)

As per the State Level Banker's Committee (SLBC) report, the outstanding flow of credit to the MSME sector increased to Rs 68,450.91 crore in 2022-23 from Rs 64,956.92 crore in 2021-22, registering an increase of 5.37 per cent over previous period. The status of flow of credit to various sectors is given in **Appendix 4.4.11**.

The Small Industries Development Bank of India (SIDBI)

The Government encourages SIDBI to refinance credit institutions, which provide unsecured loans, at reasonable interest rates, to borrowers based on their transaction history. In order to improve access to credit for Micro, Small and Medium Enterprises (MSMEs), particularly those that have been underserved, SIDBI created a special fund of Rs 1,000 crores. The aim of this fund was to establish a bond market for smaller and lower-rated Micro Finance Institutions, Non-Banking Financial Companies, and Financial Technology companies. In FY 2023, SIDBI further simplified and digitised its lending processes for MSMEs. This resulted in a reduction of reliance on outdated borrower information and a shift towards using up-to-date information from public databases such as Goods and Service Tax, Income Tax Returns, Bank statements, and Ministry of Corporate Affairs databases. SIDBI also expanded its 'Prayaas' scheme, which provides micro-loans up to Rs 5 lakh to Micro Enterprises for livelihood activities. This expansion helped more than 80,000 beneficiaries, most of whom were women. The outstanding portfolio of Direct Finance, including Prayaas, increased from Rs 14,187 crore in FY 2022 to Rs 18,409 crore in FY 2023.

Table.4.4.6. Emergency Credit Line Facility sanctioned and disbursed to eligible MSME Borrowers in Kerala as on August 31, 2023

Bank	No of eligible borrowers	Sanctioned		Disbursed	
		A/c s	Amount (In Cr.)	A/c s	Amount (In Cr.)
Total Public Sector Commercial Bank	167615	1,32123	3349.46	1,10774	2837.97
RRB-Kerala Gramin bank	35568	2515	27.69	2515	27.69
Total - Private Sector Commercial Bank	48104	25235	5779.17	21846	5311.90
Total – Banking Sector	2,51,287	1,59,873	9,156.32	1,35,135	8,177.56

Source: State Level Bankers Committee

Emergency credit Line Guarantee Scheme (ECLGS)

ECLGS, launched by Government of India is a special scheme introduced in the wake of Covid- 19 crisis to provide 100 per cent guarantee coverage to banks and NBFIs. This will enable them to extend emergency credit facilities to business enterprises and MSMEs to meet additional term loan and additional working capital requirements.

As per statistics provided by SLBC, in Kerala, as on August 31, 2023, emergency credit has been sanctioned to 1,59,873 eligible cases out of 2,51,287 eligible borrowers across the State. The total amount sanctioned is Rs 9,156.32 crore. An amount of Rs 8,177.56 crore is already disbursed as credit to 1, 35,135 borrowers. Details are given in the **Table 4.4.6.**

Major achievements

- 1,39,840 MSME units were started using Rs 8,422 crore capital investment and 3,00,051 employment opportunities generated in 2022-23.
- To improve the rank of ease of doing business; 42 Technology clinics, 73 Investors Meets, 52 Taluk Level Exhibitions and 14 Technology Management development were conducted in the State.
- Set up 101 Entrepreneurship Development Clubs in educational institutions in 2022-23 to promote entrepreneurship among students.
- 137 entrepreneurs were assisted through the MSME clinic scheme and 34,490 entrepreneurs were received assistance through the Facilitation Centres established in the Taluk Industries Offices.

- Through the Scheme Interest subvention to Nano Household Enterprises' 95 enterprises were given an amount of Rs 11.33 lakh.
- A total of 35 cashew units have been granted an assistance of Rs 113.7 lakh under the 'Scheme for Revival of Defunct MSMEs and Cashew Processing Units'.
- 634 units were benefitted through the scheme for Margin Money grant to nano units and an amount of Rs 1,624.88 lakh expended.
- 827 industrial units received assistance of an amount of Rs 3,900 lakh under Entrepreneur Support Scheme.
- Machinery Expo 2023 at Ernakulum and Agro Food Pro programme at Thrissur were conducted.
- Private Industrial Estate scheme was launched and developer permit has been issued to 8 applications.
- Help desks were established at all local bodies across the State – through which the public could avail the services of the interns in all industry/enterprise setting-up-related matters.
- Vyavasaya Keralam Web magazine portal published and Online Application systems were introduced to all Schemes.
- Established 59 Enterprise Facilitation Centers at Taluk level through this the service of a professional resource person is available to assist the entrepreneurs to file online applications for clearances, registration, and assistances.
- MSME Clinics were established to support enterprises in need of Legal, Marketing, DPR preparation, Export, GST, Technology, Consents, Licenses and Banking expertise by engaging 159 experts.

- Established State and District Level Grievance Redressal Committees and launched an online Grievance Redressal System for time bound resolution of grievances of industrial enterprises.
- Established 3 regional MSME facilitation councils and Launched dedicated online portal for Geographical Indicator (GI) products.
- Introduced an incentive scheme for Government e-Marketplace (GeM) portal registration for MSMEs.
- **Women entrepreneurship** – Facing the “social perception challenge”- Lack of investment support, Family support and support from other business investors and stake holders reduces the capacity of women entrepreneurs to mobilise capital and working capital for the enterprise.

Way forward

In the 14th Five Year Plan period, the Government of Kerala seeks to promote modern MSMEs by leveraging the specific competitive advantages of Kerala. Steps are underway to address the issue of scarcity of land using the ‘park model’ of development and creation of land banks. The State is poised to implement new models for development of industrial infrastructure involving the private and cooperative sectors. Emphasis is given for the development of Common Facility Centres for specific industries, regions and clusters. As the State seeks to build a new Kerala (Nava Keralam) it is essential to clarify, consolidate, and build on the characteristics and achievements of MSMEs in the State. It should involve steps for scaling up of enterprises, enhanced use of new technologies enabled by knowledge and information flow, greater support for a culture of entrepreneurship, development of new models of financing and close linkage with the education-research continuum. The industrial landscape in Kerala is vibrant like never before involving proactive Government support and the sector is expected to perform well in the coming years.

Issues and challenges in the sector

The contribution of the sector in the economy is currently constrained because of several challenges affecting the growth of the sector. Some of the major ones are:

- **Accelerating growth and enabling formalisation-** There is a need to nurture and support innovative business ideas and shape them into enterprises and create a favourable ecosystem for MSMEs. This can be achieved with support from entrepreneurial development and incubation centres. Utilisation and reach of various schemes, including schemes for credit support, remain constrained for a number of reasons. Promoting formalisation and digitisation amongst MSMEs and encouraging them to register in UAM has been a challenge.
- **Addressing infrastructural bottlenecks-** Inadequate availability of basic amenities such as work sheds, tool rooms, product testing laboratories, electricity, rural broadband and innovation hubs is a deterrent to the growth of the sector. There are only a few MSME clusters which provide good infrastructure facilities
- **Facilitating access to credit and risk capital-** Due to their informal nature, MSMEs lack access to formal sources of credit. Banks face challenges in credit risk assessment of MSMEs owing to lack of financial information. Very few MSMEs are able to attract equity support and venture capital financing.
- **Enabling market linkage and tie-ups with public procurement platforms-**MSMEs face the twin challenge of limited access to quality raw material and market for finished product. Tie ups with public sector units can help their growth.
- **Policy and institutional interventions-** The challenges include formulation of targeted policies in the areas of infrastructure development, modernisation, technology adoption, building backward and forward linkages credit gap reduction and ensuring timely payments to MSMEs.

4.5 FOOD PROCESSING

The food processing sector plays a crucial role in establishing strong linkages between the industry and the agriculture sector. It facilitates collaboration and integration, benefitting both sectors and boosting the overall agricultural value chain. A well-developed food processing sector with higher-level of processing helps in the reduction of wastage, improves value addition, promotes crop diversification, ensures better return to the farmers, promotes employment as well as increases export earnings. This sector is also capable of addressing critical issues of food security, food inflation and providing wholesome, nutritious food to the masses. Food processing in India covers fruit and vegetables, plantations, grain processing, spices, milk and dairy products, meat and poultry, fisheries, non-alcoholic and alcoholic beverages, as well as other consumer product groups such as confectionery, chocolates, cocoa products, soya-based products, mineral water and high protein foods. The Ministry of Food Processing Industries (MoFPI) has approved 41 Mega Food Park projects, of which 7 have female promoters. Between January and December, 2022, Ministry has released grant-in-aid of Rs 41.40 crore to the ongoing Mega Food Park projects in the country. The industry engages approximately 20.05 lakh persons in 40,579 registered units in the country in 2018-19. There is substantial women's participation in the manufacture of food products and beverages. As per the Annual Survey of Industries 2019-20, a total of 2.27 lakh women workers are directly employed in registered food processing units and more than 12.62 lakh women workers are engaged in unincorporated non-agricultural enterprises in the food processing sector.

Over the years, agriculture production has been growing in India. An abundant supply of raw materials, an increase in demand for food products and incentives offered by the Government of India have impacted food processing sector positively. Over the last 5 years till 2020-21, the Food Processing sector grew at an Average Annual Growth Rate (AAGR) of around 8.38 per cent as compared to around 4.87 per cent in the Agriculture & Allied Activities sector (at 2011-12 prices). The Food Processing Sector has also emerged as an important segment of the Indian economy in terms of its contribution to GDP, employment and investment. The sector constituted as much as 10.54 per cent and 11.57 per cent of GVA in the Manufacturing and Agriculture sector respectively in 2020-21 (at 2011-12 prices).

In India, the Food Products industry figures among the top five sectors with respect to fixed capital, gross value added and output. Food products industry employs largest number of persons as compared to other industries while generating the second highest output level as in other industries. According to the latest Annual Survey of Industries (ASI) for 2019-20, the total number of persons engaged in registered food processing sector was 20.32 lakhs. Unregistered food processing sector supported employment to 51.11 lakh worker as per the NSSO 73rd Round, 2015-16 and constituted 14.18 per cent of employment in the unregistered manufacturing sector.

The value of agri-food exports including processed food exports in 2021- 22 was of the order of US

\$ 46.11 billion accounting for about 10.93 per cent of India's total exports (US \$ 421.89 Billion). The value of import of agri-food items including processed food in 2021- 22 was US \$ 28.71 Billion which was 5.79 per cent of India's total imports US \$ 495.83 Billion)¹ The share of India's agri-food exports in the world was 2.48 per cent in 2021 and the share of India's agri-food imports in the world was 1.55 per cent in 2021.

Food Processing Industry in Kerala

Kerala, known for its robust agricultural sector, contributing Rs 45,400.51 crore (8.52 percent) to Gross State Domestic Product (GSDP) of state. Kerala is recognised as “God's own country” and is famous for its captivating landscapes, spices, and coconut production. Kerala provides a business-friendly environment with supportive government policies, making it an attractive investment destination. The State has implemented initiatives like the KSWIFT portal for fast and transparent clearance mechanisms and the Suraksha Mitr system for vehicle safety. Kerala is a very fertile land with a wide range of crops that provide numerous opportunities for value addition. Coconut is the most important crop grown on 7.81 lakhs ha with a production of 5,384 million nuts – value addition opportunities exist in the form of packaged tender coconut water, virgin coconut oil and dehydrated coconut powder, coconut jaggery, palm sugar, chips, jelly, and vinegar. Kerala is known for its banana variety ‘Nendran’ which is grown on 0.57 lakhs ha and has a production of 4.89 lakh MTs. A significant quantity is exported in fresh form, but there are also opportunities for processing milkshake powder, banana-based baby food, and banana pulp. Kerala accounts for 75 per cent of India's spice exports, and is a major producer of coconuts and coconut fibre. Kerala contributes significantly to the country's total food exports. Kerala has traditionally been strong in spices, marine products, cashews, coconuts, cocoa, coffee and tea, and fruits such as bananas and pine apples.

“Food processing” is a sector of the future that not only has tremendous market prospects, but also enormous potential to contribute to the growth of agriculture and related sectors such as horticulture, animal husbandry, and fisheries. The Kerala Government has accorded “food processing” the status of a priority sector.

Kerala Industrial Infrastructure Development Corporation (KINFRA) is taking an active stance in the advancement of the food processing sector within the state. KINFRA being the nodal agency for the Ministry of Food Processing Industries, Government of India and the nodal agency of the State for implementing “Assistance to States for developing Export Infrastructure and Allied Activities” (ASIDE) scheme of Ministry of Commerce and Industries. KINFRA has set up a number of food-based parks across the State. Details of KINFRA food processing units in KINFRA parks are given in **Appendix 4.5.1**.

KINFRA Food Processing Park, Kakkancherry, Malappuram

The KINFRA Food Processing Park at Kakkancherry, Malappuram district, set up in an area of 50.57 acres, has 45 working units. In 2022-23, the park attracted an investment of Rs 15,053 lakh and employed 1,494 persons.

KINFRA Mega Food Park, Palakkad

Ministry of Food Processing Industries (MOFPI), Government of India has approved the proposal from KINFRA for setting up a Mega Food Park in 50.18 acres with 40 working units at Kanjikode, Palakkad in accordance with the Mega Food Park Scheme (MFPS). The estimated project cost is Rs 119.02 crore. The assistance provided by the Ministry of Food processing Industries is Rs 50 crore. In 2022-23, the park attracted an investment of Rs 22,989.55 lakh and employed 1211 persons.

KINFRA Food Processing Park, Adoor, Pathanamthitta

The KINFRA Food Processing Park at Adoor, Pathanamthitta district, set up in an area of 40 acre, having 18 working units. In 2022-23, the park has attracted investment of Rs 6,010.44 lakh and employed 759 persons.

Food and Spices Park, Muttam, Idukki

The project, which will be located in 15 acres of land at Muttam, Idukki district is to be implemented under the MSME-Cluster Development Programme (MSME-CDP). It envisages full-fledged common infrastructure facilities for food and spices and its allied activities. Government of India has accorded “in-principle approval for the project”. Estimated total project cost is Rs 12.5 crore, out of which Rs 6 crore will be the assistance from Government of India.

1 Annual Report 2022-23 Ministry of Food Processing Industry, Government of India

KSIDC Mega Food Park, Alappuzha

Kerala State Industrial Development Corporation Ltd (KSIDC) is developing a Mega Food Park at Industrial Growth Centre, Pallippuram, Cherthala, on focusing the sea-food processing sector, with grant assistance from Ministry of Food Processing Industries (MOFPI), Government of India under the Mega Food Park Scheme. The park will cater to marine food processing sector with common infrastructure facilities such as cold storage, standard design factory and ice plant. It is a demand driven hub and spoke model with strong backward and forward linkages. The objective is to create modern enabling infrastructure for setting up food processing industry. It contains three vital components – the Central Processing Centre (CPC) at its Hub, Primary Processing Centres (PPC) and Collection Centres (CC) linked by the agro-logistics network as the spokes. Land will be allotted to sea-food/food processing units and industrial units in allied sectors for a 30-year lease period.

The total cost of the project is Rs 128.49 crore and the Ministry of Food Processing Industries (MoFPI) have sanctioned a Grant-in-Aid of Rs 50 crore. The proposal was initially approved by Ministry in 68 Acres and in May 2020 the project was revised to 84.03 acres with acquisition of additional 16 acres of land. Total land area 84.03 acres was allotted to 36 units for establishing industrial units and out of these, 13 units are fully operational and the balance are under implementation. Standard Design Factory of 20,000 sq. ft. and industrial shed of 9,000 sq. ft. were also allotted to three units. Out of these, two units are operational. The project is expected to bring a total investment of Rs 600 crore and direct employment generation of 3,000 numbers when the units allotted in the Mega Food Park is fully operational².

Implementation of Food safety system through NCHC

National Centre for HACCP Certification (NCHC) in association with Kerala Bureau of Industrial Promotion (K-BIP) has been conducting auditing, certification and recertification at various food processing and allied units in Kerala. National Centre for HACCP Certification (NCHC) in association with the Kerala Commissionerate of Food Safety has been organising awareness programmes on food Safety across the State.

Major challenges in food processing sector

- Supply chain infra gap: Lack of primary processing, storage and distribution facilities
- Supply chain institutional gap: procurement dependence on APMC market.
- Inadequate link between production and processing.
- Seasonality of operations and low capacity utilisation.
- Inadequate focus on quality and safety standards.
- Lack of product development and innovation.
- Lack of access to credit and financing.
- Inadequate storage and transport facilities.

Way forward

The food processing sector is facing a critical set of challenges that demand immediate and targeted intervention. The majority of businesses in this sector are small and micro units that lack the financial resources needed to expand or invest in essential infrastructure. To overcome these challenges, bold and decisive action is required, including targeted incentives, infrastructure development, and investment in processing capacity. This will necessitate significant investment in various components of the supply chain, such as grading and packing centres, controlled atmosphere facilities, reefer vans, cold storage for perishable cargo at ports/ airports/ railway stations, testing laboratories, and other supporting infrastructure and services such as research and development, imparting skill training, and marketing support.

There is a huge potential for exporting processed food items, as well as a significant demand for them in the domestic market. To fully realise this potential, it is important to connect agricultural production with the market by bringing together farmers, processors, and retailers. This can be achieved through proper marketing strategies, the adoption of the latest technologies, and ensuring a steady flow of raw materials from farmers at stable prices that meet specific quality standards. By implementing these measures, we can expect to see better development of the agriculture sector and an increase in farmers' incomes.

² www.ksidc.org

4.6 TRADITIONAL INDUSTRIES

HANDICRAFT SECTOR

The handicrafts sector play pivotal role in economic development, in terms of its contribution to employment to millions of artisans across the country and generating substantial foreign exchange. It also preserves the rich cultural heritage of the country. The handicrafts sector employs 68.86 lakh artisans, of which, 38.61 lakh constitutes female artisans. According Ministry of Textiles, Government of India, total export of handicrafts in the country, including handmade carpet, in 2022-23, up to October 2022 has been Rs 29,020.94 crore (Source: Annual Report 2022-23, Ministry of Textiles, GoI). The handicrafts sector faces numerous challenges such as an unorganised industry, low education levels among workers, limited capital, lack of exposure to new technologies, absence of market intelligence, and a poor institutional framework. However, the government is taking steps to address these issues by introducing various schemes for the promotion and development of the handicrafts sector, including the National Handicraft Development Programme (NHDP) and Comprehensive Handicrafts Cluster Development Scheme (CHCDS).

Handicraft industry in Kerala

Kerala is known for its rich tradition of handicrafts, which are made using a variety of materials such as ivory, bamboo, palm leaves,

seashells, wood, coconut shells, clay, cloth, coir, metals, stone, lacquer ware, and more. The State is home to many old handicraft classics, which can be seen in palaces, old heritage homes, and museums across Kerala.

Kerala boasts 32 unique crafts, including ivory carving, wood and horn carving, bell metal casting, hand embroidery, and coconut shell carving, which are important commercial products. However, the traditional artisans who produce these crafts require social and economic support to continue their legacy. The Government of Kerala has recognised this and has implemented various schemes to eliminate intermediaries, enhance artisans' skills, boost productivity, increase market opportunities, and strengthen cooperatives in the sector. By supporting these artisans, we preserve the rich heritage of Kerala and contribute to the growth of the local economy.

Kerala State Handicrafts Apex Co-operative Society (SURABHI), Handicrafts Development Corporation of Kerala (HDCK), and Kerala Artisans Development Corporation (KADCO) are the major agencies for the promotion of the handicraft industry in Kerala.

Kerala State Handicrafts Apex Co-operative Society (SURABHI)

Surabhi is the apex organisation of primary handicrafts co-operatives established with a view

to uplift the artisans by marketing their products and supporting them through welfare schemes of GoK and GoI. There are 42 Co-operative societies under Surabhi and 9 showrooms under Surabhi inside and outside the State. The turnover of the society in 2022-23 was Rs 108.14 lakh. The apex society received an amount of Rs 25.00 lakh in 2022-23 as assistance from the Government of Kerala. The total employment provided in 2022-23 was 30,000. Details are given in **Appendix 4.6.1**.

Handicrafts Development Corporation of Kerala (HDCK)

The Handicrafts Development Corporation of Kerala (HDCK) is a government-supported organisation that specialises in the procurement and marketing of handicraft products. The corporation's main objective is to ensure that artisans receive fair returns for their products. HDCK has showrooms at various locations including Sree Moolam Shashtyabdapurthi Memorial Institute (SMSMI) in Thiruvananthapuram and 19 Kairali emporia outlets spread across the State and other major locations in India. Apart from marketing, HDCK supports artisans through welfare schemes of Government of India and Government of Kerala. For example, Common Facility Service Centre (CFSC) at Thiruvananthapuram for artisans who engage in development of wood crafts.

Besides the sales of handicrafts through 19 sales units, the Corporation implement financing schemes for benefit of the craftsmen, to meet their capital requirements under National Backward Classes Finance and Development Corporation (NBCFDC) loan schemes. Moreover, with the support of Government of India, the Corporation implement welfare schemes for artisans, conducting training programmes, setting up Common Facility Centres, distributing tool kits, conducting exhibitions/craft bazars at important places and tourist centres for exhibiting and providing marketing facilities to the crafts produced by artisans.

In 2022-23, Corporation has targeted a sales turnover of Rs 1,500 lakh, but achieved only a total sale of Rs 835.07 lakh. Compared to previous year, there is an increase of Rs 3 crore in sales. Sales of the Corporation mainly depend on domestic and foreign tourists and on fairs and exhibitions. The total number of persons employed in 2022-23 is 72. Details are given in **Appendix 4.6.2**.

The Kerala Artisans Development Corporation (KADCO)

Kerala State Artisans Development Corporation Ltd (KADCO) is a government-owned company that was established in 1981 and is registered under the Companies Act, 1956. The primary objective of KADCO is to uplift the indigenous artisans of Kerala, including carpenters, goldsmiths, blacksmiths, potters, masons, and those who work with copper/bronze and other handicrafts. The corporation endeavours to identify different types of artisans and promote their craft. To achieve its goal, KADCO is successfully operating Common Facility Centers for Carpentry in Mini Industrial Estate at Nadavannur, Kozhikode, and Umayanallore, Kollam. In an effort to facilitate and empower the real beneficiaries for their livelihood, KADCO introduced a registration-based online labour data bank. The data bank will aid in understanding and utilising hidden capabilities, providing proper training in respective domains, as well as in general aspects of doing business and commercial activities. This approach is the first step towards organising the real beneficiaries and ensuring that they receive the support they need to succeed.

KADCO is a State Channelling Agency (SCA) for NBCFDC, for disbursing short term loans up to Rupees one lakh with a nominal interest rate of 5 per cent for women who belong to backward classes and living below poverty line to start various income generating activities. Loans up to Rs 5 lakh is provided to the artisan units for renovation and setting up of new production units. (Source: www.keralaartisans.com).

Bamboo Industry

Bamboo is considered a highly valuable renewable and eco-friendly resource due to its diverse range of applications. In Kerala, 28 species of bamboo are found. Bamboos from Kerala forests are being supplied mainly for the pulp and rayon units under concessional rates. It is estimated that there are about one lakh people in the State dependent on bamboo for their livelihood. Data from the panchayaths indicate that from the early seventies onwards there has been a great drain in the number of artisans from the sector to semi-skilled and unskilled jobs in the tertiary sectors such as construction. (Source: www.keralabamboomission.org).

The Kerala State Bamboo Mission

Kerala State Bamboo Mission (KSBM) being the Bamboo Development Agency (BDA) of the State was constituted in 2003 with the aim to adopt a focused approach to revitalise the bamboo Sector, promote value addition, enhance incomes of workers in the sector, and help alleviate poverty. The interventions initiated by KSBM through K-BIP in 2022-23 include implementing National Bamboo Mission (Government of India) Projects in the State, participation in exhibitions and trade fairs, skill development and training programmes (5 nos.) benefiting 75 participants, and promotional activities in Bamboo sector. (Source: K-bip).

Bamboo Fest 2022

On behalf of Department of Industries and Commerce, Government of Kerala, Kerala State Bamboo Mission organised the 19th edition of 'Kerala Bamboo Fest' at Jawaharlal Nehru International Stadium, Ernakulam from November 27 to December 04, 2022. 211 bamboo artisans from within the State displayed their bamboo products in 180 stalls at the fest. It was organised to promote and develop the sector. The fest provided opportunity to a wide group of artisans and organisations working in the Bamboo sector from different parts of the State to showcase their products made out of Bamboo and make a reasonable profit from the sales of the products through the fest. The Fest demonstrated wide variety of Bamboo products that are innovative and eco-friendly in various ways.

The list of projects completed with the assistance from National Bamboo Mission include:

- Bamboo Nursery at Thrikkaipetta, Wayanad.
- Bamboo Bazaars at Kumarakom (Kottayam), Mananthavady and Vythiri Resort (Wayanad).
- Incense Stick Manufacturing Unit at Nadapuram, Kozhikode.
- Bamboo Block Plantation by MNREGS State Mission in various districts of Kerala (111.59 acres) and by Kerala State Bamboo Corporation at Aligarh Muslim University Campus, Malappuram (121.4 Ha).

(Source: www.keralabamboomission.org)

The Kerala State Bamboo Corporation

The Kerala State Bamboo Corporation is an undertaking established in 1971 for the welfare, development and upliftment of traditional bamboo workers in Kerala. The main objectives of the Corporation are to develop and promote industries based on bamboo, reed, cane and

rattan, to undertake manufacture and trading of bamboo-based products, and provides financial, technical and other assistance to the traditional bamboo workers. The Corporation is serving about 10,000 bamboo workers in Kerala. A majority of these workers are poor and belong to socially and economically backward and SC/ST Communities.

The main activities of the Corporation include the collection of good quality reeds from Government forests and distribution of these reeds to traditional bamboo weavers at a subsidised rate on credit basis, and also the procurement of woven mats from the weavers. The main products of the corporation are bamboo mats, bamboo ply, flattened bamboo boards, bamboo flooring tile, bamboo furniture and handicraft items. As part of encouraging more workers into mat weaving, Kerala State Bamboo Corporation has started training programmes in making bamboo mats and handicraft items.

Kerala State Bamboo Corporation Ltd. has three Feeder/Primary Processing Units at Palakkad, Mananthavady and Nadapuram for the purpose of processing raw bamboo into strips in various thicknesses. They are weaved to bamboo curtains for the production of Flattened Bamboo Board Factory, Angamaly, a subsidiary unit of the corporation. The waste bamboo from process ranging from 50 per cent to 70 per cent is further used manufacturing value added products like toothpick, curtain blinds, and bamboo curtains and incense sticks.

Problems and issues in the sector

The major issues that the sector faces are:

- Lack of a pricing mechanism
- Exploitation by intermediaries.
- Seasonal importance of bamboo products reduces the demand of products at off seasons.
- Severe competition from the private sector.
- Availability of cheap replacement of the crafts.
- Reluctance of artisans to pursue the traditional work because of unfavourable work conditions.
- Lack of interest among youth to enter the sector
- Shortage of skilled workers in the sector such as bamboo
- Rules relating to cutting of and procuring bamboo from forests.
- Absence of a proper supply chain (for bamboo)
- Shortage of working capital and credit for artisans/NGOs/MSMEs
- Limited entrepreneurship, insufficient skill

development programmes and lack of modernisation in designs and products.

- Lack of awareness about technology, designs and developing tools.
- Lack of standardisation and packaging technology.
- Inadequate marketing facilities/handholding support for forward and backward linkages.

Way forward

Kerala's industrial sector needs to take advantage of global best practises and attract more investors, educated and skilled work force. Emphasis should be given to value addition in the sector.

HANDLOOM AND TEXTILE INDUSTRIES

Textile and Garment Industry in India

The Indian textile industry is one of the largest in the world with a large raw material base and manufacturing strength across the value chain. India is the second largest producer of Man-Made Fibre (MMF) after China. India is the third largest exporter of textiles and apparel in the world. The share of Textile and Apparel (T&A) including handicrafts in India's total merchandise exports stood at a significant 10.5 per cent in 2021-22. India has a share of 4.6 per cent of the global trade in textiles and apparel. Major textile and apparel export destinations for India are USA, European Union and UK, which account for approximately 50 per cent of India's textiles and apparel exports. The sector holds importance from the employment point of view as well. Textile industry provides direct and indirect employment and is a source of livelihood for millions of people including a large number of women and rural population.

Handloom and Power loom Industry in India

One of the largest in terms of employment potential, Handloom industry, with 23.77 lakh looms, plays a very important role in the country's economy. According to the Annual Report 2022-23 of the Ministry of Textiles, the Handloom Sector is one of the largest unorganised economic activities of India and it constitutes an integral part of the rural and semi-urban livelihood engaging over 35 lakh persons. The sector engages over 25 lakh female weavers and allied workers which make it an important source of economic empowerment of women. This sector contributes nearly 15 per cent of the cloth production in the country. Though the number of weavers in

handloom sector is declining, persistent efforts on the part of the Central and State Governments have succeeded in arresting the declining trend in handloom production. Since 2004-05, considerable growth in production of handloom products is visible in India. The value of export of handloom items in 2020-21 was Rs 1644.78 crore and in 2021-22 was Rs 1987.63 crore.

The Handloom industry mainly exports fabrics, bed linen, table linen, toilet and kitchen linen, towels, curtains, cushions and pads, tapestries and upholstery's, carpets, and floor coverings. The major handloom export centres are Karur, Panipat, Varanasi and Kannur. The major importing countries of handloom products from India are USA, UAE, Spain, UK, Italy, Australia, France, Germany, Netherlands and Greece. Handloom Export Promotion Council (HEPC) is the nodal agency constituted under the Ministry of Textiles, Government of India to promote exports of all handloom products. The prime object of HEPC is to provide the support and guidance to Indian handloom exporters and international buyers for trade promotion and international marketing.

Technology level of this sector varies from plain loom to high tech shuttle-less looms. It is estimated that more than 75 per cent of the shuttle looms are obsolete and out dated. These are more than 15 years old and have virtually no process or quality control devices and attachments. However, upgradation of technology in the power loom sector has picked up in the last 8 to 9 years.

Textile sector in Kerala

The textile sector in Kerala includes spinning, weaving, garment manufacturing, dyeing and processing units. The sector involves the units in public sector (both State and Central), co-operative sector, and private sector. The weaving sector includes the khadi units, handloom units, and power loom units. The garment industry has the potential to generate employment in large numbers with the adoption of latest technologies. It has a large presence of women employees. The textiles sector in Kerala has to depend on other States to meet its requirement for dyeing and digital printing. Hence it set up a dyeing and eco-friendly printing unit at KINFRA Textile Centre, Nadukani, Kannur which will be an important step towards localisation of textile processing in the State.

Table 4.6.1 State Plan Outlay and Expenditure for Textile sector (excluding PSUs and Khadi), in Rs. lakh

Sub-Sector	2022-23			2023-24(till September 2023)		
	Outlay	Expenditure	%	Outlay	Expenditure	%
Handloom	2612	1884.69	72.16	4003	729.64	18.23
Powerloom	137	20.58	15.02	137	10	7.30
Spinning Mills	1500	1359.02	90.60	700	385	55
Textile Processing Centre-Nadukani	1391	500	35.95	800	0.00	0.00
Total	5640	3764.29	66.74	5640	1124.64	19.94

Source: PlanSpace, Kerala State Planning Board

The total State Plan Outlay for the textile sector (excluding State PSUs and Khadi) in the Annual Plan 2022-23 was Rs 5,640 lakh and the amount spent was Rs 3764.29 lakh (66.74 per cent). The total plan outlay for the sector in the Annual Plan 2023-24 is Rs 5,640 lakh and the amount spent up to September 2023 is Rs 1124.64 lakh (19.94 per cent). Details are provided in **Table 4.6.1**.

Handloom sector in Kerala

The handloom industry is a significant traditional industry of Kerala. Among the traditional industries, the handloom industry is next only to the coir industry, in providing employment. The handloom industry in the State is mainly concentrated in Thiruvananthapuram and Kannur districts and in some parts of Kozhikode, Palakkad, Thrissur, Ernakulam, Kollam and Kasargod districts. The industry is dominated by the Co-operative sector covering 84 per cent of total looms. The remaining 16 per cent of handloom looms is owned by Industrial entrepreneurs. The Co-operative sector consists of factory type and cottage type societies. There are 532 registered primary handloom weavers. Co-operative Societies in the State of which 195 are factory type and 337 are cottage type societies. Out of 532 registered handloom weavers' Co-operative Societies, 335 are operational.

The major products in the handloom sector of the State are dhothis, furnishing, bed sheets, shirting, saree and lungi. The total value of production in the handloom sector 2022-23 is Rs 175.10 crore and the total sales turnover is 178.49crore. The total number of weavers engaged in the handloom sector in 2022-23 is 14,124. The total number of women employed in this sector in 2022-23 is 10,925 (77 per cent of total weavers). The total employment generated in 2022-23 is 13.63 lakh person days. Details are provided in **Appendix 4.6.3**.

Agencies in Handloom Sector

The Directorate of Handlooms and Textiles, Kerala State Handloom Weaver's Co-operative Society (HANTEX), Kerala State Handloom Development Corporation (HANVEEV) and the Indian Institute of Handloom Technology (IIHT, Kannur) are the major stakeholder institutions involved in the development of the handloom sector in the State.

Directorate of Handlooms and Textiles

The Directorate of Handlooms and Textiles, Kerala is functioning under the Department of Industries and Commerce aims at evolving policies for the promotion and development of handloom and textile sector in the State. The Directorate was established in the year 1979, to protect and promote the production in handloom and textile industry in the State. It has the overall responsibility to support the areas of infrastructure, marketing, human resource development, conservation and preservation of traditional skills and products, finance, design input, raw material supply, export, modernisation, welfare programmes, price stability to equip the segment to compete in a globalised environment. It also aims at the over-all skill up gradation of the weavers so as to produce high-quality value-added handloom products utilising traditional skill of Kerala in the global market avenues.

The Government implements various schemes and provides assistance by way of loan and grant for the development of the handloom industry. Loans and Grants include those from the State Government, Central Government and other financial agencies such as National Cooperative Development Corporation (NCDC), National Bank for Agriculture and Rural Development (NABARD) and Housing and Urban Development Corporation Limited (HUDCO). Government also

provides assistance for sales promotion through rebates. Details are provided in **Appendix 4.6.4.**

Kerala State Handloom Weaver's Co-operative Society (HANTEX)

Kerala State Handloom Weavers' Co-operative Society Ltd (HANTEX), the apex body of primary handloom weavers' co-operative societies in Kerala was established in 1961. It has its headquarters at Thiruvananthapuram. The main objective of HANTEX is to market the products of member societies and thereby support the livelihood of handloom weavers. At present 405 handloom societies are registered under HANTEX and about 10,000 weavers are engaged for HANTEX. It is marketing the products through its own 80 showrooms all over Kerala and has an average turnover of Rs 30 crore per annum. Besides headquarters, 4 regional offices, 5 production centres, 2 weaving units, a processing unit and an international garment unit are functioning under HANTEX.

HANTEX achieved a sale of Rs 2089.16 lakh in 2022-23 of which, Rs 1963.80 lakh is showroom sale and Rs 125.36 lakh is department sale (sale from depot to departments like health department). Sale in 2021-22 was Rs 1872.33 lakh. The paid-up capital at the end of the year 2021-22 was Rs 6,806.49 lakh. (Source: HANTEX) The agency has reported losses since 2018-19. The accumulated loss of HANTEX is increasing on an yearly basis and has reached about Rs 22,561.86 lakh by the end of 2021-22. Details are given in **Appendix 4.6.5.**

The Society has renovated and opened a new premium showroom at Perinthalmanna. The scheme 'E-credit card' was launched to attract employees in the Government/banking sector as its customers.

Kerala State Handloom Development Corporation (Hanveev)

Kerala State Handloom Development Corporation Ltd (Hanveev) was established in the year 1968. It is engaged in the production and marketing of a wide range of handloom products. At present Hanveev provides employment to 1950 individual weavers. It has 36 own showrooms and 32 production centres. The corporation conducts exhibitions during festival seasons and participates in expos conducted at national and international

level. Free Handloom School Uniform Scheme helped Hanveev to provide uninterrupted employment and wages to around 2,000 weavers and indirect employment opportunities. Hanveev opened 4 new production centres and introduced its latest corporate gift segment at the Indian International Trade Fair (IITF) in New Delhi. 'YUVA', a new scheme was implemented successfully to attract new weavers in to Hanveev. The mission of this Corporation is to undertake and protect the Single loomed weavers of unorganised handloom sector throughout the State.

Competition from power loom products, limited production capacity, and inability to meet urgent orders are some of the challenges faced by Hanveev. Sales turnover of Hanveev in 2022-23 was Rs 2408.32 lakh. The value of cloth and other items produced has increased from Rs 1,090.10 lakh in 2021-22 to Rs 1266.25 lakh in 2022-23. The value of yarn purchased and distributed was Rs 465.20 lakh in 2021-22. It has increased to Rs 496.29 lakh in 2022-23. Details are provided in **Appendix 4.6.6.**

The paid-up capital of Hanveev at the end of 2022-23 was Rs 5949 lakh. Income through sale of products at the end of the year has increased in 2022-23, compared to 2021-22. The net loss of Hanveev was Rs 1016.92 lakh in 2021-22. It reduced to Rs 342.43 lakh in 2022-23. The details regarding the financials of Hanveev are provided in **Appendix 4.6.7.**

Indian Institute of Handloom Technology (IIHT, Kannur)

Indian Institute of Handloom Technology-Kannur is an autonomous institute set up in 1987 in the name of 'Handloom Training Institute' under the aegis of Industries Department, Government of Kerala. In 2011 it was renamed as Indian Institute of Handloom Technology, Kannur. The institute is assigned as the nodal agency of Government of Kerala for implementing training and projects related with handloom and textile industry. The institute has been affiliated to Kannur University and has commenced 3-year degree course-BSc Costume and Fashion Designing in 2020. The institute is playing a key role in the setting up of the Integrated Handloom Village at Chennamangalam. A total of 81 students passing out from the institute got placed as Quality Control Inspectors and 10 students got placed as

professional designers. IIHT was instrumental in setting up the design studios in HANTEX and Hanveev.

Co-operative Sector

The co-operative sector in Textiles sector is involved in spinning and weaving activity (both powerloom and handloom) in the State. There are 8 spinning mills in the co-operative sector. In the case of weaving, the total number of power looms in the co-operative sector is estimated to be about 552. The co-operative units form about 34 per cent of total number of power looms in the State. There are 36 power loom co-operative societies in the State.

The co-operative sector in handloom sector (weaving) consists of factory type and cottage type societies. In 2022-23, there were 532 registered Primary Handloom Weavers Co-Operative Societies (PHWCS) in the State of which 195 were factory type and 337 were cottage type societies. Out of 532 registered Primary Handloom Weavers Co-Operative Societies, 335 were operational. The number of profit-making societies has increased and the number of loss-making societies has decreased in 2022-23 compared to the previous year. The number of dormant societies has also decreased in 2022-23 compared to the previous year. Details of hand loom societies in the State are given in **Appendix 4.6.8**.

The production of handloom cloth by the co-operative sector in 2022-23 was 29.40 million metres valued at Rs 91.81 crore. The production of cloth has increased and the value of production has decreased in 2022-23 compared to 2021-22. Total turnover which was Rs 107.91 crore in 2021-22, has reduced by 8.45 per cent to Rs 98.79 lakh in 2022-23. Number of looms has fallen from 13,715 in 2021-22 to 13,502 in 2022-23. The number of weavers has decreased to 11,559 in 2022-23 from 11,857 in 2021-22. Employment generated was 12.37 lakh persondays. The number of women weavers has increased in 2022-23, compared to the past two years. Details can be found in **Appendix 4.6.3**.

Power loom Sector

There are 1,631 power looms in the State of which 34 per cent (552) are in the co-operative sector. In the power loom sector, production of cloth in 2022-23 was 62.10 lakh meters valued at

Rs 9,087.54 lakh. Productivity was 3,807.76 meters per loom and the total turnover through sale of goods was Rs 8,470.52 lakh. Details are given in **Appendix 4.6.9**.

There are 6 Co-operative societies under Kerala State Co-operative Textile Federation Limited (TEXFED). Of these 5 are Powerloom/Integrated societies, namely, Neyyattinkara Taluk Integrated Powerloom Village Industrial Co-operative Society Ltd (NIPCOTEX), Kottayam Integrated Power loom Industrial Co-operative Society Ltd, Kerala Hi-Tech Textile Co-operative Ltd. (KELTEX), The Calicut Integrated Power Loom Ind. Co-operative Society and the Wayanad Handloom, Power loom and Multi-purpose Industrial Co-operative Society Ltd (WHIPCOS). The total number of looms under these societies is 565.

Spinning Mills

Spinning mill industry, one of the labour-intensive traditional sectors in Kerala, plays an important role in absorbing rural unskilled labour force. The spinning sector in Kerala includes the public sector (State and Central), the co-operative sector and the private sector. The spinning sector includes 26 mills with total spindle capacity of 7.03 lakh, employing more than 7600 people. There are 9 spinning mills under the 3 State PSUs namely, Kerala State Textile Corporation Limited (7 mills), Sitaram Textiles Limited and Trivandrum Spinning Mills Limited. There are 8 co-operative spinning mills in Kerala. They are part of Kerala State Co-operative Textile Federation Limited (TEXFED) and have a spindle capacity of 1.52 lakh. Together under State PSUs and co-operative sector, there are 17 spinning mills having 2.87 lakh spindle capacity and employing about 3500 people.

The central PSU National Textile Corporation Limited (NTC) has 5 mills with a total spindle capacity of 1.99 lakh. It employs more than 1900 people. In addition, there are two major private sector enterprises with a total of 4 mills. They have a spindle capacity of 2.16 lakh and employ more than 2200 people. Now NTC has 23 operational mills of which 4 are in Kerala.

The main problems faced by these mills are the lack of working capital and availability of raw material. To overcome shortage of raw material for the sector, Government of Kerala now procures cotton for the entire textile sector in the State through a centralised purchase system

managed professionally by a committee comprising Public Sector Restructuring and Internal Audit Board (RIAB), Kerala State Co-operative Textile Federation Limited (TEXTFED), and Kerala State Textile Corporation Limited (KSTC) and managing directors of the individual spinning mills. Sale of yarn produced by these mills is carried out through a Depot System which is monitored by the same committee. As a result, raw material costs have been brought down and the sector's performance has improved.

Government had constituted an Expert Committee to study the crisis prevailing in the mills which recommended modernisation of co-operative spinning mills in the State.

Kerala State Co-operative Textile Federation Limited (TEXTFED)

TEXTFED is the apex body of co-operative spinning mills and integrated power loom co-operative societies in the State. TEXTFED was established in 1992 as a body to plan, to assist and supervise the setting up and management of co-operative textile units in Kerala. It integrates all the segments of the textile industry including spinning, weaving, processing and garmenting. There are eight co-operative spinning mills with TEXTFED as apex body. They include the Quilon Co-operative Spinning Mills Ltd, Alleppey Co-operative Spinning Mills Ltd, Priyadarshini Co-operative Spinning Mills Ltd, Trichur Co-operative Spinning Mills Ltd, Malappuram Co-operative Spinning Mills Ltd, The Malabar Co-operative Textiles Ltd., The K. Karunakaran Memorial Co-operative Spinning Mills Ltd, and The Cannanore Co- operative Spinning Mills Ltd.

These 8 co-operative spinning mills having a total capacity of 1,51,920 spindles and directly employ 1,680 people. TEXTFED mills have done modernisation of machines with the financial assistance of the National Co-operative Development Corporation (NCDC) and Government of Kerala. This has led to improvement in productivity and quality of output. A 'Cotton Board' was constituted for the procurement of good quality cotton in the crop season at lower prices. However, the fund could not be realised in the season and the procurement couldn't be done as desired. Financial assistance from NCDC is sought to procure cotton in the next crop season.

In 2022-23, for the renovation of spinning mills under TEXTFED, an amount of Rs 1500.00 lakh assistance was provided. The Government of Kerala has considered the completion of modernisation of Integrated Powerloom Societies (Kottayam, Wayanad, Calicut and Neyattinkkara), modernisation, maintenance, purchase of raw material, procuring loom accessories for production of value-added products based on concrete viable project proposals. The Government of Kerala intends to make the mills break even through completion of the modernisation of projects taken up with State assistance.

Kerala State Textile Corporation Limited (KSTC)

Kerala State Textile Corporation Limited (KSTC) was incorporated on March 9, 1972. Its registered office is in Thiruvananthapuram, Kerala. The main objective of KSTC is setting up and running textile mills in the State, and uplifting the sick units in textile industry in Kerala. The Corporation has seven mills and one research and testing centre. The mills under KSTC are Prabhuram mills, Kottayam Textiles, Edarikkode Textiles, Malabar Spinning and Weaving Mills, Hi Tech Weaving Mills, Komalapuram Spinning and Weaving Mills and Uduma Textile Mills. Two other units Sitaram Textiles and Trivandrum Spinning Mills Limited are now under the administrative control of KSTC. In addition to the above, the corporation has under its fold a research and testing division, Centre for Applied Research and Development in Textiles (CARDT), located at Balaramapuram, Thiruvananthapuram. The agency is setting up a new printing cum dyeing unit at Nadukani KINFRA Park, Kannur.

In 2022-23, the value of production of the corporation was Rs 122.47 crore and income from sales was Rs 121.89 crore. KSTC has reported net loss in the last 5 years. The accumulated loss of the corporation at the end of 2022-23 is estimated to be about Rs 560.18 crore. Details regarding the performance of KSTC are provided in **Appendix 4.6.10.**

Sitaram Textiles Limited was started in the year 1903. In the year 1972, Government of Kerala by Public auction took over the unit. There after the unit was functioning as fully owned Government of Kerala Undertaking under the administrative control of Industries Department and it was

incorporated officially on February 14, 1975. Total human power is 177. Only the Spinning Section is functioning now and it has a capacity of around 25,000 spindles. Income from sales has increased from Rs 10.03 crore in 2021-22 to 10.59 crore in 2022-23. It has reported net loss over the years. Details regarding the performance of Sitaram Textiles Limited are provided in **Appendix 4.6.11**.

Trivandrum Spinning Mills Ltd in Balaramapuram is a State Govt company, incorporated on November 01, 1963, one of the largest handloom centres in the State. The unit had to close down in 1998. As part of the attempt to revive the industrial unit, the Government of Kerala with the help of Kerala State Textile Corporation Ltd. took steps to revive Trivandrum Spinning Mills and converted the same to a brand-new Open End (OE) spinning mill with imported state-of-the-art technology from Czech Republic, Germany and China under EPCG (Export Promotion Capital Goods) Scheme. In 2009, the Company restarted its production with the capacity of 360 rotors. Now the company has 680 rotor capacity. There are 70 employees in the unit and accumulated loss is Rs 38.61 crore. Details regarding the performance of Trivandrum Spinning Mills Ltd are provided in **Appendix 4.6.12**.

Achievements in Textile sector 2022-23

The Government Share Participation was given to 11 Primary Handloom Weaver Co-operative Societies in 2022-23. Contributory Thrift Fund Scheme covered 2,119 weaver beneficiaries in the year 2022-23. Under the 'Soujanya Kaithari School Uniform Padhathi', which is a proud scheme of the Government, free uniforms have been distributed to schools. Government Share Participation assistance was also provided to HANTEX and Hanveev. About 1,171 people attended trainings at IIHT. The self-employment scheme benefited 35 weavers. There were 2 powerloom co-operative societies receiving benefit of share participation for modernisation. Production incentive benefited about 5,265 weavers. Nearly 2,119 weavers benefited under the Weavers and allied workers motivation programme.

Issues and Challenges

Scarcity of raw materials, increase in cost of raw material, infrastructure constraints are some of the challenges faced by the sector. Mills involved in spinning and weaving in Kerala have been facing problems of both demand and supply.

Slow pace of modernisation, stiff competition, low productivity, decreasing profits and lack of working capital are also issues of concern for the textile sector in Kerala. A majority of textile spinning mills in the State are over 25 years old and they use older technologies and equipment. Upgradation was attempted in certain units, to bring it at par with the industry standards. Absence of fabric processing facilities is also a problem faced by the power loom industry in Kerala. Lack of awareness among the weavers about the facilities made available to them by the Government is also a problem.

Way forward

Kerala has a large market for clothing and the potential to emerge as a major player along various segments within the value chain (from spinning to garments). The focus for future endeavour should be on greater value creation. New products, new marketing strategies and innovation are critical for the future success of the sector. Opportunities exist in production of fabrics, bed linen, toilet and kitchen linen, towels, curtains, cushions and pads, upholstery, carpets and floor coverings, and embroidered textiles. The textile sector needs to find ways to attract the young and educated in Kerala to this sector, as entrepreneurs or as workers. The Government of Kerala has taken several measures for the modernisation of the textile sector, while ensuring the interests of workers engaged. It has to be continued. Covid-19 has opened up new opportunities in online marketing. These can be explored to tap new markets. With the economy moving towards normalcy, it is essential to utilise the emerging opportunities associated with opening up. Increasing interest in 'Made in India' products and changing international trade conditions, open up new opportunities for textiles in India and the State. The sector can benefit by grabbing the emerging opportunities.

KHADI AND VILLAGE INDUSTRIES

Khadi and Village Industries Sector in India

Khadi and village industries have the potential to create employment for rural artisans with a very low capital investment. Khadi & Village Industries Commission (KVIC), Government of India is a statutory organisation under the aegis of the Ministry of MSME, engaged in promoting and developing Khadi and Village Industries for providing employment opportunities in rural

Table 4.6.2 Production, Sales and Employment generation in Khadi & Village Industries Sector in India, 2018-19 – 2022-23

Year	Production (Rs in Crore)	Sales (Rs in Crore)	Employment(in Crore)
2018-19	58,130.34	74,292.09	1.46
2019-20	67,667.31	88,875.54	1.52
2020-21	72,235.15	95,741.36	1.59
2021-22	84,289.93	1,15,415.23	1.68
2022-23(up to 31/12/2022)	69,639.48	96,810.52	1.71

Source: Annual Report 2022-23, Ministry of Micro, Small & Medium Enterprises, Government of India

areas, thereby strengthening the rural economy. It is the one of the major organisations in the decentralised sector for generating sustainable non-farm employment opportunities in rural areas at a low per capita investment. It undertakes activities such as skill improvement, transfers of technology, research & development, and marketing. It's worth noting that there are 2,935 Khadi institutions located throughout the country. These establishments provide employment to a total of 4.97 lakh artisans, with over 80 per cent of them being women. The production in khadi and village industries (including polyvasthra and solar vasthra) in India have grown from Rs 72,235.15 crore in 2020-21 to Rs 84,289.93 crore in 2021-22. Similarly, sales of khadi goods increased from Rs 95,741.36 crore in 2020-21 to Rs 1,15,415.23 crore in 2021-22. Employment generation in khadi and village industries sector increased from 1.59 crore in 2020-21 to 1.68 crore in 2021-22. Production, sales and employment in Khadi and Village Industries in India for the last five years is shown in the **Table 4.6.2**.

Khadi and Village Industries Sector in Kerala

The Khadi industry in Kerala is bolstered by a strong foundation, rooted in its historical significance and fortified by extensive support from social and political entities. Its status as a crucial sector of the economy is undeniable, and its importance cannot be overstated. There are 29 Khadi institutions including Khadi and Village Industries Board (KKVIB), KKVIB aided institutions (14 numbers) and KVIC aided institutions (14 numbers) engaged in khadi production and sales. In 2022-23, khadi sector in Kerala provided employment to 12,527 artisans and showed an overall cloth and yarn production of Rs 3,416 lakh. The total wages paid to khadi

artisans was Rs 3,171 lakh in 2022-23 and total khadi retail sales was Rs 5,130.06 lakh. The Khadi and Village Industries Board generated 1,760 new employment opportunities through the village industries programme in 2022-23. Production and sales details of these institutions from 2019-20 to 2022-23 and employment in 2022-23 are given in **Appendix.4.6.13** and **Appendix 4.6.14**.

Budget provision and expenditure of the sector for the last 3 years is provided in **Table 4.6.3**.

Table 4.6.3. Outlay and Expenditure of Khadi and Village Industries Sector in Kerala (Rs.in lakh)

Year	Outlay	Expenditure	% of Exp
2020-21	1610.00	1248.45	77.54
2021-22	1610.00	1351.48	83.94
2022-23	1610.00	860.77	53.46

Source: Plan Space Kerala

Kerala Khadi and Village Industries Board (KKVIB)

KKVIB is a statutory body under the Ministry of Industries and Commerce responsible for organising, developing and promoting khadi and village industries in Kerala. The Board implements the programmes of Government of Kerala, Khadi Commission and Nationalised Banks through co-operative, registered institutions, individuals and departmental units. Schemes under State plan include the Special Employment Generation Programme (SEGP) (Ente Gramam), Prime Minister's Employment Generation Programme (PMEGP) and Rural Employment Generation Programme (REGP) of KVIC. Khadi and village industry's production, sales, employment, wages paid for the last two years is shown in the **Table 4.6.4**.

Table 4.6.4. Production, Sales and Employment in Khadi and Village Industries in Kerala in 2021-22 and 2022-23

Sector/sub sector	Value of Production (Rs in Crore)		Value of sales (Rs in Crore)		Employment (in numbers)	
	2021-22	2022-23	2021-22	2022-23	2021-22	2022-23
Khadi sector	60.01	34.16	115.61	51.30	12706	12527
Village industries Sector	101.36	155.22	104.51	164.79	40862	43350
Total	161.37	189.38	220.12	216.09	53,568	55,877

Source: Kerala Khadi and Village Industries Board

Table 4.6.5. Fund allocated to and Expenditure incurred by Khadi & Village Industries Board in Kerala, Rs in lakh.

Particulars	2021-22		2022-23	
	Receipt	Expenditure	Receipt	Expenditure
State Government Grant -PLAN	1351.48	1320.83	915.77	872.85
1. Administrative Expenses (Budget provision)				
2. Income Support Scheme (Fund through DIC)	3300.00	4635.75	1500.00	1500.00
State Government Grant - NON-PLAN	4599.45	4635.75	4832.00	4903.54
1.Non- Plan – Administrative Expenses				
2.Non- Plan – Special Rebate	1400.00	1400.00	1000.00	1000.00
KVIC Grant				
PMEGP – Margin Money	1655.75	806.08	1738.50	1143.91

Source: Khadi and Village Industries Board, Government of Kerala.

The allocation of funds from various sources to KVIB and the expenditure incurred by the Board in 2021-22 and 2022-23 is shown in **Table 4.6.5**.

Special Employment Generation Programme

Special Employment Generation Programme provides margin money subsidy to small entrepreneurs and traditional artisans through bank linked projects, based on appraisal of the project and approved guidelines by Industries and Commerce Department. In 2022-23, Khadi Board created total project investment of Rs 2,437.18 lakh through 759 village industries and created 1,760 employment opportunities. District-wise details of achievements under self-employment generation programme in 2022-23 are given in **Appendix 4.6.14** and **Appendix.4.6.15**.

Prime Minister's Employment Generation Programme (PMEGP)

PMEGP is a credit-linked subsidy programme that aims at generating employment opportunities through establishment of micro enterprises in rural as well as urban areas. The objective of the programme is to provide continuous and sustainable employment to a large segment of traditional and prospective artisans, and rural and urban unemployed youth in the country. The scheme facilitates participation of financial institutions for higher credit flow to micro sectors. Under the programme, government subsidy will be credited to the bank accounts of micro enterprises. It is supervised by the Khadi and Village Industries Board and also distributed as additional wages. Through the scheme, Prime

Table 4.6.6. Achievements under Prime Minister's Employment Generation Programme (PMEGP) in 2022-23

Sl.No.	Programme	No. of Units	Production (in lakh)	Sales (in lakh)	Employment (in number)	Wages (in lakh)
1	PMEGP	315	5,405	6,216	2484	896.00

Source: Khadi and Village Industries Board, Government of Kerala.

Minister's Employment Generation Programme (PMEGP), the board created capital investment of Rs 3,378.34 lakh for 315 units and number of employments created were 2,484. Achievements under the programme in 2022-23 is given in **Table 4.6.6**.

Khadi Gramam Programme

Khadi Gramam Programme is envisaged to establish 3,000 charkhas and 2,000 looms at household levels in selected grama panchayaths on a cluster mode providing employment to 5,000 people, mostly women or those belonging to disadvantaged sections.

Marketing

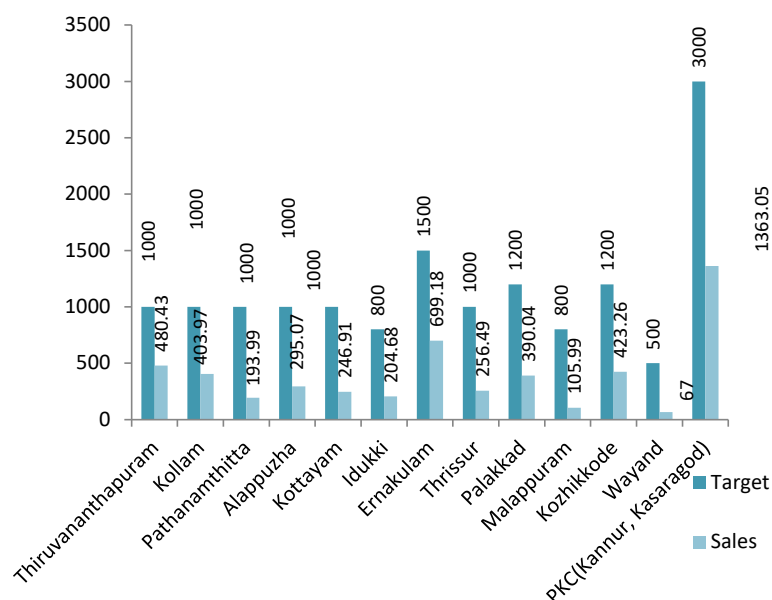
The KKVIB has 185 sales outlets for khadi and village goods. District-wise details of departmental sales outlets and sales under KKVI Board for 2021-22 and 2022-23 is given in **Appendix 4.6.16 & Appendix 4.6.17**. **Figure 4.6.1** portrays district - wise sales targets and achievement in 2022-23.

Issues and Challenges of Khadi & Village Industries in Kerala

- Khadi products experience significant seasonal demand fluctuations, with certain products being more popular during specific times of the year due to various factors such as weather, cultural events, and fashion trends.
- There is a considerable gap between production and sales of khadi.

- Under utilisation of production capacity is another issue. There are sufficient number of charkhas and looms in Kerala. Lack of funds for purchasing spare parts and servicing of implements is a major issue faced by khadi institutions. Many charkha and looms are lying idle.
- Major issue of khadi sector is low productivity.
- Lack of high-quality muslin and silk fabrics in Kerala
- Khadi sector uses traditional mode of production so that sector faces the challenges of adapting changing economic environment.
- Wide spread production and use of spurious khadi is a serious challenge to khadi sector.
- Infrastructure facilities in most of the sales outlets are poor and fail to attract the customers.
- Marketing of products is a major problem due to high competition, low publicity and advertisement
- Impact of GST on khadi: Khadi Institutions are now mandated to obtain registration under GST and also pay 5 per cent GST on various Khadi products.
- Slow trickle-down of research and development works.
- Khadi institutions need to improve the professional management and professional competency to cope up with present day challenges.

Figure 4.6.1. District wise Sales targets and achievement 2022-23, Rs in lakh



Source: Khadi and Village Industries Board, Government of Kerala.

Way forward

To survive in any industry, innovation in production and marketing of products is crucial. The khadi sector, being a traditional industry, heavily relies on government support for its survival. However, it is necessary to make the sector self-sufficient and adaptable to the changing economic environment. By promoting and ensuring the sustainability of businesses in this sector, the State can become a global leader in sustainable fashion. Kerala's youth have a great potential to contribute to the growth of khadi with their innovative solutions and ventures. With immense support from the government and national institutes, the opportunities for entrepreneurship in this sector are at an all-time high.

COIR INDUSTRY

Coir Industry in India

The coir industry contributes significantly to Gross Value Added and employment in India, particularly in States such as Kerala, Tamil Nadu, Andhra Pradesh, Karnataka, Maharashtra, Goa, Odisha, Assam, Andaman and Nicobar, Lakshadweep and Puducherry. This sector provides direct and indirect employment to about 7.5 lakh persons and about 80 per cent of workforce in this sector are women.

From 2018-19, production, exports and employment generation in the coir sector has been increasing. In 2022-23, annual production of coir fibre was 7,91,000 MT. Total number of employments generated is 7,47,637 as on March, 23. Exports of coir and coir products from India was Rs 3,992.17 crore (Provisional). Indian coir exports are destined for more than 100 countries. USA is the largest importer of coir products in terms of value, while China is the largest importer in terms of quantity. Coir Pith constitutes more than 50 per cent of export value and quantity. The export market of coir products has been witnessing major shifts in terms of the composition of products exported. The export of traditional products like mattings, carpets has been showing declining trends and demand for 'coir pith', 'coir fibre', 'tufted mats', etc. are increasing steadily over the past few years. (Source: Coir Board, Government of India and Ministry of Micro, Small and Medium Enterprises, Government of India).

The coir industry assumes significance because it is agro-based, has a large presence in rural areas, and involves a large proportion of women workers (80 per cent) and workers belonging to the economically and socially disadvantaged sections. India currently exports about 14 coir products, which include coir pith, coir fibre, tufted mats, handloom mats, geo textiles, coir yarn, curled coir, handloom matting and rubberised coir. Currently, only 40 per cent of the coconut husk is utilised by the coir industry, and there is potential for further development of the industry.

Coir Industry in Kerala

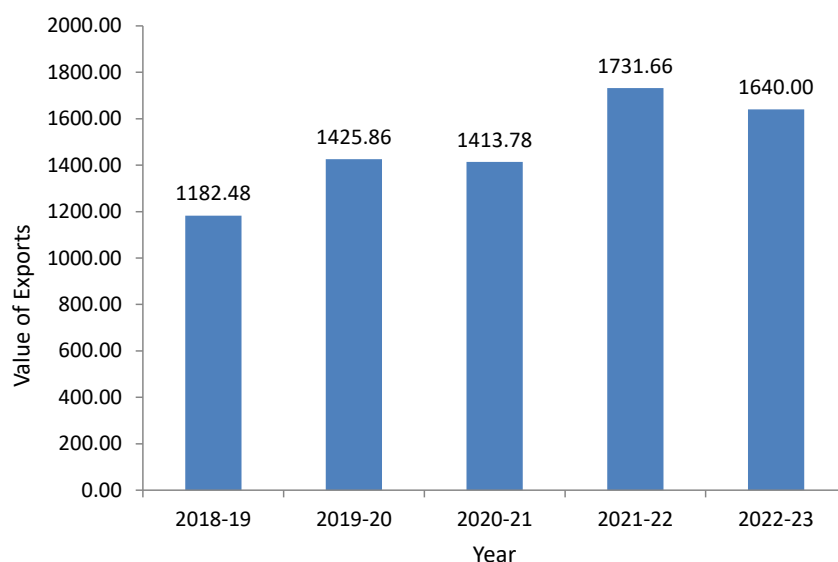
Kerala is the home of the Indian coir industry, particularly white fibre, accounting for 61 per cent of coconut production and over 85 per cent of coir products. Coir sector is the foremost traditional industry in Kerala employing nearly 1.5 lakh coir workers, of which 80 per cent are women. The entire processes in coir industry can be segregated into three major segments, namely fibre extraction, spinning and products sectors. The fibre extraction and spinning segments are mostly concentrated in the co-operative sector while the manufacturing segment is mostly running in factory mode with large presence of exporters.

Coir industry is also significant to Kerala for its role in generating export earnings. State Public Sector Undertakings and private entrepreneurs are engaged in export of coir and coir products in Kerala. In Kerala, the Coir PSUs namely Kerala State Coir Corporation and Foam Matting (India) Limited along with Coirfed are engaged in export of coir products. Export from these agencies has been increasing continuously since 2015-16. From Rs 1,413.78 lakh in 2020-21, exports had increased to Rs 1,731.66 lakh in 2021-22 and Rs 1,640.00 lakh in 2022-23. Details are provided in **Figure 4.6.2** and **Appendix 4.6.18**.

Performance under schemes and programmes in coir sector

In Kerala, Directorate of Coir Development is the nodal agency to implement the schemes of coir industry. In the Thirteenth Five Year Plan, State Government allocated an outlay of Rs 636.19 crore for the sector through Annual Plans which excludes outlay to PSUs. The expenditure reported is Rs 658.72 crore (103.54 per cent). Outlay for the sector in 2022-23 was Rs 117 crore as against the expenditure of Rs 102.2 crore (87 per cent). Details are provided in **Table 4.6.7**.

Figure 4.6.2. Export of Coir and Coir products by Kerala State PSUs and Coirfed, in Rs lakh



Source: Directorate of Coir Development, GoK.

Table 4.6.7 State Plan Outlay and Expenditure for Coir sector (excluding PSUs), in Rs lakh

Year	Outlay	Expenditure	Percentage of expenditure
2017-18	12,812.00	9,872.89	77.06
2018-19	14,108.00	12,766.13	90.49
2019-20	14,151.00	8,247.06	58.28
2020-21	11,274.00	21,913.40	194.37
2021-22	11,274.00	13,072.26	115.95
13th Plan	63,619.00	65,871.74	103.54
2022-23	11,700.00	10,218.23	87.34
2023-24*	11,700.00	6,043.83	51.66

Source: Budget Programme Book various years and Plan Space Kerala.

*Expenditure as on 19/10/2023

One of the most significant achievements in the coir sector in the recent years has been the implementation of a comprehensive revival and transformational package called '2nd Reorganisation of Coir Industry'. Through the programme, effort is taken to mechanise the coir sector and protect the wages of labourers, at the same time. The package includes State and NCDC fund. The package involves activities in 5 thrust areas namely i) Technology enabled procurement and decentralised fibre extraction, ii) Distinct strategy for traditional spinning and weaving sector, iii) Modernisation of industrial spinning and weaving sector (focussing on geotextiles), iv) Product diversification of industrial coir – focus on non-woven and v) Institutional support for

the coir sector and dynamic markets. The push for reorganisation also including among others, modernisation and mechanisation, is starting to benefit the sector. Around 137 new defibring units (DF) and 11 fully automatic looms have been established across the State. Many of the units have reported an increase in capacity from 10,000 husks per day to 80,000 husks per day. Through the operation of new defibring units, the husk utilisation in the State has risen from 12.5 per cent to 14.8 per cent. New applications for pith and short fibre are discovered. As a result, the value of raw coir pith has risen. With the introduction of over 26,000 good quality electronic ratts, and 1493 Automated Spinning Mills (ASMs) in over 140 societies, yarn production has jumped from 7,880

tonne in 2016 to 18,662 tonne in 2022. Yearly income of coir workers in traditional spinning sector have increased to Rs 50,000 in 2022 from Rs 13,000 in 2016. The daily wage of ASM workers has increased to about Rs 500 per day. In 2022-23, under the National Rural Employment Guarantee Scheme, about 65 lakh square meters of coir geo textiles has been produced and supplied within the state.

In 2022-23, under the scheme 'Publicity Propaganda including Trade Exhibitions', 4 PSUs and 5 private sector enterprises got benefits. An amount of Rs 9 crore was distributed to 29 Mats and Mattings societies, Coirfed, FOMIL, and KSCC as 'Market Development Assistance for sale of coir and coir products. An amount of Rs 54 lakh was spent through NCRMI under the scheme 'Assistance for the Development of Coir Geotextiles Development Programme'. Under the scheme, 'Regulated Mechanisation of Coir Industry', benefits to the tune of Rs 12.32 crore was accrued via NCRMI, FOMIL, KSCC, Coirfed, KSCMMC, 21 CVCS's (infra), 6 private units (investment Subsidy), 2 societies (ASM installation), and 2 societies (Electronic Weighing Machines). Production and Marketing Incentive (PMI Scheme) worth Rs 9.28 crore was provided to 463 CVCS's. To ensure minimum price to the industry, an amount of Rs 35.17 crore was spent through KSCC, and Coirfed under the Scheme 'Price Fluctuation Fund'. 'Government Share Participation in coir co-operatives' was provided to one SCVCS and 3 CVCSS. Benefits to the tune of Rs 25.99 crore was provided to 67 CVCSS under the Scheme 'Reorganisation of Coir Industry – II Phase'.

Directorate of Coir Development and Agencies in Kerala Coir Sector

The Directorate of Coir Development acts as a facilitator for the promotion and sustainability of the coir industry in Kerala. Kerala State Coir Corporation (KSCC), Foam Mattings (India) Ltd (FOMIL), Kerala State Co-operative Coir Marketing Federation Ltd (Coirfed), National Coir Research and Management Institute (NCRMI), Kerala State Coir Machinery Manufacturing Company (KSCMMC), Kerala State Coir Workers Welfare Fund Board are the important agencies functioning for the promotion of coir industry. The co-operative sector plays a substantial role in activities like collecting husk, defibring, and production of yarn and other products in the Coir sector.

Coir Co-operative societies

The total number of coir co-operative societies in Kerala has increased marginally from 1,096 in 2021-22 to 1,103 in 2022-23. Of this, the number of working societies was 546. The number of profitable societies has reduced from 290 in 2021-22 to 199 in 2022-23. The number of societies under liquidation has increased from 257 to 271. The number of loss-making societies has increased from 278 in 2021-22 to 347 in 2022-23. Almost 65 per cent of the total number of working societies is primary co-operative societies engaged in the yarn sector. The non-yarn sector includes manufacturing societies (mats and mattings) and small-scale producers' co-operative societies. The total number of manufacturing societies (mats and mattings) and the number of small-scale producers' co-operative societies has remained more or less stagnant but the number of profit-making societies has decreased. Details are provided in **Appendix 4.6.19**.

The two important sub sectors within the coir industry are yarn sector and product sector. The number of workers engaged in the coir co-operative societies in the yarn sector has decreased from 39,256 in 2021-22 to 22,596 in 2022-23 (42.43 per cent). The amount of wages paid in the sector decreased from Rs 48.54 crore in 2021-22 to Rs 45.25 crore in 2022-23. Compared to 2021-22, the value of husk procured, the value of fibre purchased and the value of yarn produced have decreased in 2022-23. The number of workers in the product sector in the co-operative societies has also decreased significantly in 2022-23 compared to the previous year. Details are provided in **Appendix 4.6.20**.

Coirfed

The Kerala State Co-operative Coir Marketing Federation Ltd (Coirfed) is the apex federation of primary coir co-operative societies spread all over Kerala. Coirfed has 11 factories for producing various coir related products and runs around 50 signature shops throughout the country. The main objective of the federation is procurement of the products of the member societies and marketing of these goods through its sales outlet. The process helps in providing fair wages and subsistence to the poor coir workers of Kerala. Coirfed has two facilities for the manufacturing of value-added products. One factory produces rubberised coir products and the other produces

rubber backed coir mats. Coirfed has 4 defibring units. Income from sales has decreased since 2020-21. Income from sales has decreased from Rs 152.9 crore in 2020-21 to Rs 82.00 crore in 2022-23. As a whole, the annual net loss of the agency has been decreasing since 2018-19. Details are provided in **Appendix 4.6.21**.

Kerala State Coir Corporation

The Kerala State Coir Corporation Ltd was established in 1969 to help the small-scale coir manufacturers by providing them assistance in manufacturing and marketing. Over the years, the Corporation has been procuring the produce of small-scale manufacturers, thereby reducing their dependence on the intermediaries. They provide the procured products to exporters and other sellers. KSCC also runs 11 showrooms (8 in Kerala and 3 outside Kerala). The Kerala State Coir Corporation has 3 production centres in Kerala. One more unit is being established in Adoor. The products produced/traded by the corporation include PVC tufted Coir mats/mattings, Coir pith, Coir yarn, Coir fibre and curled rope. KSCC exports their products to various countries including Australia, Brazil, USA, Poland, France, Kuwait, Kazakhstan and Guatemala.

The corporation implements the Purchase Price Stabilisation Scheme (PPSS) in coir sector. Value of procurement under the PPSS has increased from Rs 99.83 crore in 2017-18 to Rs 213.85 crore in 2020-21. However, it has decreased to Rs 104.39 crore in 2022-23. The income from sales of the corporation increased from Rs 177.38 crore in 2018-19 to Rs 231.65 crore in 2020-21. However, it has fallen to Rs 134.13 crore in 2022-23. The PSU has continuously reported net profit. Its net profit has increased from Rs 14.77 lakh in 2017-18 to Rs 62.44 lakh (Provisional) in 2022-23. Details are provided in **Appendix 4.6.22**.

National Coir Research and Management Institute (NCRMI)

The NCRMI is setup to strengthen the research and development activities of coir sector with a view to enable the industry to produce more value-added products and new design products at competitive price.

The activities of the research institute in 2022-23 can be classified under the following heads - i) Demonstration projects including use of coir geo cell for slope stabilisation and cultivation,

coir geotextile for slope stabilisation, application of coir geotextile as much, and retaining wall using coir bamboo reinforcement, Erosion control using coir geotextile by rejuvenation of Rock patches ii) Collaborative projects including development of polymer coir composites for electrical insulation, Collaborative project on canal bank protection using geotextile and cocolog at Nedumudi Panchayath, (iii) Machine development including development of Mobile Tender coconut Crushing Machine, development of Tender coconut Crushing Machine, development of fully automatic creel mat Loom, up gradation of engineering workshop, (iv) Technology development including utilisation of coir pith for the production of bio plastic using significant microbial strains, optimisations of pith activator for the composting of household organic waste using passive aeration bin, technology dissemination and training of coir pith composting to the workers of defibring units, development of technology for conversion of tender coconut husk into organic manure, field evaluation of differently treated coir pith compost developed by NCRMI, collaborative project on Identifying coir pith based nutrient rich growing media suitable for vegetable cultivation in terraces between Kerala Agricultural University and NCRMI, collaborative project for the Fortification and Enrichment of Coir Pith Compost and its evaluation, development of biofilm on coir based biomass carriers for treating effluent water, development of bacterial consortia to treat ret liquor, treatment of coir fibre with various biological and chemical agents to improve the texture and colour, v) Commercial activities including PEATKOL Dots, Ecoir bag, tricopith spawn production and pith activator, vi) management and technical training, and vii) skill development training.

Foam Mattings (India) Limited (FOMIL)

Foam Mattings (India) Limited (FOMIL) is a Government of Kerala undertaking. Founded in 1979, company is engaged in the production, manufacturing and marketing of coir, jute and sisal products under the brand name FOMIL. It was established with an authorised capital of Rs 800 lakh and paid-up capital of Rs 666.73 lakhs. FOMIL caters to the needs of domestic and international markets with a wide range of products – mattings, door mats, rugs, carpets, coir tiles, car mats, coir geotextiles and a host of other environment friendly products. Company has recently released novel gift packs of foot mats,

carpets and floor decors made from coir and jute fibre. The company has state of the art facilities like Latex Backing Plant, Modern Dye House, and Fully Automatic Powerloom where spare capacity is used for undertaking works of other exporters. New products from the company like coir pith manure and coir tiles are having good demand in the market. A new factory for manufacturing coir composite boards has been established and it is proposed to be revamped with the support of Institute of Wood Sciences and Technology. It successfully installed a new wood fired Thermic Fluid Heater as an alternative for the Diesel fired Thermic Heater, thereby reducing the fuel cost by about 60 per cent.

The State PSU has reported loss in the last 5 years and the accumulated loss of the PSU was estimated to be about Rs 16.93 crore at the end of 2022-23. Income from the sale of products is decreasing since 2018-19. However, in 2022-23, it is expected to increase to Rs 12.20 crore. Details are provided in **Appendix 4.6.23**.

Kerala State Coir Machinery Manufacturing Company Ltd (KSCMMC)

Kerala State Coir Machinery Manufacturing Company Ltd (KSCMMC) was established in 2014, in Alappuzha by the Government of Kerala for the organisation of Coir Industry, to provide the machinery needed for the coir sector in Kerala. Company has a well-established machine shop, Quality Assurance Department, Research and Development Department, Marketing and after Sales Service Department. KSCMMC has manufactured and installed 174 defibering mills so far. It has manufactured and supplied 29,832 electronic rats having production capacity of 15 to 18 kg yarn in a single shift. Around 1500 Automatic Spinning machines having production capacity of 50-80 kg per shift were also manufactured and installed in coir co-operative societies in Kerala. The increased production of coir yarn through automatic spinning machines by KSCMMC has increased the per capita income of coir workers in the State.

The sales revenue of KSCMMC has increased from Rs 8.31 crore in 2018-19 to 15.06 crore in 2022-23. Sales revenue had peaked at Rs 32.87 crore in 2020-21. After a year of net loss in 2021-22, the company is reporting a net profit of Rs 81.49 lakh in 2022-23. Details are provided in **Appendix 4.6.24**.

Central Government Schemes

The Central Government has implemented various schemes for the Coir sector. The Coir Board a promotional body functioning under the Government of India is implementing various schemes for the promotion of the coir industry across the country. It is the implementing agency for Coir Vikas Yojana, and the other central sector schemes like Scheme of Fund for Regeneration of Traditional Industries (SFURTI), Prime Minister's Employment Generation Programme (PMEGP), and A Scheme for Promotion of Innovation Rural Industries and Entrepreneurship (ASPIRE). There are 17,054 coir units and 1904 coir exporters registered with the Coir Board. Under the Umbrella scheme Coir Vikas Yojana (CVY), the Coir Board has been implementing various sub-schemes for augmenting investment, enhancing availability of trained personnel, improving domestic and export market, etc. in coir sector. A total of 2,794 people were provided training. In addition, 23 Entrepreneurship Development Programmes (EDPs), 27 awareness programmes, 6 national seminars, 6 workshops and 4 exposure tours were organised. 50 entrepreneurs were supported to attend 5 international exhibitions abroad. It participated in 97 exhibitions across the country and Market Development Assistance worth Rs 6.88 crore was disbursed to different State governments.

Under the scheme of Fund for Regeneration of Traditional Industries (SFURTI) of the Government of India, Coir Clusters are being established in different coconut producing States/UTs. This is to pave the way for a faster growth of the coir industry in the Country. Out of the 40 clusters approved, 4 are in Kerala. The recent inclusion of coir industry under the purview of Prime Minister's Employment Generation Programme (PMEGP) is expected to contribute to employment generation in the sector especially for the youth. Three Livelihood Business Incubators attached to field offices of Coir Board have been established under the ASPIRE scheme.

Challenges and the way forward

The industry is facing challenges like relatively low wages in traditional coir sector and the shortage of raw material. Effective models for procurement of raw material, modernisation of its production and organisation are urgent requirements in the industry. The push on behalf of the State

Government for mechanisation and modernisation have started showing positive results and need to be followed up with enhanced linkages up and down the value chain and adequate marketing. The modernisation process has to be completed in a time bound manner. Continued hand-holding by the Government in modernisation of technologies and regulation of market-driven price fluctuations is important to propel the industry on a self-sustaining path. However, models to developing self-sustaining units require greater emphasis. The sector can be expected to do well over the coming years with emphasis on innovations, competitiveness, diversification and tapping of new markets.

CASHEW INDUSTRY

Considered the wonder nut in the international market, Cashew occupies the third position (20 per cent) after almond (27 per cent), and walnut (22 per cent) in global tree nut production in 2022-23. As per the Nuts and Dried Fruits Statistical Yearbook 2022-23 published by the International Nut and Dried Fruit Council (INC), global cashew production has risen steadily over the past decade, peaking in 2022-23 at 10,95,030 metric tons (kernel basis) or 50 lakh tons of raw cashew nuts (RCN). India is a major producer (of raw cashew nut and kernels), consumer and exporter (shelled) of cashew nut. Details of production of cashew by leading producers are given in **Table 4.6.8**.

Vietnam was the leading exporter of cashew kernels in calendar year 2021 (January-December), accounting for 65 per cent (4.56 lakh metric ton) of global exports. USA, European Union and UK, and China were its top markets, accounting for 36 per cent, 30 per cent and 6 per cent of the country's exports respectively. India was the second largest exporter of cashew kernels with an export of 71,139 metric tons and share of 10 per cent in global exports. India's main markets were

Asia (59 per cent, led by the UAE, Japan and Saudi Arabia), European Union and UK (34 per cent). Of the 14 lakh metric tons of raw cashew nuts (in-shell) that were shipped in 2021, India imported 8,79,670 metric ton, the majority of which came from Western Africa (82 per cent), and Eastern Africa (9 per cent) (Source: Nuts and Dried Fruits Statistical Yearbook 2022-23, INC-International Nuts and Dried Fruit Council)

Cashew Sector in India

Cashew was first introduced in India in Goa from where it spread to other parts of the country. The major areas of cultivation of cashew in India are in Kerala, Karnataka, Goa and Maharashtra along the West Coast, as well as in Tamil Nadu, Andhra Pradesh and Orissa along the East Coast and to some extent in the States of West Bengal, Chhattisgarh, Gujarat, Jharkhand and the North-eastern States.

According to the Directorate of Cashew and Cocoa Development (DCCD), Government of India, in 2022-23, cashew was grown in an area of 11.92 lakh hectares in India with a total production of 7.81 lakh MT of raw cashew nuts.

The largest producer of cashew nut in India is the State of Maharashtra followed by Andhra Pradesh and Odisha. In terms of total production of raw cashew, Kerala ranks 6th (0.74 lakh MT) among the producing states. The largest area under cashew nut production in India is in the State of Odisha (2.23 lakh hectares) followed by Andhra Pradesh (1.98 lakh hectares) and Maharashtra (1.91 lakh hectares). Kerala has an area of 1.08 lakh hectares under cashew production and is sixth in terms of area under cashew production. State wise details of cashew nut production and area are provided in **Appendix 4.6.25**.

Cashew kernels are obtained through processing (roasting or steaming, shelling and peeling) of raw

Table 4.6.8 Country-wise production of cashew nut—in 2022-23, in MT

Rank no	Country	Production of Cashew kernels	Production of RCN
1	Cote d'Ivoire	2,47,000	12,00,000
2	India	1,62,000	6,75,000
3	Cambodia	1,38,000	6,70,000
4	Vietnam	92,000	4,00,000
5	Tanzania	44,000	2,00,000

Source: Nuts and Dried Fruits Statistical Yearbook 2022-23, INC-International Nuts and Dried Fruit Council

cashew nuts. Cashew Kernels are graded into white or scorched wholes, pieces, splits, butts depending on the shape, size and colour of the kernel. The Export (Quality Control and Inspection) Act 1963 prescribes 33 different grades of cashew kernels. W-180, W-210, W-240, W-320 and W-450 are some of the popular grades of cashew produced in India.

The export of cashew kernels from India has been falling in terms of quantity since 2019-20 and in terms of value since 2018-19. According to the Cashew Export Promotion Council of India (CEPCI), in 2022-23, the total quantity of export of cashew kernels from India was 44,948 MT valued at Rs 2,718 crore. Compared to 2021-22, there has been a decrease of 16.40 per cent in quantity, and 14.39 per cent in terms of value. The domestic production of cashew nut in India is not sufficient to cater to the cashew processing industry's current requirement or installed processing capacity of about 20 lakh MT. Hence, India imports raw cashew nut from other producing countries. India had imported a total of 13,29,751 MT of RCN in the year 2022-23 valued at Rs 14,247.73 crore. There is an increase compared to previous year. The increase is 42 per cent in quantity terms. India has also been importing cashew kernels. The quantity of import was 2421 MT valued at Rs 121.73 crore in 2022-23. However, the quantity and value of cashew kernel import are decreasing since 2018-19.

Cashew Sector in Kerala

The cashew industry is a major traditional agro-based industry in Kerala. The cashew processing industry in Kerala is clustered around the Kollam District in Kerala, which is traditionally known

as the global cashew trading capital. Cashew processing in Kerala has been a labour-intensive industry and has a long history of employing a large number of women workers. It is estimated that roughly there are about 830 formal and informal cashew processing units in Kerala, employing about 3 lakh workers of which 90 per cent are women. However, a large number of cashew processing units (about 730) are not functioning due to losses. The number of working cashew processing units is about 100 where approximately one lakh workers are employed. About 65 per cent of the cashew exporting and processing units officially registered with the Cashew Export Promotion Council of India (CEPCI) are from Kerala. Cashew processing is concentrated mainly in the private sector. The co-operative sector has limited presence in cashew processing. There are two public institutions engaged in the cashew processing industry in Kerala, namely Kerala State Cashew Workers Apex Industrial Co-operative Society Ltd (CAPEX) and Kerala State Cashew Development Corporation (KSCDC).

In 2020-21, the share of Kerala in export of cashew kernel from India was 49.87 per cent in terms of quantity and 50.27 per cent in terms of value. According to Cochin Port Trust, the quantity of cashew kernels exported from Cochin Port in 2022-23 was 21,858 MT. This is 48.6 per cent of total cashew kernel export from India (44,948 MT).

In Kerala the production of raw cashew nut increased from 80,000 MT in 2014-15 to 88,180 MT in 2017-18. However, the production has subsequently fallen to 74,630 MT in

Table 4.6.9 Production of raw cashew nut in Kerala – 2014-15 to 2022-23, in hectares and MT

Year	Area (in 000 ha)	Annual growth, in %	Quantity (in MT)	Annual growth, in %
2014-15	84.5	-0.4	80,000	-0.2
2015-16	87.0	2.9	72,000	-10.0
2016-17	90.87	4.5	83,980	16.6
2017-18	92.81	2.1	88,180	5.0
2018-19	96.65	4.1	82,889	-6.0
2019-20	98.82	2.2	69,624	-16.0
2020-21	103.21	4.4	73,105	5.0
2021-22	106.52	3.2	71,760	-1.8
2022-23	108.59	1.9	74,630	4.0

Source :Directorate of Cashew and Cocoa Development (DCCD), Government of India

2022-23. The area under cultivation of cashew has increased from 84,500 hectares in 2014-15 to 1,08,590 hectares in 2022-23. Mismatch between area and production is attributed to replantation and gestation period for production. Details are provided in **Table 4.6.9**.

The challenges to expansion of cashew cultivation in Kerala include the pressure on land in the State, and the erstwhile shift to cash crops like rubber (particularly due to the absence of plantation status to cashew). Many of the cash crops have a long gestation period and to be economic, the activity has to be continued for a relatively longer period of time. Hence, an immediate large shift to cashew from other cash crops is not possible. In the last decade, Kerala has initiated steps to expand area under cultivation of cashew, production and productivity. Though positive changes are visible, there is further scope for improvement. It is also noted that Kerala has vast areas under cashew cultivation which have not been replanted. A major reason limiting improvement in productivity in cashew cultivation is the fact that nearly 70 per cent of the cashew trees in the State are aged, local varieties, which start yielding late in the season. Climate changes such as excessive rainfall and high humidity adversely affected cashew cultivation.

Agencies in Cashew Sector

Kerala State Cashew Development Corporation (KSCDC) and Kerala State Cashew Workers

Apex Co-operative Society (CAPEX) are the two State Government agencies involved in the processing of cashew in the State. Kerala State Agency for the Expansion of Cashew Cultivation (KSACC) and Kerala Cashew Board (KCB) are the other two State Government agencies in the sector. Cashew Export Promotion Council of India (CEPCI) and the Directorate of Cashew and Cocoa Development (DCCD) are the other agencies involved in cashew promotion. The details regarding the outlay from State Annual Plan and expenditure incurred in 13th five-year plan and 2022-23 are provided in **Table 4.6.10**.

Kerala State Cashew Development Corporation (KSCDC)

Kerala State Cashew Development Corporation Ltd. (KSCDC) was formed in 1969 as a company fully owned by the Government of Kerala. KSCDC currently operates 30 factories, of which 20 are private factories run by KSCDC based on agreement. Modernisation of facilities and purchase of cutting machines has increased the productivity from 85 MT per day to 115 MT per day. KSCDC has achieved this productivity without going for any labour reduction. KSCDC has recruited around 301 women workers under 3rd 100 day's program of Government. Number of working days and turnover has fallen since 2019-20. In 2022-23, KSCDC provided employment to 11,136 people. The number of working days in factories was 71 days. Income from sales of

Table 4.6.10 Plan outlay and expenditure of State Government agencies in cashew sector, 13th Five-Year Plan, 2022-23 and 2023-24 (in Rs crore)

Sl no	Agency	13th Five Year Plan			2022-23			2023-24 (as on 30-11-2023)		
		Outlay	Expenditure	Expenditure (in %)	Outlay	Expenditure	Expenditure (in %)	Outlay	Expenditure	Expenditure (in %)
1	Kerala Cashew Board Ltd	115.20	100.10	86.89	40.85	60.85	149.0	43.55	43.55	100.0
2	Kerala State Cashew Development Corporation	98.00	239.55	244.4	6.00	3.26	54.33	3.25	1.43	44.00
3	Kerala State Agency for the expansion of Cashew Cultivation	30.80	13.39	43.47	7.15	3.03	42.38	7.20	1.16	16.11
4	CAPEX	25.00	61.02	244.1	4.00	1.47	36.75	4.00	1.83	45.75
Total		269.00	414.06	153.93	58.00	68.61	118.3	58.00	47.97	82.71

Source: Plan Space, State Planning Board

Table 4.6.11 Sales turnover of KSCDC, in Rs crore

Period	Turnover	Cost of raw material	Cost of human power	Profit/Loss
2018-19	132.33	134.49	70.45	-100.27
2019-20	173.13	120.09	75.39	-44.56
2020-21*	87.44	71.97	48.91	-85.15
2021-22*	112.76	82.55	61.64	-77.62
2022-23*	90.62	72.38	45.78	-78.09

Source: KSCDC, Kollam

Note: * Provisional

KSCDC in 2022-23 was Rs 90.62 crore. The agency has been reporting loss in recent years. Details are given in **Table 4.6.11** and **Appendix 4.6.26**.

KSCDC is marketing its value-added products and trying to sell more products directly to the end customers which is giving it better margins. The agency has launched new products such as gift hampers (250-gram tins, platinum and premium boxes), assorted premium cashews and jumbo cashews. These products have received good response from customers. KSCDC has also started outlets to increase the sales. It supplies grafts in grow bags, at a discounted price. Details regarding performance of KSCDC can be found in **Appendix 4.6.27**.

Kerala State Cashew Workers Apex Industrial Co-operative Society Ltd. (CAPEX)

CAPEX was set up at Kollam in 1984 as an apex body to take care of the operations of factories of 10 primary co-operative societies under Government of Kerala. The State Government created the framework for CAPEX by purchasing the dormant cashew factories. Its major function includes procurement, management of processing through co-operative societies and marketing.

It procures raw nuts, distributes the same to the primary societies and gets them processed, and markets the kernels. These are done with the aim of bringing down the processing costs and providing continuous employment and fair wages to the workers.

In 2022-23, CAPEX provided employment to 3,970 workers for 93 working days. Total sales turnover in 2022-23 was Rs 53.82 crore (Provisional). Details regarding the functioning of CAPEX are given in **Appendices 4.6.28** and **4.6.29**. Details regarding sales and turnover of CAPEX are given in **Table 4.6.12**.

In 2022-23, Plan fund of Rs 146.50 lakh was utilised for installing peeling tables, chairs, and electric bormas. CAPEX made civil constructions at factories, bought sales van and took brand development measures etc. with this fund.

Kerala State Agency for the Expansion of Cashew Cultivation (KSACC)

KSACC was constituted by the Government of Kerala in 2007 to promote cashew cultivation and to ensure adoption of innovative technologies. KSACC started the project 'Cultivation of Organic Cashew and Establishment of Raw Nut Bank'

Table 4.6.12 Sales turnover of CAPEX, in Rs crore

Year	Working Days	No. of Workers	Total Sales Turnover 9 Rs in	Raw material cost	Cost of human power	Profit / Loss
2018-19	190	3980	76.51	75.31	25.57	-19.81
2019-20	206	4209	85.19	50.87	31.06	-16.95
2020-21	142	4130	46.89	44.74	23.27	-17.56
2021-22	179	4100	63.15	42.40	27.49	-22.24
2022-23 (Provisional)	93	3970	53.82	*	*	*

Source : CAPEX

Note: * Annual audit in progress

from 2007-08. In the financial year 2022-23, agency distributed 3,37,550 grafts among farmers and institutions. It is estimated to cover a total area of 1,380.5 hectares. Two Model Cashew Gardens have been established in the State. One is located in the premises of Kerala State Cashew Development Corporation and the other is at the Open Jail at Nettukaltheri in Thiruvananthapuram. Details of cashew farming supported by KSACC are provided in **Appendix 4.6.30**. Climate change, dry weather, low rainfall, and damage of crops by wild animals are some of the issues faced by the cashew farmers supported by KSACC.

Kerala Cashew Board Limited (KCB)

KCB was established in 2017 by the State Government as a special purpose vehicle with the main objective of procuring and supplying Raw Cashew Nuts (RCN) at reasonable price to the cashew processing units in Kerala, thereby ensuring regular employment and wages to the workers. KCB supplies RCN to Kerala State Cashew Development Corporation Ltd (KSCDC) and CAPEX who in turn ensures that the 40 factories under them are able to operate continuously during the year and accordingly provide employment to the workers. KCB also ensures that both KSCDC and CAPEX benefit from the most competitive purchase prices of RCN. In 2022-23, KCB imported 9,880.49 MT of RCN from various African countries.

The major challenge faced by the Board is that of lack of adequate finance for procurement of RCN during peak season. The repayment from KSCDC and CAPEX are only about 50 to 60 per cent and the rest is financed by the Government of Kerala by way of working capital loans so as to bridge the gap. The cash credit facility from Kerala Bank is also utilised for the above purchase.

Cashew Export Promotion Council of India (CEPCI)

The Cashew Export Promotion Council of India (CEPCI) was established by the Government of India in the year 1955, with the object of promoting exports of cashew kernels and cashew nut shell liquid from India. The Council serves as an intermediary between importers of cashew kernels and domestic exporters who are members of the council.

In the year 2022-23, the total export of cashew kernels from India was 44,948 MT valued at Rs 2,718 crore according to DGCI&S data. When compared to the previous year (2021-22), there has been decrease of 16.40 percent in quantity, and 14.39 per cent in terms of value. Export of cashew nut shell liquid from the country in 2022-23 was 17,249 MT (valued at Rs 113.46 crore). In comparison to the export of 2021-22, there was an increase by 248.9 per cent in quantity, 249 per cent in value. India had imported a total of 13,29,751 MT of RCN in the year 2022-23 valued at Rs 14,247.73 crore. Large variations over the years in the export and import of raw cashew nut are primarily due to the activities of traders in the processing industry. There are large fluctuations in the international prices of raw cashew nut and cashew kernel. Moreover, market conditions in other processing countries also affect international trade.

Directorate of Cashew nut and Cocoa Development (DCCD)

Directorate of Cashew nut and Cocoa Development (DCCD) functioning at Cochin, is the subordinate office of the Department of Agriculture, Co-operation and Farmers Welfare of the Government of India. It is the nodal agency for accelerating cashew and cocoa development programmes in the country. Its activities are spread across the country. In 2022-23, as a result of the combined efforts of Central and State governments, an additional area of 8,456 hectares has been brought under cashew cultivation with high yielding varieties. A total of 7,23,141 cashew grafts from accredited nurseries were distributed under DCCD developmental programmes. Replantation and rejuvenation were undertaken in an area of 1,200 hectares with senile and unproductive plantations. For ensuring the production of quality planting materials 31 cashew nurseries having production capacity of 46.90 lakh grafts were accredited. Two big and two small nurseries were established and seven nurseries were upgraded. In association with Kerala Agriculture University (KAU) and Indian Council of Agricultural Research (ICAR) institutes, 42 district level seminars and 9 field days were organised. About 3,800 people were trained on Cashew and Cocoa farming practices. Under training on preparation of value-added products of cashew apple, 475 unemployed women were trained by conducting 19 batches of trainings.

Challenges and the way forward

Raw cashew produced in the State is not sufficient to meet the requirements of the cashew nut factories. The absence of an aggregation mechanism to collect the geographically dispersed production of RCN is one of the reasons. The raw cashew nuts grown in India and made available to the cashew factories constitute hardly one-third of the total requirements of the cashew factories. Also, due to increased demand for cashew nuts in the global market, the cashew processors were compelled to import around 50 per cent of raw nuts.

The challenges to cashew cultivation in Kerala include climate change, incidence of diseases, and competition from other crops which provide better financial returns to farmers. The slow spread of high yielding cashew varieties and of modern cultivation techniques in the State are also constraints. Cashew processing in Kerala faces problems such as relative shortage of raw nuts at competitive prices, higher processing costs, slow adoption of modern processing technologies, and stiff competition from other processing nations and regions. Despite these challenges, the focus of the State Government has been to ensure uninterrupted functioning of factories under the 2 PSUs and restart the operations of private sector factories that had been closed thereby ensuring continued work for workers who depend on this industry for their livelihoods. A pilot project whereby KCB will procure cashew nut produced with the help of KSACC, is planned.

Experience shows that cashew cultivation is a profitable venture if undertaken scientifically. The adoption of high yielding varieties, scientific farming techniques, greater support in terms of extension services, and commercial scale of production can bring remarkable improvement in the production of raw cashew nut in the State. Increased domestic production of cashew at reasonable price and quality can reduce Kerala's dependence on imported cashew. Focus areas for the development of the cashew sector in future should include faster adoption of modern technologies in processing and value addition, reduction of processing cost, evolving new technologies and value-added products from cashew including the use of cashew apple. Greater efforts to develop new markets and marketing strategies which can retain the identity of 'Kerala Cashew' should also form part of strategies for the future.

CHAPTER

05

SERVICE SECTOR

SERVICE SECTOR

5.1 INFORMATION TECHNOLOGY

The Information Technology (IT) sector in Kerala has assumed a pivotal role in the State's development. Recognizing its potential and critical significance, the State Government has made diligent endeavours to establish a robust and globally competitive infrastructure for the sector, and to enhance the State's digital technology capabilities and resources. This has facilitated the State's leadership in executing information and communication technology projects, e-Governance initiatives, e-literacy programs, and in establishing fundamental IT infrastructure facilities.

Kerala has emerged as a prominent Information Technology (IT) destination within the country. This accomplishment can be attributed to the dedicated and talented workforce, as well as the innovative initiatives implemented by the Government. The State's exceptional quality of life, well-established Governmental policies, and cost-effective operational expenses have successfully transformed Kerala into a highly sought-after IT hub for potential investors. Furthermore, Kerala boasts an impressive level of mobile and telephone penetration, along with a substantial presence of broadband and mobile internet access. The State's commendable achievements in literacy and school education have undoubtedly played a crucial role in fostering computer literacy. The IT presence of Kerala in the national IT sector is noteworthy,

especially when considering the relatively smaller size of the state's economy compared to the national economy.

Kerala is becoming the state with the highest coverage of high-speed fibre connectivity through the KFON project. Early implementation of the KFON project can raise the level of economic development of the state to a higher level. The project is an innovative collaboration between Kerala State Electricity Board (KSEB) and Kerala State Information Technology Infrastructure Limited (KSITIL) through resource pooling.

The active start-up eco system in the State has won international recognition for its efforts. State's unique position of hub and spoke model in IT sector has helped to decentralise investment regionally or spatially in the IT industry. As start-ups play key role in the development of country's electronics and IT sector, the State's focus on supporting fast growing start-ups through multiple policy interventions is key to creating a vibrant inclusive start-up ecosystem

The major agencies involved in the implementation and promotion of IT related activity in the State are Kerala State Information Technology Mission (KSITM), Kerala University of Digital Sciences Innovation and Technology, Technopark,

Box.5.1.1 Major Highlights of Information Technology sector

- The phase I of KFON project envisages to provide internet connection to 30,000 Government institutions and offer free internet to 20 lakh economically backward families and internet services at a lower rate for others. At present 26993 offices were connected through KFON, 3345 BPL families were provided with free internet connectivity
- 2792 Akshaya Centres are functioning across the State giving employment to 8509 persons.
- Completed installation of 2023 Wi-Fi hotspots and nearly 15 lakh unique mobile users are availing the facility. Per day data consumption is up to 8 TB.
- Techno Park has become the largest employment base campus in Kerala and with the commissioning of Technopark Phase III; it became one of the largest IT parks in India with 380 acres of land, 10.6 million square feet built-up area.
- The number of tech start-ups ecosystem in 2021-22 is 3650 as compared to 3143 in 2020-21.

Infopark, Cyberpark, Kerala State Information Technology Infrastructure Ltd. (KSITIL), International Centre for Free and Open Source Software (ICFOSS), Kerala Start-up Mission (KSUM) and Centre for Development of Imaging Technology (C-DIT). Major Highlights of IT Sector are provided in **Box 5.1.1**.

Performance of Agencies in the IT Sector

The State Government envisages expansion of IT industry in the State in a manner that benefits all the districts in the State. A hub and spoke model has been planned. Thiruvananthapuram (Technopark), Kochi (Infopark), and Kozhikode (Cyberpark) will act as hubs and the remaining districts will be the spokes.

Government of Kerala provided an amount of Rs 559.00 crore in the Budget (2022-23), for the development of core IT infrastructure, ITeS, e-governance activities and incentivising investment in the sector and the expenditure incurred was Rs 322.93 crore (64.58 per cent). In 2023-24, the outlay earmarked for the sector was Rs 559 crore. The details of Plan outlay and expenditure for the last 3 years (2021-2024) are given in **Table 5.1.1**.

Kerala State Information Technology Mission (KSITM)

The Kerala State IT Mission is an autonomous nodal agency responsible for implementing IT initiatives on behalf of the Department of Information Technology, Government of Kerala. Its primary role is to provide managerial and technical support to various projects undertaken

by the Department. The KSITM is involved in a wide range of activities, including the development of ICT policies, the establishment of guidelines and standards for e-governance, and the facilitation of ICT services for Government entities. Additionally, the KSITM acts as a liaison between the Government and the industry, undertakes capacity building initiatives, bridges the digital divide, establishes and maintains common IT infrastructure, and implements various e-governance projects. Its main objective is to deliver high-quality digital services to citizens, with a focus on a "Citizen First" approach.

Key Accomplishments of KSITM

In the present world, e-Governance is an important tool for good governance by achieving transparency, reliability, and accountability in rendering services. Kerala has been a forerunner in e-Governance and mobile governance by promoting and developing core infrastructure and e-literacy programmes.

Public Wi-Fi: Public Wi-Fi project has set up

2023 Wi-Fi hotspots across the State to provide free internet to the citizens of the State. The daily consumption data reached 8 TB per day. The District administration has identified hotspots locations which includes bus stands, tourist places, parks, public places, janasevanakendras and Government offices.

E-Office: It aims to conduct office procedures electronically thereby transforming Government offices to paperless offices and bringing out the benefits of digital communication that ultimately

Table 5.1.1 Plan outlay and expenditure, in Rs crore

Sl No	Name of Department/ Scheme	Annual Plan 2021-22		Annual Plan 2022-23		Annual Plan 2023-24	
		Outlay	Expen	Outlay	Expen	Outlay	Expen (upto September 2023)
1	Kerala State IT Mission, Akshaya, IT Cell	125.13	91.17	131.62	86.37	131.62	9.54
2	Technopark	24.05	21	26.6	13.50	26.6	0.00
3	Infopark	35.55	34.55	35.75	18.56	35.75	0.00
4	Cyber Park	12.37	0	12.83	7.42	12.83	0.00
5	Indian Institute of Information Technology and Management- Kerala (IIITM-K)	20	20	20.60	15.36	20.60	5.61
6	Kerala Startup Mission	68.75	55.77	90.52	36.75	90.52	0.00
7	Kerala State IT Infrastructure Ltd	201.9	87.5	201.09	97.29	201.09	8.50
8	C-DIT	6	4.6	6	3.48	6	0.3132
9	International Centre for Free and Open Source Software	7.5	6	7.99	6.51	7.99	2.35
10	Kerala University of Digital Sciences Innovation and Technology	24	14	26	37.68	26.00	12.01
Total		525.25	334.59	559	322.93	559	18.25

Source: Annual Plan of corresponding years; Planspace

leads to faster decision making. E-office latest Version (7.2.5) has been successfully launched and implemented across the State. E-Office is now Operational in more than 90 per cent of the Government offices. E-office has been implemented in all departments in Secretariat, Directorates/Commissionerate/ all Collectrates/ Sub-Collectorates/RDOs/all Taluks Offices and Villages. E-Office also implemented in 101 other offices.

Core infrastructure for e-Governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network (SECWAN), State Data Centre, State Service Delivery Gate way (SSDG) and KFON

KSWAN is the backbone of the State Information Infrastructure (SII) connecting all Districts and 152 Block Panchayats and 63 Mini Civil Stations/revenue towers across the State. Around 4000 offices of Government departments are connected to KSWAN through wireless and a larger number through leased lines and LAN.

KSWAN aims to establish a state-of-the-art Optical Fiber Communication based network architecture in the Government Secretariat with a vision to improve the quality and availability of ITes at its administrative headquarters. State Data Centres (SDCs) are at the heart of e-Governance framework of the State, hosting various applications and websites of the Government entities and provisioning associated services.

The State Data Center has about 2500 virtual servers, about 560 applications and about 500 servers set up by various departments for various Government purposes. Currently the storage capacity of the state data center is 2500 TB. Expansion of server farm area and other renovation works are going on in 4000 sq. ft. at State Data Center-2 is located at Technopark

e-Government Procurement (e-GP) has been rolled out in the State. All Government department/boards/universities/organizations were directed to adopt e-tendering for all tenders with the value above Rs 5 lakh. Statistics as on August

31, 2023, through this project 8,25,671 e-Tenders were floated with a value of Rs 3,59,899 Crore. 13,765 Officials and 55715 bidders registered in the e-Procurement System.

Friends Janasevana Kendras have been established in all the 14 District headquarters. It is a single window 'no queue' integrated remittance centre, where the citizens have the opportunity to pay all taxes and other dues to the Government, under one roof, at no extra cost. New software with enhanced features for FREES (FRIENDS Re-engineered Enterprise Enabled System), was developed and introduced in FRIENDS Janasevana Kendram.

Akshaya is an innovative project launched on November 18, 2002 to bridge the digital divide. It works on public private participation mode. In the initial stages, the objective of the project was to make at least one person in a family e-literate. Gradually focus of Akshaya shifted to citizen service centric mode. Akshaya acts as the enrollment agency. Aadhaar enrollment is conducted through the Akshaya centres. As on August 31, 2023, 2792 Akshaya centres are functioning across the State giving employment to 8509 persons. Out of total 62 lakh pensioners, 81 per cent of the Social Security Pension Mustering completed through Akshaya Kendras. The details of Akshaya centres in Kerala are furnished in **Appendix 5.1.1**

Aadhaar - UIDAI has approved KSITM as the Authentication User Agency and e-KYC User Agency for offering the Authentication and e-KYC services offered by UIDAI

Video Conferencing (VC) is a technology which integrates and transmits video and audio to connect distant locations providing a location independent platform while conducting a meeting/discussion. The infrastructure can be utilized free-of-cost by all Government Departments, Boards and other Government organizations for conducting meetings with their sub-offices across the State without the need to travel thus saving on time and cost. The management of VC sessions, upkeep of VC equipment and studios are done with the support of C-DIT. Using VC infrastructure, KSITM was able to conduct around 12000 VCs every year. KSITM hosts and manages an average of 30 video conferences per day.

Digi Locker service is currently integrated for the following services.

- SSLC, VHSE, HSE, Ration Card, Driving Licence, Vehicle Registration, e- District Revenue certificates (25 No.s), PSC Certificates (5 No.s) as Issued Documents
- 12 Universities published Certificates for selected years in National Academic Depository(NAD) DigiLocker.

e-SEVANAM & m-SEVANAM: Kerala e-Service portal, e- SEVANAM, launched as a good governance initiative, has used technology to aggregate almost all online services (G2C and G2B) of Government of Kerala, in a single platform. In 2021 e-SEVANAM & m-SEVANAM launched with 500 plus services and 50 plus department. After 2 years of the introduction around 911 services of more than 80 plus departments in a single platform, all mobile friendly services are rendered through a uniform mobile application called m-SEVANAM.

Kerala State Spatial Data Infrastructure (KSDI): Mapathon Keralam is aimed to create detailed living map of Kerala through a participatory process. With the help of various voluntary and community organizations mapping groups will be created across Kerala. The new geo- portal, based on Free and Open Source Software (FOSS) platform is developed jointly with International Centre for Free and Open Source Software (ICFOSS). Kerala State Spatial Data Infrastructure (KSDI) offered Technical support to Forest Department for Asset Mapping. The project has awarded Tech Sabha Award 2023, Skotch Award 2023.

Major achievements

- State-Level E-Governance Pavilion Cum Exhibition-Total e-Governance Declaration: Showcasing Kerala's e-Governance achievements across Government Departments,
- 100-Day Programme of Kerala IT: Inaugurated by the Hon'ble CM, featuring Aadhaar mandatory updates and State Data Centre Disaster Recovery Management System integration from KSITM.
- MeITY National Award for e-Procurement project of KSITM, for better maintenance and Management of e- tender portal.
- Universal Acceptance Day Celebrations - Organized in collaboration with DUK, ICFOSS, CET, K-DISC, and others.
- Kerala e-Governance Awards – Hon'ble Chief

Minister has declared and distributed awards for innovative e-Governance initiatives at Thiruvananthapuram.

- 5G Rollout Issues and 5G Use Cases - State Level Awareness Conference conducted in association with the Department of Telecom, Government of India, for major stakeholders and Technology Service Provider (TSP).
- eSevanam Unified portal for all government services with 900 plus services, mSevanam unique Mobile Application with 700 plus services and Kerala Dash Board – statistical Analysis of Government Services were successfully launched by Hon'ble CM and which is operational now.
- NASSCOM National Cloud Summit 2022 - Awarded the Cloud Infrastructure Award for the State Data Centre by partnering with NASSCOM
- Tech Sabha 2022 Award - KSITM's Open SDI project under KSDI won the Tech Sabha 2023 Award in the Data Centres and Infrastructures category.

Kerala University of Digital Sciences, Innovation and Technology

Government of Kerala upgraded IIITM-K as “Kerala University of Digital Sciences, Innovation and Technology.” The university was set up by Government of Kerala by the Kerala University of Digital Sciences, Innovation and Technology Act 2021. Kerala University of Digital Sciences, Innovation and Technology was inaugurated on February 20, 2021 and started functioning from Techno city campus

The university is envisaged to become a unique centre of excellence of global repute by conducting education, research and extension activities in areas of digital technologies, science and humanities. The university is aiming to create capacity building in masters and doctorate programmes in the areas of Artificial Intelligence and Natural Language Processing, Internet of things, Electronic systems and Automation, Imaging Technologies, Data Analytics and Big Data, Cyber Security, Block chain, Ecological Informatics and Geospatial Analytics.

Course

The Kerala University of Digital Sciences, Innovation and Technology provide a wide range of academic courses across various disciplines. The university offers the following programs: M.Sc. in Data Analytics and Bio AI, MBA, M.Sc. in Ecology-Ecological Informatics, M.Sc. in

Electronics, M.Tech in Electronics Engineering, M.Tech in Computer Science and Engineering, M.Sc. in Computer Science with specialization in Machine Intelligence, M.Sc. in Computer Science with specialization in Cyber Security, M.Sc. in Computer Science with specialization in Data Analytics, M.Sc. in Data Analytics and Computational Science, and M.Sc. in Data Analytics and Geoinformatics.

Placement Records

Graduates from Digital University hold commendable positions in internationally reputed IT companies such as JFWTC-General Electric, Accenture, Amdocs, Siemens, Ernst and Young, ARS Software, Allianz Cornhill, IBM, IBS, Infosys, Tata Elxsi, Tata Consultancy Services, UST Global Technology, and Wipro.

Technocity Campus

The new campus of the Institute at Technocity is in completion phase and shall facilitate and promote studies, research and incubation in IT and its application domains. The fully completed campus would have a total built up area of 48,161 square meters. Construction of academic block, students hostel block, allied infrastructure like substation, sump and pump house are completed.

Digital Science Park

The Government of Kerala has announced the Digital Science Park in the 2022 budget, acknowledging its significant technological and social influence. The establishment of the Science Park is a pioneering initiative that aims to capitalize on the advancements in the Digital Sciences and Technology Sector, thereby creating numerous new industrial prospects.

A 13.93-acre of land has been identified in Technopark-Phase IV for the establishment of the Digital Science Park. The Government has approved the transfer of this land from Technopark Phase IV to Kerala University of Digital Sciences, Innovation and Technology. On August 1, 2023, the Hon'ble Chief Minister of Kerala inaugurated the initial commencement of the Digital Science Park at Kabani building in Technopark Phase IV, which spans an area of approximately 13,000 square feet. The project has a total budget of Rs 1515 crores, with Rs 1175 crores being funded by KIIFB and the remaining funds to be generated from industrial partners.

India Innovation Centre for Graphene (IICG)

Ministry of Electronics & Information Technology (MeitY) launched the 'Graphene-Aurora program'. The program shall be implemented by Digital University Kerala with joint funding from Ministry of Electronics & Information Technology (MeitY), Government of India and Government of Kerala and Industry partners, with the total budget outlay of Rs 94.85 Crore, wherein, Carborundum Pvt Limited joined as one of the main industry partners. Along with the startup products developed, the technologies and products were also developed at research and development centres like India Innovation Centre Graphene (IICG), setup at Makers village, Kochi

Technopark

Technopark was set up as an autonomous organisation fully owned by Government of Kerala to create global standard infrastructure and to provide total support required for development of high technology industries. It was formally dedicated to the Nation on November 18, 1995. Since then, Technopark has been growing steadily both in size and employee's strength. With the commissioning of Phase III, Technopark has become one of the largest IT Park (Including Phase I,II,III) in India with 374.45 acres of land and 106 lakh square feet built up area. With the launch of Technocity project in Kazhakuttam, the largest integrated IT Township in 390 acres of land, the

Kazhakuttam-Kovalam (NH 66) has become the first IT Corridor in Kerala.

In the financial year 2022-23, the number of companies in the Technopark has risen to 479, indicating a growth rate of 3.01 per cent when compared to the previous year's figure of 465. Technopark plays a crucial role on employment generation in IT sector. In 2022-23 Technopark generated an employment of 70600 IT/ITeS professionals compared to the last year figure of 64,000 marked a growth of 10.3 per cent. Technopark's contribution to the State economy is shown in **Table 5.1.2**. Details of growth and physical achievements of Technopark are given in **Appendix 5.1.2** and **5.1.3** respectively.

Land Available with Technopark

Technopark has 5 campuses which is spread over 768.63 acres under various phases of development. The details of extent of land in its 5 campuses are shown in **Table 5.1.3**.

Growth of Built up Space in Technopark

The built-up space in Technopark has increased from 89 lakh square feet in 2017-18 to 106 lakh square feet in 2022-23. Embassy Taurus project with 55.58 lakh sq.ft built up space is under construction in Phase III. The growth of built up space in the Technopark is shown in **Figure 5.1.1**.

Table 5.1.2 Technopark's contribution to the State Economy

Particulars	Achievements 2020-21	Achievements 2021-22	Achievements 2022-23
Total turnover (in Rs crore)	15000.00	18000.00	20000.00
Total export (in Rs crore)	8501.00	9775.00	11630.00
Total investment (in Rs crore)	5309.00	5600.00	5600.00
Total Employment (Nos)	63000	64000	70600
No of Companies (Nos)	460	465	479
Total land (acres)	659.87	766.86	768.63
Total built up space (lakh square feet)	106	106	106

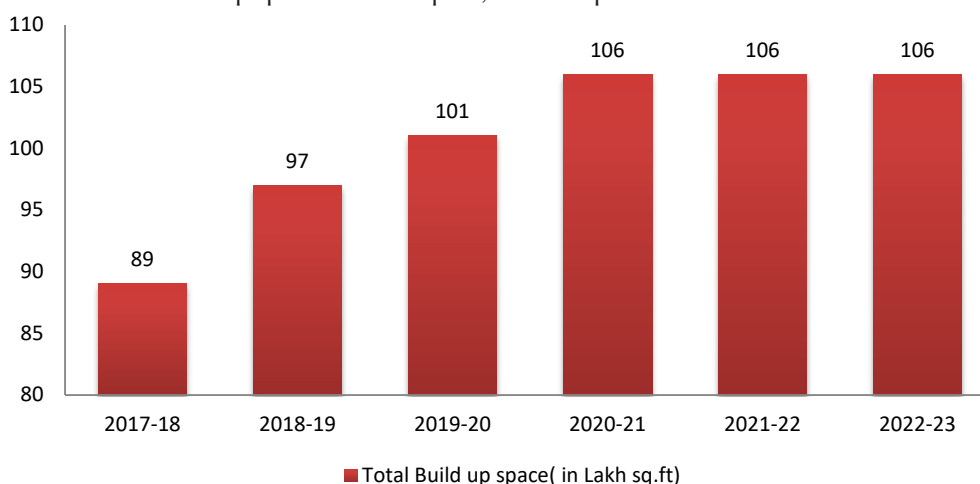
Source: Technopark

Table 5.1.3 Land available with Technopark

Phases	Phase I	Phase II	Phase III	Technocity	Technopark, Kollam	Total Area (In acres)
Area, in acres	198.43	86	90.02	389.74	4.44	768.63

Source: Technopark

Figure 5.1.1 Growth of built-up space in Technopark, in lakh square feet.



Source: Technopark

Companies in Technopark

There has been an increase in the number of the companies working in Technopark during the last 5 years. In 2016-17, there were 370 companies in Technopark. It increased to 479 in 2022-23. It shows growth of 29.45 per cent over the period. The number of companies in Technopark from 2016-17 to 2021-22 is shown in **Figure 5.1.2**.

Growth in Export from Technopark

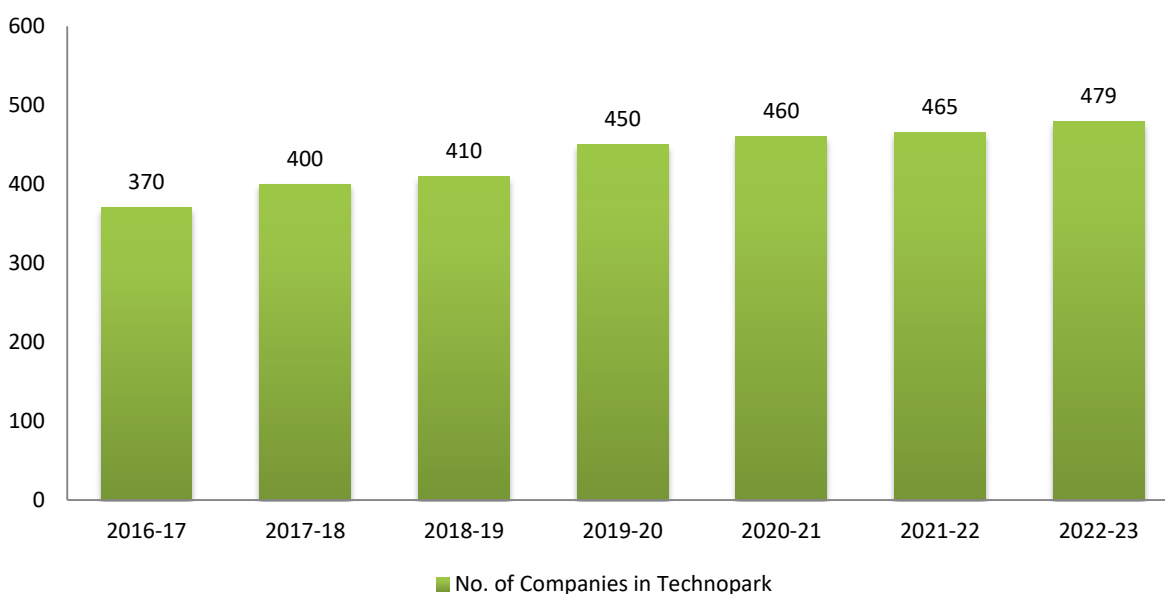
Over the six years, export in IT sector in Kerala shows a positive sign. Revenue generated through

Export by Technopark has been increased from Rs 6450 crore in 2017-18 to Rs 9775 crore in 2021-22. Subsequently, in the following financial year of 2022-23, it further escalated to Rs 11630 crore, signifying a growth rate of 18.97 per cent compared to the preceding year. The trend in export revenue of Technopark during the last six years is depicted in **Figure 5.1.3**.

Growth of Employment in Technopark

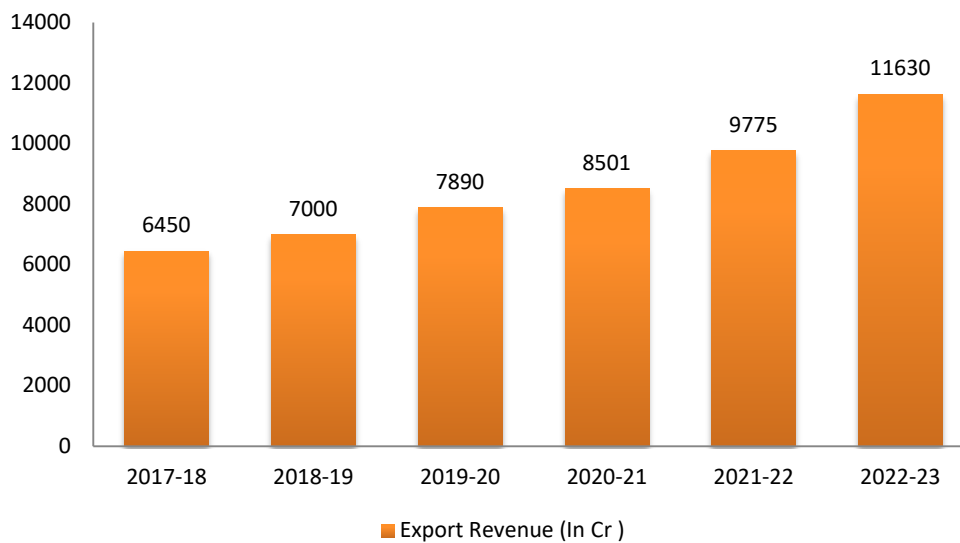
The expansion of the Technopark can also be examined in relation to the employment opportunities created in the past years. The

Figure 5.1.2 Number of companies in Technopark



Source: Technopark

Figure 5.1.3 Export revenue of Technopark



Source: Technopark

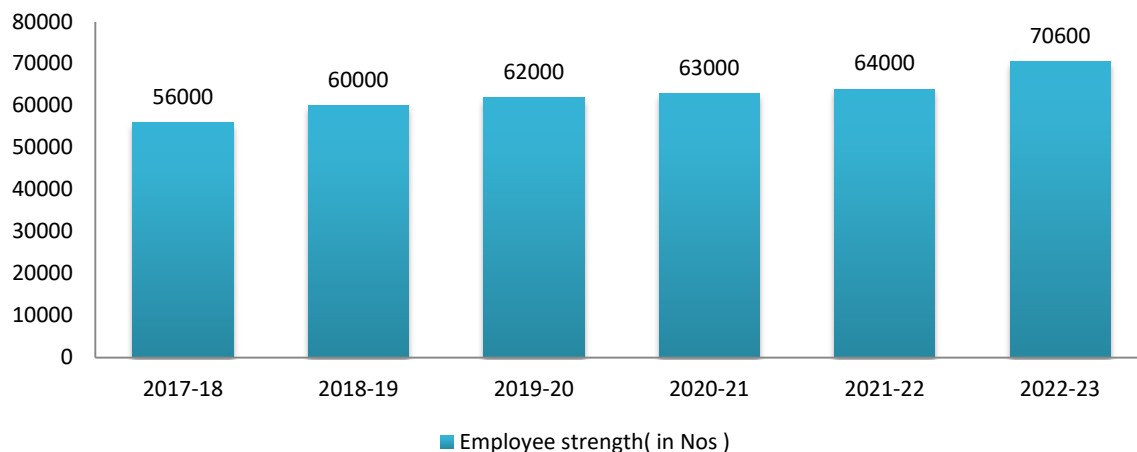
number of employees has increased from 56,000 in the financial year 2017-2018 to 70600 in the financial year 2022-2023. The progress of employment generation over the past six years is depicted in **Figure 5.1.4**.

In the third phase of Technopark, the construction of the 55.58 lakh sq. ft. Embassy Taurus project space has commenced and is progressing at a rapid pace. It envisages creating a world-class business infrastructure comprising the Technopark with a total investment of Rs 1,500 crore in two phases. On completion, Taurus downtown is expected to generate 30,000 direct employments and 70,000 indirect employments.

Technocity

The Technocity project, launched by Technopark in 2009, is a flagship initiative that is broadly divided into two segments: the IT Integrated Township and the Knowledge City. The project aims to establish six Centers of Excellence (CoEs) in emerging technologies, which will help create a sustainable and healthy IT ecosystem in the state. These CoEs will focus on emerging technologies in Information Technology, such as Cyber Security, Fintech and Blockchain, Artificial Intelligence and Machine Learning, Virtual/Augmented Reality, e-Mobility, and Space Science.

Figure 5.1.4 Number of people employed at Technopark



Source: Technopark

Technopark has acquired 389.74 acres of land at Pallipuram for its “Technocity” project with which the total land area of Technopark will become 768.63 acre . Kabani building of 2 lakh sq.ft was inaugurated on January 27, 2021 . Technopark developed the infrastructure facilities like Water distribution system, Power distribution, Road network etc with the support of KSITIL.

The major projects in the Technocity that makes it Destination next for IT/ITES/ Emerging Tech/ Space Tech/ Aerospace growth cluster are

- Country’s first Digital Science Park
- Kerala University of Digital science and Innovation Technology campus.
- Technopark’s first IT building- Kabani in the Technocity campus is commissioned with a built-up area of 2 lakh sq. ft and is currently home to 20 organisations.
- TCS IT/ITES campus focuses on IOT, Blockchain, Data Analytics and AI.
- KSpace (Space Park) and MSME Centre.
- M/s Suntec Business Solutions will commission their first IT building of 3.10 lakhs sq. ft soon, in their 10 Acre campus at phase 4.
- Emerging Technology Hub (by Kerala Startup Mission).
- Unity Mall (One District One Product).

Technopark Kollam

Government of Kerala has transferred 18 hectare of land to M/s Kerala State IT Infrastructure Ltd. Out of this, 10 per cent of land will be given to Technopark for the operation and maintenance of Kollam Technopark. The world class 1,00,000 sq ft IT Building at Ashtamudi is completed in Technopark Kollam.. The Arterial Road work is also completed. The streetlights on the campus are fully solar based. We expect to have 700 direct employments in this campus on full occupancy. Smart Business Centre is operational and 26 companies are already working from there.

Infopark

Infopark was established in the year 2004 with a broader vision to foster the growth of the IT

sector in the State. Over the course of 19 years, the institution has achieved remarkable success in meeting its targets. Since its inception in 2004, Infopark and its co-developers have constructed 10 million square feet of built-up space and have provided employment to over 66,000 IT professionals through 550 IT companies that have taken space in its Parks. Notably, the export figures for the financial year 2020-21 amounted to Rs 5,700 crore, which increased to Rs 8,500 crore in 2021-22. Furthermore, in the financial year 2022-23, the export figures surpassed Rs 9,186 crore.

Land Available with Infopark

Infopark has 5 campuses which is spread over 322.98 acres under various phases of development. The details of extent of land in its 5 campuses are shown in **Table 5.1.4**.

The physical achievements of Infopark are furnished in **Appendix 5.1.4**. The major indicators of physical performance of Infopark for the last three years are given in **Table 5.1.5**.

Table 5.1.5 Major indicators of physical performance of Infopark

Particulars	Achievements 2020-21	Achievements 2021-22	Achievements 2022-23
Total Export (in Rs crore.)	5700.00	8500.00	9186.00
Total Employment (Nos)	51,000	63600	66000
No of Companies (Nos)	420	479	550
Total land (Acres)	323.00	323.00	323.00
Total built up space (million square feet).	10	10	10.2

Source: Infopark

Table 5.1.4 Land available with Infopark, (in acre)

Phases	Kochi Phase I	Kochi Phase II	Thrissur	Cherthala	TBC, Kaloore
Area	100.86	125.92	30.00	66.20	30000 square feet of built-up space under the lease of KSITM owned by GCDA.

Source: Infopark

Major Achievements of Infopark in 2022-23

- The total employee strength increased to 66000 (from 63600 in 2021-22)
- Number of IT companies increased to 550 (from 479 in 2021-22)
- Total export revenue increased to Rs 9186 crore (from Rs 8500 in 2021-22)
- Interior and exterior works of Indeevaram and Jyothirmaya block completed and fully occupied.
- LAR liability settled fully as per court order thereby saving interest cost

Cyberpark

Cyberpark Kozhikode was established on the lines of Technopark in Thiruvanthapuram and Infopark in Kochi. It was set up to bridge the IT infrastructure gap along the west coast starting from Kochi to Kasaragod. The objective of Cyberpark is to provide cost effective and top of the line infrastructure to the IT/ITeS investors and thereby encourage, promote and boost the export of software/software services and create employment opportunities in the Malabar region. It is the responsibility of Cyberpark to interface between Government and Industry, interact with potential investors, strengthen the IT/ITeS base, hold promotional campaigns, and develop human resources for IT and ITeS. Kerala State IT Infrastructure Limited (KSITIL) holds the ownership of the entire area of 43 acres of land at Kozhikode Cyberpark.

Major Physical Achievements

- 2.88 lakhs sq. ft. built up space fully occupied. Currently 85 IT companies are operational in SEZ facility “Shays”.
- Earmarked a built-up space of 12,391 sq. ft non-SEZIT operations, wherein the entire building has been leased out to Kerala Startup Mission for

supporting the start-up companies in Malabar.

- As on August 31, 2023 Cyber park campus created around 2200 direct employments.
- Revenue generated through export has been doubled in 2022-23 compared to previous financial year. In 2022-23 Rs 105.00 crore revenue generated from export compared to the Rs 55.70 crore during 2021-22 and approximately Rs 25 crores till August 31, 2023.
- In the previous fiscal year, cyberpark successfully attained full occupancy by leasing warm shell and smart business office spaces to a total 18 new IT companies.
- Efforts have been undertaken to furnish the subsequent phase of industrial training prospects for recent graduates in Kerala’s IT and ITeS companies through the “IGNITE” Internship Program. Kerala IT Parks aims to furnish financial incentives to companies and expedite the establishment of novel internship opportunities for fresh graduates, thereby imparting them with training that culminates in a job opportunity in a related field.

The physical achievements of Cyberpark are given in **Appendix 5.1.5**. The major physical performance of Cyberpark for the last 3 years is given **Table 5.1.6**

Kerala State IT Infrastructure Ltd (KSITIL)

KSITIL is a public limited company formed for the creation of the infrastructure for IT/ITeS in the State. The business model of the company is to acquire land and develop basic infrastructure facilities like electricity, water, road and compound wall in the area, obtain SEZ status and other such Government approvals that may be required and then allot land to private developers for development of either IT SEZ or IT parks. Some

Table 5.1.6 Physical performance of Cyberpark

Particulars	Achievements 2020-21	Achievements 2021-22	Achievements 2022-23
Total turnover (Rs crore)	26.16	55.70	105.00
Total export (Rs crore)	26.16	55.70	105.00
Total investment (Rs crore)	2.47	2.17	1.42
Total Employment (Nos)	764	1237	2078
No of Companies (Operational)	58	67	85
Total land (acres)	42.5	42.5	42.50
Total built up space (lakh square feet)	3 Lakhs	3 lakhs	3 lakhs

Source: Cyberpark

Table 5.1.7 SDPK Status

Sl.No.	Classrooms/studio	Numbers	No. of colleges completed	Remarks
1	First phase Completed (Pvt)	23	23	completed
2	Govt. controlled Engineering colleges	39	39	completed
3	Polytechnic Colleges	25	0	Work under process
4	Private colleges in second phase	12	12	Signed MoU
5	Others Completed (ICFOSS,KSITIL& Secretariat)	3	3	-
6	Total Classrooms	102	77	-
7	Studio	4	3	-

Source: KSITIL

of the highlighted projects of KSITIL are as follows:

Skill Delivery Platform Kerala: SDPK is a prestigious project assigned to KSITIL by Government of Kerala SDPK consists of a virtual platform with teleconferencing system being installed in all the 150 engineering colleges and 3 studios, which are being setup as part of the project. The status of SDPK project is provided in **Table 5.1.7**

Kerala Fibre Optic Network (KFON): KFON is a State-wide optical fibre network for providing high-speed internet connectivity to about 30,000 Government and educational institutions (Track 1) and offer free internet to 20 lakh economically backward families and internet services at a lower rate for others (Track 2). Track 1 is implemented with KIIFB assistance. A new joint venture

company (KFON Limited) was formed in the share holding pattern of 49:49:2 in favour of KSEBL, KSITIL and GoK respectively as the SPV for the project. In the latest budget, the Government introduced a program known as the provision of complimentary Internet to individuals living below the poverty line (BPL). As a result, a total of 3345 families were successfully connected through the Kerala Fiber Optic Network (KFON). The status of KFON project is given in **Table 5.1.8**

FOSTeRA: The term FOSTeRA means Fostering Technologies in Rural Areas. The scheme will provide financial support to eligible selected companies. To achieve this objective, KSITIL has decided to implement the scheme, incentivizing the establishment of these companies across rural panchayaths in Kerala.

Table 5.1.8 Status of KFON project

Sl.No.	Deliverable	Scope	Feasible Scope	Completed as on 26.08.2023	Per Cent of Completion
1	Backbone (km)	8,551	6,978	6,626	95
2	Access (km)	26,410	21,393	19,190	90
3	Point of Presence-Nodes(Nos)	376	375	372	99
4	NOC&DR-Network Center	1	1	1	100
5	End Offices-Connected	30,438	28,969	26,993	93
6	End Offices-Live	28,969	22,310	17,986	81
7	End Offices-Connected& Using	26,993	18,700	10,039	54
8	Providing free Internet to BPL	14,000	14,000	3,345	24

Source: KSITIL

International Centre for Free and Open Source Software (ICFOSS)

The Government of Kerala has established the International Centre for Free and Open Source Software (ICFOSS) in collaboration with Free Software Organisations in India and abroad. The primary objective of ICFOSS is to promote the development and application of free software and free knowledge. As a nodal agency, ICFOSS is responsible for various activities related to free and open source software, including consultancy, research and development, academics, studies and service, training, publishing, certification, international cooperation, and collaboration.

ICFOSS has successfully conducted numerous training programs, workshops, seminars, research programs, projects, Malayalam computing activities, student internships and projects, summer camps, faculty development programs, and fellowship programs, all based on free and open source software

The major Achievements of ICFOSS in 2022-23 are listed below.

- The AKSHI Braille Learner is a device that has been developed to aid visually challenged children who are six years old in learning Braille. This device was officially launched on the December, 3rd 2022
- A Word Builder device has been developed, which proves to be beneficial for children with Learning Disabilities. This device officially launched on the December 3, 2022. Currently, clinical testing is being conducted at the Child Development Centre (CDC), located at the Medical College in Trivandrum.
- Writing Assist: A guided writing tool was developed to benefit children with writing difficulties. The tool was launched on May 19, 2023 as part of the Government's 100 days program in 2023. Steps are being taken to begin clinical testing at the CDC. Perceptual Motor
- Skill Device: A device for improving the fine motor skills of autistic children has developed. This device was launched on May 19, 2023.
- AKSHI Tactile Map: An A4 Sized, braille enabled electronic Tactile Map of Kerala has developed. This device resolves the problems in teaching maps and the salient features of each region effectively to visually challenged children.
- As a part of the Chief Minister's 100-Day Programme automated rain gauge stations, integrated within the LoRaWAN ecosystem, have

been successfully deployed across 14 locations in Kerala.

- As requested by State Health Agency Kerala (SHA), Assistive Technology Division has successfully developed and distributed all Karunya Health Cards which are Braille enabled. On December 3, 2022, the International Day of Persons with Disabilities, SHA distributed these cards to the intended beneficiaries.
- Open Hardware: The following are the major achievements a) Developed small scale Aquaponics farm with IoT Sensors for Smart City b) IoT enabled Energy harvester (Light/Water/Air) devices developed, c) LoRaWAN Range Mapper Device developed. d) Open Hardware based Indoor air quality device developed.

Kerala Start-up Mission (KSUM)

Kerala Start-up Mission (KSUM) serves as the nodal agency of the Government of Kerala responsible for executing entrepreneurship development and incubation initiatives within the state. Kerala Start-up Mission, previously recognized as the 'Technopark Technology Business Incubator', stands as India's pioneering and prosperous non-academic business incubator. Commencing its operations in 2007, it has achieved remarkable milestones in its journey.

The primary goal of the Mission is to ascertain and cultivate entrepreneurial abilities within the youth and student population of Kerala. This includes addressing the development of technology-based entrepreneurship and establishing the necessary infrastructure and ecosystem to support advanced technology-driven start-up enterprises. The mission also places emphasis on constructing suitable training programs that align with Kerala's socio-economic culture, identifying market opportunities for technology products and services, facilitating collaboration and networking among academic, research and development institutions, industries, and financial institutions. Additionally, the mission aims to establish a platform for the rapid commercialization of technologies developed within institutes, ensuring their accessibility to end-users.

Youth Entrepreneurship Development Program

The primary goal of the Mission is to ascertain and cultivate entrepreneurial abilities within the youth and student population of Kerala, through strengthening the startup ecosystem by promoting technology based entrepreneurial activities,

entrepreneurial infrastructure & environment, industry institute linkages, R&D and addressing the ecosystem development challenges in enterprise market, product knowledge, idea & culture.

M. I. N. D Your Business (Mentor Inspired Networking on-Demand for Your Business):

M.I.N.D Your Business, unlocks the power of mentorship for start-ups in Kerala and access to mentors worldwide. This is designed to provide an opportunity to interact with the experts and mentors in the start-up ecosystem one on one and gain invaluable insights and guidance from seasoned mentors, forging lasting connections on their path to success.

EVANGALISATION SUPPORT

- Innovation and Entrepreneurship Development Centre (IEDC) -Promotion of Technology and Entrepreneurship among the students are taken up by Kerala Start-up Mission (KSUM) since 2014-15 as an important traction of the pipeline for start-ups and as part of the same establishment of IEDCs at various Engineering Colleges, Polytechnic Colleges, Professional Colleges and arts & Science Colleges are in progress. In 2022-23, 84 new IEDC were established across the State.
- IEDC Summit 2023 - IEDC Summit 2023, the Seventh Edition of the summit and Asia's largest Summit for aspiring student entrepreneurs, organized by Kerala Startup Mission was held at Rajagiri School of Engineering and Technology (Autonomous) on March 4, 2023.
- Investor Café - Investor café is designed to provide exposure for startups to the Angel Investor and VC community. To support startups for availing investments from funds, the Kerala Startup Mission conducted 8 Investor Café Editions during the year. A total of 168 startups and 64 investors participated in 8 editions.
- Kerala Innovation Week - The week includes various programs like Cyclathon and Community Leadership Summit in the first day, Codeathon, Makeathon and Open mic- STC in the second day, Design- A- Thon, Python Workshop and Robotics Workshop in the third day, Buildathon and Why Hack in the fourth day, Going Global-UK, Open House for Startups and Pitch fest in the fifth day, 3D Printing & Laser Cutting Workshop, Founders Summit, Going Global-Canada & North America SHE Power Summit and TiE Women- Open Mic in the sixth day and Creators' Summit, Fab/DIY Project Showcase, Live Experiences, RINK- Research Product

Expo, TAOS Art Workshop, Fab Open House and various competitions in the seventh day.

INCUBATION

Kerala Startup Mission has its own incubators at Thiruvananthapuram, Ernakulam, Kozhikode, Palakkad and Kasaragod. As on 31.03.2022 the number of start-up occupying facility at Thiruvananthapuram, Ernakulam and Malabar was 50 startups, 66 startups and 54 startups respectively. Kerala Startup Mission supported the following incubators in the state.

- Bionest
- Maker Village
- Foss Incubator
- Startup Dreams
- Palakkad Incubator
- Calicut Incubator

Fablab Kerala - The period 2022-23 was a fruitful for Fablab Kerala. Following its foundational objectives, Fablab Kerala was able to support the startups, innovators and students in Kerala and outside with regards to their fabrication and prototyping services. In the financial year 2022-23, Fablab Kerala executed 507 work orders catering to over 200 unique customers greatly expanding its operational reach.

'Research Incubation Program (RINP) Workshops & Evangelization

- To promote translational research & entrepreneurship from academia, RINK has initiated the 'Research Incubation Program (RINP)' worth 1 crore at Mahatma Gandhi University, Kottayam. 19 best applications were selected through multistage evaluation. The 24 grantees including from 'National Research Innovation Challenge' completed the first four months of their project. In partnership with Sahridaya College of Engineering & Technology, RINK initiated the 'Research Innovation Programme' for Women Startups. The program is aimed to identify promising women innovators and entrepreneurs from women researchers from the fields of Biotechnology and Biomedical Engineering. Seven women researchers are selected for the program.

Tejaswini Renovation – Kerala Startup Mission (KSUM) has set up for the renovation work at Tejaswini ground floor and -2 space for new 178-seater co-working space in 15,000 sq ft area, specially renovated to cater to the unique needs of startups. This state-of-the-art facility is designed to inspire innovation, collaboration, and growth.

Kasaragod ASAP Space – The ASAP Kerala has allocated 1140 square feet of incubation space at the Community Skill Park to Kerala Startup Mission. This initiative even more noteworthy is that Kerala Startup Mission has successfully completed the interior and furnishing works, ensuring that the space is not only functional but also designed to inspire creativity and productivity. This effort demonstrates a dedication to providing startups with a space that is ready for immediate use.

The Kerala Start-Up Mission (KSUM) has successfully orchestrated several International Summits of Start-Up during the previous fiscal year. The information pertaining to these summits is outlined below.

- **Huddle Global 2022** - One of the most attended events by startups in the country. More than 5000 participants came for Huddle Global 2022 held on December 15 to December 16, 2022, at Trivandrum. The Huddle Global was attended by more than 100 investors and 150 above startup ecosystems.
- **Seeding Kerala 2023** - a unique event organized by Kerala Startup Mission (KSUM) brings together the HNI network of Kerala and investors around India to showcase opportunities to invest in the best startups from Kerala and other parts of India
- **Health Tech Summit** - The HealthTech Summit 2022 was jointly organized by Kerala Startup Mission (KSUM), Kerala Health and Caritas Hospital on June 24, 2022. It featured more than 600 Startups, 185 Hospitals, 35 speakers and 5 investors. The other partners are Kerala IT, State Family Welfare Department, State digital health mission and TIMED.
- **GITEX Global 2022** - Kerala Startup Mission has taken 40 startups to GITEX 2022 held at Dubai on October 10 to October 14, 2022.
- **SLUSH 2022** - Two Kerala based Start-ups were taken to attend the SLUSH 2022 held at Helsinki, Finland capitalists and from November 17 to November 18, 2022. Slush 2022 brought together 12,000 entrepreneurial minds ranging from top venture the most promising early-stage start-ups to international media and executives from Fortune 500 companies. Mentors, More than 200 Governments, 30 media, 1500 start-ups, and other stakeholders participated.
- **Austria Startup Delegation** - Embassy of Austria in association with Carve Startup Labs

held from March 13 to March 18, 2023 at Vienna, Salzburg and Innsbruck has been aimed to strengthen collaboration between Austrian and Indian startup-ecosystems by connecting startups, investors, and other stakeholders.

- **Mobile World Congress 2022** - MWC is the largest and most influential event for the connectivity ecosystem was on February 27 to March 2, 2023 at Barcelona.
- **Convergence 2023** - one of the most influential expos in India by successfully hosting cutting-edge exhibitions and concurrent conferences. The Convergence India series of expos is widely credited as a leading exhibition in India, in the realms of technology.
- **Marketing Support to Startups (Video)** – As part of the marketing support for startups, provide support on subsidizing the product video development. Those who have good products and are at the revenue-making stage shall be selected for the scheme. 8 startups were supported from the scheme.

TECHNOLOGY INNOVATION ZONE

Technology Innovation Zone is the global innovation incubator hub for many technology sectors. TIZ will create world class infrastructure facilities for multi sector technology incubators to incubate their start-ups and to support home grown enterprises. TIZ is being established in the 13.2 acres of land at KINFRA Hitech Park, Kalamassery. The Zone comprises of built-up start up modules, high end fabrication labs, R&D lab facilities, commercial office spaces, dormitories, Small Office/Home Office (SOHOs), malls. TIZ will create a total built up area of approximately 5 lakh square feet facilities. The infrastructure for TIZ will be built in different phases. Currently Phase I is operational.

Current status of

- Digital Hub & Sandwich Building, Technology Innovation Zone, Kochi having 2.20 lakh sq.ft are progressing for startup occupancy
- Land allotted by Govt. of Kerala for Emerging Technology Hub, Thiruvananthapuram envisaging 5 lakh sq.ft space

KSUM has collaborations with Government, PSUs and corporates to enable and empower start-ups and youth with opportunities in the tech industry and the digital economy.

Major physical achievements of KSUM for the last 3 years are given in **Table 5.1.9**

Table 5.1.9 Major physical achievements of KSUM

Sl No	Particulars	Achievements 2020-21	Achievements 2021-22	Achievements 2022-23	Achievements 2023-24
1	Number of tech startups in Ecosystem	3143	3650	4318	4681
2	Incubators/Accelerators (nos)	19	67	67	67
3	Employment creation (no)	30,000	40,000	43180	46800
4	External investment (Rs crore)	1638	4252	5325	5375
5	Ranking of Ecosystem	Top Performer	Top Performer	Not declared yet	-
6	Incubation Space (lakh sq.ft)	3.78	5.77	5.77	5.77

Source: KSUM

Achievements of KSUM in 2022-23

- KSUM funded Open Financial Technologies became Kerala's first and India's 100th Unicorn Company in May 2022.
- 668 new ventures registered as Startups under DPIIT and KSUM during the last Financial Year.
- 45 work orders worth Rs 6.69 crore were awarded to startups through the Government as a Marketplace Scheme.
- KSUM's investment through Fund of Funds has grown 3X in value and the AIFs selected as part of this have invested Rs 86.55 Crores in Kerala Startups.
- Rs 115 crores of business for 7 startups through International delegations supported by KSUM

Centre for Development of Imaging Technology (C-DIT)

C-DIT has been functioning as an Information and Communication Technologies (ICT) solutions provider in the Government sector. The major programmes undertaken by C-DIT are:

- Revamping of the official portal of Government (kerala.gov.in): National e-governance Service Delivery Assessment ranking-Selected as No.1 State Portal in India in the year 2022-23.
- Developed a Single Window Portal (e-sevanam) for aggregating all e-services application of various Government Departments. National e-governance Service Delivery Assessment has ranked the portal 6th in India
- Production and delivery of hologram embedded security documents such as Certificates and Mark list for various Universities and other educational institutions in Kerala.
- Established partnership with 20 colleges in the State for the conduct of IT based short term

courses under C-DIT Association Education Program (CAEP) of CDIT.

- Developed software for the online examination system for Kerala Public Service Commission.
- Developed software for the online examination system for Kerala State Entrance Examination Commissionerate
- Concept ,production and delivery of 112 episodes of Haritha Vidyalayam Reality show for the selection of best schools for KITE VICTERS
- Technical support and facilitation (Event management) for the conduct of 90 odd official programs and functions of various government departments and institutions.
- Production and delivery of 812 videos for various government departments and institutions
- Development and maintenance of 46 new websites of various government departments and institutions
- Technical Solution for providing Live Video feeds TV of Niyamasabha proceedings to Malayalam TV Channels.
- CDIT is designated as the state level agency, to provide technical support to Election Department and for printing of electoral rolls.

Way Forward

The IT sector is witnessing revolutionising changes which hold immense potential for business gains and development attainments. To stay competitive as an IT destination, the IT sector in Kerala must try to move up the value chain to focus more on recent advances which add more value and attract greater revenue. Industry linked research with the active participation of education sector can provide a sound foundation to springboard the IT sector towards greater achievements in the near future. The state has to consolidate its position

as an attract investment destination by focusing on emerging areas in the IT sector and diversify from established IT/ITES activities. Kerala must keep pace with rapid changes at the national and global IT sector. The State continues to draw benefits from its gains in digital empowerment and IT awareness of the population which are assets. The emergence of a sound institutional mechanism, active government support, strong industry sentiments and the state's large workforce in the sector hold great potential for the future and the sector is expected to perform well in the near future.

5.2 SCIENTIFIC SERVICES AND RESEARCH

Science, Technology, and Innovation (STI) play a key role in real economic growth and transformation in any society, the progress and development of any nation and improvement of the quality of life. The use of science and technology has become one of the most powerful instruments to support socio-economic needs especially in the emerging competitive economy. Innovations based on science and technology help in achieving resource efficiency. India has strong scientific and technological base that spreads across the country in the form of academic institutions, research and development laboratories, advanced research facilities, experimental centers and different advanced industries.

India was ranked 40th position in innovation performance in Global Innovation Index 2023, an annual ranking of countries by their capacity for, and success in, innovation, published by the World Intellectual Property Organisation. The Department of Science and Technology (DST), GoI was established with an objective of promoting new areas of science and technology, and to play the role of a nodal department for organising, coordinating and promoting science and technology activities in the country.

Science and Technology Sector in the State

Science and technology sector in Kerala aims sustainable development and enhanced quality of life through learning, research and development with the participation of academia, industry and research organisations and to benefit the society through interventions for the improvement

of infrastructure, livelihood, amenities and environment. Department of Science and Technology, Government of Kerala promotes science and technology sector and provides research and development support in the State to scientists of various institutions and disciplines. Its mission includes capacity building within the academic and research institutions in the State, and research and development through R&D centres. It also aims at identification and facilitation of projects and programmes in the biotechnology sector, conservation and sustainable use of biological resources, and augmentation of laboratory and scientific infrastructure in educational institutions and research centres.

The major institutions coming under the Science and Technology sector in the State are the Kerala State Council for Science, Technology and Environment (KSCSTE), Institute of Advanced Virology (IAV), and the Regional Cancer Centre (RCC), Thiruvananthapuram.

Outlay and expenditure of agencies under Science and Technology sector

The details of outlay and expenditure of Science and Technology sector from 2019-20 to 2023-24 is given in **Table 5.2.1**

A.Kerala State Council for Science, Technology and Environment (KSCSTE)

Kerala State Council for Science, Technology and Environment (KSCSTE) drives the research and development efforts of the State through various scientific programmes and research and

Table 5.2.1 Outlay and expenditure of agencies under Science and Technology sector from 2019-20 to 2023-24 (Rs in lakh)

Year	KSCSTE			RCC			IAV		
	Outlay	Expenditure	%	Outlay	Expenditure	%	Outlay	Expenditure	%
2019-20	10258.00	2002.00	19.51	7260.00	2777.00	38.25	5000.00	1435.00	28.7
2020-21	7664.00	5596.24	73.01	7100.00	1838.81	25.89	5000.00	2304.70	46.09
2021-22	8164.00	6033.55	73.90	7100.00	4682.11	65.94	5000.00	2400.00	48
2022-23	8977.00	5184.53	57.75	8100.00	8099.99	100	5000.00	3043.00	60.86
2023-24	9077.00	3416.02*	37.63	8100.00	0.00*	0	5000.00	1807.93*	36.16

Source: PlanSpace, Kerala State Planning Board, Accounts

*Expenditure up to November 1, 2023

development centres. The vision of KSCSTE is to promote excellence in science and technology through learning, research and development with the participation of academia, industry, and research organisations. The main objective of KSCSTE is to plan and formulate science, technology and innovation policy and connected initiatives and programmes pertaining to the development of the State. KSCSTE and the seven Research and Development (R&D) centres together implement several planned initiatives focused on enabling the S&T community for increasing its scientific and technological outputs in term of quality and quantity.

Kerala Biotechnology Commission is also functioning at the Council Headquarters for implementing and co-ordinating biotechnology programmes in the State and supporting eight schemes and programmes.

The R&D centres under the council are Kerala Forest Research Institute (KFRI), National Transportation Planning and Research Centre (NATPAC), Centre for Water Resources Development and Management (CWRDM), Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Kerala School of Mathematics (KSoM), Srinivasa Ramanujan Institute for Basic Sciences (SRIBS) and Malabar Botanical Garden and Institute for Plant Sciences (MBGIPS).

I. Major Achievements of Research and Development Centres

JNTBGRI – JNTBGRI is a premier autonomous R&D centre of the State Government and a centre of excellence recognised by the Government of India with an objective to conserve the tropical plant genetic resources and to develop scientific methods for their sustainable use. It has well integrated multidisciplinary R&D system dealing with exploration, conservation, management and sustainable utilisation of tropical plant resources through its eight scientific divisions. It also envisioned the development of a major conservatory botanic garden with vast living plant collections, including most of the endemics of the Western Ghats with their natural variations, and conserves the largest number of plant species in Asia. JNTBGRI maintains a 300 - acre conservatory garden for the wild tropical plant genetic resources of the country. In 2022-23, the institute has published 52 papers in referred journals, 2 books, 17 chapters in books, 63 papers in conferences, produced 3 PhDs and organised 19 outreach programmes.

Major initiatives and achievements

- JNTBGRI has joined the Global Genome Initiative in 2020 with GGI-Gardens Award. It is the first and only organisation from India to join this network. More than 100 samples were collected and incorporated into the collection till 2023. The details of the collection are currently available in the GGBN (Global Genome

Biodiversity Network) portal, visible to the global plant research community.

- Established Centre of Excellence in Phytochemical-Nanotechnology (CEP) at JNTBGRI.
- 360 species of plants newly added to the different theme collections such as aquatic plants, arboretum, fruit plants, ferns, palmetum and ornamental plants.
- Two new species were reported from Western Ghats through field explorations: *Ophiorrhiza sasidharaniana* (Rubiaceae) and *Humboldtiaaponmudiana* (Fabaceae).
- Developed two orchid hybrid *Phalaenopsis* Tiger Stripes (*Phal mannii* X *Phal fasciata*) and *Phaiocalanthe* Pink Splash (*Phiustankervilleae* X *Cal rubens*) and registered with the Royal Horticultural Society (International Registration authority for orchid hybrids) in 2022.
- Introduced 53 orchid species, 116 Medicinal and Aromatic plants, 18 bamboo species, 6 fern species and 18 Gene Bank accessions from North Eastern states (Arunachal Pradesh, Assam, Meghalaya, Nagaland, Sikkim and West Bengal).
- Established a 'tiger orchid' trail in the orchidarium. Tissue culture protocols for the horticulture potential hybrids *Dendrobium* Sonia-white and *Dendrobium* earsakul were standardised.
- Developed a database, 'Plant Chemicals and Therapeutics' and documented details on 600 plants derived compounds and their source plants.
- Prepared a library of 787 phytochemicals derived from 5 selected anti-pyretic/anti-dengue and hepatoprotective medicinal plants and identified potential compounds against the drug targets of the human pathogenic viruses, Dengue and Hepatitis C.
- Seed biology of selected flowering plants was carried out. In the JNTBGRI seed bank, 2700 accessions are maintaining with 298 genera, 418 species in 101 families and 305 accessions were collected and added to the active collection. Population genetic structure of endangered tree *Humboldtiaunijuga* var. *trijuga* was completed.
- Detailed pollination biology and breeding system of endemic trees *Humboldtia brunonis* and *Humboldtia bourdillonii*, data collection of flowering plant wealth of India, Pollen material collection of 110 angiosperms, pollen analysis of the fur of four animals and LM study of 60 species were carried out.
- In connection with Chief Minister's 100 days

programme, a project "Development of Tropical Herbal Health Mix" based on Traditional knowledge for Nutritional deficiency and livelihood enhancement of Rural Unemployed Women" was implemented in JNTBGRI. By the implementation of this project, developed six herbal products (Tropical Herbal Health Mix, Tropical Vettilla shampoo, Tropical Naruneendi syrup, Tropical Lizard repellent spray, Tropical room refreshner, Tropical Fumigation Powder) and imparted skill development and empowerment of rural unemployed women.

- In 2022-23, 261 mushroom varieties were collected, processed and deposited in the existing mushroom herbarium. Three new species of mushrooms discovered and described from Western Ghat forests of Kerala. Ten edible mushrooms were collected during the period. A mushroom Herbarium is maintained in the division of Microbiology with 19023 collections.
- Gene sequences (nrITS&LSU) of the new species/ new records were deposited in international repository GenBank. Field trips were conducted to Idukki and Palakkad districts for the collection of leaf infecting fungi and lichens and collected 92 lichen samples and 118 foliicolous fungal samples. Fungal herbarium has over 7,125 exsiccates and Lichen herbarium holds 3,776 exsiccates deposited here.
- Conducted plant exploration in different ecosystem and reported new species and new distributional records of plants. Raised saplings of RET species and native mango varieties.
- Herbarium (Tropical Botanic Garden Trivandrum-TBGT): Enriched TBGT herbarium and digitalised herbarium sheets for reference. 1,750 Herbarium sheets were incorporated, issued 32 Herbarium certificates, digitalised 20,761 Herbarium sheets and number of visitors in the Herbarium was 352.
- Established the ex-situ conservatory for the family Annonaceae comprising of numerous endemic and threat category species and 2 species were newly added making a total of 42 to the Custard apple Garden. Seed germinated deposited 4 species to the seed bank for storage.
- 8 species were newly added making a total of 54 in the conservatory of Acanthus Garden and propagated 5 species.
- 24 accessions were added belonging to 8 varieties and 2,000 seeds were collected from local areas and put for germination in the nursery and transferred the germinated saplings to the polybags in the Mango Conservatory.

- Conducted 5 exploration trips to laterite areas of northern Kerala. Discovered 3 new species and 1 distributional record. Recorded 3 species of IUCN red list category.
- A new project on “Cardamom for rain forest conservation” has been launched in 2023 with financial assistance from the Forest Department, Government of Kerala.
- Initiated compilation and documentation of phytochemical data of selected medicinal plants and the validation of them through ‘in silico’ screening against targets of ‘positive sense ss RNA viruses’ including hepatitis C and dengue. A total of 787 plant compounds were studied from five selected plants and few plant compounds were found to be active against dengue virus and hepatitis-C virus.
- Population genetic structure of *Humboldtia* var. *trijuga* and population studies on *Trichopuszeylanicus* subsp. *Travancoricus*, reproductive biological study of *Humboldtia* var. *rakthapushpa* and *H. bourdillonii* were completed. In the JNTBGRI Seed bank, 2700 accessions are maintaining with 298 genera, 418 species in 101 families. During the period 305 accessions were collected and added to the active collection. They include 134 species, 86 genera, which include 4 newly recorded species and 32 endemic species.
- Completed the ethnobiological survey in the coastal areas of Perumbadappu, Pothukallu, Pallipuram, Elamkunnappuzha, Nayarambalam and Edavanakkad and the tribal areas Kuttampuzha and Pudur Gramapanchayath of Kerala.
- Fractional separation of the coded plant powder was completed. In-vitro, anti-inflammatory activity of ethanolic, hydro ethnaolic and aqueous root extracts of coded plant were carried out.
- Albumin denaturation assay, proteinase inhibitory activity, membrane stabilisation and anti-lipoxygenase activity of coded plant extract were completed.
- As part of garden renovations and explorations, 50m reflexology pathway based on Egyptian/ Chinese massage medical system in the Palmetum, a landscape garden feature of first of its kind in Kerala and Two huge size carpet beds done in plants were made.
- Urdamycin E and Urdamycin V isolated from *Streptomyces* OA 293 serve as efficient antibiofilm agent specifically targeting pathogenic gram-positive microbes. The compounds were most effective against *Streptococcus pyogenes* (Group

A *Streptococcus* (GAS)) and *Streptococcus* mutans.

- Agro ecology practices of *Trichopuszeylanicus* were standardised and documented.

Centre for Water Resources Development and Management (CWRDM) – The activities of CWRDM are research projects on hydrology, watershed development, wetland management, water quality management, water management for agriculture, forest and urban hydrology, estuarine management, groundwater development, water quality management, ecology and biodiversity and advanced waste water treatment technologies. It provides research/ consultancy support to various line departments and LSGDs for solving water related issues. As a Water and Land Management Institute (WALMI), CWRDM conducts the prestigious Water Resource Management and Training Projects (WRMTP) targeting officials of the departments related to water resources management. CWRDM has been undertaking external research projects funded by various agencies under Government of India.

Major initiatives and achievements

- CWRDM was involved in preparing guidelines for Water Budgeting for Kerala State under Navakeralam Mission programme and developed a framework for calculating the water budget and it has been done on a pilot base in 15 Block panchayaths across Kerala. Water budget was released on 17th of April 2023.
- The centre was involved in establishing the Meenachil River Rain Monitoring Network (MRRM), with the support of local administrative bodies and local peoples supported by a number of rain gauges and water level monitoring networks.
- Implemented Geotextile based bank stabilisation measures in the islets of Ranganathittu Bird Sanctuary, Mysore, which is highly successful in preserving the habitats of birds, crocodiles and fishes.
- An integrated Management Plan for major wetlands including Ramsar Sites was prepared with the support of State Wetland Authority of Kerala.
- Initiated study to understand the hydrological provisions of forests/forests types in Western Ghats region, with the support of Department of Forest and Wildlife, Government of Kerala.
- Formulated irrigation scheduling process to conserve water and enhance productivity of agricultural crops.

- Prepared a map of wetlands of Kozhikode District, with the support of local people.
- Conducted 67 plan projects, 25 external funded and 26 consultancy projects during the year.
- Published 33 research papers, 73 Conference papers, 4 books, 11 book chapters and 21 popular articles.
- Conducted 33 training programmes benefitting more than 500 persons including officers/engineers from line departments, students and farmers.
- An inventory on 'Wetlands of Kozhikode District through Citizen Science Initiative' was prepared and released on the World Wetlands Day 2023.
- A manual on 'Keep it safe to drink – Treating well water' was prepared and released during the 'Observance of World Water Day' on 22nd March.
- An Urban Pond Atlas for the City of Kozhikode is brought out under Indo- Dutch Programme from DST.
- More than 150 masters' students from different science and engineering disciplines had completed dissertations/internship/trainings under the supervision of CWRDM scientists.
- Developed nutrient recommendation system for sustaining the soil health and crop production and the system is used by several farmers throughout the State.
- Developed capillary action- based irrigation device for field (Wick) to improve crop productivity and water use efficiency.
- The HYDRAH (Hydrological Rainfall Analysis for Humid tropics) rainfall dashboard was launched in observance of World Water Day 2023. A DSS (Decision Support System) on Soil Erosion Risk Assessment was developed and hosted in CWRDM website for public use.
- Water Analysis Laboratory of Sub centre Neyyattinkara is accredited by Kerala State Pollution Control Board as C-Grade Commercial purpose laboratory with 18 water and waste water quality parameters.
- More than 7000 water samples were analysed by the NABL accredited water quality laboratory at CWRDM.
- Academic support was given to 10 PhD scholars, 2 Post Docs, 150 Dissertation students.
- The major schemes/projects undertaken by CWRDM during the financial year for State Government departments/Agencies are:
 - i) Navakeralam Mission - Water Budgetting, Jalanjali, Carbon Neutral Kattakada, river management plans for Valapattanam,

Ramapuram rivers, mapping of paddy lands in Kozhikode, State Irrigation Department and IDRB.

- ii) Seawater intrusion studies in three rivers, Mini EIA study for Kallayi river and Vellayani lake, Bharathapuzha-Biyyamkayal linkage, Kerala Forest Department- Hydrology of major forest types in Kerala, KMRL Ltd.
- iii) Drainage studies for Kochi Metro, Dependable Yield Estimation for the KINFRA Water Supply project at Kochi.
- iv) Preparation of Detailed Project Reports for Anjarakandy River-rejuvenation and Management, Water Resources Development and Management Programme for KUHS Campus, Thrissur.
- v) Investigated the presence of excess Iron problem in Sasthamkotta Lake, Water Quality Testing Drive for schools in Kannur, Malappuram districts.

Awards

- CWRDM was awarded Sustainable technology Award by AMRUTAM Sustainable Awards 2022 (institutional category) by Sustainable India and Sri Aurobindo Foundation.
- KSCSTE-Centre for Water Resources Development and Management (CWRDM) and its three sub centres (i.e., Neyyattinkara, Kottayam and Manimalakunnu) were awarded with ISO 9001:2015 Certification

Kerala Forest Research Institute (KFRI) – KFRI is envisioned as a world-class Centre of excellence in Tropical Forestry for effective conservation of forest ecosystems and sustainable utilisation of natural resources in service of society. It provides scientific support for decision making on matters related to forestry, with particular emphasis on conservation, sustainable utilisation and scientific management of natural resources. It works in collaboration with leading forestry institutions in the country and abroad by time bound research in thrust areas addressing the needs of the stakeholders.

Major initiatives and achievements

- Launched an exclusive website launched for KFRI www.bambooinfo.in and established the Centre for Citizen Science and Biodiversity Informatics (CCSBI): <https://ccsbi.kfri.res.in>.
- Carried out a programme of K-DISC 'Mazhavillu' to promote science through experiments by continuous training for 50 students in the age

- group 8 to 12 years of Panancherry Panchayat.
- Kerala Forest Seed Centre (KFSC) has provided about 300 tonnes certified seeds of forestry species and seed handling information of the major species were provided to the stakeholders within and outside the State.
- The institute has undertaken enrichment seedling planting of high demanding NTFP (Non-Timber Forest Product) trees in situ to augment natural resources for the conservation, utilisation and overall supported forest regeneration activity in the degraded forest areas.
- Carried out eco-restoration activities, conservation of both species and habitats, resource augmentation and enhancement in both forest and non-forest areas.
- Development of management protocols for already established invasive alien species in the Protected and other forests of Kerala
- Conducted ecosystem restoration research in different forest and impacted landscapes.
- Developed composting technology for soil amelioration and nanocomposites for soil applications.
- Established Centre for timber forensics and DNA barcoding for providing DNA evidence to prove authenticity of illegally seized timber logs in the Court of law for Kerala Forest Department (KFD).
- Developed protocols for clonal and seed propagation of threatened trees/ NTFPs/ lesser-known wild fruit trees.
- Developed genomic technologies for conservation of forest genetic resources to mitigate climate change using landscape genetics and gene ecological zonation.
- Biodiversity characterisation conducted at community level in the country using Earth observation data.
- 20000 seedlings representing 38 palm and 21 bamboo species raised at KFRI and handed over to landscaping activities at Puthur Zoological Park.
- Bamboo Nursery representing 2 lakhs seedlings of 18 species raised and more than 1 lakh seedlings handed over to MGNERGS for river bank stabilisation programmes at Kerala.
- Analysed impact of flood on flora and soil for major four Rivers in Kerala and suggested action plans.
- Raised 3000 seedlings of *Corypha umbraculifera* threatened palm and restoration activities undertaken.
- Conducted standardisation of seed handling plants and timber trees in non-forest areas and production of quality Planting Materials
- Popularised the concept of butterfly garden and technical advice provided to several agencies for the establishment of butterfly parks.
- Established a model nursery at Devikulam Field Research Station, Munnar for QPM production especially of shola species.
- Standardised Eco-friendly coir-based biodegradable root trainers to reduce plastics in nurseries
- Established a bio repository of the plants in the Southern Western Ghats.
- Designed Bamboo Toys and Life style products for KFRI Bamboo enterprises.
- Developed Artificial Intelligence (AI) based Machine Learning Algorithm (Mycorrhiza) (MLA) for forensic applications.
- Customised and implemented the software tools like ODK/Kobo Collect for field data collection (human-wildlife conflict, roost site mapping of birds/bats, socio-economicsurveys, mapping of individuals/nests of squirrels,primates,etc.)for easier management and retrieval of data.

National Transportation Planning and Research Centre (NATPAC) – NATPAC conducts research and development (R&D) and extension activities in transportation and allied fields, as well as conducts studies in safety and operational efficiency of transportation systems. The activities of the centre include Transportation Planning, Traffic Engineering and Road Safety, Intelligent Transportation System, Inland Water Transport System and Coastal Shipping, marginal materials for road construction, public transport system and logistics and providing consultancy services to various user agencies in the domain area. During the financial year 2022–23, NATPAC carried out 20 Plan Projects, 17 Consultancy Projects, several road safety programs, 13 need-based studies and produced various road safety training materials. The institute has published 16 international and 6 national research papers in conferences/seminars.

Major initiatives and achievements

- NATPAC submitted a report proposing measures to reduce carbon emissions from the transport sector towards making Kattakada constituency a carbon neutral zone.
- Prepared the road safety treatment plan under World Bank aided Challenge fund for Medical College-Petta Road in Thiruvananthapuram, Kottiyam- Kundara in Kollam and Vypin-

Munambam in Ernakulam districts.

- Conducted feasibility study for providing access to proposed Skywalk at Seematti Junction Kottayam.
- Carried out Technical Review of 12 road projects funded by KIIFB and prepared project execution documents and submitted redesign report to KIIFB and KRFB.
- Carried out technical review of Perumbavoor Bypass, prepared project execution documents and submitted redesign report to KIIFB and RBDCK.
- Carried out axle load surveys for PMGSY roads in Kottayam, Ernakulam and Kannur districts for effective pavement design.
- Involved in the process of DPR preparation for coastal highway with cycle track, hill highways, water ways in Kerala, pavement design of LSGD and PMGSY roads in Kerala. The land accusation for the Mahe-Valapattanam stretch is in progress based on the Centre's report.
- A study on the trip making behaviour of the passengers in the Kochi Water metro and also on various risks involved in waterway operation is being undertaken by the Centre for providing a framework for performance evaluation of water metro project in Kochi.
- NATPAC developed a mobile app – 'GetMap' app for road data collection.
- Conducted studies on the overtaking characteristic of vehicles on undivided roads in mixed traffic and non-lane discipline traffic conditions, the application of ITS as an effective and economic option in improving critical location and blackspots in major road networks and effectiveness of dynamic speed display sign board in reducing speeding behaviour of drivers.
- Identified a total of 323 vulnerable road corridors on National Highways and State Highways in Kerala, of which, 149 corridors were on the National Highways and 174 corridors on the State Highways in Kerala.
- Organised the programme, Safe Road to School – 100 selected schools across 14 districts of the State of Kerala, Observed Road Safety Week-2023, conducted 7 training courses for drivers of vehicles carrying Dangerous and Hazardous Goods, 4 training programs for Motor Vehicle Department officials – PEACE'22 (Propagating Engineering Aspects for Coherent Enforcement), 9 Road Safety Training for various target groups and 7 Road Safety Education, Awareness, Training Programme and Outdoor Campaign on Safe Corridor Demonstration Project (SCDP).

- The centre published 16 international and 6 national papers in conferences /seminars and 8 papers in journals and organised 2 international and one national meets.

Kerala School of Mathematics (KsoM) – This is an advanced research institution in Mathematics and a joint venture of KSCSTE and the National Board of Higher Mathematics, under Department of Atomic Energy, Government of India. The main objective of the institute is to promote mathematical research in the country, particularly in Kerala

- In 2022-23 KsoM has published five research articles in respected journals and three PhDs were awarded.
- The institute has hosted national and international visitors and two workshops/conferences.
- Summer Programme in Mathematics was conducted in June, 2023.
- The Integrated MSc-PhD programme offered at KSoM is among the best in the category in the country. Six students are studying MSc in the second batch.

Malabar Botanical Garden and Institute for Plant Sciences -MBGIPS - An institution engaged in the collection, conservation and strategic development of sustainable utilisation protocols for aquatic and lower plant group forms of the Malabar Region. The conservation strategies for different endemic aquatic plant species and Enumeration of the wetland ecosystem and wetland biodiversity are also being carried out regularly.

- Under Green Kerala Initiative Programme 15,000 seedlings/ saplings of trees belonging to 10 different genera are getting ready for planting.
- The Ginger collection of MBGIPS, with about 300 taxa over 1,500 accessions, was declared as India's No. 1 collection.
- Developed conservation strategies for an endemic medicinal aquatic plant *Crinum malabaricum*
- Published 7 research papers, 7 conference papers, 2 books and 3 book chapters
- Regular surveys were conducted at natural habitats of *Crinum malabaricum* during different seasons for habitat assessment. Plant numbers, river conditions and species threats were recorded. Soil samples were collected and analysed for physical properties.
- Based on the developed ecological models of *C. malabaricum*, suitable habitats were discovered with the help of Q GIS Open Street Map and Google Earth.

- Genomic DNA of 7 *Crinum* spp. (including *C. latifolium*, *C. viviparum*, *C. asiaticum*, *C. jaggus*, *C. moorieand* *C. solapuresnsis*) were isolated from samples from Kerala, Maharashtra, Karnataka and Madhya Pradesh.
- 48 accessions of *C. malabaricum* were collected from four natural habitats for population genetics evaluation.
- Genomic DNA of *C. viviparum*, *C. asiaticum* and *C. solapurensis* were amplified using ITS markers to elucidate the taxonomic status.
- Conservation and Biosystematics of Bryophytes, Pteridophytes and Lichens- plants collected from natural habitats and deployed in respective conservatories. Propagation was carried out and classification is in progress.
- Systematic studies and in vitro multiplication of RET and aquatic medicinal plants - Plant collection trips were conducted to various regions of West Bengal and Kerala (Wayanad). *Limnophila* and *Hygrophila* species were collected, DNA isolation and PCR amplification was carried out. Amplified sequences were sequenced and analysed using NCBI-BLAST.
- Completed studies on reproductive biology, systematics and conservation of 7 species of Nymphoides.
- Development of seed storage and germination studies for selected endemic medicinal plants and standardised seed storage protocols as per ISTA.
- Integrated conservation of *Hopea erosa* and *Vateria indica*, two threatened Dipterocarps endemic to the Western Ghats / South and Central Sahyadris, India (matching grant with BGCI). - seeds and seedlings were collected and grown for in-situ and ex-situ conservation and field gene bank developed at MBGIPS.
- The ginger garden is rated as the largest collection of ginger plants in India. 28 species were newly planted in the medicinal garden section and 49 species were propagated for sale.
- Presently 12,064 ornamental plants belonging to 91 species are preserved in the Central Nursery.
- A total of 10,475 plants were propagated and distributed to campus conservatories within one year.
- The centre has taken up developing the conservation and re-introduction of programmes for *Nymphoides krishnakesara* and *Crinum malabaricum*. Tissue culture protocols were also developed for *N. krishnakesara*. Phonological, ecological aspects and pollination biology of these critically endangered species were carried out and awareness creation was also a part of the programme.

New Discoveries

- New family record for India- *Hanguana antheleminthica* (Blume ex Schult. and Schult. f.) Masam. Of Hanguanaceae.
- Rediscovery of possibly extinct Taxa - *Globba andersonii* C.B. Clarke ex Baker -Rediscovered after 136 years, *Ophiorrhiza codyensis* Gamble -rediscovered after 106 years. New species discoveries - *Impatiens shiyomiensis*, *Impatiens tirbinensis*, *Amomum arunachalense*, *Hedychium mechukanum*, *Peucedanum pradepianum*, *Fimbristylis schultzii*.
- New record to Peninsular India – *Fimbristylis peroti*, *Jungermannia comata*.
- New record to Kerala – *Fimbristylis bispicula*, *Billolivia lamdongensis* (From Vietnam)

Srinivasa Ramanujan Institute for Basic Sciences (SRIBS) - SRIBS has been established as a research and development centre to become an internationally reputed centre for fundamental research in basic sciences, and to serve as a platform which facilitates capacity building exercise in basic sciences. The Institute is envisioned to establish collaborations with world's leading centres of theoretical research and intellectual inquiry and to encourage and support curiosity-driven research in basic science.

- During 2022-23 SRIBS has organised a lecture series in connection with the Golden Jubilee Celebrations of Science and Technology Sector in Kerala.
- Organised a national workshop on NMR (Nuclear Magnetic Resonance) Spectroscopy in collaboration with Indian Institute for Information Technology and Management- Kerala (IITM-K) which benefitted 60 Post Graduate students and researchers in chemistry and Biology.

II. Schemes and Programmes of KSCSTE

With a view to identify and implement programmes to achieve excellence in S&T within the State and to provide service to the society at large, the Council is implementing various schemes and programmes focusing science popularisation and promotion, research and development, ecology and environment, technology development and transfer, and science programmes for women.

The schemes and programmes implemented by KSCSTE and achievements during the year 2022-23 are discussed below.

1. Human Resource Development in Science and Technology

i. Science Research Scheme (SRS)

Science Research Scheme aims towards promotion of R&D activities in the State in both fundamental and applied research. Research projects in emerging areas of science and technology are supported under the scheme by providing financial assistance for implementation.

During the year 2022-23, grant for 15 new projects and 7 on-going projects were released.

Dr. S. Vasudev award is given for the best project completed under the Science Research Scheme based on the evaluation of Final Technical Report (FTR) of the project. 10 FTR were selected and the award was given away during the inaugural session of 35th Kerala Science Congress.

Unique facilities such as immunology lab with facilities for RNA extraction, CombiFlash RETRIEVE Flash Column and upper capacitor fabrication procedures and facilities were created using the KSCSTE SRS project fund. Major research highlights are: reported a new species of Parmelioid lichen - *Parmotrema sahyadrica* Sequiera and A. Christy, prepared reduced graphene oxide (RGO) supported NiCo₂O₄ (RGNCO) nanocomposites, isolated and identified the compounds contributing towards the anticancer property of the medicinal plant *Corallocarpus epigaeus*.

During the year 2022-23, 23 PhDs were awarded and 38 papers in refereed journals, 63 papers in conferences/seminars and 5 book chapters were published under the programme.

ii) Emeritus Scientist Scheme

The objective of the scheme is to make use the talent and knowledge of superannuated outstanding scientists and support them to pursue research in their respective field of specialisation for the benefit of the State. Under this programme, 9 International and one national conferences/seminars were conducted and 15 papers were published in refereed journals in 2022-23.

iii) CRYSTAL (Crafting Young Scientists of Tomorrow) is a programme with the objective of creating a platform for students to identify

their talents at an early age and nurture them. IIT Palakkad hosted a residential science camp for 25 school students under the CRYSTAL programme.

iv) KSCSTE Research Fellowship programme

This scheme is to support bright students in research leading to Ph.D. The programme's objective is to motivate and assist highly dedicated postgraduate students in pursuing careers in science. KSCSTE fellowships cover a range of disciplines, including Mathematical Sciences, Life Sciences, Physical Sciences, Chemical Sciences, Earth, Atmospheric, Ocean and Planetary Sciences, Engineering Sciences, and Environmental Sciences. This fellowship is on par with national fellowships. In the year 2022-23, 29 PhDs were awarded and 7 papers in refereed journals and 47 book chapters were published under the programme.

v) KSCSTE Post-Doctoral Fellowship

With the objective of attracting doctorate holders to remain in science and technology and to motivate them to pursue research and develop career as scientists, KSCSTE gives post-doctoral fellowships every year. Under this programme, one paper in refereed journals was published, one national conference was conducted and four new findings were generated in 2022-23. KSCSTE-THEJU Engineering-CUSAT joined research programme is an on-going project under this programme.

2. Ecology and Environmental Programmes

In the year 2022-23, National Green Corps (NGC) programme is revamped to Environment Education Programme (EEP), a component of the revamped Central Sector scheme 'Environment Education, Awareness, Research and Skill Development (EEARSD)' which intends to leverage on the key sectoral strength of Eco-clubs, Youth Clubs and other such clubs formed under various programmes/ schemes of the Government. The objective of the Programme is to sensitise children/ youth, on issues related to environment and to motivate them to adopt sustainable lifestyle. As part of EEP programme, 114 programmes organised in 14 districts of Kerala with the support of NGC District Implementation and Monitoring Committee. A total of about 10,000 participants including students, teachers and general public, volunteers took part in the programmes. In the year 2022-23, 13 papers in refereed journals were published under the programme.

3. Science Popularisation

Science popularisation programmes of KSCSTE include i) Kerala Sasthrapuraskaram ii) Kerala State Young Scientists Awards (KSYSA) iii) Kerala Science Congress iv) Science Literature Awards v) National Children's Science Congress vi) Science Media Support, Documentation and Publication, and vi) Technology Festival (TECHFEST).

Kerala Sasthrapuraskaram is instituted to encourage quality research, training, and leadership in science and technology by honouring outstanding scientists of Kerala origin working anywhere in the world.

Kerala Young Scientists Awards are given to talented young scientists in recognition of their outstanding contributions in science and technology. 6 candidates were awarded the KSYSA in 2022. During the year 2022-23, KSYSA research grant for 5 new projects and 3 ongoing projects were released. Four science literature awards were presented in two categories. Three PhDs were awarded under the programme.

As part of the National Technology Day – 2022 celebrations, State level inaugural programme organised by KSCSTE in association with the A P J Abdul Kalam Technological University, a tech webinar series and 'Designathon 2022' - a contest for B.Tech and M.Tech students in the engineering colleges of Kerala were conducted.

Technology Festival (TECHFEST) is an annual programme of KSCSTE instituted for the students of Engineering Colleges within the State of Kerala. KSCSTE TECHFEST-2022 was jointly organised with the Cochin University of Science and Technology (CUSAT) during 26-28, October, 2022 at CUSAT. As the part of TECHFEST, a hackathon, named as Make-a-ton 5.0, was organised by center for Innovation, Technology Transfer and Industry Collaboration (CITTIC), CUSAT with the sponsorship of IEEE Kochi.

Rural Innovators' Meet (RIM) is an annual event for the un-organised rural innovators and grass root innovators for exhibiting their products. KSCSTE RIM-2022 was jointly organised with ICAR – Central Plantation Crops Research Institute (CPCRI). Thirty-four teams presented their innovations in the Rural Innovators' Meet. The Kerala Science Congress is an annual event conducted by the Kerala State Council for Science,

Technology and Environment (KSCSTE) for promoting research and education in Science and Technology as well as providing an interactive platform for academia and R and D. The 35th Kerala Science Congress was organised in February 2023. The focal theme for 35th Kerala Science Congress was "Nanoscience and Nanotechnology for Human Welfare" in which two new initiatives were introduced, namely, SciSol and Walk with Scientists. SciSol is a program aimed at enabling young science enthusiasts to identify and propose science and technology-based solutions for local societal issues in the district where Science Congress is conducted. The Walk with Scientists program is a unique initiative that involves school children walking and discussing science-related topics with scientists.

4. Infrastructure Development in Science and Technology

In order to provide sufficient infrastructure facilities in universities, colleges, and schools for the promotion of scientific activities and augmenting research, the Council has been providing financial assistance for the creation of labs and related facilities in the institutions. Selective Augmentation of Research and Development (SARD) and Sastraposhini are the two schemes implemented by the Council for this purpose. Under SARD programme, grants will be paid for strengthening the laboratory infrastructure by procuring equipment and undertaking its maintenance. Through this programme, 72 Science PG departments/ R&D laboratories till 2022 were supported to procure sophisticated equipment for carrying out research. Each year, about 3 to 4 laboratories are strengthened under this scheme.

Sastraposhini scheme aims to establish model science laboratories in physics, chemistry, and biology to create a better ambience in high schools. Eight Government High schools were selected for the establishment of Sastraposhini model science laboratories. As a part of the programme, 3 days training provided to selected teachers in charge of Physics, Chemistry and Biology laboratories at Centre for Science in Society (C-SiS), CUSAT by eminent scholars/ academicians from different disciplines.

5. Technology Development and Transfer

i) Intellectual Property Rights Information Centre - Kerala (IPRIC-K)

IPRIC-K is Kerala's Nodal Agency for all

Intellectual Property Rights (IPR) related services and matters. 52 IPR Awareness Programmes were organised till August 31, 2023 and around 6,000 people were sensitised under this programme. 80 Patent Facilitation applications were processed and facilitated the filing of 6 Patents and 1 Copyright. Five patents were granted during the period. Established 2 IPR Cells in Engineering Colleges and provided training in IPR to 3 candidates under KIRAN IPR Scheme of DST.

ii) Engineering and Technology Programme (ETP)

ETP is a Research Support Programme of KSCSTE for Faculties of Engineering Colleges and Scientists from Research Institutions/ Research Laboratories to encourage and promote high quality research in the emerging areas of Engineering and Technology in the State. Under the programme, sanction was accorded for the implementation of 11 new research projects, 12 ongoing research projects were completed till August 31, 2023.

iii) Technology Development and Adaptation Programme (TDAP)

Technology Development and Adaptation Programme (TDAP) is envisaged to provide catalytic support for the development and demonstration of innovative and need-based technologies. In 2022-23, financial grant was released to one ongoing project.

iv) Rural Technology Programme (RTP)

RTP scheme is instituted for the purpose of providing assistance in the form of grants to promote and support traditional rural technology and upgrade them, so it could be perfected for wider applications and employment generation, and to reduce the drudgery of rural households. The main objectives of this scheme are to encourage and promote grass root innovators, fine-tuning their innovative ideas and providing them with technical support to raise their innovations to an enterprise level. During 2022-23, financial grant was released to 3 projects.

6. Support for Women in Science and Technology

KSCSTE has initiated several programmes and schemes to increase the participation of women in science, technology, engineering, agriculture and medicine. A support system is provided to encourage women and girls to pursue careers in science. These programmes facilitated re-entry of

women after taking a career break. The important programmes carried out by the Council in this area are as follows.

- i. Back-to-Lab Research Fellowship Programme – It is aimed to provide Post-Doctoral Fellowship to women in Kerala who are having break in their research career due to family commitments, to come back to the main stream. Till now the Back-to lab programme has facilitated re-entry of 78 women researchers back to a career in science out of which 35 researchers have obtained Ph.D. A total of 27 Back-to-Lab Research and 26 Post-Doctoral Fellowship projects were in operation in 2022-23 out of which, 3 projects were completed. 23 research papers have been published by women researchers under the Back-to-Lab programme in Journals and Conferences, out of which 20 publications are at international level. There were 2 best paper awards, 4 book chapters and 15 Genbank submissions in 2022. One Researcher completed Ph.D under the fellowship scheme during 2022.

Project on preparation of database of 'Women in Science in Kerala'. – 3,228 registrations (as on March 31, 2023) were made in the online directory which is developed for obtaining base-line data on the status of women in various sectors of science in the State. There were 61 new registrations in 2022.

- ii. STARS (Students with Talent and Aptitude for Research in Science) programme is to encourage talented students to pursue higher education in Basic or Applied Sciences. The two programmes implemented under the scheme are Prathibha Scholarship and SPEED (Student programme for Excellence in Experimental Design), which is a Laboratory orientation programme for Prathibha scholars. The scheme ensures adequate representation for girl students. The Prathibha Scholarship programme has contributed substantially to increasing the standard of our higher education especially in addressing the gap in research in Basic sciences. Under this scheme, 568 Undergraduate students and 352 Postgraduate students have secured scholarships. 122 students in the ongoing batches of U.G. and P.G. Courses and newly selected 50 students for the 1st year U.G. course (total 172 students) were awarded Prathibha Scholarship in the Financial Year 2022-23.

2. Grant in aid to S&T Institutions

i. Sophisticated Test and Instrumentation Centre (STIC) is a grant in aid support organisation of KSCSTE with the activities in the areas of testing, calibration, material characterisation, skill development, consultancy and training. Presently STIC has calibration and testing services (CTS) division and analytical division known as Sophisticated Analytical Instrument Facility (SAIF), supported by Department of Science and Technology, Government of India. STIC-ANERT (START) Facility for Solar PV Module Testing lab which is first of its kind in the state of Kerala is being set up with the financial support from ANERT. Food Technology Development and Testing Facility are being set up under the special programme of KSCSTE. In the year 2022-23, this division has carried out calibration of 4738 instruments received from around 409 customers from industries. During the 2022-23 period, the lab has consistently provided accurate and timely results, earning a total income of Rs 230.70 lakh from its services provided to its customers.

ii. Integrated Rural Technology Centre (IRTC) is a research and development organisation and it takes up problems of social relevance like energy conservation and management, green energy promotion, natural resources conservation programmes, local level interventions and technology transfer covering project. Major achievements are:

- Food security – Trained 250 new farmers for high density fish cultivation
- Waste management – Production of 800 litres of concentrated inoculum
- Energy – Consultancy services on small hydroelectric project on 1 mw
- Agriculture - NABARD KfW soil project for additional income to farmers, Production of 10,000 mushroom spawn units. Water budget reports for 8 water sheds were prepared with participation of farmers.
- Tribal Development - TDF WADI project supporting about 500 tribal farmers for livelihood improvement with planting coffee. 1 lakh kg bio manure prepared and distributed to tribal farmers of Nilambur under Tribal Development Fund (TDF-WADI) project. 3 gravity flow and 2 lift irrigation projects commissioned in tribal area WADI to irrigate 200 hectares of tribal farmer's land.
- Implemented Biotech KISAN Hub Facilitation Centre at IRTC under the programme “Biotech

-Krishi Innovation Science Application Network (Biotech-KISAN)” to find solution for the problems of farmers and to aid them with appropriate technology.

- NABARD-Farm Sector Promotion Fund (FSPF) Popularising Biofloc fish Cultivation in Palakkad District- Hand holding supporting is continuing for the trained farmers (300 Nos).
- PMKSY (Pradhan Mantri Krishi Sinchayee Yojana) 2.0 GoI- DPR prepared for Perinthalmanna and Sreekrishnapuram Block, Kerala. IRTC is working as technical support Organisation (TSO).
- Developing Strategies and Action Steps for Improving the Performance of District Panchayats on Secondary Education in Kerala, the study supported by UNICEF- - analysed the role of District Panchayats in secondary education in Kerala.
- MGNREGS research study at Kalpetta Block Wayanad: 459 house-holds survey completed and various Focus Group Discussions (FGD) were organised as part of the study.
- IRTC has established Students science activity centre for school children where they can experience ‘touch and feel’ understanding of basic science, facts, activities that are aimed to inculcate curiosity.
- Development of high altitude, low temperature and regional specific consortia for faster bio-composting using indigenous microbes and successful implementation of improvised windrow composting at Munnar was accomplished in association with UNDP.
- The microbial fertiliser Vesicular Arbuscular Mycorrhiza (VAM) was produced on a large scale by the Self Help Groups of farmers. The technical support and quality control for this endeavor was provided by IRTC environment laboratory.
- Bio floc, RAS aquaculture convertible unit is fabricated which has a capacity of 50,000 liters at Pattenchery, Palakkad District.
- Established Automatic Weather Station at Chaliyar and Urangattiri for local climate monitoring and climate advisories to tribal farmers.
- During 2022-23, 4 publications in conferences/seminars, 10 in referred journals, 2 book chapters were published and 450 researchers and 653 technical persons were trained by the centre.

iii. M. S Swaminathan Research Foundation (MSSRF) Regional Station, Wayanad - A centre

works to popularise cultivation practices that synergise the principles of ecology and economics covering project. Major achievements are:

- Maintained Germplasm of Dioscorea (40), Wild Dioscorea (10) Colocasia/Alocasia (9), cultivated Curcuma (8), Wild Curcuma (4), Cowpea (20), legumes, leafy greens and wild edibles, RET species (157).
- One Community Conservation Plot of tubers augmented conservation of 18 Dioscorea varieties with a yield of 1363 kg and a gross income of Rs. 34,000/-
- Wayanad Community Seed Fest 2023 rewarded 4 tribal conservators and attended by more than 1500 participants.
- Conducted studies on climate change effects on agriculture prospects in Wayanad. The study identified 32 climate adaptation practices with 9 major practices followed by perceived effects of farmers and effects on agriculture. A study on NTFPs usage (individual and commercial), market and challenges and opportunities highlighted 12 major NTFPs.
- MSSRF CABIC along with Wayanad District Tribal Development Action Council (WDTDAC) participated at the Ninth Session of the Governing Body of International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) at New Delhi held from 19th -24th September 2022 and showcased the crop diversity of Western Ghats.
- World Food Day celebrated with the organisation of a seminar on 'Dietary Diversity to address Hidden Hunger' with more than 100 participants. Food heroes were also rewarded for their efforts in conservation of agrobiodiversity
- The centre contributed in the identification of 2 new species in Western Ghats i.e. *Ixoralavanya* and *Henckelia viridiflora*.
- During 2022-23, 3 publications in conferences/seminars, 13 in referred journals, 3 book chapters were published and 2 PhDs were awarded.

3. Biotechnology Development

Biotechnology Development programme undertakes Young Investigators Programme in Biotechnology (YIPB), Industry Linked Biotechnology Research Scheme (IBRS), Biotechnology Innovation for Rural Development (BIRD), Biotechnology Training and Workshop Programme (BTW), Kerala Biotechnology Re-entry Fellowship (K-BIREF) and Chief Minister's Career Advancement Programme in Biotechnology

(CAB). The Kerala Biotechnology Commission (KBC) is responsible for the implementation of the Biotechnology Policy and other guidelines laid down by the Biotechnology Board, and is taking a lead role in promoting R & D and industrial growth in the area of Biotechnology.

A major initiative under the programme was partnership with a start-up company to conduct bio entrepreneurship training and about 250 biotechnology students have participated in the first phase – a one-day basic entrepreneurship programme.

- Under DBT-Skill Vigyan State Partnership Programme in Biotechnology and Life Sciences, the Department of Biotechnology (DBT), Government of India in partnership with Kerala Biotechnology Commission to associate with 15 academic / R&D institutions in the State with funds of Rs. 6.368 crores for three years to provide Biotechnology training to students / faculty in identified biotechnology / life science domains.
- In 2022-23, three International and 13 National publications in conferences/seminars, 19 in referred journals, three book chapters were published and one PhD awarded under this programme.

4. Special programmes of KSCSTE

State Higher Research Centres of Excellence in Science and Technology Applications (SHRESTA) a unique scheme launched by KSCSTE envisaged for nurturing a few Centres of Excellence (CoE) from the State that produce world-class research in the specific areas of (i) Floods and Droughts (ii) Viral Research (Biotechnology) (iii) Nanotechnology (iv) Climate Change and (v) Robotics and Artificial Intelligence. During 2022-23, based on the recommendations of PAC-SHRESTA, 'Centre of Excellence in Phytochemical – Nanotechnology' to Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Trivandrum, 'Centre of Excellence for Water related Disaster Management of Kerala' to Centre for Water Resources Development and Management (CWRDM), Kozhikode were sanctioned. During the period 23 publications in conferences/seminars, 23 in referred journals, 1 book chapter were published and conducted 46 outreach programmes.

Food Technology Development and Testing Facility at STIC": In the first phase of the project,

Water Quality Analysis Lab was set up and started functioning. The facility was formally inaugurated in May 2023 and it is now fully functional. During this period the lab has analysed a total of 295 samples and served 197 users and earned Rs. 1,51,950.

III. Institute of Climate Change Studies

The Institute for Climate Change Studies, Kottayam (ICCS) is an autonomous R&D centre registered under Department of Environment to act as the State-level apex agency for climate change research and advocacy. The vision of ICCS is to empower the State of Kerala against the inevitable consequences of climate change and enhance the resilience and adaptation of the state through science, technology, innovation and self-awareness. The following are the major achievements during 2022-23

- ICCS has prepared and released Climate Statement of Kerala for the year 2022.
- SWAT model has been set up for Bharathapuzha and Pamba river basin using 0.25° x 0.25° IMD rainfall data set to evaluate the variability in future water availability under climate change.
- Developed Isopleth maps of Kerala using IMD gridded rainfall data for 2, 5, 10, 25, 50, and 100 years return period.
- Development of a rainfall dataset for Kerala with high spatial resolution is being carried out.
- A spatio-temporal analysis of low-pressure systems over the Arabian Sea along the coast of Kerala during the last 71 years (1952-2022) has been conducted.
- Using long-term (2001-2019) remote sensing data, a detailed investigation is performed in understanding the Spatio-temporal variation of aerosol loading over the Kerala district.
- Trajectory frequency analysis has been carried out to ascertain the possible sources that led to aerosol loading.
- Integrating Hydrology and Agriculture with Livelihood Issues – SERB (Science and Engineering Research Board) Project explored a novel framework by using bio-climatic variables for defining regional climatic zones, and the detection of climate change therein.
- In 2022-23, the institution has published three papers in referred journals, five papers in conferences and one book chapter.

B. Institute of Advanced Virology

Government of Kerala established the Institute of Advanced Virology in 2019 in the Bio 360 Life

Sciences Park, Thonnakkal, Thiruvananthapuram to find solutions to prevent the existing and emerging viral infections through vaccines, cost-effective multiplex diagnostic platforms, and monoclonal antibodies and other therapeutical measures. It focusses on bolstering surveillance, diagnostics, and overall preparedness in the battle against emerging viral threats. The national and international developments underscore the importance of continuous research and innovation in the antiviral drug research sector for which collaboration between governments, research institutions, and pharmaceutical companies is essential in driving these advancements and ensuring global health security. The Institute has eight departments to facilitate multi-dimensional study in Virology: Department of Clinical Virology, Viral Diagnostics, Viral Vaccines, Antiviral Drug Research, Virus Applications, Virus Epidemiology, Vector Dynamics and Public Health, Virus Genomics, Bioinformatics and Statistics, and Basic and General Virology.

Major achievements and initiatives

- Commenced the 'Participatory R&D' programme with a view to have collaborative research with industry to develop (Technology readiness levels) TRL 6 readiness products in areas of diagnostic/ therapeutic/preventive measures against virus infections and other infectious diseases.
- Established incubation facilities for startups and firms focusing on product development in diagnostic/ therapeutic/preventive measures against virus infections and other infectious diseases.
- A workshop on "Monoclonal antibodies (mAbs), an emerging era in biologicals: Principles of production, applications in immunodiagnostics and therapeutics" has been carried out to provide updates about the mAbs among the students and industry.
- Initiated a project for development of "Oral rabies vaccine" for stray dogs towards development of orally administered vaccine to control the rabies menace in the state.
- Filed an application for patent for "Construction of high diversity naïve shark VNAR nanobody library".
- Established Phase IA of the Institute consisting of 27000 sq.ft builtup space accommodating 6 BSL II level labs, Advanced Molecular Diagnostic Facility (AMDF), Central Instrumentation Facility, administrative

sections, storehouses and other support services and established Phase IB of the Institute consisting of 80000 Sq.Ft builtup space with provisions for 16 BSL II level labs, Small Animal Experimental facility, Biorepository, Bionest Incubator, workshops, administrative sections, storehouses and other support services.

- Established Advanced Molecular Diagnostic Facility (AMDF) with a vision to have a referral laboratory capable of carrying out diagnosis of all known types of viruses for which hitherto the State was dependent on national level laboratories. The AMDF houses the latest diagnostic equipments and has the capacity to diagnose about 88 viral parameters including Monkeypox, Bocca, Influenza, Nipah, SARS Cov 2 and has capabilities to diagnose those viruses such as yellow fever, ebola which are not yet reported in India but there are high chances for possible emergence.
- 14 BSL II level laboratories have been established and the departments like general virology, Viral Vaccines, Viral Diagnostics, Antiviral Drug Research, Virus Applications, Molecular Bio Assay Facility, Virus Epidemiology, Vector Dynamics and Public Health were operationalised.
- Supporting facilities like Synthetic Chemistry Laboratory, Phage Display Facility, Metagenomic Sequencing Facility for the ongoing research programmes have also been established
- A comprehensive research initiative has been commenced under three flagship research programmes to develop innovative antiviral strategies with broad applicability to address the multitude of viral threats prevalent in Kerala. 1- Monoclonal antibodies and antiviral drug development against emerging viruses, 2 - Nucleic acid-based vaccines against emerging viruses, 3 - New generation multiplex diagnostic platforms against viral syndromes.
- Commenced short term training programme for graduates and post graduates in viral diagnosis and various other molecular biology aspects of virology are envisaged at the institute under the mentoring of the scientists.
- The Institute in affiliation with Regional Centre for Biotechnology, Faridabad and Cochin University of Science and Technology has commenced PhD program in highly specialised area of Virology from the Academic year 2023-24.

- The Institute has got sanctioned with projects worth Rs.8.00 crores from various external funding agencies. This includes a DBT-SAHAJ facility for “Molecular Bio Assay Facility”.

C. Regional Cancer Centre (RCC), Thiruvananthapuram

According to World Health Organisation, cancer is a leading cause of increasing global mortality. In India, the number of persons suffering from cancer is projected to increase to 29.8 million in 2025 from 26.7 million in 2021 (source: Indian Council for Medical Research). The age group of 45 to 64 years reported the highest proportion of cancer from all sites except for prostate cancer (over 65 years) among males. Cancers of lung were diagnosed at a stage of spread to distant sites followed by gall bladder cancer and prostate cancer. Over one-third of patients with cancers of the tongue, larynx, thyroid, corpus uteri, kidney (including children), bladder and retinoblastoma had localised disease at the time of presentation.

In spite of cancer treatment facilities coming up in various parts of the state in Government and Private sector, RCC has been able to maintain its number one position in Kerala. It is rated amongst the top three of the 28 Regional Cancer Centres in the country, and maintains a working relationship with international bodies such as the WHO, International Agency for Research on Cancer (France), International Atomic Energy Agency (Vienna), National Cancer Institute (USA), Institute for Cancer Research (UK), University of Leeds (UK), Health Research Foundation (Japan), and a host of other reputed organisations. The vision of RCC is to emerge as a global leader in cancer control. It aims to deliver highest quality cancer care at affordable cost, create cancer awareness among public and health professionals, generate trained manpower and organise outreach programmes in cancer control, conduct focused cancer research relevant to our society and lead cancer control activities in the state.

The incidences of female and paediatric cancers in the state of Kerala have been on a raise for the past several years. Over the past 42 years, RCC has been able to contribute significantly to the increasing needs of cancer care to the people of the State of Kerala and adjoining areas of Tamil Nadu and Karnataka providing state-of-the-art diagnostic and treatment facilities at the lowest possible cost.

In addition, RCC is committed to cancer control activities among the public and human resource generation in the various specialities of oncology as well as cancer research which is expected to result in new treatments for cancer. In addition to RCC, there are two other cancer centres- Malabar Cancer Centre and Cochin Cancer Research Centre. The details of these two centres are covered in the Health section of this volume.

RCC-Profile

In 2022-23, a total number of 15,324 new cases and 2,42,129 review cases were registered in RCC. The number of daily average patient visit was 847 and 12,346 in-patient admissions. **Appendix 5.2.1**

Box No 5.2.1 Hospital statistics 2022-23

IP Bed strength	298
Operational bed	286
Average OP Per day	858
Average admissions per month	1028
Bed occupancy rate	80 per cent

Source: RCC, Thiruvananthapuram

provides the profile of the centre for the last three years and hospital statistics is given in **Box 5.2.1**

Cases Registered in RCC

The details regarding cases registered in RCC in the last 10 years show that the highest number of

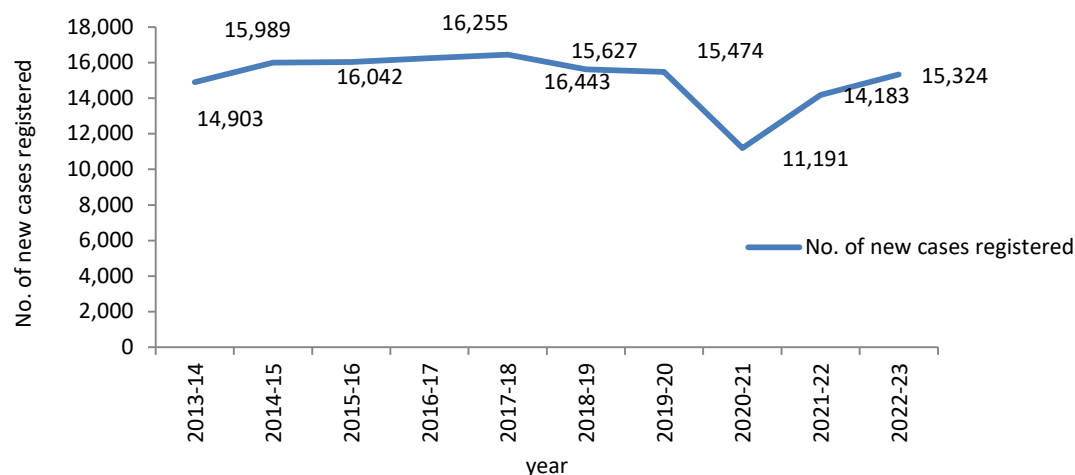
new cases registered was in 2017-18(16443). The lowest was in 2020-21(11,191) which was 27.67 per cent lower than the previous year and it may be attributed to Covid-19 pandemic. In 2021-22, the new cases registered were 14,183 and that in 2022-23 was 15,324, indicating 8.04 per cent increase over previous year. New cases registered in RCC from 2013-14 to 2022-23 is given in **Figure 5.2.1**.

Out of the total 15,324 new cases registered in 2022-23, 13,639 cases (89 per cent) were reported from within the State.

As in the previous years, most of the cases in 2022-23 were referred from Thiruvananthapuram (29.67 per cent), followed by Kollam (22.57 per cent), and the least number of cases were referred from Wayanad (0.33 per cent). The number of cases referred from Thiruvananthapuram was 4,423 in 2021-22, and 4,547 in 2022-23. Details are given in **Appendix 5.2.2**

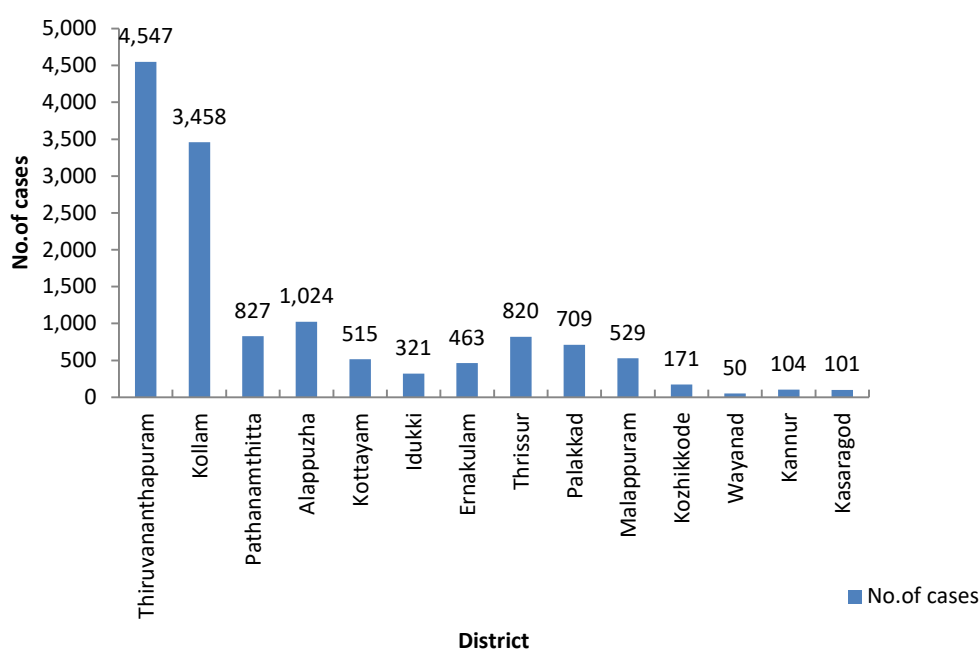
In addition to this, 1,527 cases in 2022-23 were referred from Tamil Nadu, 10 from Karnataka, 8 from Lakshadweep and 133 from other Indian States and 7 persons from Maldives were also referred. **Figure 5.2.2** represents number of new cases registered in the districts of Kerala in 2022-23.

Figure 5.2.1 New cases registered in RCC from 2013-14 to 2022-23



Source: Regional Cancer Centre, Thiruvananthapuram

Figure 5.2.2 Number of new cases registered in the districts of Kerala in 2022-23..



Source: Regional Cancer Centre, Thiruvananthapuram

in speciality clinics in 2022-23.

Cases Registered in Speciality Clinics

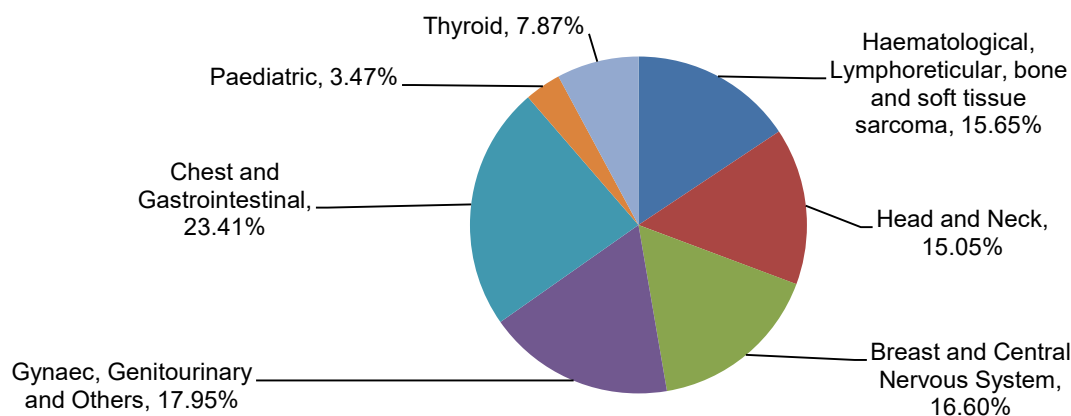
The rate of all incidences of cancer to human body parts are increasing than the previous year. The highest per cent of new cancer cases registered were Chest and Gastrointestinal clinics (3,588 cases) in 2022-23, followed by Gynaec, Genitourinary (2,750 cases) and Breast and Central Nervous System speciality clinic (2,543 cases) was in the next position. The lower number of cases was registered in Pediatric clinic (532 cases). **Figure 5.2.3** gives the incidence of cancer to human body parts detailed as per cent of new patients registered

The number of new cases registered in speciality clinics for the last three years are shown in **Appendix 5.2.3**

Cases Registered (Age and Gender-Wise)

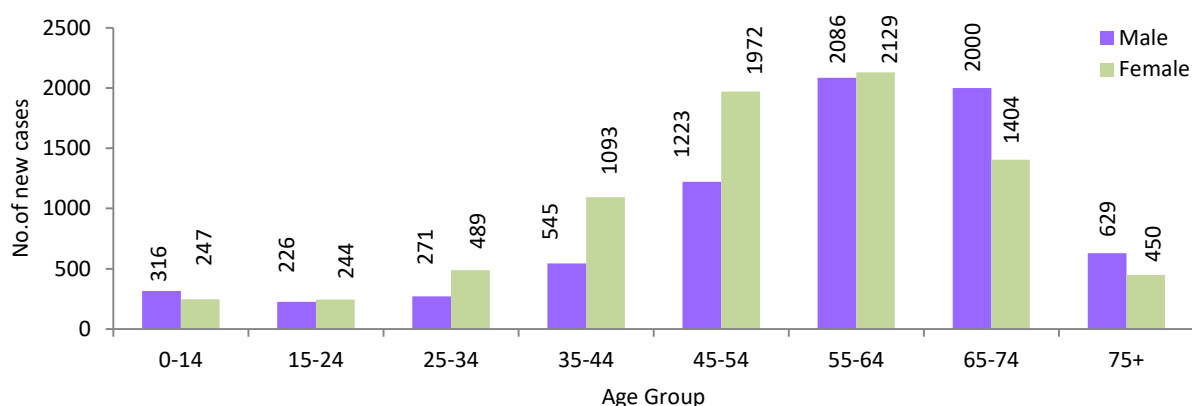
The details of age and sex-wise number of new cases registered in 2022-23 reveals that people in the age group of 55-64 are more likely to report cancer diseases (28.59 per cent of male and 26.52 per cent of female). 65-74 age group also shows a greater number of male cancer patients (27.41 per cent) while in 45-54 age group shows the increased

Figure 5.2.3 Speciality clinic-wise percentage of new patients registered in 2022-23



Source: Regional Cancer Centre, Thiruvananthapuram

Figure 5.2.4 Age and gender-wise new cases registered in 2022-23



Source: Regional

number of female cancer patients (24.56 per cent). Details of age-wise new cases registered are given in **Appendix 5.2.4**. **Figure 5.2.4** illustrates age and sex-wise new cancer patients registered for treatment in RCC in 2022-23.

Central and State Government Schemes

Both Central and State Governments have initiated various schemes to ensure free or subsidised treatment for cancer patients. Details are given in **Table 5.2.2**.

Initiatives of RCC in 2022-23

In addition to Government-supported schemes, RCC supports patients and families through

various other schemes. The Free Drug Bank functions according to specific guidelines, and is monitored by a committee constituted by the Director, RCC. The drug bank provided full or partial help to 1493 patients in 2022-23. During the period, 959 members enrolled in the Cancer Care for Life (CCL) scheme and underwent treatment. Under Free Food ('Akshayapathram') scheme, free food was provided to 2,258 in-patients belonging to vulnerable socio-economic groups with the support of many philanthropic organisations. Under Indian Cancer Society Support Scheme, RCC was selected for receiving financial support from the Indian Cancer Society for the treatment of cancer. In 2022-23, 63 new

Table 5.2.2 Central and State Government schemes, 2021-22 and 2022-23

Scheme	Patients enrolled (new cases)		Total no. of people benefited		Total amount spent (crore)
	2021-22	2022-23	2021-22	2022-23	From start date of scheme to August 31, 2023
Central Government Schemes					
Prime Minister's Relief Fund	37	167	2,277	2,396	40.48
Indian Cancer society	77	63	866	908	23.63
State Government Schemes					
Cancer Suraksha Scheme	321	335	6,505	6,879	66.22
Karunya Benevolent Fund	682	1,597	3,039	3,255	156.42
Thalolam	4	9	131	140	.42
Scheduled Tribe Patient Fund	30	35	484	520	8.24
Snehasanthwanam for Endosulfan Victim	1	3	63	67	1.44
Karunya Arogya Suraksha Padhathi (KASP)	8,854	9,052	34,610	45,873	4779.33

Source: Regional Cancer Centre, Thiruvananthapuram

patients received support under the scheme worth Rs.47.00 lakh.

Cancer detection activities

In 2022-23, there were 68 cancer detection programmes and 29 cancer awareness programmes conducted during the period. As a result, 397 cancers and 592 pre-cancers were detected. Of the 7,620 screened people, seven breast cancers, nine oral cancers, 139 oral pre-cancers, 270 benign breast lesions, and 180 cervical pre-cancers were detected. During the period 3,115 people were examined as part of the cancer screening/early detection programmes conducted by the early cancer detection outpatient clinic. 397 cancers and 592 pre-cancers were detected through this screening.

Other Activities

- The Preventive Oncology division participated in the Preventive Oncology Summit of national significance in August 2022 held at Kovalam.
- World No Tobacco Day (May 31, 2022) was organised at RCC, attended 225 NSS volunteers of University of Kerala and a seminar titled 'Tobacco: a threat to our environment'.
- Breast Cancer Awareness Month (October, 2022)- Free clinical breast examination for the lay public and Kudumabshree volunteers was organised at the Pulayanarkotta campus, in which 263 people underwent screening.
- National Cancer Awareness Day (November 7, 2022)- was also organised for sensitising the lay public on oral cancer prevention and screening, in which 924 people were screened and a seminar titled 'Relevance of screening in early detection of oral cancer' was conducted.

Human Resource Development

Over the last few years, RCC has evolved in to a nationally recognised Centre for teaching and training in oncology related specialities. Today the Centre offers a wide range of graduate, post-graduate and post-doctoral programmes affiliated to the KUHS and approved by the Medical Council of India in oncology and oncology related paramedical specialities.

MCh (Surgical Oncology, Head and Neck Surgery, Gynaecological Oncology, DM (Medical Oncology, Paediatric Oncology), MD (Radiotherapy, Anaesthesiology, Pathology), Fellowship in Head and Neck Surgical Oncology, Breast Imaging, Oncologic Imaging, Oncosurgical Anaesthesia, Post-Doctoral Certificate Course

in Pathology, Post Basic Diploma in Oncology Nursing, Post MSc Diploma in Radiological Physics, Regular training programmes in various disciplines such as Pathology, Cytology, Nursing, Palliative Care and Imageology are the major courses run by the institute. During 2022-23 RCC has awarded the degrees to nine students in Mch, nine in DM and 14 in MD and training in cancer control was given to 328 people, including doctors (47), nurses (51), paramedicals (10), and health supervisors and workers (220).

World Cancer Day (04 February 2023) - A master training programme titled 'Systematic Training and Empowerment Programme (STEP) for Mid-Level Service Providers in Cancer Control' was organised in collaboration with the State Health Services department, in which 140 Mid-Level Service Providers of the National Health Mission selected from 14 districts were trained in cancer screening, to further train their subordinates in peripheral screening.

Research and Development Activities

RCC is a major centre for cancer research with activities in the arena of basic research, epidemiological studies and clinical research collaborating with national and international centres of repute. RCC is committed to cancer control activities among the public and human resource generation in the various specialities of oncology as well as cancer research which is expected to result in new treatments for cancer. In 2022-23, around 30 scholars were pursuing Ph.D., 60 residents undertook specialisation in medical, paediatric and surgical oncology, head and neck surgery and gynaecological oncology super speciality courses, and 48 residents undertook postgraduate courses in Anaesthesia, Pathology and Radiotherapy in the centre. RCC conducted 70 cancer education programmes and 158 cancer detection programmes. The number of on-going research projects is 251. RCC prepared a population-based cancer registry in Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta, and Kottayam districts.

Infrastructure Development in RCC

The structure works of the state-of -the-art building of 14 floors with 2.75 lakh square feet built up area, costing Rs 18,722 lakh has been completed by RCC. It is being executed in a phased manner, with the target of improving space for patient care facilities. The new block will have space for a radiotherapy block with 2

Linear Accelerators, a CT Simulator and MRI Simulator, 10-bed Bone Marrow Transplant Units, 6 Modular Operation Theatres, 8-bed Nuclear Medicine Ward, Robotic Surgery Unit, New Blood Bank and Advanced Microbiology Laboratory, ICUs, Surgical and Medical Wards, Pay wards, Hostels etc. The finishing works of the building are going on which is expected to be completed by March 2024. As part of widening the services of the Community Oncology division, a 'Preventive Oncology OP and Training Centre' was inaugurated on 4th February 2022, in the second campus at Pulayanarkotta.

Diagnostic and treatment facilities added during 2022-23

- Anaesthesiology- Anaesthesia machine, Video endoscope and Transport ventilator.
- Clinical Lab - Upright lab Freezer, Lab refrigerator
- Community Oncology -Binocular video colposcope, Oral Digital Scanner
- Nursing Services: Transport ventilator, External defibrillator, Multilevel trolley, CSSD trolley
- Radiation Oncology Division - Ring Gantry (Halcyon) Linear Accelerator, Uro-brachytherapy unit, Anaesthesia Machine (4 numbers), Brachytherapy Applicators, RFA Radiation Detectors.
- Microbiology - BIORAD-RT-PCR machine, Nano spectrophotometer, BIOFIRE-Infectious syndromic panel testing-multiplex PCR system, VITEK MS PRIME-MALDITOF (Matrix Assisted Laser Desorption Ionization-Time of Flight mass spectrometry), Bench top high-throughput automated identification system, Refrigerated centrifuges, Thermocyclers, Mini centrifuges, Biosafety cabinets, PCR cabinets, -80 degree and -20-degree deep freezers, Laboratory refrigerators.
- Nuclear Medicine - Gallium-68 generator. Started services of Gallium-68 DOTATATE scan, PSMA (Prostate-Specific Membrane Antigen) scan, 177Lu-DOTATATE therapy and PSMA therapy.
- Radiodiagnosis Division- 3-Tesla MRI Machine and 3D Digital Mammography.
- Surgical Services Division - Ultrasonic cutting and coagulation unit, Lithotomy stirrups with lift assist technology, Laparoscopic and general surgical instruments, High speed electrical drill system, Mediastinoscopy, Plasma steriliser.
- Transfusion Medicine - Acquired Blood collection monitor (12 numbers), Blood bank refrigerator (3 numbers), -80-degree Deep Freezer.

Way Forward

The science and technology sector in Kerala pervades all aspects of the society and all economic activities are linked with science and technology. Innovations based on science and technology help us to achieve resource efficiency and thus to ensure to reach the benefits to all sections of the society. But the science and technology sector in Kerala faces various challenges despite a high literacy rate and educational achievements. It is important to develop scientific temper among the people of Kerala to promote rational and scientific thought process and support developmental initiatives of the Government. It should be focussed on building an ecosystem with Science, Technology and Innovation in the State. Science and technology must be incorporated into economic planning in the agriculture, industry, and service sectors in Kerala in order to maximise the benefit of limited resources. For this purpose, the academic, research, industry and central and state governments collaboration to be enhanced. There must be specific programmes designed to expand the number of opportunities for bright students in science and to expose them to modern research areas. To achieving the developmental objectives and excellence in Science and Technology, the areas like research and technology development, scientific collaboration and funding opportunities, Synergistic collaboration with education systems and dissemination of knowledge should be focussed. KSCSTE should develop specific indices for assessing and monitoring the performance of the institutions.

5.3 TOURISM

Tourism creates employment and connects a society to the rest of the world. It can also promote ecologically sustainable growth of local communities, traditional industries, and interconnections with other spheres of development. Global tourism shows a quick recovery of tourist arrivals to pre-pandemic levels in 2023. The United Nations World Tourism Organisation (UNWTO) World Tourism Barometer of the year shows that overall, international arrivals reached an estimated number of 235 million tourists travelled internationally in the first three months of 2023, more than double of the same period of 2022. Revised data for 2022 shows over 960 million tourists travelling internationally last year, showing two-thirds (66 per cent) of pre-pandemic numbers were recovered.

World Tourism and Travel Council (WTTC)'s Economic Impact 2023 report shows Travel and Tourism's contribution to GDP in 2022 is 7.6 per cent and is set to grow by 23.3 per cent in 2023, reaching 9.2 per cent of the global economy. The sector's value is forecast to grow to \$9.5 trillion, only 5 per cent behind the 2019 peak. By the end of the year, the report forecast that the Travel and Tourism sector will have created 24 million new roles, bringing the sector's total to 320 million jobs. International spending is set to grow 23 per cent, reaching \$1.36 trillion.

Identifying investments as one of the key priorities for the recovery, future growth and development of tourism, UNWTO highlights 'Tourism and Green Investment' for World Tourism Day 2023 as the need for more and better-targeted investments for

people, for planet and for prosperity.

India is one of the most popular tourist destinations in the world with multicultural experiences and offers a diverse portfolio of tourism products. Tourism in India has significant potential with the rich cultural and historical heritage, variety in ecology terrains and large employment generator besides being a large source of foreign exchange for the country. The impact of growth of tourism in Indian economy in terms of spreading benefits across the country and providing employment and entrepreneurial opportunities to youth, women, marginalised sections of the society.

Kerala is an internationally recognised tourist destination and one of India's most beautiful states with beaches, backwaters, hill stations, forests and wildlife. The tourism industry has promising potential in the State with its world renowned brand, diverse products and presence of local entrepreneurs and it focuses on infrastructure development, marketing, human resource development, and hospitality. Tourism is the key activity and the central driver of post-Covid recovery of the economy, community enterprises, job opportunities, cultural exchanges, infrastructure development. It will build linkages and interconnections with other sectors and departments like agriculture, fishing, transport, education and infrastructure. The trends of improving infrastructural competitiveness, creation of more visibility to tourism products, usage of new age technologies, improving Adventure, Wellness, Culinary, Experiential, Wildlife and Nature and Responsible tourism indicate that Kerala's Tourism Industry is evolving to cater to

changing traveller preferences and demand. The emphasis on responsible and sustainable tourism reflects a growing consciousness among travellers towards environmental and social impact. The promotion of rural and village tourism demonstrate the desire for authentic experiences and cultural interaction. The Responsible Tourism Mission under Kerala Tourism entered into the global list of case studies of UNWTO recently for adhering the UN Sustainable development Goals (SDGs) while promoting tourism.

Tourism in India

Tourism plays an important role as a foreign exchange earner for the country. In 2022, foreign exchange earnings (FEE) from tourism were US\$ 16,926 million which is registering a positive growth of 92.41 per cent which is more than US\$ 8,797 million FEE of 2021. Over 6.19 million and 1.52 million foreign tourists arrived in the country in 2022 and 2021 respectively compared to 10.93 million in 2019. Even though, the numbers were lower than the pre-pandemic figures; the country's economy witnessed a significant growth in 2022 in the foreign and domestic tourist visits in India. India received 1731.01million domestic tourist visits in 2022, an increase of 155.45per cent from 677.63 million in 2021. (source: India Tourism Statistics 2023, Ministry of Tourism, GoI).

Tourism in Kerala

Tourism has contributed significantly to the economy of Kerala for decades, with revenue of Rs 35,168.42 crore to the sector in 2022.

Financial Performance

The details of Plan outlay and expenditure of tourism sector during the 2019-20 to 2023-24 periods is given in **Table 5.3.1**

Table 5.3.1 State Plan outlay and expenditure, Rs in crore

Year	Outlay	Expenditure
2019-20	372.37	177.69 (47.77%)
2020-21	320.14	325.63 (101.71%)
2021-22	320.14	244.49 (76.37%)
2022-23	362.15	248.58 (68.64%)
2023-24 (up to October 2023)	362.15	132.47 (36.58%)

Source: Plan Space Kerala, Accounts

Foreign Tourist Arrivals

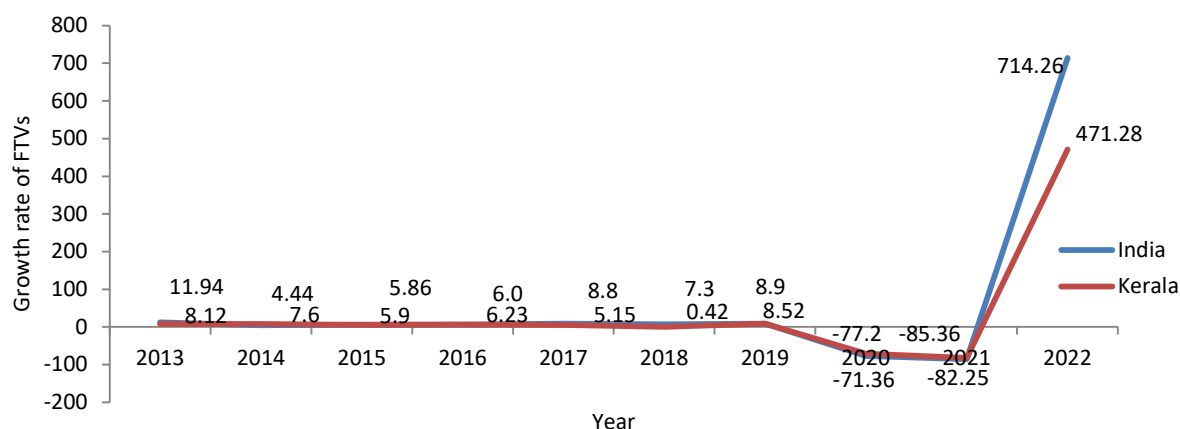
The number of foreign tourists who arrived in India in 2022 was 6.19 million and those visited the country in 2022 was 8.59 million, which is

Box No 5.3.1 Kerala Tourism at a glance

Domestic Tourist Visits(Nos) in 2021	75,37,617
Domestic Tourist Visits (Nos) in 2022	1,88,67,414
International Tourist Visits (Nos) in 2021	60,487
International Tourist Visits (Nos) in 2022	3,45,549
Total Visits (Nos) in 2021	75,98,104
Total Visits (Nos) in 2022	1,92,12,963
Total Revenue Generated in 2021 (Direct and Indirect)	Rs 12,285.91 crore
Total Revenue Generated in 2022 (Direct and Indirect)	Rs 35,168.42 crore
Foreign Exchange Earnings in 2021	Rs 461.50 crore
Foreign Exchange Earnings in 2022	Rs 2,792.42 crore
Earnings from Domestic Tourists in 2021	Rs 9,103.93 crore
Earnings from Domestic Tourists in 2022	Rs 24,588.96 crore

Source: Department of Tourism, Government of Kerala

Figure 5.3.1 Annual growth rates of the visits of foreign tourists in India and Kerala from 2013 to 2022, in per cent



Source: Department of Tourism, Government of Kerala

remarkably higher than that of the year 2021. Around 3.45 lakh foreign tourists visited the State in 2022, which is 471.28 per cent higher than the previous year (0.6 lakh). The number of foreign tourists who visited Kerala in the year 2023 upto June 30th was 2,87,730. The pandemic, wars and inflation in foreign countries have affected the arrival of foreign tourists, but the figures indicate that tourism in Kerala is on the way back in terms of foreign tourists. (source: Department of Tourism,GoK).

In 2014 and 2016, the growth rate in Kerala for foreign tourist visits was higher than that of India. It was lower than the national average in other years up to 2018. 2019 and 2020 viewed almost equal range of foreign tourist visits in the national-level and in the State. The number of foreign tourists who visited Kerala in 2022 was 3,45,549 as against 60,487 foreign tourists in 2021, recording 471.28 per cent growth in foreign tourist arrivals in the State as compared to 2021. Due to the impact of the Covid pandemic on the tourism industry,

Table 5.3.2 Month-wise foreign tourist arrivals in India, Kerala in 2021 and 2022, in number

Sl. No.	Month	No. of FTAs in 2021		No. of FTAs in 2022	
		India (Arrival)	Kerala (Visit)	India (Arrival)	Kerala (Visit)
1	January	94,662	4,298	2,01,546	10,952
2	February	1,10,312	4,167	2,40,896	12,158
3	March	1,33,768	6,024	3,42,308	20,437
4	April	78,718	987	3,92,930	17,889
5	May	19,765	169	4,23,701	21,496
6	June	36,070	298	5,22,737	23,028
7	July	72,501	4,054	6,40,858	32,785
8	August	92,728	4,349	4,98,243	37,939
9	September	1,15,661	5,066	5,36,340	30,168
10	October	1,91,415	7,944	6,56,895	36,261
11	November	2,63,867	10,886	7,68,675	42,308
12	December	3,17,647	12,245	9,66,270	60,128
Total		15,27,114	60,487	61,91,399	3,45,549

Source: Department of Tourism, Government of Kerala

2020 and 2021 are showing a negative growth rate in the visit of foreign tourists. **Appendix 5.3.1** shows the foreign tourist visits in India and Kerala and the annual growth rate from 2013 onwards.

Month-wise foreign tourist arrivals in India and Kerala in 2021 and 2022 is given in **Table 5.3.2**.

Source Market of Foreign Tourists

The majority of foreign tourists to the State in 2022 came from the United States of America (12.98 per cent). Russia which was in the top position in 2021 occupied the second position in 2022 with a share of 8.07 per cent. In 2022, the UK (7.66 per cent), France (4.04 per cent) and Germany (3.69 per cent) have contributed the largest shares of foreign tourist visits. 52 per cent of foreign tourists to Kerala in 2022 were from countries other than the top ten source markets. In **Appendix 5.3.2**, the share of major international source markets of Kerala tourism is presented for the last three years and up to June 30, 2023. This **Figure 5.3.2** illustrates the share of foreign tourists arriving in Kerala from the top ten countries in 2021 and 2022.

Foreign Tourist Visits – District-wise

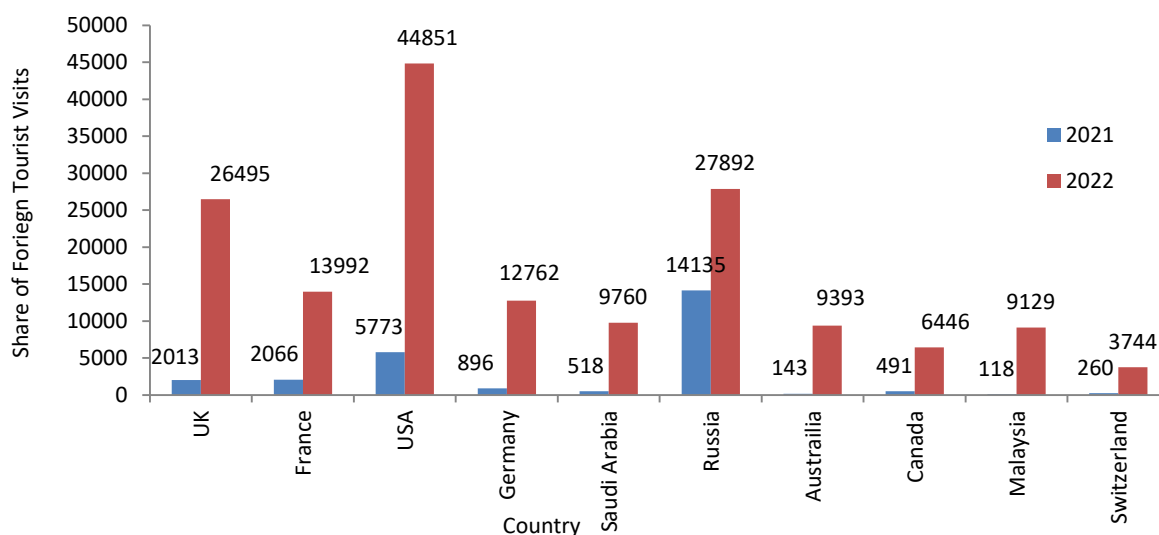
For the last few years, the two Districts which recorded largest foreign tourist arrivals in the State are Ernakulam and Thiruvananthapuram. In 2022, 1,86,290 foreign tourists visited Ernakulam whereas it was 46,821 in 2021. In the case of

Thiruvananthapuram, 81,916 foreign tourists visited the district in 2022 and 8,262 in 2021. The districts with least number of foreign tourist arrivals were Kasaragod (458) and Pathanamthitta (506) in 2022. But the number of foreign tourists visited these districts are better than that of the previous year. Details are given in **Appendix 5.3.3**. Region-wise figures of foreign tourists visiting in the State shows that in 2022, about 66.52 per cent of the total foreign tourists visited central part of Kerala and only 5.94 per cent visited northern part and 27.54 per cent visited southern part of Kerala. In 2021, about 80 per cent of the total foreign tourists visited central part of Kerala, 15 per cent visited southern part of the State and 5 per cent visited northern Kerala. **Figure 5.3.3** presents the region-wise visits of foreign tourists in Kerala in 2022.

Domestic Tourists

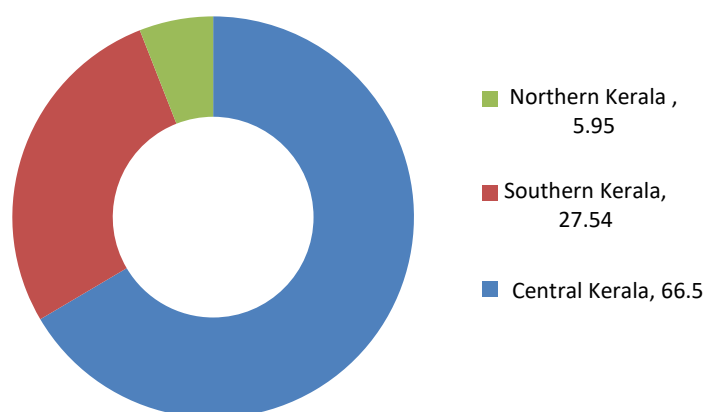
The State had been witnessing a steady growth with respect to domestic tourist arrivals during 2021, 2022 and 2023 form a negative growth of 72.86 per cent in 2020 occurred due to Covid-19 pandemic which recovered up to 51.09 per cent increase in 2021 which was 75,37,617. The number of domestic tourist visits to Kerala in 2022 was 1,88,67,414 which is 150.31 per cent higher than the previous year. It shows a remarkable progress in the visits of domestic tourists to Kerala as the highest percentage of increase occurred in the last ten years. The number of domestic tourist

Figure 5.3.2 Share of foreign tourist visits from top ten countries of the world to Kerala during 2021 and 2022



Source: Department of Tourism, Government of Kerala

Figure 5.3.3 Region-wise foreign tourist visits in Kerala in 2022, in per cent



Source: Department of Tourism, Government of Kerala

visits up to June 30, 2023 is 1,06,83,643 which has 20.1 per cent higher variation over the first six months of the year 2022. **Appendix 5.3.4** gives the details of domestic tourist visits to Kerala from 2013 to 2023 (up to June 30, 2023). **Figure 5.3.4** reveals the trends in the visit of domestic tourists in Kerala during the period 2013-2022.

Domestic Tourists visits

The month-wise data on the arrival of domestic tourists in Kerala in 2022 shows that the highest inflow of tourists was for the month of December and the lowest was in the month of February. Details are given in **Table 5.3.3**.

Source of Domestic Tourism

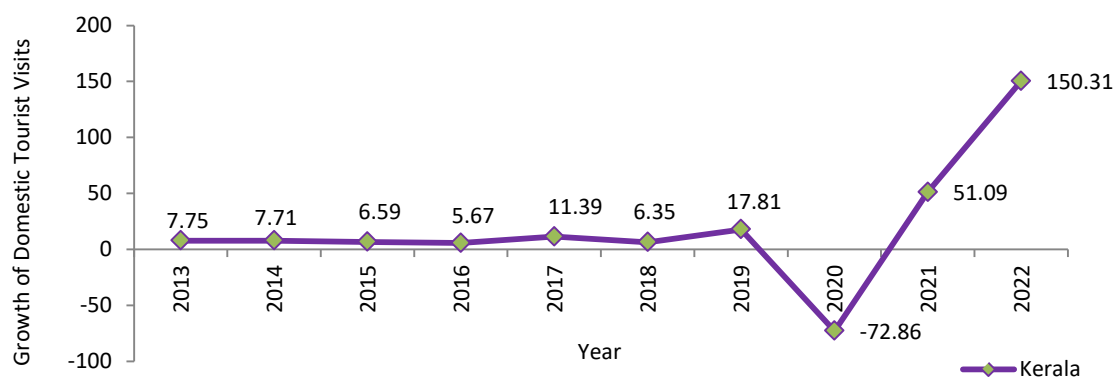
The statistics on the distribution of domestic tourist visits in Kerala by State of origin in 2022 reveals that about 71.51 per cent originated within the State. With respect to the distribution of other

States, Tamil Nadu ranks top with a share of 9 per cent of domestic tourist visits. Karnataka (6.14 per cent) and Maharashtra (3.31 per cent) were the other important States. These states remained as top source areas for domestic tourist arrivals in the State in the previous years also. **Appendix 5.3.5** gives the details of top 15 State-wise share of domestic tourist arrival in Kerala. **Figure 5.3.5** shows State-wise share of domestic tourist arrivals to Kerala from top 10 States during 2021 and 2022.

District-wise visits of Domestic Tourists

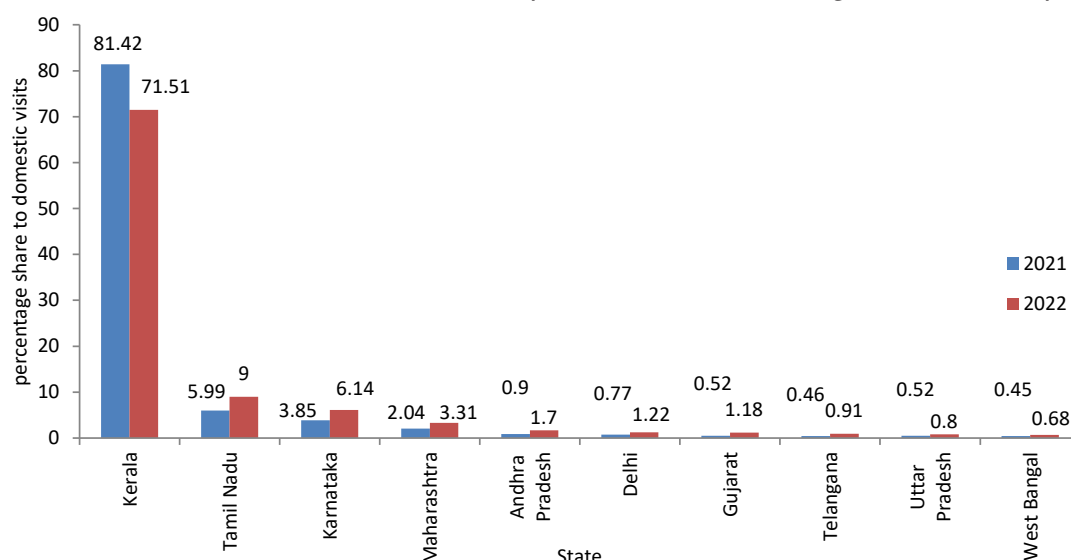
Regarding the District-wise domestic tourist arrivals in Kerala, Ernakulam and Thiruvananthapuram were the leading districts in 2022. In 2021 also these two districts were in the top position. Kasargod attracted the lowest number of domestic tourists during the year and the 2nd lowest is Pathanamthitta which is in the lowest

Figure 5.3.4 Annual growth rates in the arrival of domestic tourists in Kerala from 2013 to 2022, in per cent



Source: Department of Tourism, Government of Kerala

Figure 5.3.5 Share of domestic tourist arrival from top ten States to Kerala during 2021 and 2022, in per cent



Source: Department of Tourism, Government of Kerala

Table 5.3.3 Month-wise arrival of domestic tourists in Kerala for the last three years

Sl. No.	Month	No. of Domestic Tourists Arrival		
		2020	2021	2022
1	January	17,25,291	7,88,185	12,33,862
2	February	13,83,951	7,28,204	11,62,035
3	March	5,90,661	6,83,801	13,98,917
4	April	3,391	3,73,290	16,11,134
5	May	7,370	66,711	19,10,617
6	June	29,233	1,20,473	15,79,028
7	July	40,389	4,14,189	14,32,307
8	August	61,151	6,26,792	14,80,642
9	September	1,26,358	7,18,945	15,72,294
10	October	2,10,431	8,55,682	17,39,286
11	November	3,29,091	9,29,262	16,82,632
12	December	4,81,655	12,32,083	20,64,660
Total		49,88,972	75,37,617	1,88,67,414

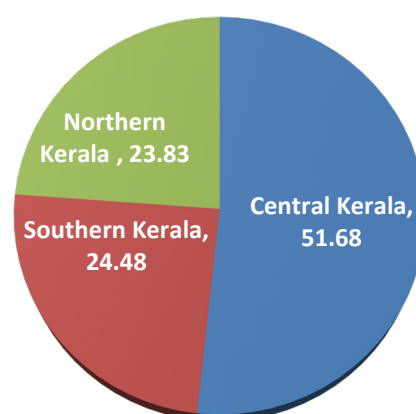
Source: Department of Tourism, Government of Kerala

position in 2021. Details are given in **Appendix 5.3.6**. Region-wise details show that more number of domestic tourists visited central parts of Kerala for the last four years. **Figure 5.3.6** illustrates region-wise domestic tourist visits in Kerala in 2022.

Impact on Tourism Earnings

Total earnings including direct and indirect means in 2022 was Rs 35,168.42 crore showing a remarkable increase of 186.25 per cent over 2021. The foreign exchange earnings and domestic tourist earnings from tourism in 2022 also have drastically improved its positions. In 2022 , it were Rs 2,792.42 crore and Rs 24,588.96 crore respectively. In 2021, the foreign exchange earnings was Rs 461.5 crore and domestic tourist earnings was Rs 9,103.93 crore. Details are given in **Appendix 5.3.7** Details of earnings from tourism (Direct and Indirect) in Kerala from 2013 to 2022 are shown in **Table 5.3.4**.

Figure 5.3.6 Region-wise domestic tourist visits in Kerala in 2022, in per cent



Source: Department of Tourism, Government of Kerala

Figure 5.3.7 Total earnings from tourism during 2013 to 2022, Rs in crore

Accommodation Units in Kerala

The total number of tourist accommodation units in the State as on June 30, 2023 is 8,036 with 1,08,656 numbers of rooms. Idukki is the District having highest number of accommodation units

Table 5.3.4 Total earnings from tourism (Direct and Indirect) in Kerala from 2013 to 2022 in Rs crore

Year	Total Revenue generated (Direct and Indirect)	Percentage change
2013	22,926.55	12.22
2014	24,885.44	8.54
2015	26,689.63	7.24
2016	29,658.56	11.12
2017	33,383.68	12.56
2018	36,258.01	8.60
2019	45,010.69	24.13
2020	11,335.96	-74.81
2021	12,285.91	8.37
2022	35,168.42	186.25

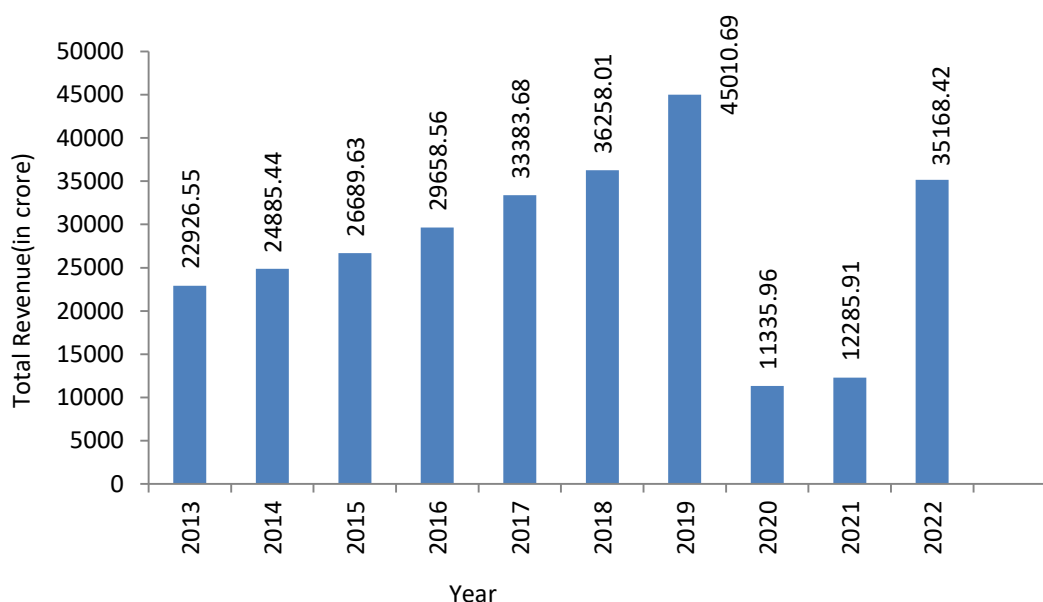
Source: Department of Tourism, Government of Kerala

(1,557) and Kasaragod has the lowest number (122) of accommodation units. Details are shown in **Appendix 5.3.8**.

Awards and acknowledgments in 2022-2023

- The Water STREET Project implemented by RT Mission for Kerala Tourism at Maravanthuruth, Kottayam District, has bagged World Travel Mart (WTM) global award 2022 in the area of water conservation.
- Pacific Asia Travel Association (PATA) 2022 Gold award in the print marketing campaign category – Change of Air Campaign, 2022 and PATA Gold Award for Marketing Campaign (State and City – Global) – Pack Up for Kerala, 2023.
- Traveller review award conducted by booking.com, digital travel agency.
- Responsible Tourism Mission Kerala got (i) Travel + Leisure Global Vision Award 2022
- (ii) four Gold Awards by ICRT International on September 2022 for Destination Building Back Better – Post Covid, Increasing Diversity in Tourism, Reducing Plastic Waste in the Environment, Conserving Water and improving water scarcity and supply for neighbors.(iii) Responsible Tourism Global Award – 2023 – best in the category for Local Sourcing Craft and Food-2023.(iv) ICRT India Subcontinent Gold Award 2023.

Figure 5.3.7 Total revenue generated from tourism in Kerala from 2013 to 2022.



Source: Department of Tourism, Government of Kerala

- Travel and Leisure Award – India reader’s choice award 2022 for Best Wedding Destination and Traveller Review Award as Kerala is ranked no.1 in the ‘Most Welcoming Region in India’, 2022.
- Ministry of Tourism, Government of India awards – Best Tourism Village Gold Award in 2023-RT Mission for Kanthalloor STREET project activities and as best State/Union Territory for comprehensive development of tourism. Kozhikode District selected as best District Tourism Promotion Council.
- National awards announced by India Tourism, including the Hall of Fame honor for holistic development in the field of tourism in September 2022.
- India Today News Magazine selected Kerala as Most Happy State, 2022.
- Aymanam Model RT Village is listed as one of the must watch destination in 2022 by CNT (Conde-nast Traveller).
- Light decoration projects of 18 heritage buildings have been completed as the first phase of Travancore Heritage Project.
- Trivandrum has started its first destination rating. Visitors can record the rating by scanning the QR code at the tourism destinations. This facility is available in the tourism centers like Neyyar Dam, Kappil, Sasthampara, Veli Sanghumugham, Aakkulam which are coming under the Thiruvananthapuram DTPC. Started Get to know Kerala QR code or virtual travel guide at Fort Kochi.
- Renovated Aakkulam tourist Village started new experiences of adventure like Sky Climbing, Zip line, Balloon Castle, Barma Bridge, Bamboo Ladder, Fish Spa and Battery Cars for children.
- In water adventure tourism, training institute has been started under the leadership of Department of Tourism.
- Kozhikkode District Tourism Council and Yew Youth Cooperative Society have launched the “Aventura” surfing event at Gotheswaram beach with the participation of Responsible Tourism Mission on November 20, 2022.
- Floating Sea Bridge was implemented in Kasargod, Bekkal, Kannur and Muzhupilangad.
- Inaugurated the first phase of KIIFB equal development project of Muzhipilangad Beach, Dharmadam Beach, Dharmadam Turuth.
- The champion’s trophy 2022 season has been extended to the Malabar region and organised with great success.
- The renovation of old Feroke Bridge has been completed and opened as a tourist attraction. Nilayoram Park, Malapuram District has been renovated and opened to the public.
- Malabar River Festival has been organised in which international Kayaking competitions are conducted, by KATPS, in Kozhikkode Chaliyar river and Iruvazhanji river. Competitions like scuba diving, parasailing, kayaking etc. have been organised in an event called kayakthone, from Parassinikadavu to Azheekal Port.
- Beach Park in Payyambalalm beach opened to the visitors.
- En Uru tribal village has presented to the country, which will boost the wayanad tourism.
- Amphibious chair was provided in Kozhikkode Kappad beach for making the destination disable friendly.
- Completed the Farm Malabar campaign, which was launched to promote the unique tourism potential of Malabar and promote the Malabar brand in India and abroad.

Other major acclaims about Kerala tourism are:

- Kerala as one of the 52 Places to visit in 2023. (The New York Times)
- Kerala as one of the greatest places in the world to visit. (Time magazine)
- Kerala as one of the ten paradises of the world. (National Geographic Traveller)
- One of the ten unforgettable things to do before you die. (BBC)
- Mecca of the most holistic health system. (Geo Saison)
- Where the smart traveller goes. (Financial Times)
- One of the 100 great trips for the 21st century (Travel and Leisure)
- One of the ten hot spots for the millennium (Emirates Inflight Magazine)
- One of the six destinations of a lifetime. (Khaleej Times)
- It is truly God’s Own Country (Sir Paul McCartney).

Other achievements

The tourism department in collaboration with other sectors developed many projects for the growth of Kerala tourism.

- The Department of Tourism has developed the Caravan Tourism project and first Caravan tourism project of State has started at Vagaman. At Present, 10 Caravan tourism projects have registered with Department of Tourism.
- In order to involve the youth in the management of the tourism sector, tourism clubs has been formed with the help of Higher Education Department.

- District Tourism Promotion Council (DTPC) and Adrino agency have organised parasailing, seashore sailing and island hopping activities in Muzhupilangad beach Kannur district, which is the largest drive in beach in Asia.
- Gundert Museum, which was conceived under Thalassery Heritage Project in the name of linguist Herman Guendert, St. John's Anglican Church street development, Valliyurkavu market and Exhibition Space Thazhe Angady were presented to the country.

Major achievements of infrastructure development projects

As part of developing the quality facilities needed to the tourists who visit Kerala to a world-class standard, Tourism in Kerala aims to build resilient quality infrastructure in tourist centers, launch new tourism products and the maintenance of existing products, upgradation of projects including capacity enhancement in the existing hotels. The development of tourist destinations mainly entrusted to Kerala Tourism Infrastructure Limited (KTIL), Kerala Tourism development Corporation (KTDC), Bekal Resorts Development Corporation Ltd (BRDC) District Tourism Promotion Councils (DTPCs).

i) KTIL engaged in the preparation of tourism master plans, evolve strategies for new destination development and offer consultancy services to both public and private sectors. It has been able to enter into joint venture agreements with Taj (operating three hotels at Varkala, Kumarakam, Ernakulam) and Oberoi hotels. KTIL has formulated the Design Policy for Kerala for the PWD and Department of Tourism and the final draft report has submitted to the Government. KTIL has prepared Kerala Tourism Version 2.0 as a novel approach for tourism development in Kerala by changing the current vision and strategies in accordance with the changes taking place in the tourism sector worldwide. The first phase of the development of Tourism Zone at Madavoorpara in Thiruvananthapuram District was inaugurated in 2019. The works under the project 'development of Guruvayur Temple' under PRASHAD scheme have been completed and handed over to respected agencies for operations. In 2022-23, additional revenue received from Government of India as project implementation charges for Guruvayur project. As part of introduction of new innovative tourism products in the State, KTIL prepared (a) Heli Tourism Policy report covering regulatory

framework, control/implementation mechanisms/financing models, logistic arrangements and submitted to the Government with the proposal of implementation as initial phase in Kochi, Kumarakam, Thekkady (b) report on development of Cruise Tourism in Kerala (c) first phase report for the tourism led structure plan for Varkala. (d) Comprehensive Tourism Development Plan for Taliparamba, Kannur, co-ordinated and completed the Detailed Project Report Phase I for Bio-Diversity Tourism Circuit in Kollam District.

ii) BRDC – (a) Organised First edition of Bekal International Beach Festival in 2022. Formed Yattrasree jointly with Kudumbasree, a tour operation division for women to create job opportunities and empowerment for women. (b) Tourism Sabhas were organised to create tourism awareness in collaboration with public representatives in all the five assembly constituencies of the District. (c) Launched one year-long program Northern Lights – Bekal Tourism Mission 2022 with the aim of comprehensive development of post-Covid Bekal tourism project. 50 entrepreneurs have started operations in Kasaragod and Kannur Districts through SMILE (Small and Medium Industries Leveraging Experiential Tourism) entrepreneurship programme of BRDC. (d) Bekal water supply scheme, developed Valiyaparamba backwaters, provided railway gate at Chettukundu. (e) Completed the works of cultural centre at Thachangad, South Beach Park, beautification and access development of beach park destination and virtual tour guidance for Bekal/North Malabar and Jaladarshan.

iii) KTDC – (a) completed the renovation of Waterscapes Kumarakom, (b) renovated 36 rooms at Mascot hotel for getting star classification, (c) commissioned 2 boats at Thekkady with a capacity of 120 persons and 15 cottages in Ponmudi, (d) renovated Tamarind Easy Hotel at Kannur and Alappuzha, (e) completed the renovation works of floating restaurant at Veli. (f) reopened new beer parlours, (g) completed 1st phase of the computerisation in KTDC hotels, (h) commissioned all boats at Veli except one solar boat.

iv) Department of Tourism- Development of breakwater tourism at Thankasseri – Kollam, Thuravoor way side amenity centre, Chunkakayalchira pathway development and

boat landing facility, Manappattuchira children's park, Munnar Botanical Garden phase II and III, beautification of Muthirappuzha children's park, migration monuments phase 1.0, Enamavu children's park, Kunjan Nambiar Smarakam-Lakkidi, Nilayoram park – Malappuram, World class Toilet Karappuzha, Bekal and Pookkode, development of Valliyoorkavu Market and Exhibition, renovation of Thirunelli Temple, Kottappuram house boat terminal, beautification of Bekal entry gate, development of Thiruvannamuzhi Kakkayam damsite, Bliss park at Bhutt road, Kozhikode, Rejuvenation of Urban heritage near Thali temple – phase 1, Renovation work at Kuttichira pond, Kozhikode – Phase II and the development of Peruvannamuzhi dam tourism are the completed infrastructure projects of Department of Tourism, Kerala. Department of Tourism maintains 24 Guest Houses, 4 Yathri Nivas and 2 Kerala Houses. Eco Lodge Idukki under Swadesh Darshan Scheme is constructed and is ready for operation.

Human Resource Development

The major institutions for HR development in tourism are Kerala Institute of Tourism and Travel Studies (KITTS), State Institute of Hospitality Management (SIHM), and Food Craft Institutes (FCIs). KITTS offers skill development programmes focusing on Travel, Tourism and Hospitality. It provide training in HSRT programmes of Government of India. KITTS develop awareness to tourism entrepreneurs on tourism ventures at ecologically sensitive areas in association with Department of Tourism. KITTS offers MBA (Travel and Tourism) approved by All India Council for Technical Education (AICTE), 3 year BBA (Tourism Management) and 3 year B.Com (Travel and Tourism), all affiliated to University of Kerala. In 2022, 60, 23 and 43 students are admitted to these courses respectively. Another KITTS' own courses are Diploma in Logistics Management and Diploma in Airport Operations. In 2022-23 KIITS has trained 495 participants in various training programmes. In 2022 KITTS has undertaken consultancy project for the preparation of Work Study Organisational Restructuring Report for Kerala Hydel Tourism Centre. HR major developments of KITTS are Centre of Excellence in Transformative Tourism and Digital Innovation at Knowledge Park, Kozhikode supported by Kerala University of Digital Sciences, Innovation and Technology, obtained NAAC Accreditation for strengthening

University affiliated academic programmes and international certification/accreditation for academic programmes of KITTS.

Food Craft Institute is providing basic skill training to job aspirants in the hotel and tourism trade in Kerala and it is the largest contributor of skilled human power to the tourism industry in Kerala. Food Craft Institute in Kerala has 13 centers from Kasargode to Thiruvananthapuram. 80 per cent of the building construction work of Food Craft Institute, Kozhikode is completed. The total student's capacity in all 13 centres of the institute is 1,595. The number of students admitted in the academic year 2022-23 is 1,370.

Marketing in Tourism

Kerala Tourism is trying to attract the attention of national, international as well as the domestic markets with different strategies and currently exploiting the potential of Information Communication Technology in Marketing Tourism. The marketing activities of Kerala Tourism include international and national promotional campaigns, branding, partnerships and collaterals, and sponsorship for marketing events. It has participated in regional, national and global marketing programs, and ensures the presence of Kerala tourism at the international-level and to provide financial support for various events and programs based on social media, website activity and public relations activities. As a result of timely showcasing of new products and new age digital marketing, Kerala Tourism's Facebook page, Instagram account, and Twitter account are leading in India for social media marketing. Effective Marketing and Promotions make Kerala leading the way among Indian destinations in digital revolution with 4.8 Million Facebook Followers, 620K Instagram Followers which is Second place in India, lead in 1.9M followers in X. "The Blog Express" has completed 7 editions and a total of 21 numbers of bloggers participated in two weeks bus trip across Kerala. Organised National marketing campaigns-'come together in Kerala', international roads shows in Paris, Amsterdam, Sydney, Melbourne, Munich, Frankfurt and in gulf countries. Participated in international trade fairs in London, Dublin, Zurich, Geneva, Stockholm, Warsaw, Los Angeles and New York. Kerala Tourism participated in National trade fares in the Mumbai, Delhi, Bengaluru and Chennai. Kerala Tourism maya Chat bot application has been started and exhibited Kerala in the Airport displays and Digital banners.

Responsible Tourism (RT)

Responsible Tourism concept is based three responsibilities, Economic Responsibility, Socio-Cultural Responsibility and Environmental Responsibility which are known as Triple Bottom Line approach. Responsible Tourism (RT) Mission is the nodal agency of Kerala to spread and implement the ideologies and initiatives of Responsible Tourism all over the State. Kerala RT Mission is also the State Nodal Agency tasked by the Ministry of Tourism, Government of India, for the implementation of its Rural Tourism, Sustainable Tourism and Rural Homestays. The major aims of the Responsible Tourism Mission are making tourism a tool for the development of village and local communities, eradicating poverty and giving emphasis to women empowerment. The mission aspires to provide an additional income and a better livelihood to farmers, traditional artisans, and marginalised people along with creating a social and environmental equilibrium.

Trainings and Skill Development: There are different domains in which the local community can get and in generate income directly or indirectly from the tourism sector. RT Mission is identifying the income generation possibilities of tourism and the people involved in tourism activities and gives training to the local community to enter into the tourism sector directly or indirectly. The trained people are registered as RT Mission units and linked with the industry through various platforms of RT Mission directly or indirectly. While conducting trainings also RT Mission ensures that the expenditure goes to the units of RT Mission. Maximum trainers are from RT Resource Persons (RT RPs) or unit members. The trainings of RT Mission itself are generating income for the local community.

Experiential Tourism Packages: RT Mission identifies various natural/historic/cultural attractions, rural livelihood activities and makes them as different Experiential Tourism Packages. It ensures public participation for tourism development by supporting farmers, small-scale entrepreneurs and traditional artisans. At present 140 packages are in operational and 850 families are linked with the Experiential Tour Packages of RT Mission including Village Life Experience, Cultural Experience, Native Experience, Festival Tour Packages, Experiential Stay, Cycle Trails and Farming Experience Packages. RT Mission has an online platform for booking these packages and

has agreement with various hotels, resorts and tour operators.

STREET Project (Sustainable, Tangible, Responsible, Experiential, Ethnic Tourism hubs) is a participatory tourism development by the Responsible Tourism Mission. Ten places were selected in this project and aims to expand, develop or convert the tourism destinations in thematic zones so as to reduce the high concentration in core tourism points. Maravanthuruthu in Kottayam District is the new destination arises through the project. Kanthalloor, one of the panchayaths in Idukki, successfully implemented STREET project in association with RT Mission, bagged Best Tourism Village Gold Award 2023 by Ministry of Tourism, Government of India.

PEPPER Project (Peoples' Participation for Participatory Planning and Empowerment through Responsible Tourism) is an initiative of RT Mission. Vaikom and Ponnani have been declared as new tourism destinations and the project has been initiated at 35 places in the State and they are in different stages.

Model RT Village project is designed to develop the potential places as cent per cent responsible tourism practising destinations. Aymanam is the first Model RT Village of Kerala and the project is in progress at 15 other LSGs.

Kerala Agri Tourism Network is another project of RT Mission to link the farmers and farming activity with tourism and generate additional income through tourism. The project envisaged to promote agricultural activities and environmental protection through tourism. 1,544 Farmers trained and 102 Agri Tourism units are operational and 451 units are ready to receive Tourists.

Experience Ethnic Cuisine Project is to support and promote the women folk in the local community to involve in tourism without any additional investment. 2,800 families operating the experience ethnic cuisine network in Kerala.

Women Friendly Tourism Initiative is an initiative of RT Mission to convert Kerala as a 100% Women Friendly Destination. It focuses to make a network of 1,50,000 women community members which will ensure 30,000 new job opportunities for women through 10,000 women enterprises in tourism sector. UN WOMEN also the part of this initiative on the basis of gender inclusive

tourism. As part of this project 78 destinations' safety assessment and various trainings for women community members have completed.

Kerala Responsible Tourism Network is an online platform operating by RT Mission for the sales of handicrafts, souvenirs and other perishable and non-perishable products produced by local community. RT Art and Cultural Forum is a concept to bring the martial, ritual and performing arts practitioners of Kerala into the limelight by directly connecting them to the tourism industry and public. HR Directory is an online platform introduced with the aim of connecting the skilled and unskilled labours to the tourism sector. The Beypur RT Integrated Development project is the mix of STREET, PEPPER and Model RT Village Projects which aims to convert Beypur as a world model for Responsible Tourism Practices. The project completed its two phases and the project will be concluded in 2025.

The Mission is working systematically to implement each project in the field-level. At present there are 25,015 individual/group units, out of which 17,884 women owned/leading units, are registered with RT Mission under various categories like cloth bag making units, paper bag making units, handicraft making units, various farming units, farm supply units, artists, artisans, RT chauffeurs, community tour leaders, farm visit units, home stays, farm stays, tended accommodation units, ethnic cuisine units and so on. At present, directly 50,030 and indirectly 1,00,060 local community members through that 1,50,000 families are linked with tourism and generating income.

Local economic generation is the major objective of RT Mission programs and project. RT Mission is facilitating the units by linking their products and services with tourism industry and tourists through online and offline platforms. RT Mission has 5 online platforms to facilitate the units to get revenue. RT Mission units have earned a total of Rs 62.86 crore after its formation and Rs 14.64 crore is earned in the financial year 2023-24.

Eco-tourism in Kerala

Ecotourism in Kerala was developed as part of the Participatory Forest Management for the benefit of the forest dependent communities. The service charges collected from the visitors of these sites constitute the Eco-system Management Fund which is utilised for maintenance and protection

of the ecotourism centres, removal of wastes, providing basic visitor amenities and security to the visitors and remuneration to the members of VSS/EDCs engaged in various activities in the ecotourism sites. At present there are 389 Vana Samrakshana Samithies and 187 Eco Development Committees registered with the 35 Forest Development Agencies. The VSSs and EDCs are grass root-level organisations where forest dependent families are members participating in the planning and implementation of various forestry and community development programmes.

Ecotourism products like facilitation Centre, Camping Units, Interpretation centres, Trekking Trails, Purchase of Trekking and Camping Gears were developed in eco-tourism sites in Kerala including Neyyar-Peppara, Shenduruney Wildlife Sanctuary, Palaruvi Water falls, Thenmala Ecotourism, Thattekkad Wildlife Sanctuary, Silent Valley National Park, Eravikulam National Park, Pythalmala, Malabar Wildlife Sanctuary, Peechi Wildlife sanctuary, Vazhachal and Wayanad Wildlife Sanctuary. Visitation of domestic tourists has reached upto the carrying capacity of many destinations.

Major achievements

Thenmala has evolved as a destination with high demand and up-gradation of infrastructural facilities at Thenmala are completed. In 2022 1,41,474 tourists have visited Thenmala and that in 2023 upto August was 1,07,230. Up gradation of the facilities of Gavi Ecotourism centre at Pathanamthitta also has been completed.

It is for the first time an ecotourism program focusing the coastal belt of Kerala. The major initiatives of Ecotourism in 2022-23 are the beach plantation ecotourism project in the Casurina plantations at Punnappra, Purakkad beach in Aalapuzha District, Assessing of carrying capacity of selected ecotourism sites in Kerala – phase II, the revitalisation of Thenmala Musical Dancing Fountain, Expansion of ecotourism activities at Aripa, Thiruvananthapuram, and Up-gradation program of ecotourism at Neliyampathy.

Muziris Heritage Project

This project aims to preserve and protect the archaeological and cultural monuments in the muziris area and to become one of the prime destinations among the world heritage sites. The Muziris Heritage Project has demonstrated the

convergence of heritage conservation and tourism to create a sustainable model for development, which in the long term benefits the local community. It integrates the conservation-based proposals with development activities focusing on rejuvenating the local economy, generation of local employment, and fostering traditional industries and artisans. Pathinettarayalam Kovilakam, P A Syed Mohammed Students Cultural Centre, Paliam Interpretation Center to interpret the traditional knowledge systems of muziris are completed and inaugurated projects. Holy cross church, Paliam Ottupura, Canal office, Keezhthali temple, Balikalpura, Cheraman Juma Masjid and kodungallur temple museum are completed projects and ready for inauguration. Mala synagogue, accommodation block of Kodungallur temple and airanikulam Mahadeva temple are the ongoing projects.

visited areas. Measures should be taken to address the challenges of balancing tourism growth with environmental conservation, delay in getting clearances required for entrepreneurs, obtaining land for major tourism theme parks and lack of co-ordination between various departments and agencies.

Way Forward

Kerala Tourism should improve tourist centres, bring new facilities and products, ensure better livelihood and income for local people and maintain the natural and cultural heritage of Kerala to bring the State to a world-class-level tourist destination. Measures are to be taken to enhance the tourism sector by efficiently utilising Government and private sector resources. The State should develop different strategies to accelerate tourist arrivals in a sustainable and responsible manner and provide warm, safe, clean, hygienic and accessible destinations. Kerala must develop different strategies to cater to the needs of international, domestic (other States) and local tourists. Tourism and hospitality industries need to embrace a customer-centric product management approach, sustainable tourism practices, technological integration, adaptability and resilience to changing trends, enact policies and regulations that support sustainable tourism, responsible business practices and the protection of natural and cultural heritage. Comprehensive education system to be developed to address the gap in tourism skill development. State should prepare Master Plan to practice economic, socio-cultural and environmental sustainability in tourism. Efforts to be taken to create environment for investment in tourism by the private sector. Kerala should focus on improved infrastructure, including better connectivity between destinations, transportation, and accommodation options in less

5.4 EXTERNAL TRADE

World trade has lost momentum, with two crises that have occurred since 2020 having had a significant effect on the world economy. First, a global economic crisis resulted from businesses and retailers being forced to close, due to the coronavirus (COVID-19) outbreak that year. Then, in February 2022, as the economy was just beginning to recover from the COVID-19 effects, Russia entered into war with Ukraine, which caused inflation to spike. The entire world economy has been impacted by the COVID-19 pandemic and the Russia-Ukraine conflict, with trade growth slowing in 2022 and remaining weak in early 2023.

The World Trade Organisation estimates that the world trade in goods and services amounted to \$31.0 trillion in 2022, a 13 per cent rise year-on-year. World merchandise trade rose by 2.7 per cent in 2022, and services trade fared better than merchandise trade, growing 15 per cent in 2022. The value of merchandise trade expanded at a faster pace across the globe than volume in 2022, inflated in part by high global commodity prices, rising to 21 per cent in 2022. While trade in goods exceeded pre-pandemic levels already in 2021, trade in services remained in 2022 levels. Services trade rebounded from negative 18 per cent in 2020, during the COVID-19 pandemic, to 15 per cent in 2022.

Computer services were the most dynamic sector in services trade, with global exports in 2022 worth 44 per cent more than their value in 2019. Digitally delivered services – that is, services provided via computer networks, from streaming

games to remote consulting services – are an emerging source of growth, accounting for 54 per cent of global services exports in 2022, and 12 per cent of total global trade in goods and services. This session reviews overseas trade patterns of India in 2022 and outlook for trade in 2023, with special focus on trade from Kerala ports.

External Trade in India

The Ministry of Commerce and Industry has estimated India's overall exports projected to scale new heights, growing at 13.84 per cent in 2022-23 over 2021-22 to achieve \$770.18 billion worth of exports.

Merchandise exports have registered highest ever annual exports of \$447.46 billion with 6.03 per cent growth in 2022-23 surpassing the previous year exports of \$422.00 billion. Services export leads the overall exports growth and projected to set a new record annual value of \$322.72 billion with growth rate at 26.79 per cent in 2022-23 over 2021-22.

Merchandise imports for the period 2022-23 were \$714.24 billion as against \$611.89 billion in the financial year 2021-22. The estimated value of services' imports for 2022-23 is \$177.94 billion as compared to \$144.79 billion in 2021-22 (**Table 5.4.1**).

Under merchandise exports, 17 of the 30 key sectors exhibited positive growth in 2022-23 as compared to 2021-22. These include Oil Meals (55.13 per cent), Electronic Goods (50.52 per cent), Petroleum Products (40.1 per cent), Tobacco

Table 5.4.1 India's Overall Exports and Imports: 2016-17 to 2022-23, Value in USD Billion

Year	Exports			Imports		
	Merchandise Exports	Services Exports	Overall Exports	Merchandise Imports	Services Imports	Overall Imports
2016-17	275.9	164.2	440.1	384.4	95.5	479.9
2017-18	303.5	195.1	498.6	465.6	105.2	570.8
2018-19	330.1	208	538.1	514.1	126.1	640.2
2019-20	313.4	213.2	526.6	474.7	128.3	603.0
2020-21	291.81	206.1	497.9	394.44	117.52	511.96
2021-22	421.8	254.4	676.2	611.89	144.79	756.68
2022-23	447.46	322.72	770.18	714.24	177.94	892.18

Source: Ministry of Commerce and Industry GoI

(31.37 per cent), Oil Seeds (20.13 per cent), Rice (15.22 per cent), Cereal Preparations & Miscellaneous Processed Items (14.61 per cent), Coffee (12.29 per cent), Fruits & Vegetables (11.19 per cent), Other Cereals (9.74 per cent), Tea (8.85 per cent), and Marine Products (3.93 per cent).

Under merchandise imports, 6 of the 30 key sectors exhibited negative growth in 2022-23 as compared to 2021-22. These include Sulphur & Unroasted Iron Pyrites (-28.86 per cent), Gold (-24.15 per cent), Pulses (-12.79 per cent), Medicinal & Pharmaceutical Products (-10.58 per cent), Dyeing/Tanning/Colouring Materials (-2.39 per cent), and Pearls, Precious & Semi-Precious Stones (-0.99 per cent).

External Trade in Kerala

Kerala plays a major role in the export prospects of the nation by contributing marine products, coffee and spices products' exports. The external trade in Kerala is mainly through Cochin Port. Coffee, tea, cashew kernels, sea foods, coir products and spices are the major items of export through Cochin port. In 2022-23, the total traffic, coastal and foreign handled by Cochin Port was 352.55 lakh MT as

against 345.50 lakh MT in 2021-22 registering a growth of 2.04 per cent compared to 9.67 per cent in previous year. Out of the total traffic in 2022-23, total coastal traffic increased by 2.3 per cent with 121.06 lakh MT as against 118.35 lakh MT in previous year. Total foreign traffic increased by 1.92 per cent with 231.49 lakh MT in 2022-23 compared to 227.12 lakh MT in 2021-22. (**Table 5.4.2**)

Total export, both coastal and foreign, through Cochin Port was 73.35 lakh MT in 2022-23 as against 85.3 lakh MT in 2021-22, recording a negative growth of 13.97 per cent compared to 21.17 per cent growth in the previous year. Out of this, coastal export accounts for 43.70 lakh MT in 2022-23 as against 49.38 lakh MT in 2021-22, which records a negative growth of 11.50 per cent. The foreign export also fell to 29.65 lakh MT in 2022-23 from 35.9 lakh MT in previous year, recording a negative growth of 17.36 per cent.

Export of merchandise through Cochin Port shows a dismal picture in quantity traded and growth rates in 2022-23. Total quantity exported in 2021-22 was 85,25,584 MT with an impressive growth rate of 21.17 per cent. This has fallen to 73,34,871

Table 5.4.2 Cargo handled at Cochin Port, 2020-21 to 2022-23, quantity in lakh MT

Traffic	Export			Import			Total		
	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23	2020-21	2021-22	2022-23
Coastal	38.33	49.38	43.70	72.66	68.97	77.36	110.99	118.35	121.06
Foreign	32.03	35.88	29.65	172.01	191.27	201.84	204.04	227.12	231.49
Total	70.36	85.26	73.35	244.67	260.24	279.20	315.03	345.50	352.55

Source: Cochin Port Trust

Table 5.4.3 Export of marine products in India and Kerala 2016-17 to 2022-23, quantity in MT and value in Rs crore.

Year	India		Kerala		Kerala's share (%)	
	Quantity	Value	Quantity	Value	Quantity	Value
2016-17	11,34,948	37,870.9	1,59,141	5,008.5	14.00	13.20
2017-18	13,77,244	45,106.9	1,78,646	5,919.0	13.00	13.10
2018-19	13,92,559	46,589.4	1,83,064	6,014.7	13.10	12.90
2019-20	12,89,651	46,662.9	1,48,226	5,020.3	11.50	10.80
2020-21	11,49,510	43,721.0	1,44,700	5,039.9	12.60	11.50
2021-22	13,69,264	57,586.5	1,80,315	6,396.2	13.20	11.10
2022-23	17,35,286	63,969.15	2,18,630	8,285.03	12.60	13.00

Source: Marine Products Export Development Agency (MPEDA)

MT in volume of trade and (-) 13.97 per cent of growth rate in 2022-23. A very drastic fall is visible in the trade of coir products, which is (-) 50.42 per cent in 2022-23 and a fall from 2,40,745 MT in 2021-22 to 1,19,350 MT in 2022-23. This is followed by coffee, spices, and cashew kernels. Tea is the only item in better position in 2022-23. That has improved from 65,199 MT of trade volume and (-) 6.82 per cent of growth rate in 2021-22 to 74,452 MT of trade and 14.19 per cent of growth rate in 2022-23. Seafood also shows a positive growth rate of 9.54 per cent, however it decreased from 19.21 per cent in 2021-22. Details are given in **Appendix 5.4.1**.

Import through Cochin Port increased by 7.29 per cent in 2022-23 from 2,60,24,422 MT volumes in 2021-22 to 2,79,20,360 MT in 2022-23. The import of iron and steel grew by 173.55 per cent in 2022-23. The quantity imported in 2021-22 was 11,452 MT and 31,327 MT in 2022-23. However, the import of fertilisers and raw materials fell by (-) 46.42 per cent in 2022-23. The import of fertilisers and raw materials was 3,19,349 MT in 2021-22 and 1,71,110 MT in 2022-23. Details of major items of import through Cochin port are given in **Appendix 5.4.2**.

Export of Marine Products

Export of marine products from India increased from 13,69,264 MT in 2021-22 to 17,35,286 MT in 2022-23. Total export value increased from Rs 57,586.50 crore in 2021-22 to Rs 63,969.15 crore in 2022-23. This shows a growth rate of 26.73 per cent in quantity exported and 11.08 per cent in value generated.

Kerala's marine export grew from 1,80,315 MT in

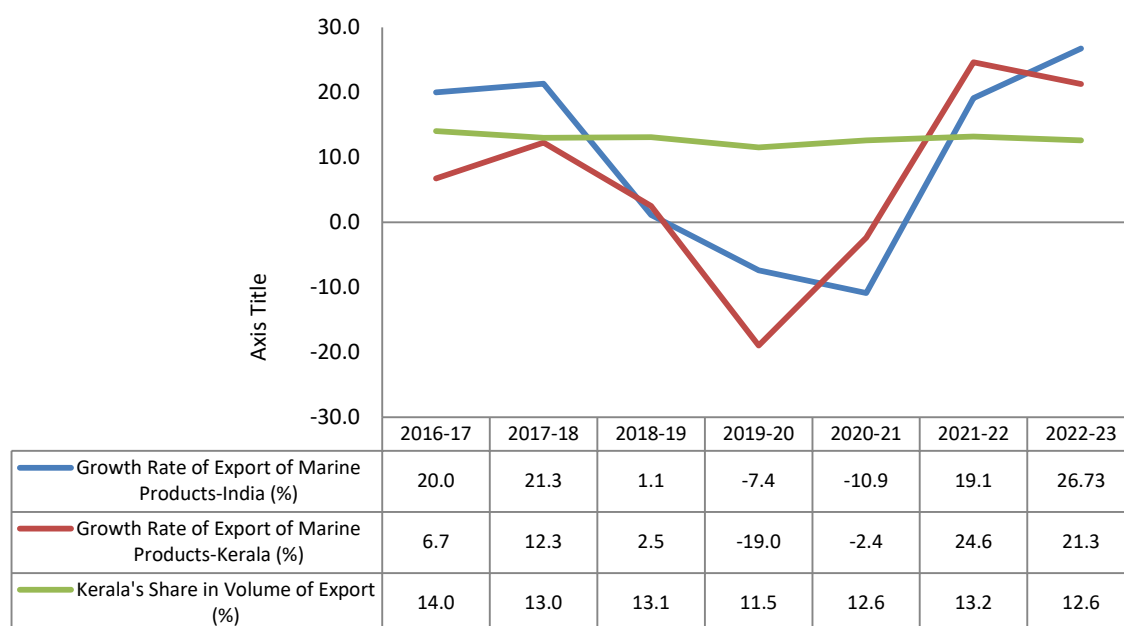
2021-22 to 2,18,630 MT in 2022-23, and value increased from Rs 6,396.2 crore in 2021-22 to Rs 8,285.03 crore in 2022-23. This shows a growth rate of 21.25 per cent in volume of export and 29.53 per cent in value generated. The details are given in **Table 5.4.3**.

In general terms, the export of marine products in quantity from India and Kerala increased considerably, except for COVID-19 hit years, and the rebounds of the sector were prompt. The State of Kerala has a decisive share in the export basket of marine products from India in quantity terms. It was 13.2 per cent in 2021-22, and 12.60 per cent in 2022-23. The **Figure 5.4.1** depicts the trends in marine export of the nation and Kerala, along with the share of the State in national export of marine products.

The item wise export of marine products from India in 2022-23 shows that frozen shrimp continued to be the top export item with a market share 41 per cent in quantity and 67.43 per cent in value, followed by frozen fish with a share of 21.2 per cent in quantity and 8.6 per cent in value. India exported frozen shrimp to the tune of 7.11 lakh tonnes valued Rs 43,135 crore in 2022-23 (**Appendix 5.4.3**). **Figure 5.4.2** depicts the market share of item-wise export of marine products from India in 2022-23.

In 2022-23, 70,800 MT of frozen shrimp was exported from Kerala, which accounts 32.4 per cent of total trade volume. This is followed by frozen fish with 32,170 MT of quantity and 23.6 per cent of total trade volume in 2022-23. In value generated base, frozen shrimp held a 47.62 per

Figure 5.4.1 Trend in the quantity of export of marine products, India and Kerala, 2016-17 to 2022-23



Source: Marine Products Export Development Agency (MPEDA)

cent in total value generated and frozen fish held 10.67 per cent of total value generated in 2022-23. **Figure 5.4.3** shows the market share of item-wise exports of marine products from Kerala in 2022-23.

The largest export market for India's marine products in 2022-23 was South East Asia with 4.32 lakh MT of volume followed by China (4.06 lakh MT), USA (3.06 lakh MT), European Union (2.08 lakh MT), Japan (1.09 lakh MT), Middle East (0.78 lakh MT), and other countries (1.97 lakh MT). Major markets of India's marine products and their share are depicted in **Figure 5.4.4**.

The largest export market for Kerala's marine products in 2022-23 was South East Asia (56,892 MT) followed by China (52,452 MT), European Union (51,304 MT), USA (16,640 MT), Middle East (8,939 MT), Japan (8,549 MT) and other countries (23,853 MT). Major markets of Kerala's marine products and their share are depicted in **Figure 5.4.5**.

Export of Cashew

India is among the largest cashew producing countries in the world. It employs large number of workers in the farms and factories. India exports cashews to more than 60 countries. As per the

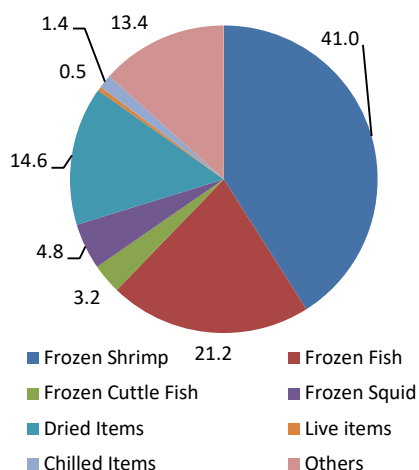
Directorate General of Commercial Intelligence and Statistics, the quantity of cashew export for India in 2022-23 is 76,824.69 MT and value is Rs 2,98,219.37 lakh. This was 80,366.25 MT and Rs 3,40,991.42 lakh in the previous year. This is (-) 5.59 per cent fall in quantity export and (-) 12.54 per cent fall in value exported.

Cashew cultivation spreads along the coastal regions of peninsular India. Kerala is an important player in cashew production, processing and export. Cashew processing industry was earlier concentrated in Kollam, but now it spread across many States in India. The export of cashew kernels from Kerala was 21,858 MT in 2022-23. It registers a negative growth of (-) 10.05 per cent in volume from 24,299 MT in 2021-22 (**Table 5.4.4**).

After Ivory Coast, India is the second largest producer and exporter of Cashew Nuts with a share of more than 15 per cent, followed by Vietnam in the world's cashew export. United Arab Emirates (UAE) continued to be the largest export market for Indian cashews followed by Japan, Netherlands, Saudi Arabia, USA, Spain, Kuwait, Germany, Qatar, Malaysia and Singapore.

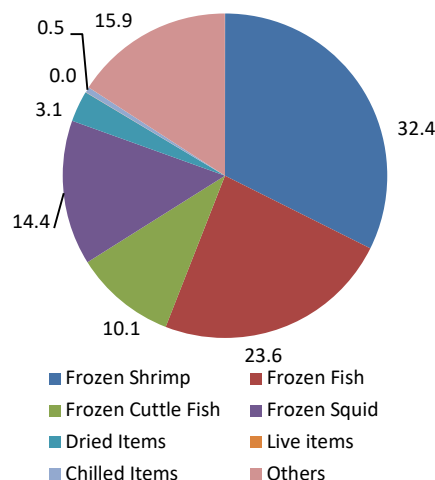
India primarily exports Cashew Kernels with small quantities of Cashew Nut Shell Liquid. The composition of export of cashew export from India

Figure 5.4.2 Market share of item-wise export of marine products from India in 2022-23, in per cent



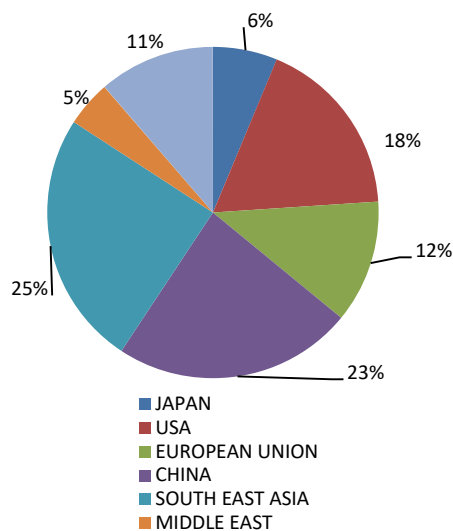
Source: Marine Products Export Development Agency (MPEDA)

Figure 5.4.3 Market share of item-wise export of marine products from Kerala in 2022-23, in per cent



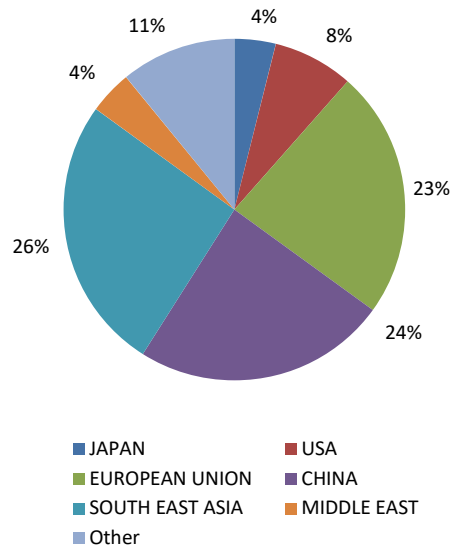
Source: Marine Products Export Development Agency (MPEDA)

Figure 5.4.4 India's market-wise export of marine products in 2022-23, in per cent



Source: Marine Products Export Development Agency (MPEDA)

Figure 5.4.5 Kerala's market-wise export of marine products 2022-23, in per cent



Source: Marine Products Export Development Agency (MPEDA)

is detailed in the **Table 5.4.5**

The export of cashew nuts kernel whole and dried nuts contribute 58,593.52 MT of export volume and Rs 2,82,030.19 lakh value in 2022-23. This was 73,560.50 MT in 2021-22 with value of Rs 3,29,902.10 lakh. The export of cashew nut shell liquid from India shows an increasing trend in 2021-22, although the growth in export of other items are not promising. There is no export of nut shell liquid from Kerala since 2020-21.

Import of cashew whole and nuts constitute 13,31,776.32 MT in 2022-23. This was 9,38,761.90 MT in the previous year. In value of import, it was Rs 14,35,900.63 lakh in 2022-23 and Rs 9,32,630.10 lakh in 2021-22. It shows a growth in import of Cashew Nuts Fresh/Dried In Shell and decrease in the case of Cashew kernel, whole. Ivory Coast, Tanzania, Guinea Bissau, Benin, Ghana, Mozambique, Nigeria, Senegal etc. were the major import markets of raw cashew

nut. Details of cashew import to India is given in **Table 5.4.6**.

Export of Coir and Coir Products

The export of coir and coir products from India is 12,64,784 MT in volume and Rs 3,992.17 crore in value. This is a 2.85 per cent growth over the previous year's export of 12,34,855 MT of coir and coir products. The export of coir and coir products from Kerala through Cochin Port showed a declining trend in 2022-23. The quantity exported through Cochin Port in 2022-23 was 1,19,350 MT and recorded a negative growth of 50.42 per cent over the previous year. The export of coir and coir products through Cochin Port in 2021-22 was 2,40,745 MT.

The available records of item wise export of coir products in 2021-22 shows that exports of coir pith, tufted mats, coir fibre, coir rugs and carpets, coir ropes, curled coir, coir yarn, handloom mats and power loom mats from India registered growth both in terms of quantity and value, whereas, coir geo-textiles, rubberised coir, handloom matting and power loom matting, showed decline in terms of quantity and value. Coir other sorts shows decline in terms of quantity and growth in terms of value. Coir pith with export earnings of Rs 2,259.2 crores constituted 52.1 per cent of the total export of coir products from the country. The value added items put together constituted 33 per cent of the total exports. Tufted mats topped among the value added products, constituted 7.5

Table 5.4.4 Export of cashew kernels, 2015-16 to 2022-23, in Rs crore

Year	Kerala		India		Share of Kerala (%)	
	Quantity (MT)	Value (Rs crore)	Quantity (MT)	Value (Rs crore)	Quantity	Value
1	2	3	4	5	6	7
2015-16	50,652	2,579.5	96,346	4,952.1	52.6	52.1
2016-17	38,054	2,415.3	82,302	5,168.8	46.2	46.7
2017-18	36,930	2,580.4	84,352	5,871.0	43.8	44.0
2018-19	29,062	1,892.6	66,693	4,434.0	43.6	42.7
2019-20	30,478	1,742.5	67,647	3,867.2	45.1	45.1
2020-21	*23,368	NA	49,992	2,907	46.7	NA
2021-22	*24,299	NA	53,770	3,175.2	45.2	NA
2022-23	*21,858	NA				

Source: Cashew Export Promotion Council of India/* Cochin Port Trust

Table 5.4.5 Composition of Export of Cashew from India for 2021-22 and 2022-23 Quantity in MT and Value in Rs Lakh

Product	2021-22		2022-23	
	Qty	Value	Qty	Value
Cashew kernel, whole	51,907.75	3,09,681.10	44,271.48	2,67,747.15
Cashew Nuts Fresh/Dried In Shell	21,652.75	20,221.00	14,322.04	14,283.04
Purified and distilled Cashew shell liquid (CNSL), Cardanol	3,575.59	2,558.95	6,607.05	5,708.32
Cashew shell liquid (CNSL), crude	1,368.06	692.03	10,641.81	5,638.61
Cashew kernel, broken	1,193.61	6,292.36	676.44	4,052.82
Other Cashew kernel	668.49	1,545.98	305.87	789.43
Total	80,366.25	3,40,991.42	76,824.69	2,98,219.37

Source: Directorate General of Commercial Intelligence and Statistics

Table 5.4.6 Composition of Import of Cashew to India for 2021-22 and 2022-23 Quantity in MT and Value in Rs Lakh

Product	2021-22		2022-23	
	Qty	Value	Qty	Value
Cashew Nuts Fresh/Dried In Shell	9,35,573.50	9,14,516.88	13,29,751.01	14,24,773.94
Cashew kernel, whole	3,188.40	18,113.22	2,025.31	11,126.69
Cashew shell liquid (CNSL), crude	6,523.32	2,083.41	3,065.99	1,076.87
Cashew kernel, broken	339.61	1,156.57	266.02	926.6
Other Cashew kernel	97.01	50	130.74	123.61
CPurified and distilled Cashew shell liquid (CNSL),Cardanol	3.1	204.78	0.5	36.97
Total	9,45,724.94	9,36,124.86	13,35,239.57	14,38,064.68

Source: Directorate General of Commercial Intelligence and Statistics

per cent in quantity and 23.1 per cent in terms of value. Coir fibre with an export value of Rs 636.6 crores constituted 32.3 per cent in quantity and 14.7 per cent in value.

In 2021-22, 103 countries imported coir and coir products from India. USA topped among the importing countries with 29.8 per cent in value and 17 per cent in quantity. China was the second largest importer of coir products from India with a share of 20 per cent in value and 38 per cent in quantity. The other countries, which imported substantial quantities of coir and coir products, were Netherlands, South Korea, UK, Spain, Australia, Italy, Germany, and Canada. Export trend of coir and coir products from India and Kerala is given the **Figure 5.4.7**.

Export of Tea

The export of tea from India in 2022 was 226.98 MT and value for export was Rs 6,253.19 crores. This shows a growth from 196.54 MT and value of Rs 5,311.15 crore in 2021. The major export market was Russian Federation followed by Iran, Saudi Arabia, USA, and UAE. This shows a 15.49 per cent growth in quantity exported and 17.74 per cent growth in value generated.

Export of tea from Kerala ports in 2022-23 is 68.88 MT worth Rs 1,511.11 crore from 66.86 MT worth Rs 1,515.16 crore in 2020-21 registering a growth of 3.02 per cent in terms of quantity and (-) 0.27per cent in terms of value. (**Table 5.4.8**).

Export of Coffee

In 2022-23, a total quantity of 3,953,46 MT of coffee worth Rs 8,984,08 lakh was exported from India as against 4,139,42 MT of coffee worth Rs 7,65,550 lakh in 2021-22 registering a growth of (-) 4.25per cent in quantity and 17.35 per cent in value. Italy, Germany, Belgium and Russian Federation are the major importers of coffee from India. The export of coffee from Kerala through Cochin port in 2022-23 was 53291MT and Rs 1.16 lakh in value. This shows a fall in quantity exported by (-) 29.54 per cent and fall in value by (-)10.81 per cent, in 2022-23 compared to the previous year.

Export of Spices

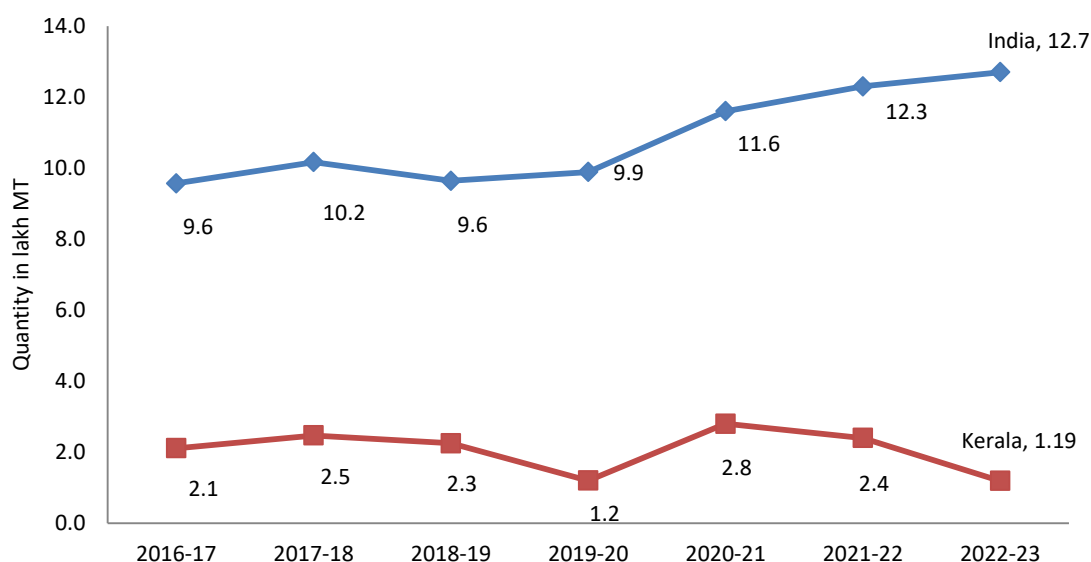
In 2022-23, the export of spices and spice

Table 5.4.7 Export of tea from Kerala ports and India 2018-2022, quantity in MT, Rs In Crores

Years	India		Kerala	
	Qty	Value	Qty	Value
2018	256.06	5,335.33	81.72	1,386.14
2019	252.15	5,737.66	79.74	1,530.28
2020	209.72	5,235.29	70.96	1,515.30
2021	196.54	5,311.15	66.86	1,515.16
2022 *	226.98	6,253.19	68.88	1,511.11

Source: Tea Board * Provisional; subject to revision

Figure 5.4.6 Export trend of coir and coir products from India and Kerala (through Cochin Port), 2016-17 to 2022-23, quantity in lakh MT



Source: Coir Board and Cochin Port Trust *Provisional

products from India was 14,04,357 MT valued Rs 31,761.38 crore as compared to 15,30,661 MT valued Rs 30,324.32 crore. This registers a decline of 8.25 per cent in volume and an increase in value by 4.74 per cent. The export of spices from Kerala in 2022-23 was 1,11,080.13 MT and value of export was Rs 5,51,521.02 lakh. This shows a decrease in quantity traded by 10.09 per cent and value by 2.67 per cent over the previous year. **(Table 5.4.8).**

The export basket of spices and spice products from India includes about 52 spices and its products. The export of chilli, spice oils& oleoresins, cumin, mint products, turmeric,

cardamom (small), curry powder/paste and ginger contribute 80 per cent of the total export earnings from spices. In 2022-23, the export of spices like Turmeric, Coriander, Garlic, some of the seed spices like Ajwan, Aniseed, Dill seed, classified under Other seeds and species like Asafoetida, Cinnamon, Cassia under Other spices have showed increase both in quantity and value. All other spices have shown a declining trend. The price rise in domestic markets for Chilli and Cumin brought down their export. However the increase in unit prices compensated the fall in quantity exported by increasing the value of export.

Table 5.4.8 Export of spices, India and Kerala, from 2016-17 to 2022-23, quantity in MT and value in Rs lakh

Year	Kerala		India		Kerala's share (%)	
	Quantity (in MT)	Value (Rs lakh)	Quantity (in MT)	Value (Rs lakh)	Quantity	Value
1	2	3	4	5	6	7
2016-17	84,418.8	4,27,120.1	9,47,790	17,81,223.6	8.9	24.0
2017-18	95,455.9	4,15,296.1	10,28,060	17,98,016.2	9.3	23.1
2018-19	89,590.8	3,78,560.4	11,00,250	19,50,581.1	8.1	19.4
2019-20	1,00,195.8	4,05,421.3	12,08,400	22,06,280.0	8.3	18.4
2020-21	1,21,348.9	5,00,633.6	17,58,266	30,96,771	6.9	16.2
2021-22	1,23,547.93	5,66,643.6	15,30,661	30,32,432.4	8.1	18.5
2022-23*	1,11,080.13	5,51,521.02	14,04,357	31,76,138.2	7.9	17.36

Source: Spices Board * Provisional

The major contributors of India's export basket of spices are Chilly by 33 per cent, Spice oil and Oleoresins by 13 per cent, Mint by 11 per cent, Turmeric by 5 per cent, Curry Powder by 4 per cent, Cardamom small by 3 per cent, and Pepper by 2 per cent, which altogether contribute more than 80 per cent of spices export from India. China is the largest importer followed by USA, UAE, Bangladesh, UAE, Thailand, Indonesia, Malaysia, UK, Srilanka, Nepal, Germany, Saudi Arabia, and Netherland, which accounts 70 per cent exports of spices from India.

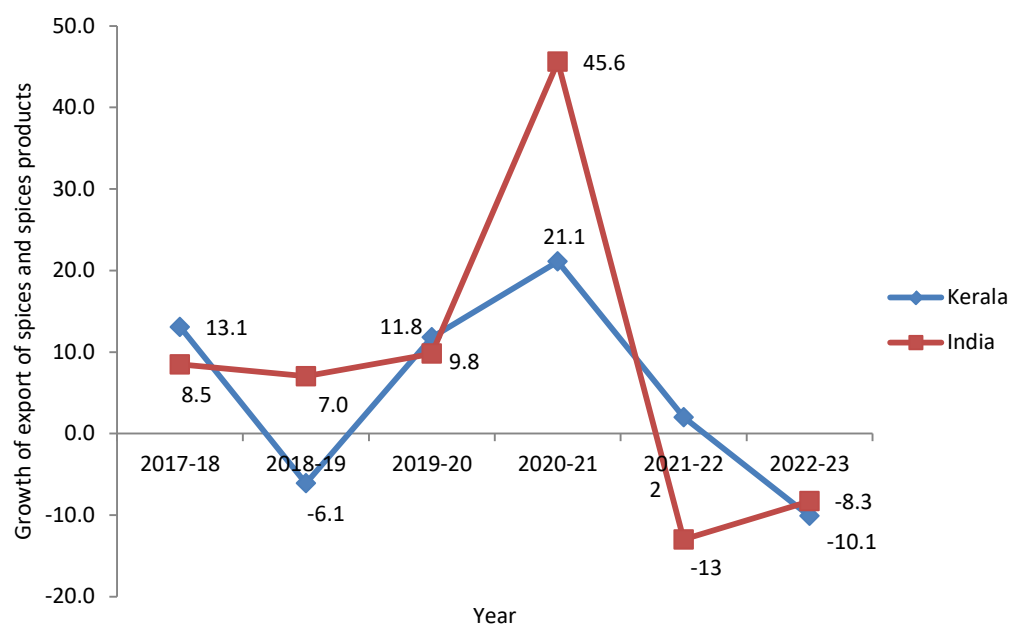
Kerala's export of spices and spice products, in quantitative terms, showed an increasing trend in 2019-20 and 2020-21. It continued positive in 2021-22, although declined the growth rate from the previous year. The year 2022-23 registered a negative growth of (-) 10.1 for Kerala. Indian trend for spices export continued to be negative for two consecutive years and remained (-) 8.3. **Figure 5.4.7** depicts the trend in growth of export of spices and spice products from India and Kerala.

In 2022-23, the export of individual spices like chilli, cardamom (small), ginger, cumin, celery, fenugreek from Kerala showed decrease both in volume as compared to previous year. A total

volume of 1,345 MT of cardamom (small) valued Rs 500.02 crore was exported from Kerala in 2022-23 as against 5,825 MT valued Rs 800.05 crore in 2021-22. Export of chilli 25,717 MT valued Rs 659.70 crore in 2022-23 shows a decrease from 30,225 MT valued Rs 650.97 crore from the previous year. The export of pepper was declined to 12,491 MT valued Rs 572.21 crore in 2022-23 as against 17,248 MT valued Rs 602.98 crore in 2021-22.

In the case of value-added products export of curry powder and mixture showed an increase in volume and value while spice oil and oleoresins products showed marginal decline in 2022-23 in terms of quantity as compared to 2021-22. Export of curry powder and mixture in 2021-22 was 15,284 MT valued Rs 314.79 crore and which rose to 17,505 MT valued Rs 408.60 crore in 2022-23 recording an increase in volume and value of export. Spice oils and oleoresins valued Rs 2,444.56 crore was exported in 2021-22 which declined to Rs 2,365.42 crore in value.

Figure 5.4.7 Trend in growth of export of spices and spice products from India and Kerala, 2017-18 to 2022-23, quantity in per cent



Source: Spices Board

5.5 PUBLIC SERVICES

Survey and Land Records

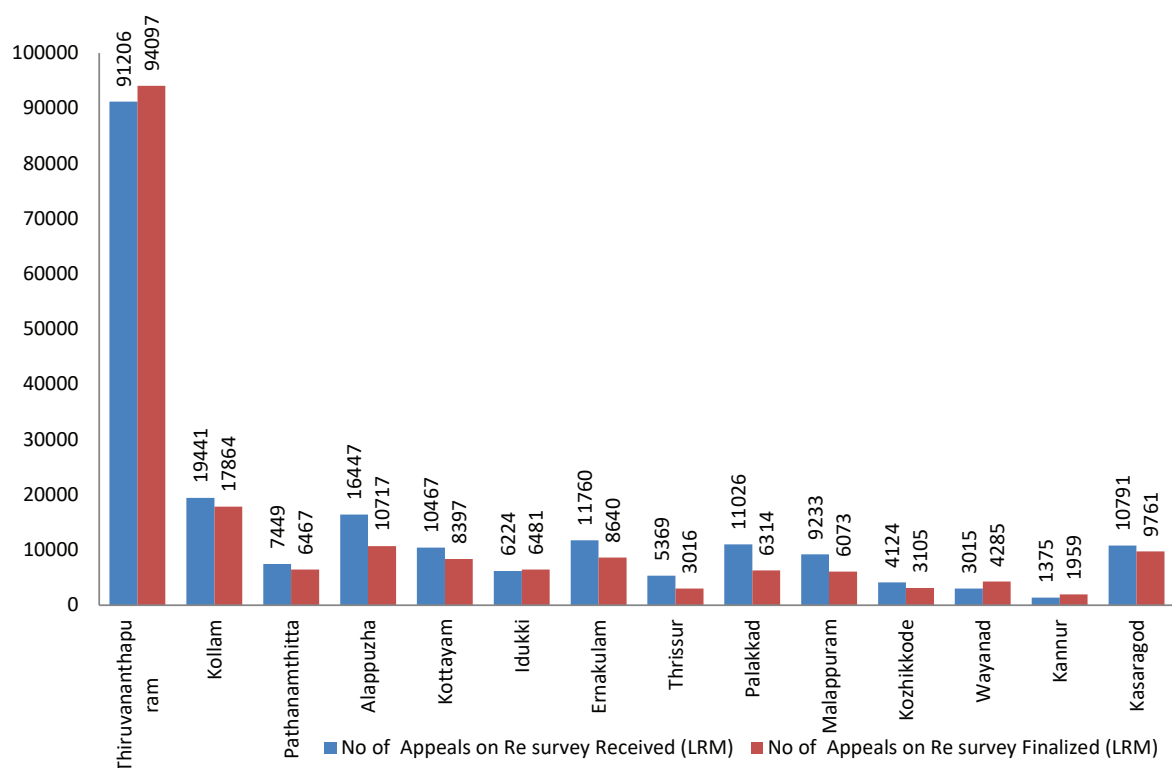
The main functioning of the Department of Survey and Land Records is to complete the resurvey process of all land holdings in the State within a stipulated period. Along with this, the Department also works on land management, digitisation of land survey records, survey of land for facilitating distribution of pattayam (ownership deed of land), land assessment and land acquisition, forest land survey, and survey of land in accordance with Government policy for special projects. The Department had completed resurvey of land in 922 villages till 2023, with the resurvey work of 744 villages remaining to be completed. The resurvey works are progressing with the help of modern gadgets such as Continuously Operating Reference Stations (CORS) and Real Time Kinematic Rover (RTK-Rover). At present geo referenced digital records are being prepared in World Geodetic System 1984 (WGS 84) with the equipments like Electronic Total Station

(ETS) and Global Positioning system (GPS). Due to the unavailability of digitalised map data, the Government has entrusted the Survey Department with overseeing the development of an Integrated Land Information Management System (ILIMS) through the “Ente Bhoomi” portal, in collaboration with the Revenue Department and with support of the Registration Department. The progress in the first phase of “Ente Bhoomi” portal is given in **Box 5.5.1**. An Integrated Land Information Management System (ILIMS) is being planned to provide citizens with a ‘single window’ service for every land transaction through ‘Ente Bhoomi’. This initiative aims to integrate various land transaction services of the three main stakeholder Departments (Registration Department, Revenue Department and Survey Department) into a single platform that offers comprehensive services to the public with minimal manual intervention. Details of resurvey from 2019 to 2023 (up to August 31, 2023) are given

Box 5.5.1 Progress in the first phase of the “Entebhoomi” project

Out of 1,666 villages across the State, Ente Bhoomi project has been launched in 1,550 villages to complete the digital survey works within a four year time frame using the most modern cutting edge technology to survey every inch of land with utmost precision with the aid of RKI fund. Under the Entebhoomi project, survey work is currently advancing in the first phase, covering 200 villages. Out of the total land area of 366,416 Hectors within these initial 200 villages, an area of 160,642 Hectors has already been surveyed. Within the 87 villages designated as high priority areas for surveying, an impressive 80 per cent of the work has successfully completed. To achieve the goal of enhancing digital land survey accuracy and efficiency, the Department has implemented Real Time Kinematics (RTK) and Robotic Total Station (RETS). As part of this initiative, 1500 RTK rover machines and 200 RETS has been deployed for comprehensive digital land surveys across the entire State. It has led to a significant improvement in the precision, quantity, and overall quality of the survey processes.

Figure 5.5.1 District-wise number of Re-survey appeals received and finalised in 2022



Source: DSLR

in **Appendix 5.5.1**. The Department also acts as the authority on resurvey appeals and Land Acquisition (LA) appeals. The District Collectors take final decision on the recommendation of the District Survey Superintendents on such appeals. In 2022, the District offices have finalised 1,87,176 cases (90.02 per cent) out of 2,07,927 appeals on resurvey. **Figure 5.5.1** shows the District-wise details of resurvey appeals received and finalised. Details of resurvey appeals received and finalised in 2022 are shown in **Appendix 5.5.2**

The Survey Department imparts training to IAS officers and officials of revenue department, survey department and Deputy Collectors. Details of training imparted are shown in **Appendix 5.5.3**

Digitisation of Land Records

The Survey Department is entrusted with the work of the digitisation of Survey records. Details of digitalisation of records are given in **Appendix 5.5.4**. The existing land records are scanned and kept in digital form. In 2021 and 2022 the number of Field Measurement Book (FMB) scanned are 24,858 and 2,01,969 respectively. In 2023, the number of Field Measurement Book (FMB) scanned are 2,931.

Registration Department

The Registration Department is mandated to facilitate registration of documents and preserving evidentiary records relating to deeds, special marriages, chits, societies and partnership firms. It also has the specific duty of permanently preserving these records so that authentic certified copies can be made in the future. The Department had successfully implemented e-payment system for the collection of registration fee. In 2022-23, the department collected a total of Rs 1,528.85 crore as document registration fee. Out of this Rs 975.45 crore is for sale conveyance which is the major component. Details of documents registered in 2022-23 are given in **Appendix 5.5.5** and details of fees collected in 2022-23 are given in **Appendix 5.5.6**. The major achievements of the Registration Department in 2022-23 are as follows.

Major achievements of the Registration Department in 2022-23

- Rs 5662.12 crore has been collected as revenue as against the Budget estimate of Rs 4524.26 crore which was an all-time high amount.
- Launched the Digital Document Execution Platform for remote execution of financial

contracts through NeSL

- Extended the use of e-office from headquarters to District-level.
- Initiated online issuance of certified copies with digital certificates in selected districts.
- Connected all offices via optical fibre cables and introduced e-stamping for all denominations.

Excise Department

The Excise Department is one of the Departments in the State that contributes a major share of the State revenue. This Department is administering laws related to liquor, narcotic drugs and psychotropic substances and medicinal preparations containing alcohol and narcotic drugs etc. The department has 69 Excise Circle Offices, 138 Excise Range Offices, 41 check posts and 19 special squads. 'Vimukthi' is one of the important programmes being implemented by the Excise Department for the eradication of substance abuse. All the licensing services provided by the Department are now available online and have been successfully integrated with e-payment. It detects cases related to Abkari Act 1950, Narcotic Drugs and Psychotropic Substance (NDPS) Act 1958 and Cigarettes and Other Tobacco Products (COTPA) (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act 2003. The Excise Department has implemented e-payment and e-licensing facilities. Major highlights of Vimukthi Mission are as follows.

Highlights of Vimukthi Mission Activities

- Setup 14 de-addiction centres in 14 districts
- Setup three zonal counselling centres
- Started 6,287 Anti-Narcotic Clubs in Schools.
- Started 899 Anti-Narcotic Clubs in Colleges.
- As a first step to eliminate the possibility of drug use among students at the college-level, a committee named "Nerkkoottam" under the leadership of the Principal/Vice Principal and a committee named "Sraddha" in college hostels have been formed in all the colleges and hostel.
- 52 Schools are identified for Unarv programme, which aims to divert students energy towards arts and sports activities.
- Excise officers, Vimukti counselors and other experts in the field conduct awareness classes for students through anti-narcotic clubs.
- In connection with the annual camps organised by NSS, awareness classes, awareness rallies, public events, flash mob and lamp lighting against drug addiction are organised in NSS

units.

- 6,900 girls have completed Self Defence Training programme for girl.
- Two handbooks named Karuthal and Kavacham have been prepared to create awareness among students.
- Special attention is being given to drug abstinence activities in tribal and coastal areas.
- 16,063 persons have been given counseling till July 31, 2023 by the Vimukthi Zonal Counselling Centres.
- Nervazhi project has been initiated to ensure the participation of teachers in the fight against drug abuse among school children.
- No To Drugs campaign has been conducted with the participation of all Government Departments, voluntary organisations and all sections of the people.

The numbers of Abkari cases in the State were 19,934 in 2021 and 18,592 in 2022, it reduced by 12,984 in 2023. The highest number of cases is reported in Kozhikode District (1,261). With respect to NDPS cases in 2023, the rate of decrease is 17.27 per cent compared to previous year. The number of NDPS cases has increased only in two Districts (Pathanamthitta and Kottayam). The NDPS cases were recorded highest decline as compared to 2022 in Kasaragod District (-) 42.86 per cent. In case of COTPA cases, an overall decrease of 31.93 per cent was recorded in the State. The highest number of cases is reported in Thiruvananthapuram District (9,344). In 2023 (from January 01, 2023 to August 31, 2023), it registered 12,984 cases under Abkari act, 5,060 cases under NDPS Act and 58,621 cases on COTPA. It was 18,592 and 6,116 and 86,114 respectively in 2022. District-wise case details for the year 2021, 2022 and 2023 are in **Appendix 5.5.7**. Percentage change over previous year in number of cases detected by Excise Department under COTPA, NDPS, Abkari Act are given in **Appendix 5.5.8**.

The department seizes and destroys contrabands from various illegal sources. It includes spirit, arrack, IMFL, toddy, arishta, ganja and ganja plants. District-wise details of contraband seized and destroyed for the year 2023 (up to August 31, 2023) is given in **Appendix 5.5.9**.

Excise department conducts public awareness campaign for schools, colleges and for public. A total of 22,495 awareness campaigns were

conducted in 2023 (up to August 31, 2023). It was 34,038 in 2022. District-wise and sector-wise details are given in **Appendix 5.5.10**.

Police Department

Kerala Police has a reputation for being one of the best-managed State police forces in the country. It is an important agency of the State Government entrusted with the duty of maintaining law and order along with crime investigation. The Department has different wings, such as the General Executive Wing, Crime Branch, Armed Police, State Crime Record Bureau, Training Wing, Special Branch and 11 specialised wings. The specialised wings include Forensic Science Laboratory, State Women Cell, Traffic and Road Safety Management Unit, Watch and Ward, Coastal Security Unit, Anti-Terrorist Squad, Temple Police, Tourism Police, Mounted Police Unit, Dog Squad, and Police Band. The general executive wing works among the people and it has headquarters in Thiruvananthapuram, North and South Zones, four police ranges and 20 police Districts and one Railway District.

The Department implements gender sensitive schemes. It has nine Pink Control Rooms and 25 counseling centres. The Pink Patrol System aimed to prevent crimes against women, and Pink Control Rooms are functioning in all districts round the clock. Self-defense training was imparted to more number of women. Nirbhaya volunteers were entrusted for assisting the police stations to ensure security of women. Women Police Stations were set up in all Revenue Districts except Wayanad. A woman Police Battalion was also established in the State. Emergency Response Support System (ERSS) has been established in the State. Public can request for emergency assistance by dialing to the Emergency Number 112. Swift and effective police assistance is ensured through this system. Janamaithri Suraksha Project is being implemented in all the Police Stations across the State. All the 484 police stations have been converted as Janamaithri police stations. There are 7,094 men and 2,780 women in Janamaithri Suraksha Samithi. Details of community policing scheme is given in **Appendix 5.5.12**.

In order to protect the women in public, private and digital space, Pink Protection Project has been introduced in the State. “Women Self Defence Training Programme” is a unique initiative of Kerala Police under the Community Policing

Project. The “Hope” project was conceived as a collaborative effort of Kerala Police and Civil Society to enhance the confidence, self-worthiness and skills of children who fail/drop out of schools before successful completion of XII standard. In order to create an invisible wall of protection around every child, Children and Police (CAP) activities are initiated in the State. Child Friendly Police Stations (CFPS) are Police Stations that demonstrate child friendliness in attitude, infrastructure, procedure and enforcement. 14 Child Friendly Police Stations are functioning in Kerala. The ‘Kerala Police Blood Bank’ is functioning in the State from 2021 onwards to cater the Blood requirements in emergency cases inside and outside the Department. There are 578 Nirbhaya Volunteers working along with the Police Department. Details of gender sensitive schemes are given in **Appendix 5.5.11**.

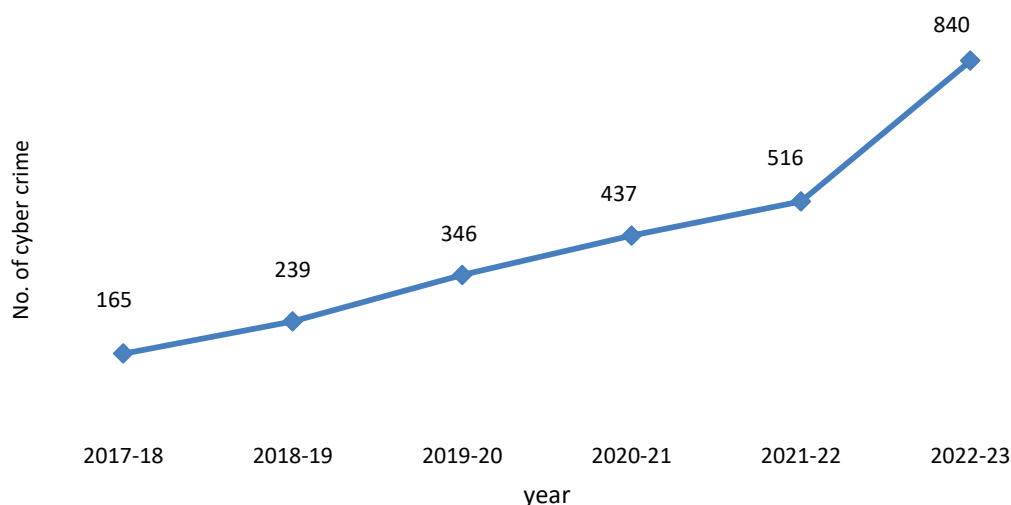
The Student Police Cadet (SPC) Project is a school-based initiative by Kerala Police, implemented jointly by the Departments of Home and Education, and supported by Departments of Transport, Forest, Excise and Local Self-Government. The project trains high school students in the fields of law, discipline and civic sense, and encourages students to develop empathy for vulnerable sections of society. It also strengthens commitment towards family, community, and the environment, enabling them to resist negative tendencies such as substance abuse, deviant behaviour, intolerance, and other social evils. The Project was launched on August 2, 2010 in 127 high schools and higher secondary schools across Kerala. Presently, there are 84,852 cadets in 998 schools in which SPC is implemented. Out of 998 schools, 543 are Government schools, 434 are aided schools and 21 are unaided schools. Details of schools with SPC are shown in **Appendix 5.5.13** and District-wise details of SPC project implemented in schools is shown in **Appendix 5.5.14**. The important new initiatives and innovative projects of the Police Department are given in **Box 5.5.2**

The NRI Cell of Police registered 22 cases in 2022-23 (up to August 2023). Highest number of NRI cases is reported in Ernakulam District (6). Details of cases registered in the State as per direction from NRI cell is shown in **Appendix 5.5.15**. The Cyber and high-tech enquiry cell had registered 620 cases in 2023-24 (up to August 2023), it was 840 in 2022-23. **Figure 5.5.2** shows the increasing trend

Box 5.5.2 New initiatives and innovative projects of the Police Department

- Established 'Economic Offences Wing' in the State for the investigation of cases involving economic offences.
- Formation of new Armed Police Battalion namely, KAP 6th Battalion in Kozhikode District.
- Digital De-addiction centres started in six cities for Mobile De-addiction.
- Installed ANPR cameras for facial recognition along with number plate recording.
- Initiated the installation of CCTV Cameras in all Police Stations as per the directions of Supreme Court of India to deter violation of Civil rights, torture and death in police custody.
- Installed CCTV surveillance cameras in the major cities for the improvement of surveillance and traffic system.
- Self Defence Programme and training to women and set up Kerala Armed Police Women Battalion.
- The official Kerala Police App is a digital initiative to give the common public easy access to services.
- Implemented M-Beat System for the protection of Senior Citizen.
- Set up Traffic Training School and Research Centre at Kerala Police Academy (KEPA).

Figure 5.5.2 No. of Crimes Registered in Cyber Cell from 2017-18 to 2022-23



Source: Police Department

of cyber crimes reported during the period from 2017-18 to 2022-23. Online cheating, creation, publishing and sharing of child pornography, social media abuse, cyber offences done through smart phones, hacking of bank accounts and e-mail ids, are the major cyber-crime cases reported during the period under report. The highest number of cases is reported in online cheating. Details are given in **Appendix 5.5.16**.

Prisons and Correctional Services

The Constitution of India provides equality for each and every person before the law or

equal protection of laws within the territory of India. A prisoner is also guaranteed certain rights and every prisoner should be treated as a person. It is essential to develop a sense of dignity among the prisoners and thereby send them to the society as good citizen. The old school of thought on treatment of prisoners was replaced by modern concept of correction, reformation and rehabilitation. The purpose and justification of imprisonment is correction and reformation of offenders and protection of society from crime. The ultimate aim is to reintegrate offenders into society so that they can live a dignified life and support themselves. The Prisons Department's endeavour is to achieve the objectives of correction, reformation and rehabilitation of prisoners, including effective vocational training. The State

Table 5.5.1 Number of prisoners from 2016 to March 31, 2023

Prisoners	2016	2017	2018	2019	2020	2021	2022	2023
Female	213	200	196	181	193	148	163	185
Male	7,770	7,413	7,686	7,786	7,470	6,047	7,287	9,111
Total	7,983	7,613	7,882	7,967	7,663	6,195	7,450	9,296

Source: Prisons and Correctional Services

Prisons and Correctional Services Department is working towards to the above objectives of correction, reformation, and rehabilitation of prisoners.

Kerala Prison Department was formulated in the year 1956 following the formation of Kerala State on 1st November 1956. The British administration established the earliest central prison in Kannur in 1869 and the first District jail in Kozhikode in 1861. Jails in Kerala were initially governed by the Indian Prisons Act, formulated by the erstwhile British rulers, and later on by the Travancore Prison Act. Subsequently, Kerala Prison Rules were formulated in 1958. Kerala Prison Act was enacted in 2010, and rules were enacted in 2014. A model prison manual was framed in 2016 based on the report of two expert committees.

The vision of the department is to take adequate measures for safe custody, correction, reformation, rehabilitation, and transformation of prisoners into stable persons of acceptable social behaviour upon their release back into society. They are primarily responsible for providing safe custody to all prisoners and provided with hygienic living conditions, adequate food, clothing, and medical care, as envisaged in the law.

There are 57 jails including 4 Central prison and Correctional Homes, 2 Open Prison and Correctional Homes, 3 Women Prison and Correctional Homes, 1 Women Open Prison and Correctional Home, 1 High Security Prison, 13 District Jails, 16 Special Sub Jails, 1 Borstal School. The existing authorised capacity of all the jails in the State is 8300. As of March 2023, there were 9296 prisoners, of which 185 were women. There were 428 inmates in the three open jails, 115 inmates in women's jails, and 1524 inmates in special sub-jails. Details of prisoners in jails are given in **Appendix 5.5.17**, **Table 5.5.1** shows the number of prisoners from 2016 to 2023 (up to March 31, 2023).

One of the major problem faced by the department is over crowding of prisoners. The number of prisoners is more than the authorised capacity of the jails. Due to the spread of COVID-19 in the State, the Government decided to grant parole to even those prisoners who were convicted and sentenced to imprisonment to contain the disease. As normalcy has returned in the country, the prisoners released on parole are directed to report back to prisons. This has increased the number of inmates in the prisons in 2023. The figures show a jump in the number of inmates in March 2023 when compared to March 2022.

Overview of the Department Schemes in 2022-23

The Jails Department implements various programmes under two State schemes, namely, the modernisation of jails and the welfare of prisoners. The State Government has allotted Rs 13 crore for the welfare and rehabilitation of prisoners and Rs 8 crore for the modernisation of prisons in 2022-23.

The basic objective of modernising jail is to create a dignified living environment and inculcate dignity in prisoners, thereby transforming them into good citizens when released into society. In 2022-23, an amount of Rs 10.28 crore was spent for the implementation of Video Conferencing System and purchase of computers, printers, photocopiers etc. Some of the major activities that are sanctioned comprise construction of new building for District jail, Pathanamthitta and construction of first phase of sub jail, Mannarkkad.

Various programmes aimed at the welfare and rehabilitation of inmates, such as initiatives for basic education, vocational training and welfare of the prisoners etc. have been taken up under the welfare scheme. This scheme also aims at promoting and utilising the skills and interest in the fields of arts and sports. In 2022-23 an amount of Rs 2.97 crore was spent out of Rs 8 crore allocated. Various vocational and skill

development programmes such as beautician courses, driving, tailoring, fashion designing, electrical hardware, building construction, food processing, bakery food making, plumbing, screen printing, organic farming and computer were conducted. As part of the mental transformation of the prisoners, jail welfare day, yoga classes, and further education programmes were conducted. FM radio with a public address system has been provided in jails.

An amount of Rs 81 lakh has been deposited in the Public Works Department for rearranging existing plumbing line to cell and to construct overhead water tank in Central prison and Correctional Home, Kannur. Funds are also sanctioned for construction of compound wall at special sub jail, Devikulam, toilet block at Special sub jail, Irinjalakkuda, electrical works at sub jail, Tirur and Perinthalmanna and special sub jail, Muvattupuzha and toilet and septic tank renovation at sub jail, Ottappalam

Major Achievements

- Newly constructed jail Central Prison and Correctional home, Thavanur has been inaugurated on June, 2022 and the jail started functioning. The accommodation capacity of the jail is 706.
- Special Sub Jail, Koothuparamba, 16th Special Sub jail in the State was inaugurated on June, 2022
- Acquired land (4 acres) for the construction of modern District jail at Krishnagiri in Sulthan Bathery Thaluk, Wayanad
- Constructed new barrack at open prison and Correctional home, Cheemeni.

Probation and After Care Services

Probation is considered a reformatory intervention developed as a non-custodial alternative used by the judiciary where the guilt of the offender is established. But imposing imprisonment would have drastic effects as it decreases the offender's capacity to readjust to normal social life after release. The Probation of Offenders Act was enacted in India in 1958. The Act stipulates the appointment of probation officers to give a pre-sentence report to the Magistrate and supervise the convict during his probation. The administrative control of probation services and institutions had been under the control of the Prisons Department, and it was transferred to Social Welfare Department in 1975.

As per the Kerala Prisons Rules, the State Government may release certain life prisoners from prison through an executive order and keep them under the supervision of the probation officer concerned for a stipulated period. The probation officer observes his/her daily living pattern and helps the person to reintegrate into society. This system is called executive probation in Kerala. **Table 5.5.2** shows the District-wise number of judicial probationers (adults) as on March, 2023.

Table 5.5.2 Number of Judicial and Executive probationers in Kerala in 2022-23

Name of District	Number of Judicial and Executive probationers
Thiruvananthapuram	66
Kollam	84
Pathanamthitta	28
Alappuzha	36
Kottayam	42
Idukki	53
Ernakulam	106
Thrissur	52
Palakkad	64
Malappuram	86
Wayanad	26
Kozhikkod	52
Kannur	40
Kasaragod	44
Total	779

Source: Social justice Department, GoK

The capacity development in the probation system includes training for judiciary, prison and police officials in cooperation with the Kerala Judicial Academy. The Department was also looking for successful innovative probation practices from other countries and States. During the 13th Five-Year Plan period, the system initiated schemes for basic and professional education assistance to the children of convicts and psycho-social rehabilitation programme for cured and controlled mentally ill ex-prisoner who continue in mental health centres for a long time.

Nervazhi – Modernisation and Strengthening of Probation System

The project is intended to rejuvenate and

modernise the probation system in the State. The project follows a protocol for regular identification of offenders eligible for probation, undertakes comprehensive investigation reports to ascertain whether they are amenable to correction, provides necessary psychological treatment whenever necessary, and ensures effective supervision to enhance the likelihood that the probationers will be integrated back into society. The process helps to reduce recidivism, reintegrate the offenders back into mainstream society, reduce overcrowding in prisons and increase the efficiency of the criminal justice system.

Thanalidam – Probation Home

Prisoners face many hardships after release as they are often stigmatised as ex-offenders. Family members may not be ready to accept them back. This is a hindrance to the successful community re-integration of ex-prisoners. As per Section 20 (1) of the Kerala Probation of Offenders Rules, 1960, it is mandatory to operate institutions or homes which ensure a temporary place of residence for those offenders who are eligible for probation, parole, premature release and bail if they do not have a fixed place of abode. The Social Justice Department has devised a novel initiative known as “Thanalidam” Probation Home for such persons.

Transit Home

Social Justice Department started a Transit home in Kollam District to give temporary shelter to foreign national entering the country illegally, those staying back in the country even after expiry of passport/visa, those who had completed their jail term, are on parole, had been released from jail, or were in need of other forms of protection.

Achievements of Aftercare Services and Victim Rehabilitation in 2022-23

- Educational assistance was provided to children of prisoners for 152 beneficiaries utilising an amount of Rs 8,38,763
- Under the Education Assistance Scheme for the children of victims of crime, an amount of Rs 1,10,000 was utilised for 24 beneficiaries.
- Marriage assistance was provided for daughters of prisoners at Rs 30,000 per person for five beneficiaries
- By providing self employment for dependents of prisoners, an amount of Rs 28.8 lakh was utilised for 99 beneficiaries
- Under Jeevanam scheme, financial assistance was given to 16 dependents as well as victims of

crime for self employment

- Mithram scheme provided skill training to probation beneficiaries to earn steady income through self employment.
- For the implementation of Nervazhi programme, an amount of Rs 61,00,064 was utilised

Way Forward

Although the prisons department has made great strides in ensuring safe custody of prisoners, their correctional process and rehabilitation, there is still a long way to go to achieve the objective of the department. The shortage in the infrastructure in jails due to the overcrowding of prisoners may be addressed and also necessary hospital facilities to be provided. Institutional support, vocational training, livelihood support programmes and better follow-up would also help smooth re-integration of offenders into society. Strengthening the probation system can be yet another aspect of the solution to this problem. This needs sensitising the general public and various stakeholders about social defence policy, probation system, and rationale of probation.

5.6 OUTREACH TO PUBLIC

Information and Public Relations Department of a Government acts as a bridge between the Government and the people. The department is the nodal agency of the Government of Kerala in providing a communication platform for the Government and the public. The department disseminates information through various media to the public on Government policies, programmes, schemes, initiatives and achievements of the Government of Kerala, through print, electronic, and social media; in return, the feedback of the public is gathered through traditional as well as new-age electronic and digital mediums.

The Department has initiated new approaches and public relations interventions to keep abreast with changing times. Among them are the initiatives in social media and mobile journalism. Making use of mobile applications to reach the target audience, effective promotional campaigns through social media handles, and digital marketing have ensured wider audience reach and enhanced interactions. Effective online campaigns, which were creatively different, gave an impetus to the overall public relations and information dissemination activities of the department. On the occasion of Government's second anniversary, the department successfully conducted 'Ente Keralam' exhibition and trade fairs in 14 districts.

State Initiatives on Public Relations

Visual Media – Visual Media Division produces and distributes video news clippings and advertisements to television channels, short videos, radio advertisements, documentaries, short films, info-videos, posters, documentation and archiving

of contents, the production of Hon'ble Chief Minister's weekly interactive television programme – Naam Munnott as well as weekly development based television programme – Navakeralam and news-roundup – Priyakeralam. The Visual Media Division also airs a weekly radio-based programme called Janapatham.

Web-Based Media – The Web and New Media division undertakes the content management of Government web portals www.kerala.gov.in, www.keralacm.gov.in, www.prd.kerala.gov.in, www.keralanews.gov.in and other important websites. The bilingual (English and Malayalam) portals provide relevant details regarding the Governor, Ministers, various departments, field agencies, and PSUs and are also a gateway to more than 40 e-services of the Government. The portal is also a repository of documents comprising Government orders and circulars, cabinet decisions, notifications, application forms, policy documents, publications, acts and rules, reports, and tenders. Web and New Media division also manages the social media accounts viz. Twitter ([Twitter.com/iprdkerala](https://twitter.com/iprdkerala)), Facebook ([Facebook.com/keralainformation](https://facebook.com/keralainformation)), Instagram ([Instagram.com/iprdkerala](https://instagram.com/iprdkerala)), YouTube ([YouTube.com/iprdkerala](https://youtube.com/iprdkerala)) and Dailyhunt ([Dailyhunt.com/iprdkerala](https://dailyhunt.com/iprdkerala)).

Media Relations – Day-to-day media relations, in the form of multi-lingual news reports of Government functions, decisions, notifications, and announcements are managed by the Press Release Division. Convening press meets, setting up media centres on special occasions, media accreditation services, providing facilities on

special occasions to media reporters for coverage and reporting, and organising State media awards functions are taken up by this Division. The Photography wing of the division covers Government programmes across the State, releases images to the media daily, and archives photographs. A Scrutiny Wing undertakes daily scrutiny of news and stories that appear in print and electronic media that has a bearing on Government policies, decisions, programme and social issues.

Publications – The Department brings out periodicals: Kerala Calling (English) and Samakalika Janapatham (Malayalam). The division also publishes newsletters, pamphlets, brochures, reports, and also books on Kerala culture, history, art, and eminent personalities. It also has a Circulation wing to take care of the promotional works of its periodicals.

Field Publicity and Culture – Field publicity within and outside the State, trade and cultural festivals in metro cities as part of the inter-State public relations, exhibitions, seminars, workshops, International Trade Fair held in New Delhi, social media and multimedia campaigns, art and cultural events are organised as part of publicity works. Observations and celebrations such as Gandhi Jayanti, Reading Week, Official Language, and Malayalam week are undertaken by this Division. Tagore Theatre in the capital city is being developed as a cultural hub and is a major venue for hosting the National Theatre Festival and the International Film Festival of Kerala. This division also coordinates the management of the Kerala pavilion at the annual India International Trade Fair held in New Delhi.

Research and Reference – The Research and Reference wing regularly maintains registers of newspapers and periodicals published in the State as per the directions in the Press and Registration of Books Act (PRB Act). This division focuses on new trends and domains in public relations such as crisis communication, campaign planning, brand building, mobile journalism, and data analysis, and provides capacity building to staff.

Kerala Media Academy – Kerala Media Academy is an autonomous institution that facilitates study and research programmes in the field of journalism and conducts training programmes, workshops, seminars, publication of books and periodicals,

distribution of media awards, and grants fellowships for conducting advanced research in journalism.

The I&PRD is the official agency to release Government advertisements to the media. Production of print, visual and audio advertisements and fixing Government rates for advertisements are also done by them.

Major Achievements in 2022-23

- 6,649 press releases were prepared and disseminated in 2022-23. Media coordination work was done in conducting 81 press conferences during the period.
- The major events covered by the photography wing are the week long Kerala Assembly Book fest at Thiruvananthapuram, School kalotsavam at Kozhikode, Thrisur Pooram, Kalpathi Ratholsavam at Palakkad, Sabarimala mandala and makara vilakku. As part of photo documentation works, including 1,12,000 images of 800 programmes was done. During the year 959 programmes has been covered and took 1,44,000 images, of which 1,367 images were released to the media.
- The department maintains the official websites of 20 Ministers. It has uploaded close to 28,000 GOs and Cabinet Orders, including Circulars, Notifications, Tenders, Govt Reports, Govt Policies, News, Videos, Pictures and Banner News in the Government sub portals, noticeboard. kerala.gov.in and document.kerala.gov.in
- As part of the News Clip Video Project, the Central News Desk documented and edited a remarkable 1,432 events in 2022-23.
- As part of the Mojo project, smart phones and Mojo kits were distributed to nine districts and the New Delhi Information Office.
- The department has produced and telecasted 30 episodes of Navakeralam and Priyakeralam – IPRD's news-based television programme highlighting the Government's development and welfare-oriented activities.
- It has produced and disseminated more than 30 info videos regarding Government's developmental and welfare measures through social media handles like Whatsapp, Youtube and facebook.
- Helicam project to document major historical sites, mega development projects using drones started.

- Special edition of Samakalika Janapadham on Development and Welfare Activities of Govt and Malayalam language (as part of the official language celebration and Malayalam Day), Coffee Tablebook on Loka Kerala Sabha, Azadi Ka Amrit Mahotsavam and about the development and welfare activities of the Government were published. 'Sannidhanam', an interactive e-bulletin, which contains information that pilgrims need to know about the Sabarimala pilgrimage was published in Malayalam, Tamil, Kannada and Telugu languages.
- The department successfully conducted 'Ente Keralam' exhibition and trade fair in 13 districts through special PR campaign on the occasion of Government's first anniversary. Programmes were organised in districts on the occasion of State-level 'Reading Week'. A float of the department based on 'Women Empowerment' was presented as part of Onam celebrations. State-level and district-level programmes are organised for Gandhi Jayanthi celebrations.
- Kerala became the focus State for the first time at India International Trade Fair 2022 in a 60,000 square feet pavilion, with 21 Government department marketing stalls and 10 theme stalls. Kerala won the gold medal in the State/Union Territories category. Kerala got the selection for presenting tableau in the Republic Day parade 2023.

Way Forward

The Department should look forward to strengthen its network and resources through initiatives based on latest digital communication and network technologies. Enhanced online presence will be the key to the Department's overall functioning.

CHAPTER

06

HUMAN DEVELOPMENT

HUMAN DEVELOPMENT

6.1 EDUCATION

The State of Kerala is known all over the world as an educationally advanced part of the country, which has many outstanding achievements in the fields of education, health, habitat, land reforms etc. In fact, Kerala is far ahead of the national objectives in primary and secondary education and is striving to attain international standards in higher education, technical education and research. Kerala is the first State to have achieved universal literacy. In this respect, Kerala is often compared not only with the other Indian States or developing countries, but also with some of the developed countries. The State Government has succeeded in bringing world-class education facilities to schools in every village in the State. The real beneficiaries of the general education sector are the poor.

The State has taken measures to address the needs and requirements of children from different sectors, particularly the marginalised and vulnerable. Specifically designed programmes, with professional expertise and assistance, are being implemented to meet the requirements of children with disabilities. Special focus has also been given on extracurricular activities such as sports and arts, though they need improvement in terms of coverage and technological support. Through projects such as 'Vidya Kiranam', a component of the Nava Kerala Mission which is a continuation of 'PothuVidyabhyasa Samrakshana Yajnam', and 'Kerala Knowledge Economy Mission', the Government aims to bring major changes in the standards of school and higher education.

Kerala has made remarkable attempts in bridging the digital divide during the pandemic, when online learning became the major mode of school education. The 14th Five-Year Plan envisages ending the digital divide, ensuring better connectivity to school education, and ensuring access to digital study material and library networks on a completely new scale. The 14th Five-Year Plan also supports the efforts to help preschool education help children's emotional, social, and personal growth in an inclusive environment, and efforts to dovetail vocational learning in higher secondary schools with the general emphasis to upgrade skill levels in the economy.

Literacy

The most essential indicator of the quality of a country's human capital is literacy. As regards literacy, Kerala ranks first in the country with literacy rate of 94 per cent closely followed by Lakshadweep (91.85 per cent) and Mizoram (91.33 per cent) (Census of India, 2011). Kerala's literacy, which was only 47.18 per cent in 1951, has almost doubled by 2011. The male- female literacy gap which was 22 per cent point in 1951 has narrowed down to 4.04 per cent in 2011. Kerala holds the first place in the country in female literacy with 92.07 per cent and Bihar records the lowest female literacy rate (51.50 per cent) (Census of India, 2011). Literacy rate of the State from 1951 to 2011 is shown in **Appendix 6.1.1**. Variation in literacy among the districts of Kerala is not significant. While Kottayam District (97.21 per cent) reports

the highest literacy rate in the State, followed by Pathanamthitta (96.55 per cent) and Ernakulam (95.89 per cent), Wayanad District has the lowest literacy rate in the State (89.03 per cent). Literacy rates by gender for Districts in 2001 and 2011 are given in **Appendix.6.1.2**.

Kerala State Literacy Mission Authority (KSLMA) works to implement literacy, continuing education and lifelong learning programmes in the State. Illiterates, neo-literates, school drop-outs, people who are interested in life long education or continuing education are the main beneficiaries of these programmes. During these years, the activities of Literacy Mission have been expanded to vulnerable and marginalized sections of the society with special focus on women, scheduled caste, scheduled tribes, transgenders, coastal area people and migrant workers. Literacy is not merely the ability to read and write, but in broad sense it is the basic awareness of how to lead a healthy and progressive social life. Keeping this in mind, KSLMA has launched social literacy programmes in the fields of health, environment, gender, renaissance of Kerala, Constitution of India and e-learning. The adult learners under literacy and continuing education are the direct beneficiaries of these programmes.

1. Literacy programmes

This programme aims to make illiterate people literate. Various types of literacy projects have been implemented for the eradication of illiteracy. This year the literacy project has given special attention to learners from coastal, tribal, scheduled caste areas/ settlements. KSLMA has also implemented a central government project Padma Likhna Abhiyan (PLA) for the eradication of illiteracy.

2. Special projects for the marginalised sections of the society

- a. Attappadi Tribal Literacy programme: As part of this, KSLMA conducted classes in 192 tribal settlements at Attappadi and 5,363 learners became literates.
- b. Wayanad Tribal Literacy programme: This programme is designed to eradicate the illiteracy among tribal people in Wayanad. Three phases of this project have been completed and more than 20,260 tribal learners attained literacy.
- c. Navachethana – Special Literacy programme for scheduled castes- This initiative is actively underway across 66 scheduled caste settlements across nine districts in Kerala, including

Kollam, Pathanamthitta, Kottayam, Alappuzha, Ernakulam, Thrissur, Kozhikkode, Kannur and Kasargod. As of now, a total of 1,255 individuals have registered for these classes.

d. Changathi - Special Literacy programme for Migrant Labourers : As of now, three phases have been completed, and during the third phase, 1,021 individuals attended classes in 9 districts of Kerala, namely Kollam, Pathanamthitta, Kottayam, Alappuzha, Ernakulam, Thrissur, Kozhikkode, Kannur, and Kasargod. 997 learners successfully passed the examination. At present the preparatory activities are going on in all the 14 districts for the 4th phase.

e. Samanwaya - Special Project for continuing education for Transgenders: As part of this project, Literacy Mission conducted transgender survey, equivalency classes and various types of awareness programmes.

3. Equivalency Programmes

Equivalency programmes are organised with a view to provide an alternative education equivalent to the existing formal system of education.

a. 4th class and 7th class Equivalency Classes

Candidates who passed the Literacy Exam and the students who dropped out of the school from primary level can enroll to the 4th standard equivalency course. Candidates who passed the fourth standard equivalency and the students who dropped out of the school from upper primary level get admission to the 7th class equivalency programme. In the year 2022-23, 9,791 people benefitted from 4th class equivalency programme and 5,870 people benefitted from 7th class equivalency programme.

Because of the focussed efforts of KSLMA, Preraks could identify the persons in need and enrol them into various levels of equivalency programmes. KSLMA is taking efforts to bring a large number of persons back to studies and to enrol them in 10th and Higher Secondary equivalency courses (**Table 6.1.1**). The details on the number of people benefitted from 10th and Higher Secondary Equivalency programme of Kerala State Literacy Mission in 2022-23 are given in **Appendix 6.1.3**

It is seen that out of the total number of persons benefitting from these programmes, SC and ST population constitutes a major portion. Because of the special efforts of KSLMA for the last few years to include transgenders into the programmes,

Table 6.1.1 Number of persons who benefitted from higher secondary and 10th equivalency courses in 2022 and 2023

Course		Female	Male	Transgender	Total	SC	ST	Persons with disabilities
Higher Secondary	2022	16,104	7,065	23	23,192	4,885	731	325
	2023	18,619	8,178	33	26,830	5,563	799	388
10th	2022	17,064	8,620	14	25,698	4,854	906	656
	2023	18,144	8,971	16	27,131	5,112	955	676

Source: KSLMA

a total number of 49 transgenders benefitted from the 10th and higher secondary equivalency programmes in 2023. Likewise, a significant participation of persons with disabilities can also be seen.

4. Social Literacy Programmes

The Kerala State Literacy Mission Authority (K.S.L.M.A) is focusing not only on alphabets and numerical literacy, but also on other social literacy programmes. Realizing the fact that the state is not fully literate in terms of social security, environmental issues, legal awareness and gender equality, KSLMA took initiative to spread the various literacy programmes among the people in the state other than helping them in reading and writing.

a. Environmental Literacy Programme: Literacy mission conducted many programmes such as environmental literacy survey, awareness classes, seminars, exhibitions, waste management, Water Literacy classes etc. as part of environmental literacy programme.

b. Pouradwani: Pouradwani is a programme that has been included in the 100-day agenda of the Kerala State Government, designed to educate the general public and raise basic awareness about Fundamental Rights, Duties, Gender perspectives, and the Indian Constitution.

c. E Muttam: E Muttam is a programme which has been included in the 100 days programme of Kerala State Government. This project is a digital literacy programme which aims to provide digital literacy among the people. In this scheme, each learner will get a minimum of 10 hours of class. Programme is being implemented across the State by selecting one Local Self Government Institution each from 14 districts.

e. Braille literacy programme: The objective of this project is to eliminate illiteracy among visually challenged individuals and integrate them into the education system, with the ultimate goal of making Kerala a fully Braille-literate state in the coming years.

f. Munnettam: This is a women's empowerment project in association with Mahila Samakhya Society. The scheme is aimed at empowering women in society by enhancing their dignity and competence through the improvement of education, critical life skills and employment skill.

g. Cyber Literacy Programme: The State Literacy Mission is implementing the project in association with KITE, with the aim of eliminating digital divide in Kerala.

5. Certificate Courses

KSLMA launched three new certificate courses, viz, Pacha Malayalam, Acchi Hindi and Good English aiming at those who are interested in improving their language skills. This project is a four months course which intends to equip people to handle three languages- Malayalam, Hindi and English with ease. Details are given in **Table 6.1.2**

School Education

Directorate of General Education co-ordinates all the activities of public education from class 1

Table 6.1.2 Details of certificate courses of KSLMA in 2022 and 2023

Sl No.	Course Name	Number of Learners in 2022	Number of Learners in 2023
1	Good English	2069	1004
2	Acchi Hindi	255	156
3	Pacha Malayalam	1072	742

Source: KSLMA

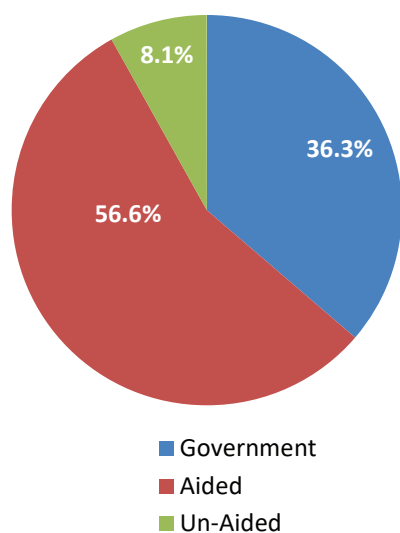
to 10, higher secondary and vocational higher secondary education. Earlier, classes from 1 to 10 were under the administrative control of Directorate of Public Instruction. Also there existed separate directorates for higher secondary and vocational higher secondary education. But now these three sections are merged to Directorate of General Education.

There were 12,959 schools in Kerala in 2022-23, out of which 4,698 (36.3 per cent) are Government schools, 7,210 (55.6 per cent) are aided schools and 1,051 (8.1 per cent) are unaided schools (**Figure 6.1.1**). More Government schools are functioning in lower primary (LP) section than in upper primary (UP) or high school (HS) sections. Aided schools outnumber Government schools in all sections.

In 2022-23, Malappuram District had the largest number of schools (1,572) in the State followed by Kannur (1,303) and Kozhikode (1,277). Malappuram also has the largest number of Government (555) and unaided schools (211) in the State. But the largest number of aided schools is functioning in Kannur District (963). Details of District-wise, management-wise and stage-wise number of schools in Kerala in 2022-23 are given in **Appendix 6.1.4**.

In 2022-23, there are 1,588 schools in the State which are offering syllabi other than the one prescribed by the State Government.

Figure 6.1.1 Management-wise percentage of schools in the State, 2022-23



Source: Directorate of General Education

These include 1,367 CBSE schools, 167 ICSE schools, 40 Kendriya Vidyalayas and 14 Jawahar Navodayavidyalayas. District-wise details of schools with syllabi other than State syllabus in the year 2022-23 are given in **Appendix 6.1.5**.

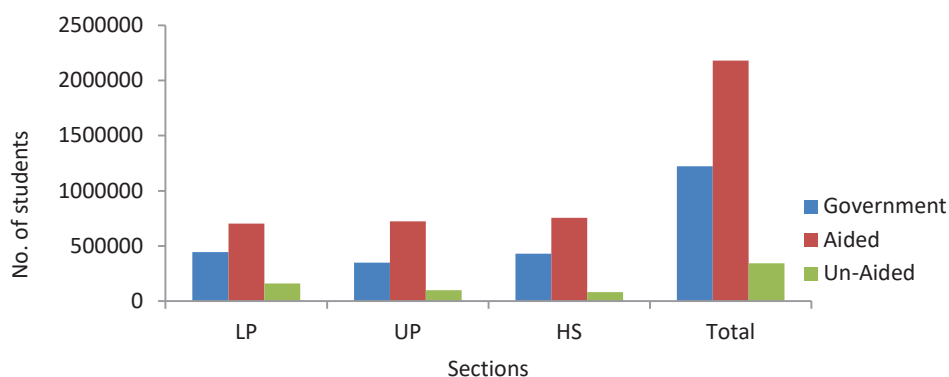
Physical infrastructure and facilities in Government Schools

Most of the Government schools in Kerala are functioning in pucca buildings. 98 government schools are working in rented buildings. District-wise details of Government schools having building facilities are given in **Appendix 6.1.6**. Local Governments and programmes like Sarva Shiksha Abhiyan (SSA) have contributed much to the overall development and improvement of physical infrastructure and common facilities in Government schools in the State. An amount of Rs 5 crore, Rs 3 crore and Rs 1 crore each has been allotted for the infrastructural development of 141, 386 and 446 number of schools respectively under KIIFB. Under Rs 5 crore category construction of building has been fully completed in 134 schools. In the Rs 3 crore category constructions of buildings has been completed in 161 schools and in Rs 1 crore category construction of buildings has been completed in 136 schools. The construction of building of 52 schools has been completed, with the aid of NABARD, by utilising Rs 104 crore. It is seen that 99.77 per cent of Government schools have access to drinking water and almost all schools have urinals/latrines facilities. District-wise details of Government schools having drinking water/latrines/urinal facilities in Kerala in 2022-23 are given in **Appendix 6.1.7**.

Enrolment of Students

There is a small decrease in the enrolment of students in 2023-24(provisional) to 37.46 lakh from 38.32 lakh in 2022-23. This decrease is seen in all sections but large quantity is in LP section and this may be attributed to the low birth rate of the State. The stage-wise enrolment of students in schools in Kerala from 2017-18 to 2023-24 are given in **Appendix 6.1.8**. Details of management-wise and standard-wise enrolment of students in schools in 2023-24(provisional) are given in **Appendix 6.1.9**. In all sections, the students in Government aided schools outnumber the students in Government and unaided schools (**Figure 6.1.2**). District-wise stage-wise and sex-wise enrolment of students in schools in the State in 2023-24 is given in **Appendix 6.1.10**. Boys outnumber girls in all sections and districts.

Figure 6.1.2 Management-wise and section-wise enrolment of students in Kerala in 2023-24



Source: Directorate of General Education

Enrolment of Girls in Schools

In 2023-24, girls constitute 49.05 per cent of the total student enrolment in schools. Boys outnumber girls in all the Districts. But the gender gap is very narrow in Kerala in terms of enrolment.

During the academic year 2023-24 32,728 new students sought admission in Government and Government Aided schools in Kerala. The total number of new students sought admission in Government and aided schools for the last five years is 6,63,686. (**Table 6.1.3**).

Strength of Scheduled Caste and Scheduled Tribe Students

In 2023-24, Scheduled Caste (SC) students constitute 9.86 per cent of total students in the State. The percentage of SC and ST students in Government schools is higher than that of private aided and private unaided schools. The percentage of SC students in Government schools, Government aided schools and private unaided schools are 12.37 per cent, 9.45 per cent, and 3.50 per cent respectively. (**Table 6.1.4**).

ST students constitute 1.87 per cent of total enrolment in schools in 2023-24. The percentage of ST students in Government schools, Government aided schools and private unaided schools are 3.42 per cent, 1.22 per cent, and 0.46 per cent respectively in 2023-24. The standard-wise strength of SC & ST students in the State in 2023-24 is given in **Appendix 6.1.11**. Out of the total number of SC & ST students in the State, only 3.24 per cent of SC and 2.22 per cent of ST students are enrolled in private unaided schools. The rest are admitted in government and

Table 6.1.3 New Students who sought admission in public funded schools in Kerala, from 2018-19 to 2023-24

Management	Standards			Total I-X
	I-IV	V-VII	VIII-X	
From 2018-19 to 2019-20				
Government and Government Aided	35,635	75,928	51,995	1,63,558
From 2019-20 to 2020-21				
Government and Government Aided	53,832	67,503	7,169	1,28,504
From 2020-21 to 2021-22				
Government and Government Aided	1,06,320	97,112	53,016	2,56,448
From 2021-22 to 2022-23				
Government and Government Aided	-11,401	56,158	37,691	82,448
From 2022-23 to 2023-24				
Government and Government Aided	-12,786	23,077	2,2437	32,728
Total new students during the last 5 years				6,63,686

Source: Directorate of General Education

Table 6.1.4 Proportion of SC & ST Students in Schools in Kerala, 2023-24(provisional)

Management	Others	SC	ST
Government	84.21	12.37	3.42
Government Aided	89.33	9.45	1.22
Private Unaided	96.05	3.50	0.46
State Average	88.27	9.86	1.87

Source: Directorate of General Education

government aided schools. Out of the total ST students, 59.77 per cent is enrolled in government schools.

Dropout rate

Kerala has achieved the distinction of having the lowest dropout rate of school students among the Indian States. As per the Ministry of Human Resource Development (MHRD) report on Educational Statistics at a Glance - 2018, the all India average dropout rate of primary students is 4.13 per cent while it is 4.03 per cent in upper primary and 17.06 per cent in secondary levels. But in Kerala dropout rate has been declining over the years and it has reached to 0.08 per cent in 2022-23. In Kerala the dropout ratios in lower primary stage and high school stages are slightly higher compared to that of the Upper Primary stage. Drop-out ratio in high school classes has declined from 0.17 per cent in 2018-19 to 0.09 per cent in 2022-23 (**Table 6.1.5**). This declining trend is seen at all stages of school education.

District-wise/stage-wise dropout ratio in schools in 2022-23 is given in **Appendix.6.1.12**. The dropout ratio of SC and ST students has significantly declined over the years. The dropout ratio of ST students is still higher than that of students from

Table 6.1.5 Stage-wise Drop-out Ratio in Schools in Kerala

	2018-19	2019-20	2021-22 *	2022-23
Total	0.12	0.11	0.04	0.08
L.P	0.12	0.10	0.03	0.09
U.P.	0.07	0.06	0.02	0.06
H.S.	0.17	0.15	0.05	0.09

Source: Directorate of General Education

* Data for 2021-22 were non-comparable owing to Covid-19.

‘others’ category (**Table 6.1.6**). Drop-out ratio among SC students in Kerala in 2022-23 is 0.06 per cent and that of ST students is 0.50.

Table 6.1.6 District-wise Dropout Ratio among students in Kerala in 2022-23

District	SC	ST	Others	Total
Thiruvananthapuram	0.01	0.00	0.02	0.02
Kollam	0.03	0.00	0.01	0.01
Pathanamthitta	0.03	0.00	0.04	0.03
Alappuzha	0.04	0.68	0.02	0.02
Kottayam	0.06	0.15	0.01	0.02
Idukki	0.40	0.55	0.23	0.28
Ernakulam	0.14	0.26	0.33	0.31
Thrissur	0.04	1.09	0.03	0.04
Palakkad	0.09	1.01	0.08	0.10
Malappuram	0.03	0.64	0.05	0.06
Kozhikode	0.02	0.26	0.07	0.07
Wayanad	0.15	0.57	0.16	0.25
Kannur	0.03	0.49	0.02	0.03
Kasaragod	0.09	0.15	0.08	0.08
State Average	0.06	0.50	0.07	0.08

Source: Directorate of General Education

The dropout ratio is highest in Ernakulam District (0.30 per cent) followed by Idukki (0.28 per cent) in 2022-23. This is due to the fact that the children of migrant workers in Ernakulam District have not returned from their home state after the covid 19 pandemic during this period. The data are, therefore, not strictly comparable with data for the previous year. The dropout ratio of SC students is highest in Idukki District (0.40 per cent) followed by Wayanad District (0.15 per cent), whereas the dropout ratio of ST students is highest in Thrissur District (1.09 per cent) followed by Palakkad District (1.01 per cent). District-wise and management-wise details of dropout among SC and ST students in Kerala in 2022-23 are given in **Appendices 6.1.13** and **6.1.14**.

Number of Teachers

The number of school teachers in Kerala in 2022-23 was 1, 57,541. Out of this 90,307 (57.32 per cent) teachers are working in aided schools and 13,759 (8.73 per cent) teachers are working in private unaided schools. The remaining 53,475 (33.94 per cent) teachers are working

in Government schools. 49.55 per cent of total teachers in the State are teaching in high schools, 25.74 per cent in upper primary schools and 24.71 per cent in lower primary schools. 75.24 per cent of total teachers in the State are women. Stage-wise and management-wise number of teachers in Kerala in 2022-23 is given in **Appendix 6.1.15**.

Inclusive Education in Schools

As per the statistics given by Directorate of General Education, there were 45 special schools functioning in Kerala in 2022-23. Total number of students in these special schools during the period was 3,012 and the number of teachers was 589. Out of the total 3,012 students, 404 are having visual disability and 2,608 are deaf and hard of hearing. Apart from this there are 330 special schools are functioning under various NGOs, LSGD and Deendayal Disabled Rehabilitation Scheme (DDRS) in the State. Also, 61,503 students with disabilities are studying in Government, aided and unaided schools all over Kerala. Among them, 36,660 are boys and 24,843 are girls. When taking the District wise details, highest number of students under IED category is in Malappuram district (8,353), followed by Kollam (6,753) and Kozhikkode (6,565). Apart from free uniform and mid-day meal, financial assistance is given for meeting the expenses towards travelling, hostel facilities, excursion for students etc,. Various programmes for people with disabilities such as barrier free campus, equipment, services from resource centres, services of resource teachers etc are also provided for ensuring inclusive education in schools.

Samagra Shiksha Kerala (SSK) also implementing various programmes for differently abled students as part of inclusive education. SSK supports them by setting up Autism centres, home-based education, adapted learning and providing equipment. Organisation of medical camp, therapeutic service, empowerment of resource teachers, distribution of aids, developing teaching learning method, providing reader allowance, stipend for girls, empowerment of parents etc, are the other different services provided by SSK for developing inclusive education.

Schools with Less Number of Students

In 2023-24, the total number of schools with average strength of less than 25 students was 961 and out of these 379 were in Government sector and 582 were in the aided sector. There were 34

Government lower primary schools having average number of students with less than 10 while the number of schools in this category was 91 in aided sector. District-wise analysis shows that highest number of schools with less number of students was in Pathanamthitta (189) followed by Kottayam (133) and Kannur (113). The highest number of schools with less students in aided sector is in Pathanamthitta (139) followed by Kannur (94). In the Government sector, Kottayam has the largest (55) number of schools with less number of students followed by Pathanamthitta (50) and Alappuzha (48). Lower primary schools constitute large chunk of the schools with less number of students. Among the government schools with less number of students, majority (92.08 per cent) are lower primary schools. In the aided sector also 88.14 per cent of schools with less students are from lower primary section. District- wise details of schools with less number of students in the State in 2023-24 are given in **Appendix 6.1.16**.

Kerala Infrastructure and Technology for Education (KITE)

Kerala Infrastructure and Technology for Education (KITE) is a State Government enterprise, set up to foster, promote and implement modernisation of educational institutions in the State of Kerala. KITE has revolutionised the education system of the State with its decade long operations and its spectrum include information and communication technology, capacity building, content development, connectivity, e-Learning, satellite based education, support and maintenance mechanism, e-Governance and also physical infrastructure up-gradation of schools. With the efforts of KITE, schools in the State are now equipped with latest ICT gadgets supported by high speed broadband connectivity, necessary digital resource portals and trained teachers and thereby having a total ICT enabled eco-system.

Achievements/ Highlights of KITE during 2022-23

Capacity Building for Teachers through the KOOL platform: KITE had introduced KOOL (KITE's OPEN ONLINE LEARNING) platform for teacher trainings, which is the first Official MOOC Course by Government of Kerala. Through the KOOL platform, over 10,000 teachers have completed various courses during 2022-23.

eCube English eLanguage Lab: The E3 (Ecube) English eLanguage Lab programme for improving

the English language proficiency of students was introduced last year. E3 English have three components, viz e-Library, e-Language Lab and e-Broadcast. In 2022, 60,751 Primary teachers were imparted with eCube Language Lab training.

Satyameva Jayathe: Digital Media and Information literacy training-As part of the Digital media literacy campaign, specific training programmes and refresher trainings were conducted for students and training modules were developed. As on date, training has been given to 19,10,374 students.

Little KITES clubs: The Little KITEs IT Clubs have been expanded to 2164 schools. Over 3.57 lakh students have been part of this programme so far.

Cyber Safety training for Mothers by Little KITES members: The cyber – safety awareness programmes for over 4 lakh mothers, were conducted during May- August 2022, as part of the 2nd 100 days programme of the State Government.

Plus One Revision classes and Live Phone-in programme in KITE VICTERS channel: In May 2022, as part of First Bell 2.0, KITE started the telecast of Revision classes for Plus One through its KITE VICTERS educational channel.

Young Innovators Programme for school students: Government authorised KITE to provide training on Young Innovators Programme (YIP) for Students of Class 8 to 12 (Little KITEs members) in association with KDISC. 14 lakh students from Class 8 to 12 were trained during Oct 2022- Jan 2023.

Sabitham mentoring portal: The Sabitham mentoring portal developed by KITE with academic support from SCERT was launched in June 2022, with the objective of mentoring the students by teachers so as to know them better and contribute to their development.

'KITE Board': In October 2022, KITE launched 'KITE Board' a multi-purpose, device independent, FOSS based, interactive tool for Digital Education. With the new application, laptops in schools transform as Interactive Boards. The classroom activities such as science experiments can be captured using the built-in camera of Laptop which can then be shown through the KITE Board.

Samagra Shiksha, Kerala (SSK)

Samagra Shiksha Kerala, the Centrally Sponsored Scheme, has been instrumental in popularizing the General Education Rejuvenation campaign. From November 1, 2018, the Integrated School Education Project titled Samagra Shiksha Kerala (SSK) project was launched in the State by merging the Centrally Sponsored Schemes Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and Teacher Education (TE) on the orders issued by the Central Department of Education and the Government of Kerala. Samagra Shiksha Kerala has been able to lead extensive management activities by coordinating various levels from Pre-primary to Higher Secondary. The decentralized implementation of projects during this period was carried out by the strengthening of 168 Block Resource Centers (BRCs) and 1385 Cluster Resource Centers (CRCs). Samagra Shiksha Kerala has undertaken a number of activities to ensure equality, equity of opportunity and quality, which are the second generation issues in the field of education.

All the activities by the SSK are undertaken in order to achieve the broader objectives of Pothu Vidyabhyasa Samrakshana Yajnam and to bridge the academic lacuna for ensuring age appropriate education as envisaged in the Right to Education Act.

Major Initiatives/achievements of Samagra Shiksha Kerala in 2022-23

Science Park: Samagra Shiksha Kerala launched several programmes for the enhancement of scientific attitude among students. Establishment of Science Park in selected schools is one of the prestigious activities of SSK. Through Science parks students got hands-on experience on the subject. They could understand the concepts of science with the support of the equipment set up in the park. For this the teachers were also fully equipped to use the devices properly.

Empowering children with special needs: Samagra Shiksha Kerala, through Inclusive Education, endeavours to promote activities that enhance the confidence and interaction of children with special needs with other children. The 'Thudikottu 2023' programme, a camp organised for four days was a fresh initiative aimed at providing distinctive learning experiences to children with special needs. Thudikottu 2023' programme

Box 6.1.1 Robotics under KITE

Under the Little KITE programme implemented by KITE, Robotics is an important training component, through which students in public schools would get an opportunity to get hands-on training in latest technological areas such as Robotics, IoT, Artificial Intelligence etc. KITE has deployed 9000 Robotic Kits to 2000 schools where Little KITES IT Clubs are functioning. Hon. Chief Minister had inaugurated the distribution of Robotic Kits on 8th December 2022.



Each Robotic Kit deployed to school comprises of Arduino Uno Rev3, LEDs, SG90 Mini Servo Motor, LDR Light Sensor Module, IR Sensor Module, Active Buzzer Module, Push Button, Bread Button, Jumper wires and Resistors. In order to ensure the proper usage of these kits in schools, KITE has trained 4000 KITE Masters in schools on how to use this equipment in schools. Using these KITE Masters, KITE has imparted training to 60,000 students, who would in turn train a total of 12 lakh students.

In Robotics, the Little KITES members are trained with the different aspects of robotics learning, which can be classified into different sections such as the design of the equipment the creation of documents and the required codings to make it work. The school IT textbooks feature the basics of programming learning and the advanced activities and implemented through the Little KITES IT clubs. Through Robotic training, students can learn and acquire different skills and abilities in designing of robots and creating their working usage. It further introduces the basic aspects of robotics which help the students in acquiring different skills such as mathematics, engineering, communication skills, creative thoughts along with improved science learning.

Source: KITE, 2023

served as a remarkable platform for interaction and engagement for children with special needs and their caregivers.

Skill Development Centre: This project aimed to empower our children to attain knowledge. The goal was to create a future society that lives with confidence in its knowledge and abilities, actively participating in societal development.

Foot prints - A Regional History Documentation: The project was for the students from upper primary and high school divisions under general education in each district. Research-based activities were conducted to evaluate historical significance at various places, personalities, monuments, historical events with cultural significance, arts, literature, etc.

Craft 2023 - Nurturing Skills and Talents in Public Schools: Craft 2023 is an ambitious project initiated by Samagra Shiksha Kerala to foster the skills and talents of students of grades 6, 7 and 8 in public schools. Its main objectives were to identify and nurture the special abilities and interests of children, promote dedicated learning, instill good health practices, and cultivate a work-oriented mindset.

Nipun Bharat Mission Enhancing the competencies in literacy and numeracy: Under the leadership of the Central Government, the most significant and prominent initiative in Kerala for comprehensive education is the Nipun Bharat Mission. The mission aims to ensure proficiency in basic language and mathematics for primary class students by the year 2025. Kunju Vayana, Kunju Ezhuthu, Hello English, Malayalathilakkam, Classroom Library, Measure and Learn, Ullasaganitam, Ganitha Vijayam, DIGI Showcase, S.M.C. meetings, Quiz Programmes, Ganitha Park, Empowering Parents, and Poster Making are some of the activities.

Festival of Stories (Kadholsavam): Storytelling is one of the best strategies that can be applied in preschool classes. To ensure the basic skill development of preschool children, Samagra Shiksha Kerala initiated a programme called 'Kadholsvam' (Festival of Stories) by incorporating various possibilities of storytelling. 'Kadholsavam' is the first of ten festivals being celebrated in the preprimary section this year.

SEVAS: The activities of SEVAS were to encourage children to attend school regularly, reduce dropout rates, improve their academic performance, and

contribute positively to society and it focused on different aspects such as financial support, social development, and cultural enrichment. 40 SEVAS paid special attention to areas like coastal and forest regions which lacked the facilities of proper education. Additionally, it addressed issues like child labour and drug abuse.

Ullasaganitham: Ullasaganitham is a programme implemented by Samagra Shiksha Kerala in classes I and II ensuring fundamental skills in learning mathematics. It helps the students to understand mathematical concepts through games.

Varnakoodaram: The STARS project Varnakkoodaram focused on revamping traditional teaching methods by incorporating innovative and interactive elements in selected preprimary sections of primary schools. Thirteen different areas were set in the classroom for the holistic development of the preprimary children.

State Council of Educational Research and Training (SCERT)

The State Council of Educational Research and Training (SCERT), Kerala is an autonomous institution of the department of General education, Government of Kerala entrusted with planning, implementation and evaluation of all academic programmes from pre-school to higher secondary levels. The main activities are developing curriculum for school classes from pre-primary to higher secondary, developing text books, teacher texts, assessment strategies, organising in-service teacher empowerment programmes, documentation and dissemination of activities, conducting researches and publishing research reports, promoting non-formal education, special education and population education, promoting art education, health education and vocational education.

School Curriculum revision is one of the main responsibilities of SCERT. The Government of Kerala has decided to revise the school curriculum in 2022. The school curriculum framework was last developed in 2007 after the National curriculum framework developed in the year 2005. The SCERT has initiated the process of revision of school curriculum by forming the State curriculum Steering Committee, Curriculum revision core committee and 26 focus groups. The draft of the position papers of the 26 chosen areas was developed so far.

Some of the major achievements in 2022-23 are the following;

- The institution developed the module for 'Lahari Mukta Keralam' and imparted training for the public campaign organised by the Government of Kerala
- The assessment cell established at SCERT Kerala conducted the State Achievement Survey (SAS) for classes 3, 5 and 8.
- A national workshop was held to prepare guidelines for gender auditing of text books. The gender auditing of selected text books is in progress.
- Consultative meetings were held with two teams of Finland separately on school education reforms.
- The innovative academic practices of schools were shortlisted, documented and disseminated as 'Mikavu' a programme to highlight the best practices of selected schools.
- The Kerala School Education Congress (KSEC-2023) was held for the first time in Kerala in 2023 at Thiruvananthapuram.
- Tools were developed for assessment of intellectually challenged children (6-11 years) under EPICC (Evaluation Programme for Intellectually Challenged Children)

Higher Secondary Education

Higher secondary courses were introduced in the State in 1990-91 to reorganise the secondary level of education in accordance with the National Education Policy 1986. There are 2,077 Higher Secondary Schools (HSS) in 2023 in the State. Out of these 819 (39.4 per cent) are Government schools, 846 (40.7 per cent) are aided schools and the remaining 412 (19.9 per cent) are unaided schools. Among the Districts, Malappuram has the largest number of higher secondary schools (248) in the State followed by Ernakulam (209) and Thrissur (204).

There are 7,220 batches of higher secondary classes in 2023. The total intake in higher secondary schools was 3, 84,556 in 2022-2023. Malappuram had the largest number of batches (1,065) with highest enrolment of 62,546 students. District wise/management-wise number of HSS and number of batches are given in **Appendix 6.1.17** and District wise enrolment of students in HSS are given in **Appendix 6.1.18**.

The pass percentage of students in higher secondary courses in 2022-23 was 82.92 per

cent. 3,13,382 students were eligible for higher studies, out of which 1, 74,124 were girls and 1, 39,258 were boys in 2023. The details are given in **Appendix 6.1.19**. The pass percentage of SC students during the period was 60.89 per cent and that of ST students was 58.60 per cent. Details are given in **Appendices 6.1.20 and 6.1.21**.

Vocational Higher Secondary Education

Vocational higher secondary education was introduced in the State in 1983-84. Vocational higher secondary education in the State imparts education at plus two level with the objective of achieving self/wage/direct employment as well as vertical mobility. In 2023-24, there are 389 Vocational Higher Secondary Schools (VHSS) in the State with a total of 1,101 batches. Out of these 261 are in the Government sector and 128 in the aided sector. Kollam (52) followed by Thiruvananthapuram (41) has the largest number of vocational higher secondary schools in the State. District wise details of VHSS and courses in 2023-24 are given in **Appendix 6.1.22**. 78.39 per cent of students were eligible for higher education in VHS examination in 2023 March. The number of students who appeared and those who passed vocational higher secondary examination from 2018 to 2023 and the results of school going students (2018-2023) are given in **Appendices 6.1.23 and 6.1.24**.

Higher Education

Any assessment of education in Kerala must essentially consider the outstanding successes in achieving near-total literacy, universal enrolment of children at the primary level, rapid decline in the number of dropouts at the secondary level, and the availability of educational institutions in the immediate neighbourhood of most households in urban and rural areas. Though these achievements have received national and international acclaim, it is increasingly understood that we have several miles to go to make our education system more robust and effective. As Kerala resolves to evolve as a Knowledge Society, enhanced investment and reforms in education have become very important. The 14th Five Year Plan envisages overall improvement of the education sector, with due emphasis on general education and higher education.

Improvement of the higher education in the state has been the most important agenda of the government, as evident from its decision to

constitute three commissions on higher education to make recommendations on the reforms in the sector. Though Kerala has consistently tried to develop a higher education system that is inclusive and universally accessible, it is becoming more and more evident that serious interventions are still required to enhance academic quality, inclusiveness, and equity. Moreover, the higher education system in the state needs to be modernised to align itself with global standards and changes. It is also important that the Higher Education Institutions should be oriented adequately to enhance efficiency and responsiveness. Transformation of the state into a Knowledge Economy also calls for better contribution of our higher education institutions to the economic development of the state through result oriented research and development, transfer of technology and training. An overview of the higher education sector of the state is given below:

Universities and Collegiate Education

Kerala has 14 State universities, out of which four (Kerala, Mahatma Gandhi, Calicut, and Kannur universities) are general in nature. Rest of the universities viz. Sree Sankaracharya University of Sanskrit, Thunchath Ezhuthachan Malayalam University, Cochin University of Science and Technology, Kerala Agricultural University, Kerala Veterinary and Animal Science University, Kerala University of Health Sciences, Kerala University of Fisheries and Ocean Studies, Kerala Technological University offer specialised courses in specified subject areas. Sree Narayana Guru Open University, the only Open University in Kerala, established in 2020 with headquarters at Kollam has the mandate of open education of all categories in various disciplines. The Digital University established in 2020, which is the first of its kind in the country, is meant to conduct academic programmes and research on cutting edge digital technologies and emerging knowledge domains. The National University of Advanced Legal Studies (NUALS), established in 2005 is the only university under state government for legal education. Besides these, a Central University located in Kasaragod District, is also functioning in the State. Premium national level institutions like IIT Palakkad, IIM Kozhikode and AIISER Trivandrum are also functioning in the state.

Arts and Science Colleges

As per the status in 2022-23, there are 230 arts and science colleges in the State which

comprise 164 Government aided colleges and 66 government colleges. Apart from these, various un-aided/self-financing arts and science colleges affiliated to universities are also functioning in the State. Ernakulam and Thiruvananthapuram have the largest number of arts and science colleges (26) in the State followed by Kottayam (24). Thiruvananthapuram and Kozhikode have the largest number of government colleges (10). District-wise details of arts and science colleges in the State in 2022-23 are given in **Appendix 6.1.25**. The details of self-financing and autonomous colleges in the State are given in **Appendix 6.1.26**.

Enrolment in arts and science colleges

A total of 3.53 lakh students had enrolled in various arts and science colleges (excluding unaided colleges) for various courses under the four general universities in Kerala in 2022-23. Of this, 2.30 lakh (65.3 per cent) are girls. (**Table 6.1.7**)

Out of the total students enrolled for degree courses, 47.8 per cent is enrolled for B.A degree courses, 36.7 per cent for B.Sc and 15.6 per cent for B.Com degree courses. Girls constitute 65.4 per cent of total enrolment for degree courses. Gender-wise distribution of enrolment reveals that proportion of boys in B.Com course is higher than that in B.Sc and B.A courses (**Figure 6.1.3**).

Regarding the courses, 27 subjects are offered for BA degree programmes. Among them, Economics has the largest enrolment of students followed by English. In B.Sc programmes 31 subjects are offered and Physics has the largest student enrolment followed by Mathematics. Details of enrolment of students in arts and science

Table 6.1.7 Enrolment of Students in Arts and Science Colleges in number and per cent

Course	Total	Girls	Boys	per cent of Girls
B. A.	1,46,804	94,627	52,177	64.5
B.Sc.	1,12,604	76,069	36,535	67.6
B.Com.	47,863	30,229	17,634	63.2
Total	3,07,271	2,00,925	1,06,346	65.4
M.A.	17,240	11,123	6,117	64.5
M.Sc.	21,232	13,335	7,897	62.8
M.Com.	7,131	4,967	2,164	69.7
Total	45,603	29,425	16,178	64.5
Grand Total	3,52,874	2,30,350	1,22,524	65.3

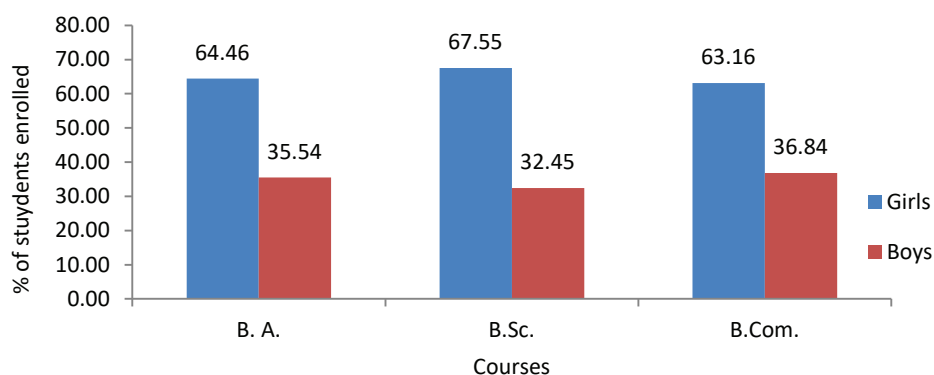
Source: Directorate of Collegiate Education

colleges for B.A, B.Sc and B.Com are given in **Appendices 6.1.27, 6.1.28** and **6.1.29**. In post graduate courses, 23,352 students were admitted in 2022-23. As much as 65.7 per cent of the students enrolled in PG courses are girls. Details of enrolment of students in arts and science colleges for M.A, M.Sc and M.Com courses are given in **Appendices 6.1.30, 6.1.31** and **6.1.32**.

Scheduled Caste and Scheduled Tribe Students

It is reported that in 2022-23, a total of 32,880 Scheduled Caste (SC) students were enrolled in degree and post graduate course, which constitute 9.32 per cent of the total enrolment. When compared to previous year there is slight increase in the enrolment of Scheduled Caste (SC) students, as in 2021-22 it was 9.28 per cent. The number of Scheduled Tribe students admitted to degree and post graduate courses in the State

Figure 6.1.3 Gender-wise proportion of students in degree courses in 2022-23



Source: Directorate of Collegiate Education

Table 6.1.8 Percentage of SC and ST students in higher education in Kerala in 2022-23

Course	Total	% of SC	% of ST	% of Others
B.A	100	7.73	2.44	89.83
B.Sc	100	11.62	1.18	87.21
B.Com	100	8.62	2.29	89.09
Total	100	9.29	1.95	88.75
M.A	100	9.32	6.37	84.30
M. Sc	100	8.78	3.99	87.22
M.Com	100	11.99	7.60	80.41
Total	100	9.49	5.46	85.05
Grand Total	100	9.32	2.41	88.27

Source: Directorate of Collegiate Education

in 2022-23 is 8,496, which form 2.41 per cent of the total enrolment in the state. The enrolment of Scheduled Tribe students also shows a slight increase than 2021-22. During 2021-22, it was 2.32 per cent.

Details of the enrolment of SC and ST students in arts and science colleges in Kerala in 2022-23 is given in **Appendix 6.1.33**. Percentage wise distribution of SC/ST students is shown in **Table 6.1.8** and the distribution of SC and ST students enrolled in various undergraduate and post graduate courses in the State is also shown in **Figure 6.1.4**.

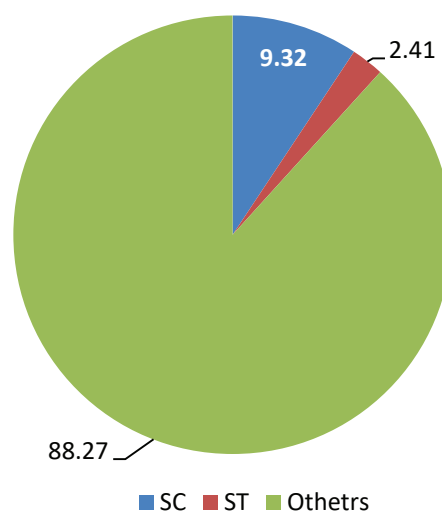
Scholarships

Students in Kerala availed 16 types of Central and State sector scholarships in the year 2022-23. 18,548 students were selected for District Merit Scholarships and Kerala State Suvarna Jubilee Scholarship is availed by 3,327 students. Central sector scholarships were provided to 9,770 students in 2022-23. The details of different types of scholarships offered from 2018-19 to 2022-23 are given in **Appendix 6.1.34**.

Teachers

The number of teachers in arts and science colleges in the State in 2022-23 was 10,747, of whom 57.4 per cent are women. Details of the number of teachers in arts and science colleges across different universities in the state from 2018-19 to 2022-

Figure 6.1.4 Distribution of students in undergraduate and post graduate courses in 2022-23



Source: Directorate of Collegiate Education

23 are given in **Appendix 6.1.35**. It is estimated that 4,477 (41.7 per cent) teachers in arts and science colleges in the State have Ph.Ds. Details are given in **Appendix 6.1.36**. A total of 3,985 guest lecturers were working in Government and Aided arts and science colleges of the State in 2023. Details are given in **Appendix 6.1.37**.

Major initiatives of Collegiate Education Directorate

Hunger free campus: The project “Hunger Free Campus” is being implemented with the approval of the government from the financial year 2022-23 to mold a healthy young generation by providing quality low-cost food to around 30,000 students studying in government colleges under the Department of College Education. At present, the canteens in the colleges under the department are being run through Kudumbashree units. Colleges identify economically backward students who come from adverse living conditions and provide midday meals to those students at a rate of Rs 10/- through a special coupon/token. This amount is fully sanctioned to the canteens to cover the loss incurred by the canteens.

Mini Industrial Unit: The Mini Industrial Unit started at RLV Music & Fine Arts College, Tripunithura is a new initiative formed under the College Education Department to raise the young generation to the world of industries. As part of the mini industrial unit at RLV college it has been decided to make sculptures from waste materials.

Box 6.1.2 Major achievements in Higher Education in Kerala during 2022-23

Higher education in Kerala has been subject to significant policy shifts. Government of Kerala has placed special emphasis on improving the quality of higher education in the State as part of its policy to build and nurture a knowledge economy. Three Commissions have been constituted at the State level for exploring reform initiative in Higher Education System of the State with the objectives: i) to examine important aspects of the existing system of higher education in the State, particularly keeping in view the larger objectives of transforming the State into a knowledge society and developing a knowledge economy, ii) to review the present state of examination in the Universities and higher education institutions of Kerala and iii) to examine the laws, statutes, regulations and ordinances of universities, in the context of the regulations of U.G.C., A.I.C.T.E. and N.C.T.E., and to formulate proposals for revising them, keeping in view the larger objectives of transforming the State into a knowledge society. All the three commissions have submitted their reports to revamp the sector, with concrete recommendations. The commissions have thoroughly examined the existing national and international situation, and extensively consulted experts and various stakeholders. The Government is in the process of examining the recommendations and implementing them on a priority basis.

The National Assessment and Accreditation Council is a government organization in India that assesses and accredits Higher Education Institutions. It is an autonomous body funded by the University Grants Commission and headquartered in Bangalore.

In 2022, the University of Kerala secured the highest NAAC grading of A++ with a Cumulative Grade Point Average (CGPA) of 3.67, the highest grading and points obtained by any university in the state. The university had bagged the first chancellor's award for the best university in the state of Kerala in 2015. The university has also ranked 24th among universities (overall in India as per the National Institute ranking framework (NIRF) for the year 2022.

The Mahatma Gandhi University is accredited with A grade with a CGPA of 3.24 by the NAAC in 2017. In 2023 the university has secured 31st rank in the university level and 52nd rank among higher education institutions (overall in India as per the National Institute ranking framework (NIRF). The university also received the chancellor's award for the best university of excellence in Kerala in 2015-16, 2017-18 and 2019-20. The university library bagged Library Technology Conclave (LTC) 2019 Koha Library award for the best Koha implementation at national level. The university also secured 15th rank among Indian universities in the World University ranking in 2022.

Calicut University is the largest University in Kerala, with more than 25 departments of postgraduate studies and research. The University of Calicut has improved its grade to 'A+' with 3.45 points out of 4 in the recently held fourth cycle of assessment by the National Assessment and Accreditation Council (NAAC). The university has also ranked 70th among universities (overall in India as per the National Institute ranking framework (NIRF) for the year 2023. Calicut University has also been ranked under the 401-450 band by the QS Asia University Ranking 2022 and 45th out of 100 universities in US India Universities.

The Kannur University is accredited with B++ grade with 2.85 points in the second cycle of accreditation by the NAAC in 2021. Sree Sankaracharya Sanskrit University is accredited with A grade with a CGPA of 3.24 by the NAAC and CUSAT with A+ grade with 3.39 points. CUSAT has also ranked 37 among universities (overall in India as per the National Institute ranking framework (NIRF) for the year 2023.

Source: Collegiate Education Directorate & Universities

Making the concept of “Zero Waste” operational is currently becoming a challenging goal.

Academic enhancement programmes: The department has conducted various academic enhancement programmes to enhance academic quality. The major programmes are: Scholar Support Programme, Walk with Scholar and Fostering Linkages for Academic Innovation and Research (FLAIR) for ensuring academic

excellence. Another initiative is the proposal to establish Centres of Excellence in higher education institutions. This project intends to bring in the best resources in the country and the state to conduct research on emerging knowledge domains and support them to develop centers of advanced knowledge. As part of implementing the reports on higher education reforms, it is proposed to implement 7 centres of excellence in the State

and the DPRs are being formulated. Apart from these Centres of Excellence are functioning under different universities. Performance Linked Encouragement for Academic Studies and Endeavour (PLEASE) is a project to motivate the academic community to take up new and complex research projects and ideas. This project promotes exploration of innovative ideas for research and other academic activities in government arts and science colleges, engineering colleges, and universities. During 2022-23, six colleges under different universities benefitted through this programme.

CM's Prathibha Scholarship Award: As a part of the Chief Minister's 100 days programme, Prathibha Dhan Sahaya Scheme is an innovative scheme planned by the Department of Higher Education to award 1000 talented students who are economically backward and 1000 scholarships were awarded during 2022-23.

Connect Career to Campus: Through this project, "Earn While You Learn" project under College Education Department and "Connect Career to Campus" project of Kerala Knowledge Economy Mission have been combined to create employment opportunities for all college students in Kerala.

Jeevani - College Mental Awareness Programme:- Through this programme all the students of colleges will get psychological support thereby promoting positive environment in the institutions by making use of jeevani counsellors. All the colleges under government and aided sector are beneficiaries of this programme.

Online Resource Initiatives of Collegiate Education (ORICE) Centres for Government Colleges :- As part of setting up of country wide class rooms, ORICE sub centers with one way and two way communications were installed in government colleges. Eminent scholars from various research institutions and universities at national and international levels are invited as visiting faculty as part of the visiting scholars programme. The lectures and classes of these scholars are recorded and transmitted through ORICE telecasting studio.

Major programmes initiated by the Universities in Kerala

- *IT Enabled Academic Initiatives :* Universities, to a large extent, are IT enabled and digitally

connected, with an Artificial Intelligence based Tier-3 Data Centre. Universities have developed own interfaces, tailor made for their specific needs based on open source platforms, such as LMS (Moodle based), UoK Meet for online meetings and classes, Koha based Uni@Home for integrated libraries, KU Padasala (YouTube based video archive), Safe Exam Browser for secure online examinations and assessment, Acharya mobile app for consolidating teachers' contributions, and Virtual School for online courses. Teachers make use of these ICT facilities and other external online resources such as e-journals, e-books, online lectures, e-database etc extensively. The significance of online resources has increased considerably since the pandemic, which implies the need to initiate massive digital content generation, establishment of infrastructure facilities, and better connectivity.

- *Automation/e-governance:* The administration, academic, finance, planning, and examination sections of all the universities are automated fully to ensure speedy and efficient transactions by any stakeholder. However, the automation processes require to be improved further to address every activity that has a public interface. This would improve the responsiveness of the academic institutions and make the processes like result declaration hassle free. The next generation of reforms in this sector would focus on better sophistication of the enterprise resource planning applications and much greater responsiveness to the requirements of students
- *Virtual Learning Centre:* Kerala University has recently started a virtual learning centre <http://www.hpc.ku.in/moodle> on experimental basis and has conducted some online courses successfully. This is based on the free and open source software learning management system written in php and distributed under the GNU general public license. The facilities at the centre can be used for blended learning, distance education, flipped classroom and other e-learning projects. Virtual learning centres in other universities are being strengthened by diversifying their operations. Several colleges have also established similar facilities.
- *Green energy initiatives:* Universities and other higher education institutions have embarked on energy efficient green campuses, with provisions for tapping solar energy, and efficient water harvesting and waste management. For instance, a 100 K W Grid connected Solar Photo Voltaic Power Plant installed on the rooftop of the Golden

Jubilee Building of the Kariavattom Campus, that generates 146000 units of electricity in a year. This is in accordance with the 'GO GREEN' initiatives of the University of Kerala and it is unique and one of its kind in Indian subcontinent.

- *International faculty under Global initiative of Academic Networks (GIAN)*: With the help of MHRD, Government of India, three courses by International faculty under Global initiative of Academic Networks (GIAN) schemes have been sanctioned in the Kerala University.
- *Innovation and Incubation Centres*: All the major universities and specialised universities have established innovation and business incubation centres. Kerala University Business Innovation and Incubation Centre (KUBIIC) has been established and eleven start-ups have been granted support. Recently, KUBIIC after conducting an online call for ideas hackathon competition – FLY 2021 (From Lab to Society), selected 52 new startups in the ideation phase (42 from the Departments and 10 from the affiliated colleges of the University of Kerala).
- *Computerization of libraries*: Almost all the library operations in Kerala University are computerized using Libsys-4 software. Database of the entire members has been created and it is being updated daily. Borrow's tickets are automatically generated. RFID based Smart Card system has been implemented for the membership categories like eminent, research scholars and teachers. All the sections are connected through LAN.

The implementation of Integrated Library Management system using the open-source platform 'KOHA', which helps to augment the entire library systems in Kerala University, has been completed. With the introduction of the "Koha Integrated Library Management System" in the entire library system, students are able to access the services of different libraries under the University, using RFID-enabled single card. Moreover, it can be used for other academic activities also, which ultimately results in achieving the objective 'One Campus, One Library System' in Kerala University.

- *Student Life Cycle Management System (Examination Software)* : The project 'Student Life Cycle Management System (Examination Software)' in Kerala University envisages in developing a comprehensive software solution for managing the "Life Cycle" of a student, right from the starting of the admission procedure, to

the issuance of final certificates. And the scope covers all the cycles, Viz., Student Registration, Admission, Student services like Matriculation and Migration, Eligibility and SDC, Exam Registration, Verification CA Mark, Attendance, Teachers Index card, Online Question papers, Hall tickets, QR coded false numbering, Online Examination, Camp management, Online evaluation and QR code system, Tabulation, Results Publication, Revaluation, Consolidated mark list, issuing of Degree certificates and all other relevant Certificates, is expected to be commissioned by December 2022.

- *Convergence Academia Complex in M G University*: Completion of the construction of "Convergence Academia Complex" in M G University was one of the main achievements during the Thirteenth Five Year Plan Period. Convergence Academia Complex is designed to promote and co-ordinate large scale interdisciplinary research programmes between the centres, MNGU research schools, NGOs, research institutions and industries in India and abroad.
- *Automated Learning and Evaluation Management System and Infrastructure facilities for Student Services in MG University*: "Introduction of Automated Learning and Evaluation Management System and Infrastructure facilities for Student Services in Directorate for Applied Short Term Programmes" was one of the major attempt during the Thirteenth Five Year Plan Period. The objectives of this project was to develop an online learning management system (LMS), to develop in interactive student information system to streamline the process of student admissions, to develop an effective system for online examinations along with the setting up of an online examination infrastructure, to create a call centre for managing and answering students queries.
- *'Digitization of Tabulation Registers'* – Mahatma Gandhi University has digitized all the examination records of its students, since its inception in 1983. Those records which were on the verge of total loss are also now available in the digital format.
- *'NIRMALAM - MGU'* a project dedicated to green vibes has its roots in the Green Protocol campaign launched by the State Government in the year 2018. Successful recycling or upcycling of all the solid waste and transforming all biodegradable waste into value added products such as all-crop-friendly compost is a major

achievement of this project.

- 'MGU DASP Online Examination Centre' was made functional. 100 students can attend online examinations at a time in this centre. During the first phase, the facility of automated student life cycle management through custom developed Automated Learning and Evaluation Management System (ALEMS) was developed.
- *Bridging Digital Divide initiative by APJ Abdul Kalam Technological University*: As covid-19 scenario had warranted technology-assisted teaching-learning process and the realization of the prevailing digital divide among students, APJ Abdul Kalam Technological University's initiative has helped the students, belonging to the weaker sections of the society, from all the affiliated colleges of the University, with laptops for which an amount of Rs 410.39 Lakhs was utilized from the budget allocation during 2021-2022.
- *Technology Business Incubation & Startup Initiatives in CUSAT*: CUSAT is the first state university in Kerala to establish a 4000 sq ft Technology Business Incubator (TBI) named CITTIC with a grant of Rs 1 Crore from the Government of Kerala. There are 50 startups mainly run by CUSAT students and Alumni working in CITTIC. The centre liaisons with academicians and industry to help incubates to grow their business duly supporting them with required assistance. 19 firms incubated with CUSAT TBI have won startup grants from various agencies including Nidhi Prayas, BIRAC, KSUM and Maker village.

Kerala State Higher Education Council

Recognizing the importance of State-level planning and co-ordination for the effective implementation of national level policies in higher education, the National Policy on Education, 1986 suggested that State Council of Higher Education be set up in all States. It was based on this, the Kerala State Higher Education Council came into existence on March 16, 2007. The Council is regarded as the principal higher education think tank of the State and it provides evidence based policy advocacy to bring about equity, access and excellence in higher education sector. The major responsibilities of the Council are:

- Act as an agency for formulating higher education policies of the State
- Render advice to the Government, universities and other institutions of higher education in the State

- Co-ordinate the activities of various agencies of higher education in the State
- Initiate new concepts and programmes in higher education
- Provide common facilities in higher education without impinging upon the autonomy of other institutions of higher education

Major activities of the Higher Education Council during 2022-23

Cluster of Colleges: Cluster of Colleges is an arrangement for mutual sharing of resources, human and physical, among neighbouring colleges with a view to optimum utilization of the available facilities for enhancing enrolment and quality of education. Three Clusters viz, Thiruvananthapuram, Ernakulam and Kozhikode are functioning from 2009 onwards and they consist of five, four and five member colleges respectively. New clusters namely Thalassery, Kasaragod and Palakkad regions have been initiated during 2022-23.

State Assessment and Accreditation Centre (SAAC): The Council has formulated the concept of State Level Accreditation mechanism namely SAAC in line with the suggestions of National Assessment and Accreditation Council and University Grants Commission with the objective of accomplishing the task of assessing and grading the institute affiliated/educational institutions. During 2022-23, assessment process of 3 colleges was completed.

Higher Education Scholarship Scheme: Under this scheme, 1000 fresh scholarships are given every academic year to meritorious students to pursue nonprofessional undergraduate courses. The scholarships of the awardees so selected would be renewed in the ensuing years till they complete their post-graduation. The number of beneficiaries of higher education scholarships in under-graduate and post-graduate section during 2022-23 are 2,278 and 552 respectively with a total expenditure of Rs 669.42 crore.

e-Journal Consortium

It is the facility to provide the academic community with free access to e-journals across institutions in the country. This is done by Information and Library Network Centres through which expenditure can be reduced considerably. Almost all the journals and databases in relevant disciplines can be subscribed at a negotiated cost,

fully funded by the Government/Universities. Kerala State Higher Education Council acts as a nodal agency in the State with the participation of all the Universities in the State.

Kerala Academic Libraries Network (KALNET): KALNET (Kerala Academic Library Network) is a platform for academic resources of libraries which has developed to provide access to the library collections across the university libraries in the State. It was launched in Feb 2021. The platform brings together 15 lakh titles across 147 libraries of 14 universities.

Erudite Scheme: Erudite is a flagship programme of the government, which was introduced to improve the quality of education and research in the universities of the State. It enables the academic community to interact with outstanding scholars around the world, including Nobel laureates. KSHEC is acting as the coordinating agency for the implementation of the scheme through various universities and colleges in the State. Around 220 National and International Scholars, including Nobel laureates, have taken part in various programmes organized by universities and colleges under the Erudite Scheme. In 2022-23 alone, 36 scholars have been invited under this scheme.

Kairali Research Awards: Government of Kerala with an aim to encourage the most eminent research scholars and research pedagogues of the state have instituted Kairali Research Awards from 2017-2018 and have authorised the State Higher Education Council (KSHEC) as the secretariat for

the Kairali Research Awards. Since its inception in 2018, the Council has completed the process of selection of awards in three times and those awards have been distributed to the recipients.

Chief Minister's Nava Kerala Post- Doctoral Fellowship scheme: The Government of Kerala introduced the prestigious Chief Minister's Nava Kerala Post- Doctoral Fellowship scheme for meeting innovation and development needs of the State through promoting quality research spanning the sectors like social, economic, agriculture, development and industry. During the first phase (2021-22), 77 CMNPF were awarded. The second phase (2022-23) of CMNPF were awarded to 68 candidates in August 2023.

Kerala Council for Historical Research (KCHR)

KCHR, established in 2001, is an autonomous academic institution committed to scientific research in archaeology, history and social sciences. Research, including in-house and funded projects, maintaining libraries and resource centres, documentation, publication, training and running a wide variety of fellowship programmes are amongst the major areas of KCHR's activities. KCHR aspires to integrate advanced research and scholarship with historical social consciousness through its activities. The Kerala Council for Historical Research has two distinct campuses – one in Thiruvananthapuram and the other in Pattanam.

Major activities of KCHR during 2022-23

Various research projects undertaken by the council includes flood archives and memories, visuality, cityscapes, public history: ways of thinking contemporary Kerala, history of education in Kerala, post excavation studies on Pattanam archaeological findings, post-colonial studies etc. KCHR started a School of Epigraphical Studies at the Pattanam campus on 12 February 2021. In 2022, KCHR signed an MoU with University of Leiden, Netherlands and the National Archives of Netherlands as part of the Cosmos Malabaricus Project that focuses on the study of early modern Dutch Script.

Kerala State Skill Development Project and Additional Skill Acquisition Programme (ASAP)

Additional Skill Acquisition Programme (ASAP) was initiated in 2014 as an ADB-funded project under the Higher Education Department to impart skill training to higher secondary and

Table No. 6.1.9 Number of research awards distributed

S. No.	Type of awards	No. of awards distributed
1	Gaveshaka Puraskaram	10
2	Gaveshana Puraskaram	8
3	Kairali Lifetime Achievement Award	7
4	Kairali Global Lifetime Achievement Prize for Researchers (abroad)	1
5	Kairali Global Lifetime Achievement Prize for Researchers (within India)	4

Source: Kerala State Higher Education Council

undergraduate students. It has trained more than 2 lakh students through its Skill Development Centres and Community Skill Parks in offline mode from 2014 till 2020. Now skill training is imparted through online means also. In January 2021, it was converted into a Section-8 company named ASAP Kerala by the Government.

Major achievements/ performance of ASAP during 2022-23

ASAP Kerala was felicitated by FICCI for 'Best Practices of Skilling and Employability' : The Kerala State Council of the Federation of Indian Chambers of Commerce and Industry (FICCI) recognised ASAP Kerala for 'Best Practices of Skilling and Employability' at its maiden 'Made in Kerala' Awards 2022 for its contribution to the state in the skilling ecosystem and enhancing the employability of Kerala's youth.

K-Skill Training Campaign: ASAP Kerala's K-Skill campaign for the year 2022-23 started in March 2022. It ran through 4 windows with a duration of 3 months and ended in February 2023. 104 batches were formed with 3965 students and 38 courses were completed with 1409 students up to December 2023. ASAP Kerala has received scholarship assistance from the Kerala Knowledge Economy Mission (KKEM) for training candidates in IT-ITeS and media sectors.

Centres of Excellence: In order to guarantee decent jobs through training, curricula that meet international standards, promotion of the product development ecosystem among start-ups and MSMEs, and excellent industrial networking, ASAP Kerala established Centres of Excellence (CoEs) with industrial-grade labs. Following are the six Centres of Excellence that ASAP Kerala established in the Financial Year 2022–2023.

ASAP Kerala established Centres of Excellence (CoE) in Augmented Reality and Virtual Reality (AR/ VR) technology in the Community Skill Parks (CSP) of ASAP Kerala in the following locations: Kazhakkootam (Thiruvananthapuram), Pampady (Kottayam), Kalamasserry (Ernakulam) and Pandikkad (Malappuram).

ASAP Kerala established two Centres of Excellence in Electric Vehicle (EV) technology with monetary support from the Directorate of Scheduled Caste Development Department, ISIE India, MG Motors and Hero Electric in Kunnamthanam

(Pathanamthitta) and Thavanur (Malappuram). EV CoEs are established in the Community Skill Parks (CSP) of ASAP Kerala

Industry On Campus: ASAP Kerala set up Rs 6.5 crores worth of equipment at government polytechnic colleges, trained staff and faculty, and launched the Industry on Campus (IoC) initiative in 2020. The project includes the modernisation of polytechnic labs and workshops with industrial standard machine tools like CNC lathe, CNC vertical milling machine, TIG welding station, and designing and developing toolkits like robotic kits, electronic workbench and 3D printers. It has been installed in 41 polytechnic colleges in the State.

Placement Drive ASPIRE 2023: ASAP Kerala hosted a comprehensive placement drive, 'ASPIRE 2023', on 10th July, 2023, for students and job aspirants of Kerala at the ASAP Kerala Community Skill Park, Kazhakkootam (Thiruvananthapuram). A total of 31 companies actively participated in ASPIRE 2023, offering diverse job opportunities across various sectors. Out of the 630 attendees, 156 candidates were shortlisted by participating companies for further evaluation and 51 candidates had successfully secured placements through ASPIRE 2023.

Rashtriya Uchathaar Shiksha Abhiyan (RUSA)

The key objectives of RUSA are to improve access, equity and quality in higher education through planned development of higher education at the State level. It also intends to create new academic institutions, expand and upgrade the existing ones, develop institutions that are self-reliant in terms of quality education, professionally managed, and characterized by greater inclination towards research and provide students with education that is relevant to the times and requirement of the society.

RUSA Phase 1 was started in 2014, and Rs 199.57 crore was approved. Out of this Rs 187.80 crore was released up to 2023. As part of the first phase of RUSA, grants for improving infrastructure were given to six universities and 28 colleges. The proposals for faculty improvement, upgradation of existing colleges to model degree colleges and equity initiatives for several other colleges were also approved. Out of the total release, Rs 176.37 crore has been utilized (94 per cent)

RUSA Phase II was started in 2018, and Rs 363.00 crore was approved. Out of which Rs

243.00 crore has been released up to 2023. In this phase, proposals for establishing a RUSA new Model Degree college at Mananthawady, Wayanad and five autonomous colleges (Rajagiri College of Social Sciences - Ernakulam, St. Joseph College, Devagiri College – Kozhikkode, Marian college, Kuttikkanam – Idukki, M.A College-Kothamangalam, Farooq College – Kozhikkode) for enhancing quality and excellence have been approved. Proposals for providing grants to 113 colleges for infrastructure development and two Universities for research, innovation and quality improvement have also been approved. Out of the total release, Rs 160.00 crore has been utilized (65.8 per cent)

Technical Education

Technical education aims at human resource development by way of application of technology for the benefit of society, in terms of improving the quality of life, enhancing industrial productivity and improvising technologies for the overall development of the community. Improvement of quality in technical education is universally regarded as a pre requisite of economic growth. Considering the huge efforts by the government to enhance economic development through the infusion of new technologies, emphasis was given to promote innovative thinking and entrepreneurship development among students.

Directorate of Technical Education is the nodal department for technical education in the State. The details of technical institutions under the administrative and financial control of Directorate

of Technical Education are given in **Appendix 6.1.38.**

Engineering Colleges

It is reported that 172 engineering colleges have functioned in the state in 2022-23, with a sanctioned intake of 46,526. Out of these engineering colleges, 160 (93.02 per cent) are self-financing colleges (unaided), 9 (5.23 per cent) are Government colleges and 3 (1.74 per cent) are government aided colleges. Highest number of the unaided engineering colleges are functioning in Ernakulam (29) followed by Thiruvananthapuram (26). There are no government engineering colleges in Kollam, Pathanamthitta, Alappuzha, Ernakulam, Malappuram and Kasargod Districts. District wise and management wise details of engineering colleges and sanctioned intake are given in Appendix 6.1.39. The sanctioned intake of government colleges in 2022-23 was 3,690 (7.9 per cent), aided colleges 2,090 (4.5 per cent) and unaided colleges 40,746 (87.6 per cent).

The highest number of seats in 2023-24, was found to be in Computer Science and Engineering (10,164) followed by Mechanical Engineering (7,539), Civil Engineering (7,278) and Electronics and Communication Engineering (6,651). In 2022-23 also, highest number of seats was in Computer Science and Engineering branch (9,384). Branch-wise distribution of seats in engineering colleges in 2023-24 is given in **Appendix 6.1.40.**

Gender facts: At graduate level, the proportion of girls' intake was 46.0 per cent in 2023-

Table 6.1.10 Details of B.Tech Result, 2023

Management	Boys			Girls			Total		
	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage
Government	2,177	1,546	71.02	1,464	1,177	80.12	3,641	2,719	74.68
Govt. Aided	1,277	920	72.04	734	664	90.46	2,011	1,584	78.77
Govt. Self Financing	2,672	1323	49.51	2,041	1,487	72.86	4,713	2,810	59.62
Private Self Financing & Private Autonomous	11,259	4,404	39.12	6,384	4,208	65.91	17,643	8,612	48.81
Total	17,385	8,193	47.13	10,623	7,532	70.90	28,008	15,725	56.14

Source: Kerala Technological University, 2023

24 in government and aided colleges. In post graduate courses, 1,378 students were admitted in government and aided engineering colleges. Girl students constituted 63.5 per cent of the total post graduate students in Government and aided engineering colleges. Details are given in **Appendices 6.1.41 and 6.1.42.**

Academic Excellence in Engineering Colleges

As evident from the results of B Tech course, academic excellence in Government engineering colleges has remained high, primarily due to the high pass percentage and increasing placement of students in reputed firms.

In terms of the results of examinations, it could also be inferred that government aided colleges performed better than government, govt. self-financing, private self-financing and private autonomous colleges. While government aided colleges registered 78.77 pass per cent, government engineering colleges had 74.68 per cent, Government self-financing colleges had 59.62 per cent and private self-financing & private autonomous colleges had 48.81 per cent pass. It is also to be noted that the pass percentage of government self-financing colleges (59.62 per cent) is much above the private self-financing and autonomous engineering colleges which secured 48.81 per cent. Compared to boys, girls performed better with a pass percentage of 70.90, though the number of boys registered was more than girls (**Table 6.1.10**). It is quite disturbing that only 30.77 per cent SC students and 24.56 per cent ST students passed the examinations, which are far below the State average (**Table 6.1.11**).

The placement record of the students in various government institutions is also found to be relatively high. A large number of students are also qualifying for higher studies through competitive examinations like GATE and CAT. Most of the students get placement in multinational firms such as WIPRO, MAHINDRA, TCS and BOSCH etc. The number of visiting faculty programmes in various government engineering colleges during 2022-23 was 90. Details of visiting faculty programmes and placement details of students of various government engineering colleges in 2022-23 are given in **Appendices 6.1.43 and 6.1.44.**

Polytechnics and Technical High Schools

There were 46 government polytechnics and six government aided polytechnics in Kerala in 2023-

Table 6.1.11 Pass percentage of SC and ST B.Tech students, 2023

Category	SC			ST		
	Registered Students	Students passed	Pass Percentage	Registered Students	Students passed	Pass Percentage
Government	269	113	42.01	25	6	24
Govt. Aided	131	66	50.38	11	3	27.27
Govt-Self Financing	225	40	17.78	10	3	30
Private Self Financing & Private Autonomous	259	53	20.46	11	2	18.18
Total	884	272	30.77	57	14	24.56

Source: Kerala Technological University, 2023

24. Out of this 9 are women's polytechnic colleges. The annual intakes of students in government polytechnics and government aided polytechnics in 2023-24 were 11,015 and 1,446 respectively. The total number of students in government polytechnics in 2023-24 was 31,241 and that in government aided polytechnics was 4,408. Details of annual intake and student strength in polytechnics during the period from 2018-19 to 2023-24 are given in **Appendices 6.1.45 and 6.1.46.**

Distribution of the annual enrolment of students in polytechnics in 2023-24 across different trades is given in **Appendix 6.1.47**. Student intake is highest in Computer Engineering (2,030) followed by Electronics Engineering (2,020), Mechanical Engineering (1,740) and Civil Engineering (1,510). Girls constituted only 22.9 per cent of the total strength in polytechnics while their proportions in government and aided polytechnics were 24.15 per cent and 14.25 per cent respectively in 2023-24. A total of 1,242 teachers worked in polytechnics in 2023-24. The proportion of female teachers was 44.85 per cent. In government aided polytechnics, female teachers constituted 33.02 per cent while the respective proportion in government sector was 47.28 which is comparatively high.

Details of number of students and teachers in polytechnics are given in **Appendix 6.1.48**. Number of SC/ST students and SC/ST teachers in polytechnics from 2021-22 to 2023-24 (**Table**

6.1.12) are given in **Appendix 6.1.49**.

Thirty nine Government technical high schools are functioning in the State. In 2023-24 there are 7,924, students and 528 teachers respectively. Women teachers constituted 36.0 per cent of teachers in technical high schools. Number of students and teachers in technical high schools from 2018-19 to 2023-24 are given in **Appendix 6.1.50**. In the year 2023-24 the percentages of SC and ST students in technical high schools are 9.7 per cent and 0.6 per cent respectively. Details are given in **Appendices 6.1.51 and 6.1.52**.

LBS Institute of Technology

The LBS Centre for Science and Technology, Thiruvananthapuram is the premier institute of computer training and consultancy, registered under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act XII of 1955 was established by Government of Kerala in 1976. The Centre was started by the Government of Kerala as an Autonomous body with the main objectives that the Centre would act as a link between the industries and technical institutions so as to benefit society through their mutual interactions. The LBS Centre for Science and Technology is a research study centre of Kerala University. LBS Centre for Science and Technology started an engineering college at

Kasargod during 1992-93. Another engineering college for women was started at Poojappura, Thiruvananthapuram during the period 2001-02.

Trivandrum Engineering Science and Technology (TrEST) Research Park

TrEST (Trivandrum Engineering Science and Technology) Research Park is the State's first science and technology research park which has set a model in industry-academia linkage. The institution promotes collaborative research in microprocessor design, electric vehicles research and other emerging technologies. TrEST Park facilitates joint research by faculty, members, students and industry. 35 engineers are working in the research units and about 120 students and staff members of CET involved in various projects for R&D.

APJ Abdul Kalam Kerala Technological University

The Government of Kerala has established Kerala Technological University in July 2014 with an aim to give leadership to the technology related policy formulation and Engineering Planning for the State. It also emphasizes to improve the academic standards of the Graduate, Post Graduate and Research Programmes in Engineering Science, Technology and Management and regulate the

Table 6.1.12 Percentage of SC and ST students in Polytechnics

Type of Institution	2021-22				2022-23				2023-24			
	SC	ST	Others	Total	SC	ST	Others	Total	SC	ST	Others	Total
Government	7.61	0.88	91.51	100	8.24	1.02	90.74	100	10.54	1.49	87.97	100
Govt. Aided	4.36	0.44	95.2	100	6.58	0.50	92.92	100	6.15	0.39	93.46	100
Total	7.20	0.83	91.97	100	8.02	0.95	91.03	100	10	1.35	88.65	100

Source: Directorate of Technical Education

Box 6.1.3 WESAT (Women Engineered Satellite) An initiative of LBS Institute of Technology for Women

The satellite project, WESAT (Women Engineered Satellite) is a groundbreaking mission, initiated by the Space Club of LBS Institute of Technology for Women, Poojappura and has been in progress for the past four years. It is the first satellite project led by an all-women institute in the Country and LBS Institute of Technology for Women is first college ever in the State to launch its own satellite. The purpose of WESAT is to measure the UV rays in space and on earth's surface and their influence on the warm temperatures and climate change phenomena in Kerala which is an important area addressed by the Govt of Kerala in view of the severe floods badly affected on the year 2018

MoU is signed with VSSC, ISRO, IN-SPACe, Dept. of Space and Govt. of India for launching WESAT in the upcoming PSLV mission. The project received funding from the central government through DST Nidhi Prayas scheme and from the state government via Kerala Startup Mission. This pioneering effort, entirely managed by a team of women, is a testament to gender equality and innovation.

Source: LBS Institute of Technology

Box 6.1.4 Major Achievements of TrEST Park in 2023-24

- TrEST park had set up two Centres of Excellences (a) Electric Vehicles and (b) Microprocessor chip development.
- Till now 6 companies have set up research units in TrEST Park in the AI based microprocessor chip development, Electric Vehicle, Vibration acoustics, weather forecasting and non-conventional energy sectors.
- TrEST park has signed MoUs with Kerala State Council for Science, Technology and Environment (KSCSTE), Kerala Development and Innovation Strategy Council, (K-DISC), Open Silicon, SCTIMST – TIMED, Tata Elxsi, National Instruments, Energy management Centre, BEL etc.
- Infrastructure for Electric Vehicle and Electronic Research Centre, Centre of Excellences has been completed.
- Nearly 500 students trained in design and simulation software by industry experts
- Research units in TrEST have already acquired 2 patents and application filed for 2 more.
- Several papers have been published in international journals by researchers.
- The institute has imparted training to 200+ participants on various physics of EV and 40+ faculty members and 100+ students in ANSYS software as part of TrEST initiative since July 2019.
- Under ERC project, TrEST recruited 12 JRFs of which 10 have undergone rigorous training for 2 years under RISC -V chip designing.
- Engineers at Westghats Technologies along with faculty and JRFs completed a detailed study of two popular RISC-V projects (PULPISSIMO and PicoRV32) and were able to successfully integrate and prototype them on FPGA boards by enabling all the tool-chains. An Electric Vehicle Processor with RISC-V Core is under development at TrEST.

Source: TrEST Research Park

academic standards of all colleges affiliated to the University. The main thrust areas of the University are Research, Development and Innovation.

Major achievements of APJ Abdul Kalam Kerala Technological University in 2023-24

Translational Research Centre for APJKTU: APJ Abdul Kalam Technological University was designated as Special Purpose Vehicle for the smooth implementation of the Translation Research Centre project in a time bound manner. The University selected M/s. WAPCOS Limited, Pettah, Thiruvananthapuram, as Project Management Consultant for the implementation of Translational Research Centre Project of the University at Vilappilsala.

Centres of excellence of the university: Establishing Centres of Excellence for multidisciplinary applied research is a scheme initiated by the University for ensuring global connectivity to our institutions in undertaking high quality research in the emerging areas of technology. The domains of three Centres of Excellence under APJ Abdul Kalam Technological University are in 1) Sustainability

Engineering and Carbon Neutrality to be located at Government Engineering College Kannur, 2) Emerging Materials and Infrastructure at Rajiv Gandhi Institute of technology, Kottayam and 3) Artificial Intelligence, Machine Learning, Robotics and Automation at Model Engineering College, Ernakulam.

Student Support Scheme- Suraksha: To ensure the wellbeing of the students physical, social and emotional state, the scheme “Suraksha” was initiated by the University during the year 2021-22 and the entire procedure, including the schemes of rules, for its operations were implemented by the university during 2022-23.

Student support for international competitions: The university has taken efforts to ensure support to the students, who have made significant contributions in the academic activities that have attracted international attention, to showcase their efforts and by which University would also be acknowledged by the international academic community.

Strengthening the research support facilities under the University: University has 44 research centres spread across affiliated colleges under the University accommodating 920 research scholars. Research seed money for the faculty: 46 Projects are selected for award of Research Seed Money by the screening committee.

Kerala State Science and Technology Museum (KSSTM)

KSSTM is an autonomous organization under the Government of Kerala, established in 1984 and designed to serve as a dynamic medium of science communication for the public and promoting science and scientific temper for a better tomorrow. The internationally renowned Priyadarsini Planetarium at Thiruvananthapuram is the prime attraction of the museum. The museum has galleries on Astronomy, Space Research, Electrical engineering, Electronics, popular science, mathematics, automobile, computer and robotics in addition to a Science play park with educational playing devices, 3D theatre, Science on sphere show, energy ball, VR studio and Laserium and musical fountain. Science park for children with dinosaur enclave and innovation hub are other facilities available. A well-equipped library is also functioning at the museum. Main campus is functioning at Thiruvananthapuram. Regional Science Centres are functioning at Chalakkudy, Kottayam and Parappanangadi. Website modernisation, online ticket booking facility, revolving model of globe, the Virtual Reality gallery, electronics gallery, automobile simulation gallery with life size replica of Benz Patent Motor car etc are the major works completed at Thiruvananthapuram campus during 2022-23.

In order to achieve excellence in higher education and to expedite the journey towards knowledge economy, Kerala needs to place a strong foot forward in the sphere of science, technology, and innovation. Higher education must play the critical role of a hub in this transformation – by linking universities and industry, promoting entrepreneurship and start-ups among teachers and students, and building a strong infrastructural backbone to aid these changes. Just as in science, technology, and innovation, government has initiated the establishment of institutional networks and missions for interdisciplinary and transdisciplinary research in social sciences, humanities, languages, and arts. Even as we establish new institutions, what is obvious to

us is that the real thrust to a rise in quantity and quality in higher education must come from the existing university departments and colleges. For achieving these, government has started to invest more on higher education. Through the last budget, government has increased 25 percent of the plan fund of the universities. Significant investment is also envisaged under KIIFB and a financial aid worth of Rs 2000 crore from KIIFB for infrastructure development of Universities has been envisaged. The initiatives of the government to reform the higher education sector is an uphill task. However, given the legacy of the state which has made several such missions possible in the past, this transformation as an alternative to the reforms envisaged at the national level, would certainly be accomplished.

6.2 MEDICAL AND PUBLIC HEALTH

The Government of Kerala is dedicated to providing equitable, affordable, and high-quality healthcare services to all its citizens, with a particular focus on marginalized and vulnerable sections of the population. The healthcare network in the state is well-established and encompasses primary, secondary, and tertiary levels, boasting a sufficient number of healthcare professionals. The State continues to lead the country in respect of indicators such as life expectancy at birth, infant mortality, maternal mortality, and the ratio of males to females in the population. All important national metrics place Kerala at the top of the table with respect to health. State policy is paying increasing attention to issues of life style diseases, mental health, substance abuse, adolescent health, and the widespread phenomenon of road traffic accidents. The State policies are also giving special care for the health of specific sections of people, including people of the Scheduled Caste and Scheduled Tribes, fish workers, plantation workers, and others.

However, Kerala has health challenges like return of infectious diseases, non-communicable diseases, increase in accidents and injuries, diseases due to environmental degradation. Communicable diseases such as chikungunya, dengue, leptospirosis and Covid are major concerns of the state. In addition to this, there are new threats to the health scenario of the State, such as mental health problems, suicide, substance abuse and alcoholism, adolescent health issues and rising number of road traffic accidents which have emerged as major problems. To tackle these, concerted and

committed efforts with proper inter sectoral co-ordination are essential. During the 14th five-year plan period, the State envisioned to make the best possible preventive, curative, and palliative care available in the public sphere. The main objective of the Government is to establish a people friendly health care delivery system.

Health Indicators of Kerala

Life Expectancy- Life expectancy is most important yardstick to judge the quality of life and well-being of the people. Life expectancy (at birth) in Kerala has been the highest amongst the States, which is 75 years as against national average of 70 years. Kerala retains its top rank in life expectancy for Male (71.9) and female (78.0), whereas at national level, it is 68.6 and 71.4 respectively (refer to Table 6.2.1). In Kerala, the life expectancy for female (78) is higher than that for male (71.9).

Maternal Healthcare- Primary indicator of maternal health is Maternal Mortality Ratio (MMR). Kerala has the lowest MMR (19) among the States whereas MMR at national level is 97 (refer to Table 6.2.1).

Percentage of death due to not receiving medical attention of qualified professionals is less than one-fourth of the national average. In case of deaths where the deceased have received medical attention before death, either at Government hospital or at Private Hospital in Kerala are 80.7 which are 48.7 percent in India. However, still birth rate in Kerala is slightly higher than that of all India level. This

Table 6.2.1 Demographic, socio-economic and health profile of Kerala as compared to India

Sl. No.	Indicators	Kerala	India
1	Total population (in crore) (Census 2011)	3.34	121.06
2	Decadal Growth (per cent) (Census 2011)	4.90	17.7
3	Sex Ratio (Census 2011)	1084	943
4	Child Sex Ratio (Census 2011)	964	919
5	Birth Rate #	13.2	19.5
6	Death Rate*		
	(a) Children (0-4)	1.8	8
	(b) Children (5-14)	0.5	0.4
	(c) Persons (15-59)	2.7	2.9
	(d) persons (60 and above)	39.1	42.3
7	Natural Growth Rate #	6.2	13.5
8	Per cent of death receiving medical attention*		
	Government	43.3	29.9
	Private	37.4	18.9
	Qualified professional	16.0	33.2
	Untrained/others	3.4	18.0
9	Still Birth Rate*	4	3
10	Crude Birth Rate*	13.2	19.5
11	Maternal Mortality Ratio**	19	97
12	Expectancy of Life at Birth***	75	70
	Expectancy of Life at Birth*** - Male	71.9	68.6
	Expectancy of Life at Birth*** - Female	78	71.4

Source: # SRS 2022 May/ * SRS Statistical Report 2020

Special Bulletin on MMR 2018-20 / *SRS Life Table 2016-20

may be attributed to the reflection of gathering more institutional deliveries than in other parts of India. Fertility rates are also lower than that of national figure. Percentage of live births without medical attention of qualified professionals received by mothers in Kerala is only 0.1 against 7.8 at national level.

Child Mortality at different levels

Infant Mortality Rate IMR- Kerala is the only bigger State in India with a single digit Infant Mortality Rate (IMR) of 6, whereas it is 28 at all India level.

Neo Natal Mortality Rate (NNMR) in the State is 4 which is one-fifth of the national average (20). Under-five mortality (under 5 MR) rate is 8, which

again is one-fourth compared to all India figure (32). Perinatal Mortality Rate (PNMR), Early Neo-natal Mortality Rate (ENMR), Late Neo-natal Mortality Rate (LNNMR) and Post Neo-natal Mortality Rate (PNNMR) are far below than the all India figure. Child Mortality Rates at different levels are better than the national average. One of the main reasons for these achievements is 99.9 per cent of mothers in Kerala get medical attention of qualified professionals at delivery either at Government hospital or at Private hospital, which is 82.6 percent in India. Details of child mortality rate at different levels and percentage of live births getting medical attention of qualified professionals received by mothers in Kerala are given in the **Table 6.2.2.**

Table 6.2.2 Details of child mortality rate at different levels and percentage of live births getting medical attention of qualified professionals received by mothers in Kerala

Sl. No.	Indicators	Kerala	India
1	Infant Mortality Rate #	6	28
	Infant Mortality Rate # -Male	10	28
	Infant Mortality Rate # - Female	3	28
2	Neo Natal Mortality Rate*	4	20
3	Perinatal Mortality Rate*	8	18
4	Child Mortality Rate*	2	8
5	Under 5 mortality Rate*	8	32
6	Early Neo-natal Mortality Rate*	4	15
7	Late Neo-natal Mortality Rate*	0	5
8	Post Neo-natal Mortality Rate*	2	8
9	Crude Death Rate*	7	6
10	Percentage of live births by type of medical attention received by mothers*		
	Government	44.7	54.6
	Private	55.2	28
	Qualified professional	0.1	9.7
	Untrained/others	0.1	7.8

Source: # SRS 2022 May/ * SRS Statistical Report 2020

Fertility

As per National Family Health Survey 2019-20 (NFHS - 5), the median age at first marriage in Kerala is 21.5 years among women aged 25-49 years. Six percent of women aged 20-24 years got married before attaining the legal minimum age of 18 years. Only 10.2 percent of women aged 20-49 years have never married compared with 35.9 percent of men aged 20-49. Total fertility rate (TFR) expressed per women is 1.5 in Kerala, where as it is 2 at all India level. Comparative figures of major fertility indicators at the State and National levels are given in **Table 6.2.3**.

Aardram Mission

The Aardram Mission I was started during the 13th Five Year Plan period in order to make government hospitals people-friendly by improving their basic infrastructure and capacity to provide services. The mission aims to improve the efficiency of services and facilities in the Government hospitals with a view to extend treatment at a reasonable cost, time and satisfaction. The major objectives of the mission are: (i) Patient friendly transformation of the outpatient (OP) wings of medical college hospitals and other government hospitals, (ii)

Table 6.2.3 Major fertility indicators of Kerala as compared to India

Sl. No.	Indicators	Kerala	India
1	Total Fertility Rate*	1.5	2
2	General Fertility Rate*	45.3	67
3	Total Marital Fertility Rate*	4.6	5.2
4	General Marital Fertility Rate*	65.7	108.3
5	Gross Reproduction Rate*	0.8	0.9
6	Female mean age at effective marriage*		
	(a) Below 18	17	16.5
	(b) 18-20	19.2	19.3
	(c) Above 21	25	24.2
	(d) All age	23.4	22.7

Source: * SRS Statistical Report 2020

Standardisation of the District and Taluk level hospitals, (iii) Developing the PHCs into FHCs in a phased manner and (iv) Ensuring protocol-based

treatment guidelines in the management of patients in hospitals. Aardram Mission is implemented at three stages in Government Medical College hospitals, General hospital, District hospitals, Taluk hospitals and Primary Health Centres (PHCs). The conversion of PHCs as family health Centres (FHCs), FHCs as Block Family Health Centres with adequate supply of drugs and assured treatment protocols would ensure better health of public and enhance their trust in the public health system. As part of Nava Kerala Karma Padhathi II, Aardram Mission 2 has been launched during 2022.

Family Health Centres

In the first phase in 2017-18, Government identified 170 PHCs covering all 14 districts for developing into Family Health Centres. Out of this, 166 FHCs are already made functional and the rest is progressing. In the second phase in 2018-19, 504 PHCs were selected for developing into FHCs in which 418 have been completed and works are progressing in other PHCs at different stages. Transformation of the PHCs into FHCs has evoked encouraging community response. In the third phase, 212 PHCs were selected for developing into FHCs using fund under National Health Mission in which 60 are completed. In addition to this, 76 Community Health Centres (CHCs) were selected as first phase to convert into Block Family Health Centres during 2019-20 in which 46 have been completed and another 75 Community Health Centres (CHCs) were selected as second phase to be converted into Block Family Health Centres during 2021-22 in which 3 have been completed. A total of 3725 posts were created under DHS since 2016.

Patient friendly transformation of the outpatient wings of Government hospitals

Considering the fact that Medical College hospitals and District level hospitals are larger institutions providing outpatient care for a large number of patients every day, patient friendly transformation of the outpatient wings of these hospitals was taken as a priority item under Aardram Mission. Outpatient transformation with adequate OP registration counter, patient waiting area, adequate seating facilities, token system and other amenities such as drinking water, toilet facilities, public address system, information education & communication arrangements and signage systems are being incorporated. Support of patient care coordinators for larger institutions on a temporary

basis would also be provided. For ensuring quality medical care, OP computerisation, providing adequate facilities in the consultation rooms and a guideline based case management are planned. These are being implemented in government medical college hospitals and district level hospitals.

People friendly OP transformation of General/ District/Taluk Hospitals

There are a total of 18 General hospitals and 18 District hospitals in the States. Out of this only 17 institutions have been selected for OP transformation. The construction works of 14 hospitals have been completed. The works in other hospitals are progressing well. Out of the total 86 Taluk hospitals, 43 institutions are selected for standardisation in a phased manner in which 11 institutions are completed. 891 posts were created in District/General/Taluk hospitals as part of Aardram Mission which consists of 14 Super Specialists, 252 Specialists and Casualty Medical Officers, 197 Staff Nurse, 84 Lab Technicians and 344 Paramedical Staff.

New initiatives taken in Medical Colleges

Aardram Mission is aimed to provide patient friendly and quality care services to the outpatient wing of Medical Colleges. As a first step, Medical Colleges at Thiruvananthapuram, Paripally, Alappuzha, Kottayam, Ernakulam, Thrissur, Malappuram and Kozhikode were selected for the implementation of OP Transformation. Presently the works in these 8 Medical Colleges have been completed. The main components of the projects are making online registration facility available for reducing waiting time of patients at hospitals, constructing new OP waiting areas, providing drinking water facilities, renovation/reconstruction of toilet blocks, OP rooms for all departments, proper signage to different services, TV and display board, airport chairs, public address system, providing air conditioners in OP rooms, and providing ramp. Status of infrastructural development in hospitals under Aardram Mission is given in **Table 6.2.4**.

Nava Kerala Karma Padhathi II - Aardram Mission

In the second phase, Aardram Mission aims to emphasize on operational excellence and quality improvement and social activities to achieve healthy living with increased public participation. Following are the main objectives of the Mission viz. ensuring comprehensive primary health care,

Table 6.2.4 Status of Infrastructural Development in Hospitals under Ardrum Mission

Type of Hospitals	Phases	Total Institutions	Work Completed	Work Progressing	Works to be started
PHCs into FHCs	1st Phase	170	166	1	3
	2nd Phase	504	418	27	59
	3rd Phase	212	60	44	108
	Total	886	644	72	170
CHC to Block FHCs	1st Phase	76	46	15	15
	2nd Phase	75	3	22	50
OP s of District / General Hospitals	1st Phase	17	14	0	3
OPs of Taluk Hospitals	1st, 2nd and 3rd Phases	43	11	18	14
Medical Colleges	1st Phase	8	8	0	0

Source: Directorate of Health Services

creation of people-friendly health institutions, standardization of health care facilities, reducing out-of-pocket expenses and achieving the Sustainable Development Goals. As part of Ardrum Mission, steps will be taken to upgrade all government hospitals including family health centre, taluk hospitals, district hospitals, general hospitals and medical colleges to people-friendly standards. Entire urban health centre will be converted into family health centre. Phase to phase standardisation of existing sub-centres will be done and establishment of sub-centres with sufficient health workers for provision of different public health services in each division of urban areas. Basic health information of the citizens of each region is collected and based on that lifestyle diseases are detected and prevented at an early stage.

Government hospitals in Kerala will ensure treatment facilities for cancer patients. Mechanisms to detect cancer at an early stage are being developed. Cancer grid system will be implemented by engaging three cancer centre of the State and cancer treatment units of medical colleges by linking district cancer care units of health department and strengthening of palliative care networks. Infectious disease control and its eradication activities are strengthened and

eradication of malaria, kala-azar, filariasis and tuberculosis are accelerated. Adequate health care will be ensured with emphasis on palliative and physiotherapy services considering the special health needs of the elderly.

Timely achievement of the Sustainable Development Goals in the health sector prepared by the State in accordance with the Sustainable Development Goals prescribed by the United Nations will be ensured. Special attention will be given to the health needs of groups such as tribal groups, coastal people, LGBTIQ+, women and persons with disabilities. 'One Health' activities are strengthened to detect new diseases, including new animal-borne diseases by screening and intervention.

Isolation wards will be set up in all assembly constituencies to deal with the third phase of Covid and further problems and treatment of new cases. Collaborative research to detect and control the outbreak of new diseases will be strengthened through the collaboration of the State Institute of Virology, other research institutes under various departments of the state, central research institutes etc. An Ethics Committee will be formed at the state level under the leadership of SHSRC to create

conditions for promoting research in the field of health at all levels.

Samples are taken and sent to top level labs of the health department in hub and spoke model for testing and coordination of treatment standards including referral plan. Interventions will be made in the areas of mental health, falls, dementia etc. for the health of the elderly. Activities will be implemented in collaboration with AYUSH. Panchayats will be made elderly friendly. Lifestyle diseases, mental health, geriatric Campaigns are conducted with emphasis on health and wellness, disease control and disease prevention.

Janakeeya Arogya Kendrangal

The policy approach put forward by Ardrum Mission is to reduce the incidence of diseases by carrying out health activities in the health sub-centres of Kerala with the active participation of the people that help everyone to live a healthy life. Steps need to be taken to make health sub-centres a focal point of interventions in the areas of health promotion services, disease prevention, disease surveillance, disease control, maternal and child health etc. and to empower them over time to enable them to undertake public health activities. Society must collectively take responsibility to ensure that every individual lives a healthy life. Disease incidence can be reduced only by molding a society that follows healthy habits such as healthy eating habits, exercise etc. People's participation is necessary for the successful completion of such activities. It is in this context that all sub-centres in the state have been elevated as Janakeeya Arogya Kendram to carry out activities in the field of public health. The objective of the Janakeeya Arogya Kendram is to bring comprehensive primary health care to the grassroots level. For this purpose, through Ardrum Mission, all sub-centres in the state are upgraded and modernized into

Janakeeya Arogya Kendram (Health and Wellness Centres), with improved physical conditions and converted into people-friendly institutions. As on 15 November, 2023 there are 6825 Janakeeya Arogya kendram in the State including Ayush.

National Quality Assurance Standards (NQAS)

Even though NQAS was started in 2013, Kerala was not able to accredit many institutions due to certain check points in the NQAS check lists were not applicable to Kerala. Accordingly, in 2017, NQAS check list was customized in line with Kerala standards with the help of National Health Systems Resource Centre. This was done by removing some items irrelevant to Kerala conditions and by adding palliative care into the check list. After customisation, Kerala has made tremendous progress in NQAS accreditation. Up to October 2023, 148 out of 1284 institutions [Districts Hospitals (5), Taluk Hospitals (4), Community Health Centre (8), Family Health Centre (93) and Urban PHC (38)] of DHS from the State have completed national level certification. Number of KASH (Kerala Accreditation Standards for Hospitals) accredited institutions in Kerala is 178.

e-Health Project

The e-Health project targets to link health institutions all over Kerala. The project aims to build a database of individual medical records easily accessible to the medical practitioners. It includes unique patient identification in different settings and exchange of data between different health care delivery units at primary, secondary and tertiary level across State. This could avoid the repeated medical tests and could thereby reduce out of pocket expenses arising out of rush to clinics and labs. The scheme is being implemented in all the fourteen districts of Kerala with Thiruvananthapuram as the pilot District.

Box N o 6.2.1 One Health

Specific guidelines for One Health activities have been prepared and one health operations are started in all districts. Assistance from rebuild Kerala Initiative (RKI) and World Bank is available for One Health activities in Pathanamthitta, Alappuzha, Kottayam and Idukki districts. Nodal Officers have been appointed in all these four districts. Work is underway to establish Centre for One Health at the state level and District Programme Management & Support Unit (DPSU) at the district level. A meeting of department heads decided to form One Health Committees at the line department level by including nodal officers at the state level and district level. The Government has issued orders to establish the following systems viz. 1. State Level One Health Committee, 2. District Level One Health Committee 3. Local Government Level One Health Committee and 4. Line Department level One Health Committee and Nodal Officers.

Table 6.2.5 District wise demographic data surveyed under e-health programme

Sl. No.	District	Demographic Data Surveyed	Sl. No.	District	Demographic Data Surveyed
1	Thiruvananthapuram	24,06,760	8	Thrissur	23,01,629
2	Kollam	21,68,789	9	Palakkad	23,44,974
3	Pathanamthitta	10,26,328	10	Malappuram	38,44,650
4	Alappuzha	15,21,575	11	Kozhikode	25,00,494
5	Kottayam	15,22,289	12	Wayanad	6,23,272
6	Idukki	8,67,546	13	Kannur	19,41,501
7	Ernakulam	18,70,452	14	Kasaragod	10,15,739
Total		2,59,55,998			

Source: e-health Kerala, DHS as on November 15, 2023

e-health is completed in 597 hospitals in which 200 are working as paperless hospitals. NITI Aayog has appreciated the e-health project of the State. Kerala is the only State in the country where the data base of 2,59,55,998 people has been collected and stored as electronic records. This includes 68,35,432 houses, 1,26,83,803 male, 1,32,71,379 female and 816 transgender registrations.

The details are given in **Table 6.2.5**.

Health Sector Financing during Plan Periods

Health has been a major area of allocation in the State Budget over the years. Government healthcare expenditure has been showing a steady increase for the last several years. Kerala invests 6.62 per cent (2010.83 crore during 2023-24) of its total State Plan outlay (30370 crores during 2023-24) on health care excluding the contribution of LSGs and other line departments. As per the recommendations of the Sixth State Finance Commission, 27.19 percent (8258 crore) of total state plan outlay is earmarked to the Local Self Government Institutions (LSGIs). LSGIs expend a considerable percent of this outlay for health care. In addition to this, the Government is investing large amounts in this sector through KIIFB and NABARD assistance for construction of building and purchase of high end equipment. The outlay earmarked for the implementation of schemes during 12th Five-Year Plan was Rs 3,31,888 lakh (BE). The total expenditure reported during the Plan period was Rs 3,00,600.50 lakh (90.57per cent). During the 13th Five Year Plan, Rs. 719929 lakhs was allocated to the health sector and the expenditure reported was Rs. 910077 lakhs (126.41%). Department-wise Plan outlay and expenditure during the last three Annual Plan periods of 13th plan and total outlay and

expenditure of the first two year of the 14th plan upto October 2023 (2023-24) is given in **Table 6.2.6**

Both plan as well as non-plan expenditure on health has increased over these five years. Plan and non-plan investment in health and family welfare from 2017-18 to 2023-23 both in revenue and capital expenditure, percentage of health expenditure to total government expenditure and percentage of health expenditure to GSDP are given in **Table 6.2.7**

Plan expenditure by other Departments included various departments viz. Excise, Industries, Science and Technology, Fisheries, Cultural Affairs, Sports and Youth Affairs, Social Justice, Women and Child Development, Scheduled Castes Development, Scheduled Tribes Development and LSGD.

Major Health Problems in Kerala

Communicable Diseases

Kerala is witnessing an increasing burden of communicable and non-communicable diseases. Although the State has been successful in controlling a number of communicable diseases earlier, the prevalence of dengue, leptospirosis, malaria, hepatitis, H1N1, scrub typhus, Covid-19 in recent years has led to considerable morbidity and mortality. Instances of vector borne diseases such as dengue, malaria and scrub typhus incidents have been seen in many Districts. Water borne infections such as different kinds of diarrhoeal diseases, typhoid and hepatitis are also reported in many districts.

Table 6.2.6 Department-wise outlay and expenditure of last three years of 13th Plan 2017-22 and total outlay and expenditure of the first two years of the 14th plan upto October 2023, in Rs crores

Department	Annual Plan 2019-20		Annual Plan 2020-21		Annual Plan 2021-22		Annual Plan 2022-23		Annual Plan 2023-24 (Exp. upto October 31)	
	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.
Health Services	783.29	82	991.40	135	991.40	206	1297.76	159.30	1416.46	64.11
Medical Education	484.25	72	420.60	77	420.60	111	463.75	75.26	463.75	26.03
Indian Systems of Medicine	47.55	67	41.95	120	41.95	91	44.05	84.86	49.05	36.75
Ayurveda Medical Education	49.75	41	43.20	39	43.20	62	47.52	31.63	47.52	7.67
Homeopathy	26.60	65	23.75	85	23.75	104	25.15	73.57	25.15	35.29
Homeo Medical Education	10.00	68	8.65	170	8.65	129	8.90	81.27	8.90	33.15
Total	1401.44	76	1529.55	115	1529.55	170	1887.13	132.18	2010.83	52.83

Source: Plan Space

Table 6.2.7 Investment in Health and Family Welfare (Rs in crore)

Year	Total Government Health Expenditure					Total Government Expenditure	Percentage of Health Expenditure to total Government Expenditure	GSDP in crores at constant Prices	Percentage of Health Expenditure to GSDP
	Plan exp by health depts	Plan exp by other depts	Total Plan exp for health including exp by other depts	Non Plan	Total health exp				
2018-19 (ACC)	1862.76	760.50	2623.26	5235.8	7859.06	120069.82	6.55	554228.31	1.42
2019-20 (ACC)	2246.61	664.99	2911.60	5292.21	8203.81	114384.94	7.17	559194.18	1.47
2020-21 (ACC)	3144.73	1142.61	4287.34	5657.63	9944.97	138884.49	7.16	512076.08	1.94
2021-22 (ACC)	4104.83	1258.87	5363.70	7835.24	13198.94	163225.53	8.09	573591.46	2.30
2022-23 (BE)	2711.33	1124.99	3836.32	7255.57	11091.89	173587.51	6.39		

Source: Budget in Brief, DES

Note: ACC is Accounts, RE is Revised Estimate

Table 6.2.8 Prevalence of communicable diseases in Kerala

Sl. No.	Name of Diseases Cases	2019		2020		2021		2022		2023 (Up to August 31)	
		Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases
1	Dengue Fever	4651	14	2722	22	3251	27	4468	58	8902	35
2	Malaria	656	1	267	1	309	1	438	0	272	4
3	Confirmed Chikungunya	109	0	558	0	334	0	66	0	20	0
4	Japanese Encephalitis (JE)	11	2	0	0	0	0	2	0	4	1
5	Leptospirosis	1211	57	1039	48	1745	97	2482	121	1228	52
6	Scrub Typhus	579	14	423	8	438	6	727	24	329	8
7	Kala Azar	4	0	1	0	1	1	13	0	10	0
8	Kysanur Forest Disease	8	2	29	3	4	0	1	0	0	0
9	H1N1	853	45	58	2	1	0	94	11	834	49
10	OP	2862375	51	1265782	0	1463517	0	3285392	6	1951773	6
	IP	60080		18879		12458		25257		30568	
11	Measles	199	1	76	1	3	0	183	0	739	0
12	Chickenpox	29583	20	14959	3	3457	2	9927	14	18311	4

Source: Directorate of Health Services

Prevalence of Major Communicable Diseases

A comparative analysis of the prevalence of major communicable diseases over the last five years is given in **Table 6.2.8**.

Dengue

Dengue fever, which surfaced in Kerala as early as 1998, has now become the single largest vector borne disease in the State. Till 2015, this disease was more prevalent in districts such as Thiruvananthapuram, Kollam, Kottayam, Pathanamthitta, Kozhikode and Malappuram. But in 2017, all the districts reported dengue and that too in large numbers. Districts located at higher altitudes were having low prevalence, but all others showed high incidence of the disease. These mosquitoes, which in the earlier days were seen more in rural settings, now spread to urban areas also. Details of cases and death from 2019 to 2023 (till August 31, 2023) are given in **Table 6.2.8**.

Leptospirosis

Leptospirosis is another public health challenge faced by the State. It was considered as a rare disease in early 1980, later it spread to all districts. The disease was seen initially as a rodent borne infection, spread through urine of the infected rodents and the consequent contamination of the environment. Over the years, the disease has been reported in many domestic animals such as cows, dogs and pigs and thus has become an occupational risk for those engaged in agriculture works. People, who have been involved in cleaning of stagnant canals and drains, were reported to have contracted the disease. More recently the mortality due to leptospirosis is also on the rise and joint efforts of veterinary and animal husbandry departments are essential for effective control of this disease. District wise number of patients treated and death reported affecting Leptospirosis in 2022 and 2023 (upto August 31, 2023) are given in **Appendix**

6.2.1 and number of cases and death reported from 2019 to 2023 (upto August 31, 2023) are given in **Table 6.2.8**.

Chikungunya

Chikungunya is a newcomer among the vector borne infections. This disease is believed to have originated in the remote islands in Arabian Sea in 2005-06 and spread rapidly over whole of Kerala within the next two years, affecting more than 80 per cent of our population. This has resulted in life long immunity for the affected population. The past five years have seen no deaths due to chikungunya. But in 2022, 66 cases were reported in Kerala. Here again the vector responsible for disease transmission is the Aedes mosquitoes. Since both dengue and chikungunya are transmitted by same mosquito and as the same mosquitoes are responsible for transmission of the potential threat of Zika virus disease and Yellow fever, the health system should be vigilant. In 2022, 66 cases were reported in which 62 cases were from Thiruvananthapuram District. In 2023 (upto August 31), 20 cases reported, of which 17 were from Thiruvananthapuram only. The details of district-wise patients treated for chikungunya and death reported in 2022 and 2023 (upto August 31) are given in **Appendix 6.2.2** and number of cases and death reported from 2019 to 2023 (upto August 31) is given in **Table 6.2.8**.

Fever

Fever is a body temperature that is higher than normal. A number of infections can affect humans. Even a fever may be a symptom of many infections. A viral fever is a fever caused by an underlying viral illness. Some viral infections may cause a fever like dengue. A total of 32,85,392 viral fever cases were reported in Kerala in 2022. In 2023 (up to August 31), the number of reported cases were 19,51,773. The details of district-wise patients treated for viral fever and death reported in 2022 and 2023 (up to August 31) are given in **Appendix 6.2.2** and number of cases and death reported from 2019 to 2023 (up to August 31) is given in **Table 6.2.8**.

Malaria

Malaria, a vector borne disease transmitted by Anopheles mosquitoes, has been a major public health challenge for our country for the past many decades. Various national programmes targeting its elimination have met with limited success. Though Kerala had eliminated the disease in early 1970s, Malaria incidents still exist

as a public health challenge. The problem has recently aggravated because of the presence of large scale population movement from malaria endemic States. Proportion of falciparum malaria, the more severe form of the disease also exists in Kerala. Though elimination of indigenous form of Malaria has been included in the SDG targets by the State, the issues in its fulfillment are many. Rapid urbanisation, extensive infrastructure development in many districts, uncontrolled construction works in urban area and climate related changes in life cycle of mosquitoes are big hurdles in the attainment of the SDG goals. Annual cases of malaria in Kerala are less than 500 and the number of deaths reported is also very low. Kasaragod District is persistently having high number of malaria cases, over many years, because of its proximity to the highly endemic districts of Karnataka. Movement of fishermen along the western coast of our State is a potential threat for spread of malaria along the coastal districts. In 2022 number of cases reported was 438 and death reported was zero. In 2023, upto August, 272 cases and 4 death were reported. Number of cases and death from 2019 to 2023 (August 31) is given in **Table 6.2.8**.

Japanese Encephalitis (JE)

This is a form of encephalitis, an inflammatory disease of brain and its coverings, and is also a mosquito borne infection. Kerala is more prone to this disease because of the presence of large paddy fields as the virus responsible for the disease is spread by Culex mosquitoes, which breeds abundantly in water logged areas of paddy fields. The peculiar nature of the Culex mosquito to breed in contaminated water also, increases the potential threat in other areas as well. Role of migratory birds in transmission of JE is an extra risk for Kerala, because our State has many sanctuaries for migratory birds. But since there is an effective vaccine against JE, we can be optimistic in its control programme, by strengthening the JE vaccination. In 2022, two cases and zero death were reported. Four cases and one death have been reported in 2023 (up to August 31). Details of cases and death from 2019 to August 31, 2023 are given in **Table 6.2.8**.

Water borne diseases

The main reason for waterborne diseases is attributed to the unavailability of safe drinking water in many parts of the district especially in tribal and coastal areas. Unhygienic drinking water

Table 6.2.9. Prevalence of water borne diseases in Kerala

Sl. No.	Name of Diseases	2019		2020		2021		2022		2023 (Aug 31)	
		Case	Death	Case	Death	Case	Death	Case	Death	Case	Death
1	Hepatitis - A	1620	7	464	2	114	0	231	2	326	2
2	Cholera	9	0	2	0	1	0	0	0	24	0
3	Typhoid	27	0	16	0	30	0	55	0	78	0
4	ADD (Diarrhoea)	544027	6	250788	1	238227	3	466211	2	350037	2

Source: Directorate of Health Services

sources such as wells, pump houses, water supplied through tanker lorry, leaks in public water supply pipes and the consequent mixing of foul water with drinking water, dumping of wastes including sewage in water sources, use of commercial ice in preparation of cool drinks and using unsafe water in preparation of welcome drinks are some reasons for spread of water borne diseases. Health Department is implementing a programme called “Jagratha” from November 2017 for prevention and control of communicable diseases. There has been a considerable increase in incidents of typhoid in Kerala since 2020. Details of cases and death due to water borne diseases of Acute Diarrhoeal Diseases (ADD), typhoid and Hepatitis from 2019 to 2023 August 31 are given in **Table 6.2.9.**

HIV/AIDS

Kerala State Aids Control Society is the pioneer organisation in the State working with the objective of controlling the spread of HIV as well as strengthening the State’s capacity to respond to HIV/AIDS. The society was formed to implement National Aids Control Programme in the State. The prevalence rate in the State has declined from 0.21 per cent in 2008-09 to 0.13 in 2010-11 and 0.06 per cent in 2021. The prevalence rate in India in 2021 is 0.21 per cent. In Kerala, the prevalence of HIV/AIDS is 0.41 per cent (4.95 per cent in 2011) among injecting drug users (IDU) which is 6.26 per cent at the national level. It is 0.23 per cent (0.36 per cent in 2011) among men having sex with men (MSM) which is 2.69 per cent at the national level and 0.10 per cent (0.73 per cent in 2011) among Female Sex Workers (FSW) which is 1.56 per cent in India in 2017. Among transgender, HIV prevalence rate in Kerala is 0.16

per cent which is 3.14 per cent at the national level. HIV prevalence among migrants in India is 0.51 per cent (Source: Kerala State Aids Control Society). HIV estimates in India and Kerala based on India HIV Estimates 2021 are given in **Table 6.2.10.**

Coronavirus Disease (COVID-19)

The first case of COVID-19 in India was reported in Kerala on January 30, 2020. Kerala adopted

Table 6.2.10 HIV estimates in India and Kerala

Sl. No.	Particulars	Kerala	India
1	Percentage of adult HIV prevalence (15–49 yrs), 2021	0.06	0.21
2	Total number of People Living with HIV, 2021	21,211	24,01,284
3	HIV incidence per 1,000 uninfected population, 2021	0.01	0.05
4	Total number of annual new HIV infections, 2021	403	62967
5	% change in annual new HIV infections, 2010–2021	-66.80	-46.25
6	AIDS-related mortality per 100,000 population, 2021	0.34	3.08
7	Total number of annual AIDS related deaths, 2021	121	41,968
8	% change in annual AIDS related deaths, 2010–2021	-81.69	-76.54
9	Prevention of Mother-to-Child Transmission need	114	20,612

Source: India HIV Estimates 2021, NACO, MH&FW

a multi-pronged strategy in dealing with the pandemic even before the first Covid-19 confirmed case was reported. In fact, Kerala's response to Covid-19 started much earlier than March 11, 2020, when the Director General of the World Health Organisation (WHO) characterised Covid-19 as a pandemic. The containment strategies were well in place when the first case was reported. From the beginning of Covid-19 control activities, the private hospital engagement team was working in close liaison with the district private hospital engagement nodal officers, private hospital managements and Indian Medical Association. Kerala Medical Services Corporation Limited has played the most critical role in the ambulance services by managing the Kaniv-108 ambulances to mobilise the Covid-19 suspects/patients from their houses/exit points to the isolation facilities. During the corona virus outbreak in Kerala, it was decided to provide psycho social support 'Ottakkalla Oppamundu' to the persons in quarantine/isolation and their family members. State level trainings were conducted exhaustively and elaborately covering all staff working in the health sector. Ward level teams were active in all Panchayats and were ensuring daily calls and visits to the homes of the elderly. A series of mass media campaigns were being conducted for Covid-19 awareness from the beginning of 2020 itself. Health Department launched e-Sanjeevani telemedicine services in Kerala on June 10, 2020. They were providing services in a centralised manner and DISHA is the States hub managing the telemedicine activities for the State.

Non-Communicable Diseases (NCD)

Common non-communicable diseases causing great threat to a healthy life are diabetes, hypertension, cardio vascular diseases, cancer and lung diseases. Unless interventions are made to prevent and control non-communicable diseases, their burden is likely to increase substantially in future because of ageing population and changes in life style. Considering the high cost of medicines and longer duration of treatment, this constitutes a greater financial burden to low income groups. Drastic lifestyle changes, heavy dependency on alcohol and tobacco, affinity for white collar jobs, unhealthy eating patterns, low priority for physical exertion, high levels of stress in all strata of population are some of the reasons contributing to the prevalence of non-communicable diseases in the State.

Incidents of obesity, hyper lipedemia, heart attack and stroke are also high. Cancer mortality is extremely high among males in Kerala compared to national average. The survey conducted by Achutha Menon Centre for Health Science Studies, Thiruvananthapuram in 2016-17 reveals one out of three has hypertension and one out of five has diabetes. The study also revealed that the level of normalcy attained for blood sugar and blood pressure even after early detection and management is significantly low compared to the standards.

Even though the state has witnessed a steep decrease in the use of tobacco in the Global Adult Tobacco Survey 2016 report with the prevalence dipping to 12% from 21%, the increasing affinity to alcohol is affecting the health sector with prevalence rate as high as 44% and age of initiation coming down every year. The unhealthy dietary practices and lack of physical exercise in all sections of the population irrespective of the age and economic status have contributed to the rise in lifestyle diseases pointing that 52% of the total death in the productive age group between 30 and 70 being due to one or other cause of NCD. (Source: DHS)

Prevalence of anaemia

The findings of the NFHS-5 (2019 - 2021) reveal that there has been an increase in the prevalence of anaemia among women and children compared to NFHS-4, 2015-16. Kerala is the only state to have recorded a prevalence of less than 40 percent in all targeted age group. Anaemia Mukh Bharat (AMB) strategy was launched in 2018 with the objective of reducing anaemia prevalence among children, adolescents and women in reproductive age group. Anaemia Free Kerala aims to strengthen the existing mechanisms imparted as part of Anemia Mukh Bharth and foster state specific newer strategies for tackling anemia. Details of Anaemia prevalence in Kerala as per NFHS 5 compared to NFHS 4 is given in **Table 6.2.11**.

Even though various State as well as GoI schemes are being undertaken to mitigate anaemia, it still exists. Hence GoK decided to conduct a statewide campaign.

VIVA Project

VIVA (The abbreviation of Vilarchayil Ninnun Valarchayilekku in Malayalam) is an anaemia prevention project which is launched on 18-02-2023. This project is jointly organized by the departments of Health and Family Welfare and

Table 6.2.11 Anaemia prevalence in Kerala as per NFHS 5 compared to NFHS 4

Indicator	NFHS 4	NFHS 5
Children age 6-59 months who are anaemic (<11.0 g/dl) 22 (%) percentage of children in the said age group with a haemoglobin concentration less than 11 g/dL	35.7	39.4
Non-pregnant women age 15-49 years who are anaemic (<12.0 g/dl) 22 (%)	34.7	36.5
Pregnant women age 15-49 years who are anaemic (<11.0 g/dl) (%) percentage of women with a haemoglobin concentration less than 11 g/dL	22.6	31.4
All women age 15-49 years who are anaemic (%) percentage of women with a haemoglobin concentration less than 12 grams per decilitre (g/dL)	34.3	36.3
All women age 15-19 years who are anaemic 22 (%)	37.8	32.5
Men age 15-49 years who are anaemic (<13.0 g/dl) 22 (%)	11.8	17.8
Men age 15-19 years who are anaemic (<13.0 g/dl) 22 (%)	14.3	27.4

Source: NFHS, NFHS 4

Women and Child Development of Government of Kerala. The campaign aims anaemia screening, treatment and awareness among girls and women aged 15 to 59 years. According to the World Health Organization, 42% of children under the age of five and 40% of pregnant women in the world are anaemic. According to the National Family Health Survey-5 in India 2022, the prevalence of anemia among children under 5 years of age, pregnant women and lactating mothers in India is 40%, 32% and 40% respectively. According to the National Family Health Survey, Kerala has the lowest rate of anaemia in India. However, the aim is to make Kerala anaemia free through effective interventions.

Amrutham Arogyam

Amrutham Arogyam is a state run Non Communicable Diseases Control programme. The objectives of the programme are: 1. Reduction of risk factors in the population 2. Health education for the population on healthy diet, exercise and ill effects of addiction 3. Screening for the population above 30 years of age for Non-Communicable Diseases irrespective of their disease conditions and free supply of medicines for all detected with NCDs and 4. Early management and treatment of complications. Amrutham Arogyam programme covers the entire state spreading across all districts and the services rendered through all district/general hospitals, sub district level hospitals, Community Health Centre, Primary Health Centre and even the 5400 Sub centre which cater to a population of five thousand. Kerala is the only state where the entire health system is equipped

with NCD screening programme. The population above 30 years was subjected to screening at the Amrutham Arogyam clinics for NCDs.

Kerala COPD Prevention and Control Programme –SWAAS

Chronic Obstructive Pulmonary Disease (COPD) is one of the leading causes of mortality and morbidity worldwide. As per the 'Global Burden of Diseases' (Institute for Health Metrics and Evaluation (IHME) at the University of Washington) estimates for India, COPD is the second leading cause of mortality in India. Recently the NCD programme has included COPD and Chronic Kidney Disease among the priority NCDs in India. SWAAS is a specific public health programme for COPD in Kerala which is implemented from Family Health Centres (FHC) level as part of Aardram Mission. SWAAS clinics were started in 591 Family Health Centres and 49 Sub Districts/District Hospitals. Details of SWAS clinics, screening and diagnosis of COPD and asthma are given in **Table 6.2.12**.

India Hypertension Management Initiative (IHMI)

The India Hypertension Management Initiative (IHMI) is a collaborative project of Indian Council of Medical Research (ICMR), Ministry of Health and Family Welfare (MoHFW), Government of Kerala, World Health Organization (WHO) and Resolve to Save Lives initiative of Vital Strategies. Kerala State also fused diabetes control and monitoring along with IHMI. The initiative is implemented in four districts of Kerala viz.

Table 6.2.12 Details of SWAAS clinics, screening and diagnosis of COPD and asthma

	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Symptomatic Screening	47601	63206	45444	3750	35244	26076	221321
Swaas clinic-FHC	89	90	91	108	96	117	591
Swaas clinic- DH/GH/THQH	14	25	10	0	0	0	49
Spirometry Screening	9147	18428	1952	299	7017	3978	40821
COPD Diagnosed	4677	11557	3709	737	4764	1605	27049
Asthma Diagnosed	4145	7081	4371	359	3036	1836	20,828

Source: Directorate of Health Services

Thiruvananthapuram, Thrissur, Kannur and Wayanad. The IHMI is focused on five essential components of scalable treatment of hypertension, based on WHO HEARTS Package.

Nayanamritham- Diabetic Retinopathy Screening

Diabetic Retinopathy is a common complication of longstanding Diabetes Mellitus which can end up in total loss of vision. Complete effective treatment of diabetic retinopathy is available if the condition is detected in the early stages. With the technical support provided by E-health, Health Services Department had implemented a care pathway in the public health system involving the primary centres, secondary centres and tertiary care centres in Thiruvananthapuram district of Kerala. ASHA workers and other field workers play an active role in identifying the diabetic patients in the community and encouraging them to take part in the screening programme.

Population Based Screening

In Kerala even though there is clinic based data on the prevalence of Non Communicable Diseases, there is no population based registry of these diseases. The state has initiated population based screening of Non communicable diseases at four districts with the support of ASHA volunteers who would visit the houses in their jurisdiction and collect information on the status of non-communicable diseases and its risk factors. Based

on this data camp based and home based screening will be conducted for those who are unaware of their NCD status and the total data will be consolidated at Health Centre level, District level and State level. An android application was developed by E health for data collection which is used by ASHA workers.

The details of screening done as part of population based screening are given in **Table 6.2.13**.

CAPD Clinics (Continuous Ambulatory Peritoneal Dialysis)

Haemodialysis centres are mushrooming in the state of Kerala due to the increase in patients with renal complications, which have affected quality of life adversely along with the economic burden it has inflicted. To alleviate this situation the state health department has initiated a programme to promote CAPD which is cost effective and convenient to the people as they can continue dialysis without affecting their daily life chores. CAPD centres were set up in all 14 districts.

Stroke Management (SIRAS- Stroke Identification Rehabilitation Awareness and Stabilisation Programme)

Stroke is a complication of Hypertension, which is occurring due to an occlusion of blood vessels due to clot or haemorrhage of cerebral vessels. Stroke Management is time bound and the recovery depends on time frame within the patient

BOX-6.2.2 Shaili App

The government of Kerala is launched an Android App 'Shaili', aimed at diagnosing and controlling lifestyle diseases among the people in the state of Kerala. The app has been set up as part of the population-based screening project launched by the Health Department under the Nava Kerala Action Plan. The Accredited Social Health Activist (ASHA) workers have been tasked with collecting information from persons over the age of 30 in their respective areas about any lifestyle diseases or risk factors they may have. The app was set up under the e-Health initiative. The app would primarily collect information about diseases like diabetes, high blood pressure, heart disease, lung diseases as well as other lifestyle-related ailments and cancers. The health status of the individuals would be scored and those with a score of above four would be asked to visit the nearest health centre for a check-up for lifestyle diseases.

Table 6.2.13 The details of screening done on population based screening

Sl. No.	Component	Number
1	Population above 30 Years	17360285
2	NCD population based survey done	15094350
3	CBAC Score > 4	2760172
4	Referred to Cancer screening	898897
5	Referred for Oral Cancer Screening	41095
6	Referred for Breast Cancer Screening	779795
7	Referred for Cervical Cancer Screening	96186
8	Referred for TB Screening	112159
9	Referred for Respiratory Evaluation	435496
10	Patients already diagnosed with Hypertension alone	1631565
11	Patients already diagnosed with Diabetes alone	1320045
12	Patients already diagnosed with Hypertension and Diabetes	619257
13	Bedridden Patients	107122
14	Homebound Patients	188097
15	Above 60 population surveyed	4544616

Source: shaili.ehealth.kerala.gov.in as on 05.12.2023

reaches the treatment centres which is usually 4 hours. Stroke Management is complicated as the management requires specialised skill, infrastructure and expensive medicines for stroke thrombolysis. Health department started stroke management programme SIRAS by training the Physicians in stroke management at SCTIMST and setting up stroke ICUs in the district hospitals which have CT scan and Tele Radiology services. Nine District Hospitals have started functioning stroke clinics and the rest of the districts are completing stroke ICUs.

Diabetic Foot Clinics (Padasparsham)

Diabetic foot is a major complication of long standing diabetes and may result in loss of limbs if not detected at an early stage. Medical Officers were given training on diabetic foot management by Indian Institute of Diabetes. 82 Diabetic foot clinics are functional in the State.

360 degree Metabolic Centre of Excellence

As a part of the mission to control the life style diseases an exemplary center named 360 degree metabolic center of excellence started functioning at Ernakulam General Hospital, by the Government of Kerala with external support. Patient gets a unique ID once they register at the center. They can then move towards the Pre-

Clinical area where Basic information such as Patient's height, weight, Blood Pressure, etc. are monitored and recorded. With the help of advanced point of care (POC) devices patient gets the test results within short duration from the lab. After analysing the lab reports, if required, doctor guide the patient for further tests and steps such as nutritional counselling, Physiotherapy, Pulmonary function test, Retinal Scanning, Diabetic foot assessment, etc. which are available under one roof. Treatment Summary including test results, diagnosis etc. are getting collected using data base management systems, and the data is saved for future reference. Patient gets the complete treatment summary while they leave the center. Using tele-calling facility patient gets a reminder call before few days of the scheduled follow up date.

Indian Institute of Diabetes

The Indian Institute of Diabetes (IID) at Thiruvananthapuram is an autonomous institution under the Government of Kerala. It is the only institution under the government offering services exclusively for Diabetes Mellitus and its complications. IID, made operational in the year 2001, functions with main centre at Pulayanarkotta near Akkulam in Thiruvananthapuram city. The major activities of this institute are to investigate

the genetic basis of diabetes, provide adequate training for physicians and paramedical staff, provide research support to develop novel methods of treatment, endow academic chairs in diabetes and organise state-of-the-art conferences on various aspects of the disease. Total bed strength of the IID is 40. Average number of new cases detected every year is nearly 6000. Out Patients treated in 2022-23 were 66741, IP were 234 and new cases were 11905. In 2023-24 (Upto August 31) IP, OP and new cases were 208 numbers, 33598 numbers and 4872 numbers respectively.

Cancer

Cancer is a major non communicable disease in Kerala. Apart from Medical Colleges, Regional Cancer Centre, Malabar Cancer Centre and Cochin Cancer Research Centre are the major hospitals in Government sector which offer treatment for cancer patients. Apart from these institutions all the major government hospitals provide cancer treatment. Delay in early detection, huge treatment cost, minimal treatment centres and lack of awareness contribute to high mortality of the disease.

Malabar Cancer Centre

Malabar Cancer Centre, Kannur, an autonomous centre under the GoK, was established with the aim of providing oncology care to the people of north Kerala. The Centre has bed strength of 204 and has many latest facilities for the treatment of cancer patients. In 2022-23, a total of 5566 in patients and 85802 out patients were treated in Malabar Cancer Centre in which new cases were 7795. During 2023-24 (upto 31.08.2023), the number of IP and OP are 2323 and 39952 respectively and new cases are 3112. The average number of new cases detected every year in the centre is 7142 (based on last five years data).

Cochin Cancer Research Centre (CCRC)

Growing concerns over the alarming increase in rates of cancer incidence together with the need of a dedicated tertiary cancer care and research centre in government sector in central Kerala necessitated the birth of Cochin Cancer Research Centre. CCRC is a society registered under Societies Act. The Centre has bed strength of 20 and an additional 100 bedded facility will be ready during the financial year 2023-24. Average number of new cases detected every year is 1,351 Numbers of outpatients treated in 2022 were 13673, IP were 325 and new cases were 1606. In 2023 (upto

August 31), the number of OP and new cases were 7692 and 1009 respectively.

Regional Cancer Centre (RCC)

RCC, Thiruvananthapuram is the premier comprehensive dedicated centre for diagnosis, treatment and control of cancer in Kerala. RCC is rated amongst the top 28 RCCs in the country and maintains a working relationship with international bodies. Daily average patient visits in RCC in 2022-23 are 847. Over the past thirty nine years, RCC has been able to contribute significantly to the increasing needs of cancer care to the people of Kerala and adjoining areas of Tamil Nadu and Karnataka at the lowest possible cost. In 2022-23, 15324 new cases, 242129 review cases and 12346 in-patient admissions were done in RCC. Further details on RCC are covered in section 5.2 of this review.

Mental Health

As per Census of India 2011, 0.20 per cent of the population of Kerala suffers from mental illness and 0.20 per cent suffers from intellectual disability compared to a national average of 0.06 per cent and 0.12 per cent respectively. Although Kerala reports higher levels of mental illness compared to all India average, enough attention has not been given to the field of mental health in Kerala. A mental health policy was approved by the State Government in May 2013. The policy suggests that the treatment for mental illness should be started from the PHCs making the mental hospitals and the department of psychiatric medicines as referral centres by upgrading them. As part of Aardram Mission 'Aswasam' depression management in primary care was started in 241 Family Health Centres across the State. Details of Aswasam Programmeme 2022-23 and 2023-24 are given in **Table 6.2.14.**

In Kerala, three mental health Centre are functioning with bed strength of 1,366. District mental health programme is functioning in all the districts with a total of around 10,000 out patients per month. Rehabilitation facilities are offered through these Centres. Lack of awareness, attitude of general public, neglect of family members and lack of proper follow up are the major problems noticed in this regard. State Government has started 26 day care homes through which 506 cured mentally ill patients are being given day care.

District Mental Health Programmeme (DMHP)

Table 6.2.14 Details of Aswasam Programmeme 2022-23 and 2023-24

Component	Cases 2022-23	Cases 2023-24 (upto August 31)
No of screened cases	12801	7686
No of screened positives	2528	1164
Pharmacotherapy given	1273	555
Psycho Social Intervention done	3881	2044
Referred to DMHP	493	251

Source: Directorate of Health Services

DMHP is functioning in all the 14 Districts of the State. Mental health clinics are being conducted in all PHCs and CHCs in the District by trained doctors of the institutions and medicines are made available to patients from their nearest PHCs. More than 50,000 patients are receiving treatment every month from DMHPs in the State. Other activities include information, education

and communication (IEC) for general public to create awareness and reduce stigma, training for doctors, nurses, pharmacists and health workers for integration of mental health into primary care and targeted interventions such as substance abuse prevention, suicide prevention, geriatric mental health and stress management. Day care centres were started for mentally ill in remission under Comprehensive Mental Health Scheme. Now 31 day care centres are functioning in the State under the scheme. School mental health programme is implemented in the State in association with National Health Mission (NHM). Details of District Mental Health Programme Clinics 2022-23 are given in **Table 6.2.15**.

Institute of Mental Health and Neurosciences (IMHANS)

The Institute of Mental Health and Neurosciences (IMHANS), Kozhikode is an autonomous institution established by the Government of Kerala in 1982. The institute is functioning in the Government Medical College campus, Kozhikode.

Table 6.2.15 Details of District Mental Health Programme Clinics 2022-23

District	Total No: of Clinics conducted	No: of New Cases	No: of Regular Follow- Ups/ Month	No: of Counselling/ Psychotherapy done	No: of Psycho education given	No: of Patients Rehabilitated
TVPM	237	2313	4756	1641	1265	4
KLM	238	1075	1127	908	812	8
PTA	240	515	1254	233	838	16
ALPY	221	1056	966	152	607	0
KYM	192	538	860	764	535	0
IDK	274	669	1008	1143	513	0
EKM	240	1273	1236	305	884	0
TSR	336	579	1130	628	315	0
PKD	228	561	1042	289	866	1
MLP	397	3544	11263	1243	2572	0
KKD	288	692	1474	388	494	0
WYD	239	413	1478	874	804	0
KNR	276	681	1700	720	720	0
KSD	228	654	1674	69	421	2
TOTAL	3634	14563	30968	9357	11646	31

Source: Directorate of Health Services

The institute now runs M.Phil courses in psychiatric social work (8 seats), clinical psychology (8 seats), post basic diploma in psychiatric nursing (10 seats) and has also 3 seats for PhD. In clinical services, the institute currently focuses on community psychiatry, child psychiatry and rehabilitation services. IMHANS has no inpatient facility at present. During 2022-23 number of new OP cases was 9572 and it was 3773 during 2023-24 (upto August 31).

Institute for Communicative and Cognitive Neurosciences (ICCONS)

The Society for Rehabilitation of Cognitive and Communicative Disorders (SRCCD) is a Charitable society registered under the Travancore Cochin Literary, Scientific and Charitable Societies Act 1955. SRCCD has established the ICCONS at Thiruvananthapuram and Shoranur to promote scientific research, clinical services and advanced education and training in the field of communicative and cognitive neuroscience and disabilities. Institute for Communicative and Cognitive Neurosciences (ICCONS) is a pioneer institution under Govt. of Kerala for the comprehensive management, rehabilitation, education, research and development in the field of developmental and acquired disabilities from infancy to elderly such as Autism, Learning Disability, Mental retardation, Cerebral palsy, single and multiple congenital anomalies, epilepsy, post stroke and post traumatic syndrome and various degenerative disorders affecting the nervous system. The center gives specific emphasis to conditions that interfere with cognitive, language and motor functions. A multidisciplinary team consisting of Neurologists, Pediatricians, ENT specialists, Audiologists, Speech Language Pathologists, clinical Psychologists, Physiotherapists and Special Educators are involved in the rehabilitative services provided by the institution. The institute is providing inpatient and outpatient services, rehabilitation programmes such as speech therapy, behavioural training, physiotherapy and linguistics training to the above mentioned group of patients on a regular basis. The ICCONS Shoranur has a 60 bedded inpatient ward with Neuro-ICU for emergency services and advanced fully automated Neuro-endocrine and metabolic lab & electro-physiology lab ready for patient service. The centre is giving treatment to children, adults and the elderly with various acquired and developmental disabilities such as autism, mental retardation, cerebral palsy, single

and multiple congenital anomalies post stroke and post mental traumatic syndrome, adult aphasia, dementia etc. ICCONS is conducting a four year course in graduate Audiology and Speech Language Pathology (BASLP) at ICCONS Shoranur. It is affiliated to KUHS and has the recognition of Rehabilitation Council of India. Annual intake of students is 20. Number of patients treated during 2022-23 in Thiruvananthapuram centre was 17873 and in Shoranur centre was 35035.

Public Health Laboratories

At present, there are 9 Public Health (PH) Labs in the State. There is State Public Health Lab at Thiruvananthapuram, Regional Public Health Labs at Ernakulam, Kozhikode, Pathanamthitta, Kannur, and Public Health Labs at Alappuzha, Malappuram, Wayanad and Kollam. Technical Guidance and material supply to all the PH labs are provided by Director, State Public Health and Clinical Lab. An average of 200 patients attends the laboratories every day for various lab investigations. Average 1300 lab tests are performed every day.

New Born Screening (NBS) Programmeme (2013-23)

The New Born Screening (NBS) Programmeme started in March 2013 was extended to all the delivery conducting Government hospitals in September 2017. The blood samples of newborns are tested through State Public Health and Clinical Laboratory, Thiruvananthapuram and three Regional Laboratories at Ernakulam, Kozhikode and Kannur. The screening test is done for four selected disorders namely Congenital Hypothyroidism, Congenital Adrenal Hyperplasia, Phenyl Ketonuria and G6PD deficiency. Director, State PH Lab is the State Nodal officer for newborn screening programmeme of Kerala. Cumulative total number of samples received for NBS in four PH Labs from april 2013 to March 2023 comes to a total of 1039316 of which positive Congenital Hypothyroidism (552 cases), Congenital Adrenal Hyperplasia (172 cases), G6PD deficiency (335 cases) and Galactosemia (11 cases) were detected.

Family Welfare Programmes

Family Welfare Programme was a 100 percentage CSS during several plan periods and the funding pattern and the financing components of CSS have been changed w.e.f 2016-17 financial year. Central assistance has been limited to salary of the regular staff engaged in implementation of Family Welfare

Programme in the State. Now the programme is being implemented as a part of National Health Mission (NHM) and DHS.

Delivery and Maternal Mortality Ratio

On the basis of the last 10 years data of DHS, the deliveries in government hospital show an increasing trend. Maternal Mortality Ratio in Kerala is 19 which is 97 in India (Source: Special Bulletin on MMR 2018-20). The details of deliveries in public and private hospitals since 2012-13 are given in **Table 6.2.26**.

Immunisation Coverage

Immunisation is one of the most successful and cost effective health interventions and prevents debilitating illness, disability and death from vaccine preventable diseases such as diphtheria, hepatitis A and B, measles, mumps, pneumococcal disease, polio, rotavirus diarrhea, tetanus etc. The coverage of immunisation programmes in Kerala during five years from 2019-20 is given in **Appendix 6.2.15**.

Health Care Institutions

In Kerala modern medical services are offered by the Directorate of Health Services (DHS) and the education sector concerned is dealt by the Directorate of Medical Education (DME).

Health Care Institutions under DHS

At present there are 1,288 health institutions with 38525 beds, 6537 doctors, 14377 nursing staff and 7305 paramedical staff under Health Services Department consisting of 849 PHC/FHCs, 226 CHCs/Block FHCs, 87 taluk headquarters hospitals, 18 District hospitals, 18 general hospitals, 3 mental health hospitals, 10 women and children hospitals, 3 leprosy hospitals, 14 TB hospitals, 2 other speciality hospitals and 58 other hospitals. PHCs/ FHCs are institutions providing comprehensive primary care services including preventive care and curative care. CHCs/ Block FHCs and taluk level institutions form the basic secondary care institutions. District hospitals, general hospitals and maternity hospitals provide speciality services and some super speciality services. Category-wise major medical institutions and beds in Kerala, details of IP and OP cases, major and minor surgeries conducted DHS during 2022-23 and 2023-24 and medical and paramedical personnel under DHS are given in **Appendix 6.2.3, 6.2.4 and 6.2.5**.

District wise distribution of hospital beds in Kerala

District wise distribution of hospital beds in Kerala is given in **Figure 6.2.1** Thiruvananthapuram and Ernakulam districts have higher number of beds as compared to other districts while Kasaragod, Idukki and Wayanad districts have lesser number

Table 6.2.16 The details of deliveries in public and private hospitals since 2012-13 in Kerala

Period	Public	Private	Total	Public %	Private %
2012-13	135941	358563	494504	27	73
2013-14	151277	344980	496257	30	70
2014-15	151524	342112	493636	31	69
2015-16	139808	340841	480649	29	71
2016-17	124115	332293	456408	27	73
2017-18	138510	313617	452127	31	69
2018-19	143847	339989	483836	30	70
2019-20	146174	314209	460383	32	68
2020-21	131620	288187	419807	31	69
2021-22	134093	291546	425639	32	68
2022 - 23	128150	286430	414580	31	69

Source: DHS

of beds. The bed population ratio in Kerala is 1:604 and it is 1:668 for modern medicine alone. The average doctor bed ratio in Kerala is 1:4 and it is 1:5 for modern medicine alone. Doctor population ratio in Kerala is 1:2630. Population here is estimated for the year 2021. These figures are reflecting the status of government sector only and the figures will be much better if private sector is also considered.

Health Assurance

State Health Agency (SHA)

The State Health Agency is the nodal agency for implementing the health insurance scheme in the state.

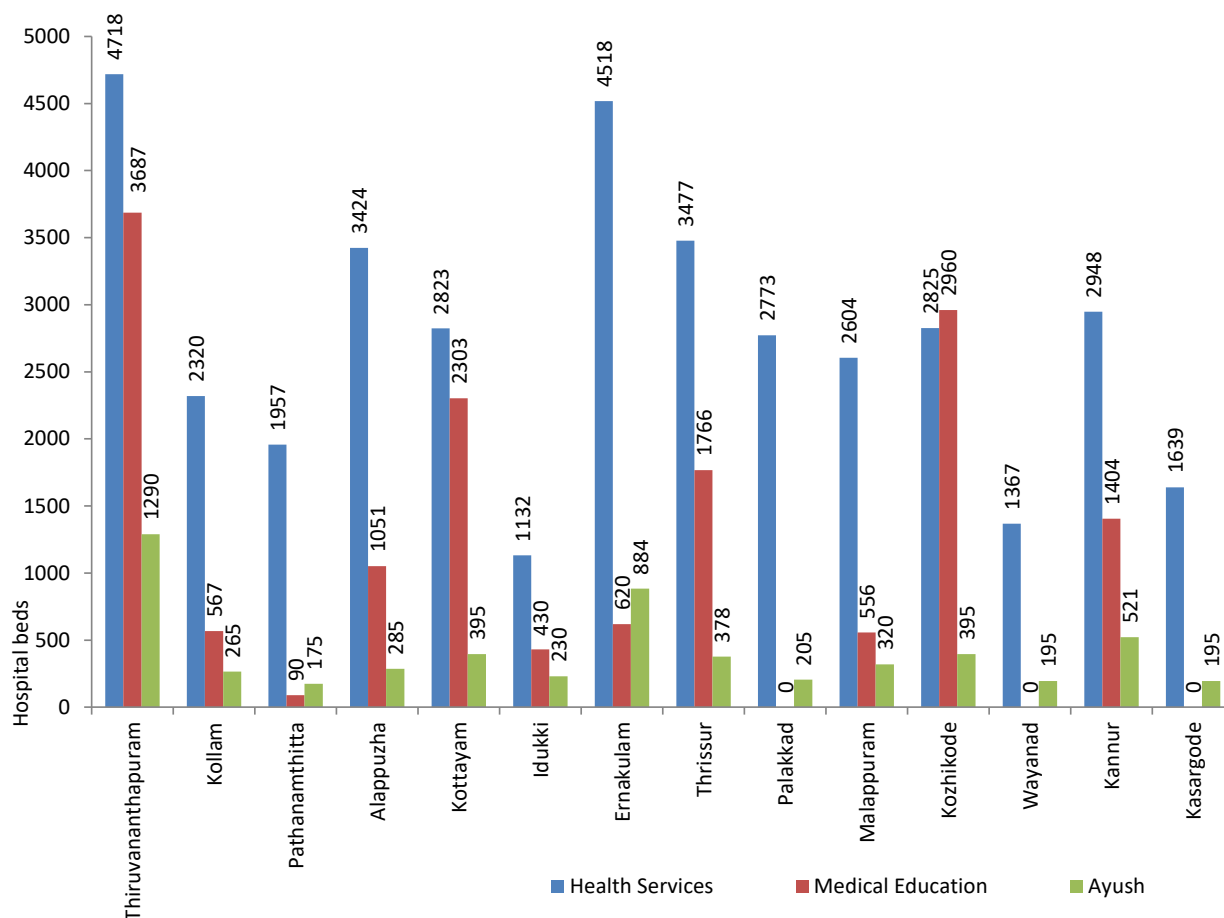
Karunya Arogya Suraksha Padhathi (KASP)

Karunya Arogya Suraksha Padhathi (KASP) is the comprehensive health insurance programme of the Government of Kerala implemented through State Health agency which includes Pradhan Mantri Jan Arogya Yojana (PM-JAY). GoK implemented PM-JAY as KASP. KASP converge

all the Government sponsored health insurance schemes namely, Rashtriya Swasthya Bima Yojana (RSBY), Comprehensive Health Insurance Scheme (CHIS) and Senior Citizen Health Insurance Scheme (SCHIS).

Initially, the scheme was implemented in the State from April 1, 2019 to June 2020 under insurance mode for the entire Rs 5 lakh coverage per family. From July 1, 2020 onwards, the same scheme is being implemented under assurance mode with same Rs 5 lakh coverage per family. A total of 41.99 lakhs families are covered under the KASP scheme out of which 23.98 lakhs families covered under PMJAY and SECC category. Central assistance is limited to the families covered under PMJAY and SECC. The Central Government has fixed premium ceiling of Rs 900 for each family and 60 per cent of that will be given to the State as Central share. The Central Government, therefore, provides Rs 631.2 for each enrolled AB-PMJAY (RSBY) family and hence the expected Central

Figure 6.2.1 District wise distribution of hospital beds in Kerala



Source: Various Health Departments / Institutions

Table 6.2.17 Progress of AB PM-JAY / KASP during 2020-21 to 2023-24 (upto August 31, 2023)

Year	Number of Families Enrolled	Number of Claims	Amount of claims (Rs. in crore)	Claims Paid (Rs. in crore)
2021-22	4162609	1524605	1383.80	1302.97
2022-23	4186868	1120347	1537.54	982.70
2023-24 (up to August 31, 2023)	4198301	403131	619.29	58.36

Source: State Health Agency Kerala

assistance will be Rs.151 Crore (22,00,554 families * 631.2). Total claim amount paid by SHA during 2022-23 was 982.70 crore. About 613 hospitals are so far empanelled, which include 411 private hospitals and 202 Public hospitals including 5 GoI hospitals. Karunya Benevolent fund (KBF) scheme is also included as a separate component under the same Mission.

The details of the progress of AB PM-JAY/KASP are given in **Table 6.2.17** and utilisation of AB PM-JAY/KASP by sector is given in **Appendix 6.2.6**.

Karunya Benevolent Fund (KBF)

The Karunya Benevolent Fund (KBF) scheme was started in February, 2012 by the Government of Kerala to give financial assistance to the members of families from financially backward sections for the treatment of certain chronic diseases. Every family whose annual income is below Rs 3 lakhs as per the Ration Card irrespective of their APL Status can avail for financial assistance under this scheme. However, this income limit is not imposed on the treatment of haemophilia. Every family can avail financial assistance upto Rs 3 lakhs for the treatment of kidney diseases and upto Rs 2 lakhs for other prescribed diseases. One or more people can benefit from the same ration card subject to the limit prescribed above. The scheme was implemented through the Department of State Lotteries. From September 1, 2020 onwards, it is being implemented by State Health Agency. In 2022-23, State Health Agency expended an amount of Rs. 70 crore.

Arogyakiranam

Arogyakiranam is one of the flagship health programmes of the GoK. The programme provides free treatment and related medical services to all patients from birth to 18 years, as an entitlement. Expenses covered by this entitlement include costs incurred for OP registration,

investigations, drugs/implants/materials used in treatment and procedures. The fund for coverage of treatment expenditure was allotted to districts, to be maintained as corpus fund, from which all expenses were debited. The scheme is being implemented by State Health Agency from the financial year 2022-23 onwards. During 2022-23 total number of claims was 13051 and the amount settled was 12.46 crore and the respective figures in 2023 (Upto August 31, 2023) are 10889 numbers and 12.82 crore respectively.

Sruthitharangam

Sruthitharangam is for cochlear implantation surgery among children and its follow-up. Children between 0-5 years of age are eligible for this scheme. However, children above the age group of 5 years will also be considered in cases where the profound hearing loss occurred because of post meningitis injury since it improves the quality of life of the children above 5 years. Cost of the procedure is Rs.5.2 Lakh and an average of 200 applications are settled every year and 200 up gradations are also settled.

Thalolam

Thalolam scheme aims to provide free treatment to the children below age of 18, who are suffering from Kidney diseases, Cardiovascular diseases, Cerebral Palsy, Brittle Bone Disease, Hemophilia, Thalassemia, Sickle Cell Anemia, Orthopedic deformities and other Neuro-Developmental Disabilities, Congenital anomalies (Endosulfan victims) and accident cases which need surgery.

Cancer Suraksha for Children

Recognising the urgent need to extend financial support to cancer victim children, who are too poor to afford treatment, State launched Cancer Suraksha Scheme on 1st November 2008 for children below the age of 18 who suffer from cancer.

National Health Mission (NHM)

National Health Mission is a Centrally Sponsored Scheme which includes two sub missions NUHM and NRHM. NHM has five financing components to the States, viz. (i) NRHM/RCH Flexi-pool, (ii) NUHM Flexi-pool (iii) Flexible pool for communicable diseases, (iv) Flexible pool for non-communicable diseases including injury and trauma and (v) Infrastructure Maintenance. Under the infrastructure maintenance component, support has been given over several Plan periods, to States to meet salary requirement of schemes namely, Direction and Administration (Family Welfare Bureaus at State and District level), Sub Centres, Urban Family Welfare Centres, Urban Revamping Scheme (Health Posts), ANM/LHV Training Schools, Health and Family Welfare Training Centres and Training of Multi-Purpose Workers (Male).

NHM is implemented in the State for the development of health care delivery with Central Government funding. 40 per cent of the total fund is given to the NHM by the State Government as state share. NHM supports the Health Services Department, Directorate of Medical Education and AYUSH Departments. National Rural Health Mission aims to provide accessible, affordable and accountable quality health services to the poorest households in the remote rural regions. Under NRHM, the focus is on a functional health system at all levels, from the Village to the District. There are 102 Urban PHCs under NHM. Total GoI release to the State from 2016-17 to 2023-24 is given in **Table 6.2.18**. Total staff strength

of NHM is 12,003 (upto August 2023) under medical, paramedical and other categories.

State Institute of Medical Education and Technology (SI-MET)

SI-MET was established in the State in 2008 to promote medical education and research. There are four nursing colleges functioning under SI-MET with an annual intake of 280 students. A total of 1058 students are studying in the Nursing Colleges of SI-MET as on October 2022. Also Government has accorded Administrative sanction and NOC for starting of 7 new Nursing Colleges with an intake of 60 B.Sc Nursing students each.

Child Development Centre (CDC)

Child Development Centre (CDC) established by the GoK is an autonomous Centre of excellence in early child care and education, adolescent care and education, pre-marital counseling, women's welfare and other related fields to reduce childhood disability through novel scientific initiatives and create a generation of prospective and responsive parenthood through healthy children and adolescents. The number of patients treated in 2021-22 was 20,511. Only out-patient services are available and there is no facility for admitting patients. Sixty training programmes, conferences and community extension programme were conducted by CDC for 4000 participants during 2022-23. The number of student intake is two (PG).

Drugs Control Department

The responsibility of the Drugs Control Department is to ensure the availability of quality

Table 6.2.18 Release of central assistance for NHM from 2016-17 to 2023-24 (up to October 31) Rs. in crores

Year	Central share for NHM activities	Central release for COVID Activities	Central release for Infrastructure Maintenance	Total Central release	State share released
2016-17	191.95	0	252.49	444.44	302.80
2017-18	241.31	0	255.41	496.72	258.11
2018-19	271.06	0	574.61	845.67	226.96
2019-20	299.12	74.21	430.26	803.59	430.29
2020-21	341.95	583.04	404.69	1329.68	957.51
2021-22	327.25	222.71	381.42	931.38	489.32
2022-23	603.64	0	381.42	985.06	684.65
2023-24	0	0	103.15	103.15	228.01
Total	2276.28	879.96	2783.45	5939.69	3577.65

Source: NHM Kerala

drugs to the public and see that the market is free from counterfeit, spurious and substandard drugs and no drugs are sold at a price higher than the retail price marked on the container. The department has 6 Regional Offices, 11 District Offices, 4 ayurveda wing offices and 4 drugs testing laboratories (Thiruvananthapuram, Ernakulam, Pathanamthitta and Trissur). NABL accredited drug testing laboratories are functioning at Thiruvananthapuram and Ernakulam with an analytical capacity of 11,500 samples per annum. Establishment of one more laboratory at Kannur is in progress. There are around 23,000 licensed medical shops/dealers and pharmacies, in the State. Rule 51 of the Drugs & Cosmetics Rules, 1945, stipulates that the Drugs Inspector shall inspect not less than once a year, all establishments licensed for the sale of drugs within the area assigned to them. At present there are 47 posts of Drugs Inspectors in the state. Major achievements of the Department in 2022-23 are given in **Table 6.2.19**.

Commissionerate of Food Safety Kerala

Food Safety and Standards Authority of India has been established under the provisions of Food Safety and Standards Act, 2006 as a statutory body for laying down scientific based standards for articles of food and to regulate manufacture, storage, distribution, sale and import of food so as to ensure availability of safe and wholesome food for human consumption. The department aims to ensure safe and healthy food and water to the citizens of Kerala and to develop healthy food habits. Government Analyst's laboratory at Thiruvananthapuram, two Regional Analytical laboratories at Ernakulam and Kozhikode and State Food Testing Laboratory at Pathanamthitta are under Commissionerate of Food Safety.

Table 6.2.19 Major achievements of the Drugs Control Department in 2022-23

Number of inspections conducted	15935
Number of prosecutions initiated	79
Number of sale licences suspended as deterrent measure	308
Number of samples tested	9765
Number of new manufacturing licenses issued (Modern medicine and Cosmetics)	48
Number of price violations detected and reported to National Pharmaceutical Pricing Authority	65

Source: Drugs Control Department

Testing of water, milk, common adulterants like colour, artificial sweetener, extraneous matter, and fungal growth are carried out in these laboratories. Three analytical laboratories viz., Government Analysts' Laboratory, Thiruvananthapuram, Regional Analytical Laboratories at Ernakulam and Kozhikode have got NABL accreditation. Major achievements of the Department in 2022-23 and 2023-24 are given in **Table 6.2.20**.

The State of Kerala has been awarded Ist Rank with 63 points (in the category of larger States) in State Food Safety Index 2022-23 released by FSSAI on June 2023 based on overall performance on various parameters viz. human resources and institutional data, food safety compliance, food testing infrastructure and surveillance, training and

Table 6.2.20 Major achievements of the Commissionerate of Food Safety in 2022-23 and 2023-24

Programmames	2022-23	2023-24 (upto August 31)
No. of Inspections carried out by Quick Response Team (QRT)	48910	23042
No. of Food Poison Cases attended by the QRT	66	32
No. of License Issued	44135	12971
No. of awareness activities conducted by using Mobile Food Testing Lab	2152	1143
No. of food handlers trained under FoStaC training initiative	574 Training & 22,700 trainees	115 Training & 6795 trainees
Hygiene Rating Audits conducted	978	1311
No. of Schools in which Safe and Nutritious Food @School (SNF@School) has been implemented	500	100
No. of Panchayats in which Sampoorana Bhakshya Suraksha Grama Panchayath programmeme has been implemented	140	25
Lab Analysis No. of food samples Analysed	33849	17690

Source: Commissionerate of Food and Safety

capacity building and consumer empowerment. Panjab is ranked second in the category of larger States with 57.5 points and Tamilnadu is ranked in the third position in the category of larger States. Every Year, FSSAI releases the State Food Safety Index based on the overall performance of the States/ UTs in the previous financial year to create a positive competitive environment across the States/ UTs to meet the objectives of the Food Safety and Standards Act to provide safe food to general public at large.

Eat Right Millet Meals

UN had declared 2023 as the International year of Millets. As per the direction of FSSAI, Kerala organized maximum number of Eat Right Millet Melas to create awareness about millets as a healthy and nutritious food option. As part of Eat Right Millet Mela, Walkathon, Cyclathon, Yoga, Seminars, Exhibitions of Millets and its value added products were also conducted. Kerala Food Safety Department has conducted Eat Right Millet Melas in all districts to promote and popularize the use of Millets and to nudge consumer's behavior towards right eating practices. FSSAI awarded Kerala Food Safety Department with certificate of appreciation for conducting maximum number of Eat Right Millet Melas across all districts of Kerala.

Medical Education

In Kerala, medical education is imparted through 11 medical colleges at Thiruvananthapuram, Alappuzha, Kozhikode, Kottayam, Manjeri, Ernakulam, Kollam, Thrissur, Kannur, Konni and Idukki districts. Nursing education is imparted through 7 Nursing Colleges in Thiruvananthapuram, Kozhikode, Kottayam, Alappuzha, Ernakulam, Kannur and Thrissur districts. six Dental Colleges are functioning at Thiruvananthapuram, Kozhikode, Alappuzha, Thrissur, Kannur and Kottayam districts. Besides, four colleges of Pharmacy and one Paramedical Institute are also functioning under the Department. Works for establishing new medical colleges are progressing in Wayanad and Kasaragod.

Total number of faculties under DME as on August 31, 2023 is 3454. Total number of medical and paramedical seats in 9 medicals colleges in 2022-23 was 5233 which is 6168 in 2023-24. Medical and Para medical courses conducted in Government medical colleges with annual intake of students, details of clinical and non-clinical personnel in Medical Colleges under DME, in

2023-24 are given in **Appendix 6.2.7 and 6.2.8**. A comparative analysis of the status of medical college hospitals and attached institutions in 2022-23 and 2023-24 is given in **Appendix 6.2.9**. The bed strength has increased by 68 in 2023-24 in Medical College institutions as compared to the previous year figure of 15035.

Kerala University of Health and Allied Sciences (KUHS)

Kerala University of Health Sciences was established as per the Kerala University of Health Science Act, 2010 with the aim of ensuring proper and systematic instructions, teaching, training and research in modern medicine, homeopathy and Indian system of medicine and allied health sciences in Kerala. Academic activities of the University commenced in academic year 2010-11. The number of institutions affiliated to University (upto October 2023) is 340 with 45 Government colleges, 5 Government aided colleges 6 self-financing co-operative colleges and 284 self-financing colleges. The colleges fall under all systems of medicine such as modern medicine, ayurveda, homeopathy, sidha, unani, yoga, naturopathy, nursing, pharmaceutical science and paramedical courses. Details of the Government, aided and unaided colleges affiliated under various streams are given in **Table 6.2.21**.

Graphical representation of the Government, aided and unaided colleges affiliated to Kerala University of Health and Allied Sciences (KUHS) as on October 2023 is given in **Figure 6.2.2**. Government and Government aided colleges constitute only 14 per cent of the total number of colleges affiliated to KUHS.

The total intake of students during 2023-24 is 23,381 (4504 males and 18,874 females) under various health sciences streams. Details of annual intake of students in each discipline and male / female count of students in each discipline are given in **Table 6.2.22**.

AYUSH

Indian System of Medicine (ISM)

Ayurveda is science dealing not only with treatment of disease but also a complete way of life. The department of Indian System of Medicine renders medical aid to the people through the network of ayurveda, sidha, unani, visha, netra and naturopathy institutions. Speciality hospitals such as mental hospital (1), panchakarma (1), nature cure (1), siddha (1), visha (3), sports ayurveda (1)

Table 6.2.21 Details of the Government, aided, and unaided colleges affiliated under various streams, number as on August 2023

Stream	Government	Aided	Self-financing (Co-operative)	Self-financing (Pvt.)	Total
Medicine	13			20	33
Dental	6			20	26
Ayurveda Medicine	3	2		12	17
Homeo Medicine	3	3			6
Sidha Medicine				1	1
Nursing	9		2	127	138
Pharmacy	5		1	52	58
Paramedical	6		3	51	60
Unani Medicine				1	1
Total	45	5	6	284	340

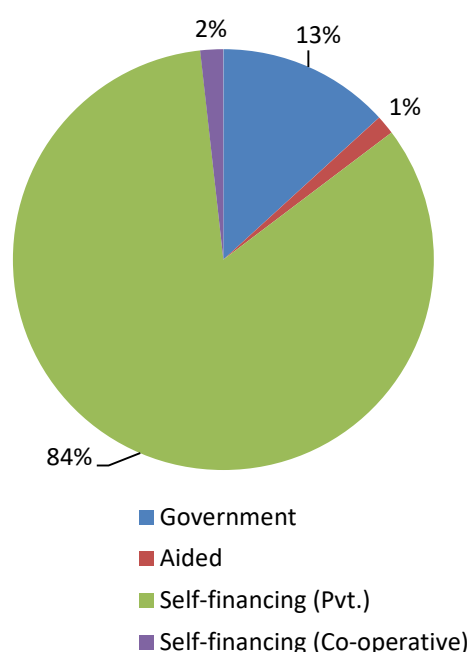
Source: Kerala University of Health and Allied Sciences

and marma (1) are also functioning under this Department. At present there are 130 hospitals and 818 dispensaries under the Department which include Ayurveda (806), visha (4), siddha (6), nature cure (1) and unani (1). Total bed strength of these hospitals is 3,154. The State Medicinal Plants Board co-ordinates matters relating to cultivation, conservation, research and

development and promotion of medicinal plants in the State. District-wise distribution of institutions, beds, IP, OP and doctors under ISM department in 2021-22 and 2022-23 is given in **Appendix 6.2.10**.

Special projects were implemented by the ISM department in 2022-23 and 2023-24 in addition to the normal medical treatment. They are Drishti, Jeevani, Punarnava, Snehadhara, Geriatric Care, Yoga, Sports Medicine, Panchakarma, Ksharasutra,

Figure 6.2.2 Government, aided, and self-financing colleges affiliated under KUHS, in per cent



Source: Kerala University of Health and Allied Sciences

Table 6.2.22 Details of annual intake of students as on October 2023

Stream	Male	Female	Total
Medicine	1765	3954	5719
Dental	237	1433	1670
Ayurveda Medicine	121	772	893
Ayurveda Nursing	2	19	21
Ayurveda Pharmacy	5	20	25
Homeo Medicine	36	344	380
Sidha Medicine	3	6	9
Nursing	1224	7027	8254
Pharmacy	741	3034	3775
Paramedical	362	2248	2610
Unani Medicine	8	17	25
Total	4504	18874	23381

Source: Kerala University of Health and Allied Sciences

Manasikam, koumarabhrithyam, prosoothithantra, sickle cell, Nirvisha, siddha and Child and adolescent care. Details of special projects, districts implemented and number of beneficiaries is given in **Appendix 6.2.11**.

AYUSH (Ayurveda, Yoga and Naturopathy, Siddha, Unani and Homoeopathy)

GoI has set up two regulatory bodies to set standards of medical education. The Central Council of Indian Medicine (CCIM) under Indian Medicine Central Council (IMCC) Act, 1970 regulates educational institutions and practitioners in respect of Ayurveda, Unani and Sidha systems of medicines. The Central Council of Homeopathy (CCH) under Homeopathy Central Council Act, 1973 regulates educational institutions and practitioners in respect of Homeopathy system of medicines. At present Yoga and Naturopathy, being drugless systems, are not regulated.

National AYUSH Mission

Department of AYUSH, Ministry of Health and Family Welfare, GoI has launched National AYUSH Mission (NAM). The basic objective of NAM is to promote AYUSH medical systems through cost effective AYUSH services, strengthening of educational systems, facilitate the enforcement of quality control of ayurveda, sidha, unani and homeopathy drugs and medicinal plants. The funding pattern is 60:40 by Centre and State. GoK started the Ayush Department in the State on August 8, 2015. GoI fund release for the last five years is given in **Table 6.2.23**.

Central release for National Ayush Mission to Kerala has seen increased over different financial years.

Ayurveda Medicine Manufacturing – OUSHADHI

OUSHADHI is the largest manufacturer of ayurvedic medicines functioning in India in the public sector. It is one among the few profit making public sector undertakings. Oushadhi is the exclusive supplier of ayurvedic medicines to Government Hospitals and dispensaries of Ayurveda Department. In Kerala, Oushadhi supplies medicines to State ISM department at 30 per cent less than the market price and ISM Department supplies this medicine to the poor patients in the State free of cost. The company also caters to the demand of the public through a network of 840 exclusive agencies spread in and outside the State. The profit of the firm before tax in 2022-23 was Rs 187.73 crores which is an increase from Rs 183.25 crores in 2021-22.

Ayurveda Medical education – Ayurveda Colleges

There are 3 Government Ayurveda colleges situated at Thiruvananthapuram, Thrissur and Kannur having bed strength of 1,363. Total number of inpatients treated in 2022-23 was 10269 and outpatients treated were 360032. It is 3863 and 150765 respectively in 2023-24 (upto August 31). Panchakarma hospital and Women and Children hospital are also functioning under the Government Ayurveda College Thiruvananthapuram. There are two aided Ayurveda colleges, 12 self-financing Ayurveda colleges, one self-financing siddha college, one self-financing Unani college and 6 paramedical self-financing colleges for imparting medical education in the State. Annual intake of students for UG Degree in Government is 454, PG Degree 162

Table 6.2.23 Year wise Resource Allocations of National AYUSH Mission Kerala (Rs. in lakhs)

year	GoI Resource Envelope	Proposal sub-mitted	Approval received from GoI	Central share released	State share released
2018-19	2700.30	5819.47	4329.73	2597.84	1731.89
2019-20	2072.80	3507.76	2567.55	1540.54	1027.025
2020-21	3544.30	4461.68	3895.98	2337.59	1558.39
2021-22	2440.50	3499.48	3462.43	2077.28	1384.85
2022-23	4229.70	10072.72	9777.40	5866.44	3910.96
2023-24 (upto August 31)	9869.90	17882.31	17754.33	10692.59	7101.73
Total	24857.5	45243.42	41787.42	25112.28	16714.845

Source: National Ayush Mission Kerala

and PG Diploma 30. College wise distribution of beds and patient treated under Ayurveda Medical Education in Kerala during 2022-23 and 2023-24 (upto August 31) is **given in Appendix 6.2.12**

HOMOEOPATHY

There are 669 homoeopathic dispensaries, 14 District hospitals, 17 taluk hospitals, 2 ten-bedded hospitals and one hospital with total bed strength of 1000 under Homeopathy Department in the State. In addition, Kerala State Homoeopathic Co-operative Pharmacy (HOMCO) Alappuzha, a medicine manufacturing unit is also functioning under the Homeopathy Department. HOMCO is running in profit for the last 30 years. In 2022-23, net profit of Homco amounts to Rs 9.40 crore. District-wise distribution of institutions, beds and patients treated under homeopathic department in 2022 and 2023 is given in **Appendix 6.2.13**.

Homoeo Medical Education

Homoeo medical education is imparted through two Government homeopathic medical colleges at Thiruvananthapuram and Kozhikode. In addition to this 3 aided colleges and one unaided paramedical institute are functioning under this Department. Total bed strength of the Government homeopathic medical college at Thiruvananthapuram is 116 and Kozhikode 100. Patients treated in these two Medical Colleges in 2022-23 in IP and OP were 1793 and 244042 respectively. In 2023-24 the respective figures were 605 and 98585 (upto August 31). Annual intake of students and courses in the six Homoeo Medical Colleges and one paramedical institute / college wise distribution of beds and patients treated are given in **Appendix 6.2.14**.

BOX-6.2.3 Major achievements of the health sector

Total number of doctors in Govt. hospitals	13696
Total number of doctors in Modern Medicine	10704
Total number of doctors in Ayush	6285
Total number of beds in Govt. hospitals	59692
Total number of beds in Ayush Govt.	5733
Total number of beds in Modern Medicine in Govt.	53959
Number of Govt. medical institutions with bed	1471
Number of medical and paramedical personnel under DHS	28219
Number of UG seats in Govt. Medical colleges	3799
Number of PG/Speciality seats in Govt. Medical colleges	1313
Number of Paramedical Diploma seats in Govt. Medical colleges	1056
Number of persons from electronic health records collated (e-health)	2,59,55,998
Percentage of Health Expenditure to total Government Expenditure (2021-22 ACC)	7.32
Percentage of Health Expenditure to GSDP (2021-22 ACC)	2.08
Number of families enrolled in KASP	41.98 lakh
Total number of colleges affiliated to KUHS	340
Total number of students affiliated to KUHS in an year	23381
Number of NQAS accredited Govt. institutions in the State	148
Number of KASH accredited Govt. institutions in the State	178

Source: Various Health Departments / Institutions

The Way Ahead

Improvement in health status of the people is one of the crucial indicators of human development in a community. A healthy society can contribute more significantly and effectively to economic development. Kerala's strength lies in its strong public health care system. Health facilities have to be continuously upgraded to meet new and existing challenges. There are issues to be addressed specifically in the areas of general health, rural health, tribal health, women health, mother-child health care, health insurance and medical tourism during the 14th Five-Year Plan period. The public health care system has to be strengthened further to face these challenges.

6.3 IMPACT OF CHANGING DEMOGRAPHIC PROFILE

Population aging will be one of the most important social phenomena of the next half century. This issue is important because people of different ages have different capabilities, interests, needs, and intentions, so shifts in age structure gradually change the points of emphasis in public policy initiatives. Changes in the aggregate age structure are mirrored within nearly all social institutions, from governments and firms, to families. How these institutions accommodate impending changes in population age structures will have a significant effect on quality of life in the twenty-first century.

The Government of Kerala has embraced a comprehensive approach to address social justice and welfare by implementing a range of schemes in critical areas such as health, nutrition, education, and employment, among others. In response to its aging population, the state has introduced a variety of initiatives, including old age pensions, day care centres, and mobile medicare units. Additionally, palliative care services have been integrated into primary health services, enhancing support for senior citizens.

The number and proportion of the elderly population is increasing at a fast pace globally, and in Kerala. The global population is expected to reach 8.5 billion in 2030 and 9.7 billion in 2050, as per World Population Prospects 2022 by the United Nations. Demographic transition i.e. distribution of the population in favour of older ages, referred as 'population aging', is occurring. This is primarily due to the reduction in fertility and increase in longevity achieved through

economic well-being and better healthcare facilities. The Old Age Dependency Ratio (OADR), defined as the number of persons aged 65 years and over per 100 persons of working age (20 to 64 years), is the most commonly used indicator for monitoring changes in the age structure of the population. The Old Age Dependency Ratio is projected to increase in all regions of the world. The percentage of persons aged 65 or over worldwide has grown from 6 per cent in 1990 to 10 per cent in 2022, and is projected to increase further to 16 per cent in 2050. In most parts of the world, survival beyond 65 years of age is increasing. The improvement in life expectancy at birth has been overrun by the improvement in life expectancy at older ages (World Population Prospects, 2022).

The United Nations Decade of Healthy Ageing (2021-2030) is a global collaboration that brings together Governments, civil society, international agencies, professionals, media, and the private sector to improve the lives of older people, their families, and the communities in which they live. They stand for healthy ageing. It is more than merely the absence of diseases. The living arrangements of older people are important determinants of their well-being.

Demographic Transition – India and Kerala

According to Census 2011, there are nearly 104 million elderly persons (aged 60 years or above) in India with 52.8 million females and 51.1 million males. The percentage of elderly has been increasing at an increasing rate in the country in recent years and the trend is likely to continue in

the coming years. Amongst South Asian countries, pace of ageing in India is moderate with the proportion of the aged increasing to 20 percent in 2050 and 36.1 percent in 2100 (India Ageing Report 2023).

The aging population of the State has also been increasing in recent decades. According to Census 2011, the percentage of the population in the age group 60 years and above to the total population was 12.6 for Kerala as against the national average of 8.6 per cent. The old age dependency ratio was 19.6 per cent for Kerala and 14.2 per cent for India.

Elderly in India report, 2021 highlights that the high growth rate in the elderly population is spectacular compared to the general population rise. The rate of growth of the general population was 12.4 per cent during 2011-2021, whereas the growth rate was 36 per cent for the elderly during the same period. Thereby the percentage share of elderly persons to the total population in India is also on the rise and it is projected to reach 13.1 per cent in 2031 from 10.1 per cent in 2021. The figures show that Kerala ranks top in the proportion of elderly people (16.5 per cent) to the total population and it is projected to reach 20.9 per cent in 2031. The annual growth rate of the elderly population is projected to be 3.28 per cent at the national level, whereas it is 3.96 per cent for Kerala.

The number of elderly females in India is projected to exceed males in 2031. Out of the projected total population of 194 million in 2031, 101 million will be females and 93 million will be males. Data on the sex ratio of the elderly population is in tandem with the general population. As per the projected population for 2031, the ratio is projected to be 955 and 1,085 for general population and elderly, respectively.

Economic Status of Elderly Population

An increasing trend is observed in the old-age dependency ratio. The ratio has increased from 14.2 per cent in 2011 to 15.7 per cent in 2021 and is projected to be 20.1 per cent in 2031, at the all-India level. Among the States, the old age dependency ratio of Kerala was 19.6 per cent as per the 2011 Census, and which is projected to be 34.3 per cent in 2031. The OADR projections for India show 21.5 per cent and 18.8 per cent for females and males, respectively in 2031. The female old-

age dependency ratio, as compared to male, is significantly higher in States like Kerala, Gujarat, and Jammu and Kashmir.

As per NSS 75th Round, Social Consumption on Health in India conducted in 2017-18, there is a wide variation in the economic status of elderly females as compared to that of elderly males. Among elderly females, only 10 per cent in rural and 11 per cent in urban areas were economically independent. The corresponding percentages were 48 and 57 for elderly males.

Health and Social Status

Old age is characterised by a broad spectrum of health conditions. It includes chronic diseases, mental health issues, mental and physical health issues arising from senility, physical disabilities, and other comorbidities. Elderly in India Report 2021 highlights the health status of the elderly population based on the findings of NSS 75th Round (July 2017 to June 2018) Social Consumption on Health in India. The proportion of physically mobile elderly persons in the age group 60-64 years is almost the same in rural and urban areas in 2004 and 2017-18. In 2004, it was 94.7 per cent (rural and urban), and 96.4 per cent in 2017-18. In Kerala, the percentage distribution of aged persons by the state of physical mobility is 92 for males and 87 for females. Based on the rural-urban classification, the distribution is 88 per cent for rural and 91 per cent for urban.

At the national level, the most prevalent disability among elderly persons is the locomotors disability (5.5 per cent), followed by hearing disability (1.6 per cent) and visual disability (1.4 per cent). (NSS 76th Round, July to December 2018 – Persons with Disabilities in India).

Interventions of the Government of Kerala

Vayojana Nayam 2013 (The Old Age Policy) of the Government of Kerala acts as a guideline to prepare an Action Plan to frame schemes and projects for the welfare of all citizens above the age of 60, especially elderly women. The policy aims to provide better social, economic, and healthy life to the senior citizens of the State.

Old Age Pension Scheme

This is a non-contributory pension scheme for citizens aged 60 years and above, of the BPL category. The beneficiaries of social security pensions receive a monthly pension of Rs 1,600,

of which the greater share is met by the State Government. The Central share contribution is Rs 200 per month for persons aged 60-79 years and Rs 500 for 80 years and above. The remaining amount is met by the State Government. As on November 2023, there are 26.44 lakh beneficiaries eligible for old age pension. The beneficiaries of old age pension, LSGI-wise, as on November 2023 are given in **Table 6.3.1**.

Table 6.3.1 Old age Pension beneficiaries (LSGI-wise)

Old age Pension (LSGI-wise)	No. of Beneficiaries as on 13.11.2023 (in lakh)
Grama Panchayat	21.30
Municipality	3.27
Corporation	1.87
Total	26.44

Source: Sevana Pension, IKM

The Government of Kerala has developed an online system Sevana Pension through the Information Kerala Mission, for the distribution of social security pensions to beneficiaries. The eligible beneficiaries are identified and pensions are distributed through Local Governments. The State has successfully introduced the system of Direct Benefit Transfer.

Institutions for Elder Care

The Department of Social Justice runs old age homes, regulates the operations of such institutions outside Government, and implements schemes for the elderly. Sixteen Government old age homes are functioning under the control of the Social Justice Department.

Apart from the old age homes run by the Department, there are nearly 623 registered old age homes under the Orphanage Control Board. Monitoring the functioning of these old age homes is essential to protect the rights of the elderly occupants. The number of persons in old age homes in 2022-23 has decreased compared to previous years, as seen in **Table 6.3.2**.

In addition to this, the department runs Sayamprabha Homes to provide day care facilities to the elderly, in cooperation with Local Governments. It was initiated in 82 LSGIs in 2018. The Local Self-Governments had been running 'Pakal Veedu' (Day Homes) for the daytime care of the elderly and later on, these were

Table 6.3.2 Number of persons in old age homes in Kerala, 2016-17 to 2022-23

Year	No. of inmates
2016-17	19,149
2017-18	27,272
2018-19	28,029
2019-20	28,021
2020-21	28,788
2021-22	30,105
2022-23	25,945

Source: Social Justice Directorate, GoK

upgraded to Sayamprabha Homes, incorporating recreation, health care, and nutritional supply for the elderly. During 2022-23 an amount of Rs 53,62,007 has been expended for 54 day care centres.

The Department also piloted 'Model Sayamprabha Homes' in Thiruvananthapuram and Kozhikode districts as Multi-Service Day Care Centres for various old age needs. The "Second Innings Project" aims to improve the quality of life of senior citizens living in Government old age homes. Basic amenities such as shelter, food, medical care, and entertainment opportunities are provided to the beneficiaries. In 2022-23, Rs 48,29,737 has been expended for this scheme.

Dementia Care Programme: The Kerala State Initiative on Dementia has initiated a programme called 'Smruthipadham'. The initiative is undertaken by the Social Justice Department and the Alzheimers and Related Disorders Society of India. Under the project, a day care facility is available at Kunnamkulam, and a full-time day care centre at Edavanakkad, Ernakulam. In 2022-23 an amount of Rs 15,83,693 has been expended for this scheme.

Schemes for the Elderly implemented by the Government of Kerala

Kerala has the highest percentage of elderly population in the country. One of the major challenges faced by the elderly population is the lack of social support as age advances. As the elderly population is not a homogeneous group, it is crucial to understand the demographic ageing in Kerala, and the factors influencing their health, disability, living arrangements, and economic independence, to form a strategy to address the

problems they face. There are many intersections to be considered such as specific needs and challenges faced by those above 80 years of age, widows/unmarried/childless women, persons with disability, those with no living immediate relatives, those living alone, destitute, and those who suffer from serious or deadly illnesses.

Social security and social protection schemes for the elderly population also fall under the responsibility of the State Government. The Social Justice Department and Kerala Social Security Mission are the two agencies at the forefront of implementing schemes for the elderly. The Social Justice Department is the nodal department for the implementation of schemes for the elderly. Additionally, Local Governments and elderly self-help groups have a major role to play in elderly care. Similarly, several NGOs and charitable organisations are at the forefront to serve elderly people. Recognising the importance of care for the elderly, Kudumbashree also plays a pivotal role through its involvement in (i) an elderly inclusion programme, (ii) a destitute rehabilitation programme (Asraya), and (iii) palliative care.

Some of the programmes formulated by the State Government for the welfare of elderly persons in Kerala are given below:

Programmes under Sayamprabha scheme: This is a comprehensive package, implemented by the Social Justice Department, for the creation of an old age-friendly environment, facilitating aged people to withstand the challenges and achieve overall physical as well as mental health in the most meaningful way and sustainable manner. The following programmes are implemented under Sayamprabha scheme:

- Model Sayamprabha Homes are functioning as multi-service day care centres for the elderly. During 2022-23 an amount of Rs 53,62,007 has been expended for 54 day care centres.
- Vayoposhanam scheme provides food kits to ensure the health and nutrition of senior citizens in Sayamprabha day care centres. In 2022-23, an amount of Rs 39,48,536 has been expended for 2,572 beneficiaries

- Vayoreksha scheme provides emergency first aid, emergency assistance for the treatment, surgery, ambulance service, rehabilitation etc. to the indigent and abandoned elderly. In 2022-23, Rs 10,93,147 has been expended for 122 beneficiaries.
- Vayoamrutham project is implemented with the support of the Indian System of Medicine for Ayurveda treatment for persons in Government old age homes. Every year, residents of 16 Government old age homes avail benefits of the scheme. An amount of Rs 1,05,83,678 has been expended, and benefitted 900 in the year 2022-23.
- Psycho-social Care in Old Age Homes is provided in association with NIMHANS, Bengaluru.
- Under Vayomadhuram scheme, 865 glucometers were supplied to diabetic elderly people in the BPL category, free of cost.
- Vayosevana Award is being given to Government/ Non-Government Organisations working in the field of elder care, and also veterans who made significant contributions in the fields of arts, sports, and life time achievers are honoured. In 2022-23, an amount of Rs 11,37,090 has been expended for the implementation of this scheme.
- Music Therapy and Yoga Therapy are provided in old age homes.

Vayomithram: This social safety net programme implemented by Kerala Social Security Mission, provides health care and support to elderly above the age of 65 residing in the urban areas in the State. Currently, 95 Vayomithram units function effectively in the State, in 6 Corporation areas, 85 Municipal areas, and 4 Block Panchayats. The project provides health care and support by conducting free medical check-ups and treatment through mobile clinics. The details of the beneficiaries of the Vayomithram scheme during 2017-18 to 2022-23 are given in **Table 6.3.3**.

Navajeevan: The scheme is being implemented by the Department of Employment to assist senior citizens within the age group of 50-65 years in starting self-employment units, thereby enabling their upliftment from social and economic backwardness. The scheme is intended to provide

Table 6.3.3 Beneficiaries of Vayomithram during 2017-18 to 2022-23

Year	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
No. of old age beneficiaries	2,53,503	2,62,845	2,79,635	2,80,165	2,78,623	2,89,030

Source: Kerala Social Security Mission

self-employment loans to senior citizens, by way of bank loans up to Rs 50,000 for starting self-employment ventures, of which 25 per cent would be reimbursed as a Government subsidy, to a maximum of Rs 12,500. In 2022-23 an amount of Rs 40,00,000 has been expended for this scheme and benefitted 329 persons.

Role of Local Self Governments

Local Self Governments earmark 5 per cent of their total development fund exclusively for the welfare and palliative care of the elderly. LSGIs also implement projects for making all institutions elder-friendly, with measures such as separate queue in hospitals, seating, ramps in offices, elder-friendly toilets and bathrooms, elder-friendly tourist destination etc. Vayo club, Old age home, Pakal veedu are some of the major projects for elderly implemented by LSGIs. The elderly are also provided with palliative care, treatment, medicines and nutritional food.

Way Forward

To effectively plan the strategy for a healthy ageing, there has to be a reliable and updated database on the characteristics of the population. Such a database would help the convergence of activities of various departments in this sector and Local Governments. To promote healthy aging, it is important to accept functional capacity as a measure of well-being, beyond an organ-centric approach. Even with diseases, being functional is most important. This involves making public places age-friendly, improving access to essential healthcare, addressing ageism, and fostering cross-sector collaboration. To have affordable essential medicines, a better lifestyle, and a better life is important and needs to be improved in the next decade. There should be a continuum of care for older individuals, ranging from preventive measures to palliative and end-of-life care. No older persons to be left behind. Cross cultural and sessional collaboration are also very important.

CHAPTER

07

LABOUR AND EMPLOYMENT

LABOUR AND EMPLOYMENT

7.1 LABOUR AND LABOUR WELFARE

Labour Force

The labour participation rate indicates the proportion of the population that is economically active, which include the employed as well as those unemployed but actively seeking jobs. The proportion of the population that is employed is denoted by workforce participation rate or worker population ratio. Persons who are not economically active comprise those who are too young or too old to work, students, rentiers, recipients of pensions or remittances, persons with disabilities, as well as persons attending to “domestic duties”. National data on the labour force and employment is published through quarterly and annual reports of the Periodic Labour Force Survey (PLFS).

Labour Force Participation Rates (LFPR) in Usual Status and Current Weekly Status

The LFPR (in per cent) according to usual status (ps+ss) and CWS from the period 2017-18 to 2022-23 at all India level with rural –urban classification are shown in **Appendix 7.1.1**. From 2017-18, LFPR in both segments (person in rural+urban) was progressively increasing at all levels up to 2022-23.

The **Table 7.1.1** shows the LFPR according to Usual Status (ps+ss,) in 2021-22 and 2022-23 at the all-India level and Kerala for the different age groups.

Kerala’s labour force participation of both male as well as female is higher than that of all India in 2021-22 and 2022-23. At all age groups in rural+urban area, female labour force participation is higher in the State than that of all India. LFPR from 2017-18 to 2022-23 are shown in the **Appendix 7.1.2**.

Worker Population Ratio (WPR)

WPR is an indicator used for analysing the employment situation and knowing the proportion of the population actively contributing to the production of goods and services in the economy. It is the percentage of persons employed among the population. The **Table 7.1.2** shows the WPR based on the usual status approach (ps+ss), as estimated from PLFS 2017-18 and 2022-23 at all India level and Kerala. It is evident from the table that Kerala has slightly more economically active population compared to all India level with WPR of 41.20 per cent and 41.10 per cent in Kerala and all India respectively in 2022-23. Both India and Kerala have made progress on the WPR (at all age groups) in 2022-23 compared to 2017-18.

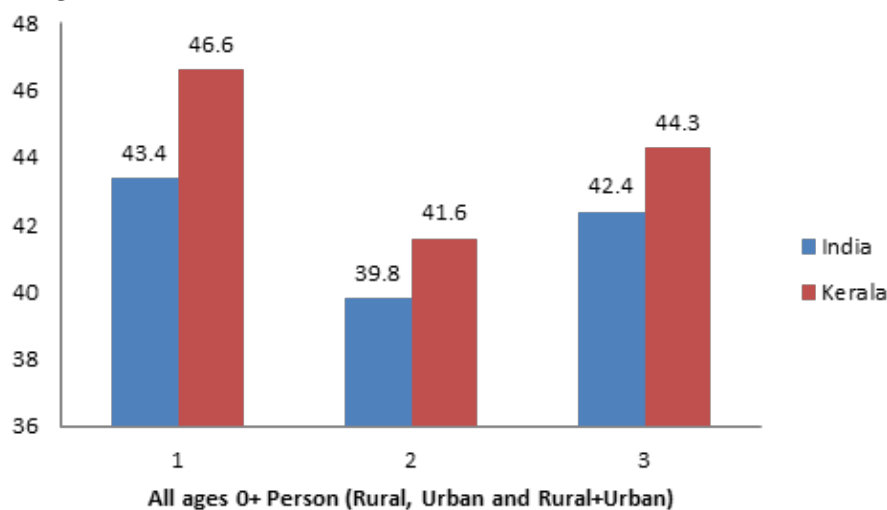
It is evident from the **Figure 7.1.2** that, Worker Population Ratio (WPR) (in per cent) according to usual status (ps+ss) of India (at all ages) is continuously increasing from the year 2017-18 to 2022-23. However, a slight decline is seen in

Table 7.1.1. LFPR at all India level and Kerala in 2021-22 and 2022-23 (Usual Status –PS+SS)

Age Group	Rural			Urban			Rural + Urban			Rural			Urban			Rural + Urban		
	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
All India 2021-22									Kerala 2021-22									
15-29 years	62.1	22.3	42.6	58.9	20.2	40.6	61.2	21.7	42	57	26.3	42.1	55.6	27.5	41.6	56.4	26.9	41.9
15-59 years	82.1	39.3	60.8	81.2	26.5	54.5	81.8	35.6	58.9	81.2	45.7	62.6	80.5	38.5	58.4	80.9	42.1	60.5
15 years and above	78.2	36.6	57.5	74.7	23.8	49.7	77.2	32.8	55.2	75.2	40.4	56.6	71.6	33.5	51.5	73.4	37	54
All ages (0+)	56.9	27.2	42.2	58.3	18.8	39	57.3	24.8	41.3	61.1	33.4	46.4	57.1	27.2	41.4	59.1	30.3	43.9
All India 2022-23									Kerala 2022-23									
15-29 years	65.5	25.8	45.9	58.4	20.8	40.7	63.5	24.5	44.5	57.7	26.8	41.6	50.5	28.4	39.4	54.2	27.5	40.6
15-59 years	84.2	44.3	64.2	80.8	28.3	55.1	83.2	39.8	61.6	82.5	45.8	62.8	78.2	39.3	57.4	80.5	42.8	60.3
15 years and above	80.2	41.5	60.8	74.5	25.4	50.4	78.5	37	57.9	76.2	40.8	57.1	70.8	33.6	51.1	73.7	37.5	54.3
All ages (0+)	55.5	30.5	43.4	58.3	20.2	39.8	56.2	27.8	42.4	60.7	34.1	46.6	56.2	28	41.6	58.6	31.3	44.3

Source: Periodic Labour Force Survey 2021-22 and 202-23

Figure 7.1.1 LFPR All ages (0+) according to Usual Status (ps+ss), in 2022-23 at the all-India level and Kerala in the age group at all ages

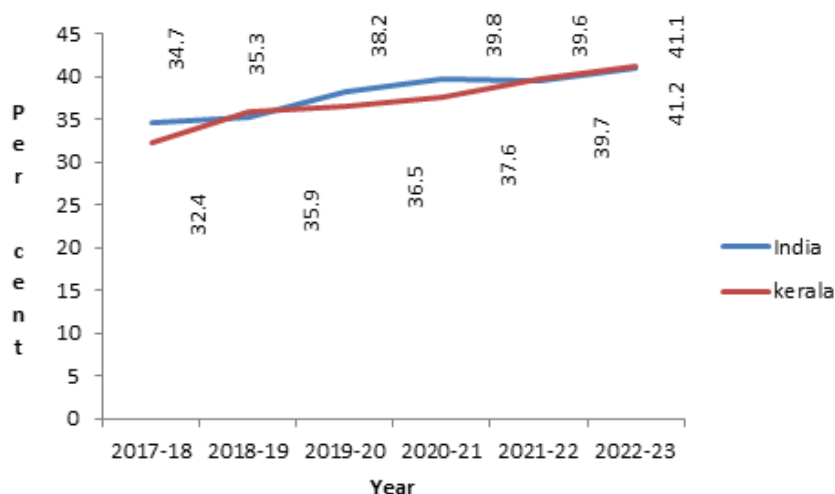


Source: Periodic Labour Force Survey 2022-23

Table 7.1.2 Worker Population Ratio (WPR) (in per cent) according to usual status (ps+ss)

Age Group	All India			Kerala		
	Rural+Urban			Rural+Urban		
	Male	Female	Person	Male	Female	Person
PLFS 2017-18						
15-29 years	48.3	13.5	31.4	40.1	8.6	23.8
15-59 years	74.9	23.8	49.5	73.4	24	46.8
15 years and above	71.2	22	46.8	65.8	20.4	41.2
All ages	52.1	16.5	34.7	50.5	16.4	32.4
PLFS 2022-23						
15-29 years	57.3	21.9	40.1	43	15.5	28.9
15-59 years	80.20	38.50	59.50	75.80	37.40	55.20
15 years and above	76.00	35.90	56.00	70.20	33.50	50.50
All ages	54.40	27.00	41.10	55.80	27.90	41.20

Source: Periodic Labour Force Survey 2017-18 and 2022-23

Figure 7.1.2 Worker Population Ratio (WPR) (in per cent) according to usual status (ps+ss) 2017-18 to 2022-23, India and Kerala

Source: Periodic Labour Force Survey 2017-18 to 2022-23

2021-22 as compared to 2020-21. But Kerala's WPR is seen to rise continuously from 2017-18 to 2022-23 ie; from 32.4 per cent to 41.20 per cent.

According to 2022-23 PLFS report, female WPR (Rural) in Kerala is 30.90 and WPR (Urban) is 24.40 per cent. Though there is recorded increase in the WPR of women in both India and Kerala, Kerala consistently shows a higher figure. In both all India level and Kerala, WPR in rural areas is higher than that of urban areas at all categories of

age. WPR from the year 2017-18 to 2022-23 are exhibited in **Appendix 7.1.2**.

Wage Rate in Kerala

As per the India Wage Report prepared by the-International Labour Organisation (ILO 2018), the States with consistent high casual wages in both rural and urban areas are Kerala, Jammu and Kashmir, Punjab and Haryana. The States with the lowest wages for casual workers in urban areas are Uttar Pradesh, Assam, Madhya Pradesh,

Table 7.1.3 (A) State-Wise Average Daily Wage Rates in Rural India (Men – Non Agricultural Labourers)

Sl No	State/Union Territory	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
1	Andhra Pradesh	232.4	247.5	271.2	291.3	305.3	337.7	374.5
2	Assam	233.8	245.5	258.3	263.6	299.3	306.4	333.3
3	Bihar	228.6	237.2	250.9	268.5	289.3	299.1	313.1
4	Gujarat	204.3	216.1	224.1	234.5	239.3	252.5	273.1
5	Haryana	352.7	355.5	362.3	376.9	384.4	409.3	451.0
6	Himachal Pradesh	303.4	330.4	336.4	344.1	342.1	389.8	416.3
7	Jammu & Kashmir	408.8	417.3	433.9	452.8	483.0	500.8	517.9
8	Karnataka	238.5	242.4	261.1	263.4	279.2	297.9	336.2
9	Kerala	615.6	625.6	657.2	670.4	677.6	681.8	696.6
10	Madhya Pradesh	184.4	198.1	202.4	205.9	232.6	230.3	246.3
11	Maharashtra	215.9	226.7	229.6	240.2	262.3	277.2	293.7
12	Punjab	300.5	313.1	319.2	331.9	344.2	356.9	375.3
13	Rajasthan	300.1	301.2	316.3	312.1	329.0	338.6	354.3
14	Tamil Nadu	389.6	401.7	414.3	438.6	449.5	462.3	481.5
15	Uttar Pradesh	222.7	244.7	261.1	272.3	286.8	302.9	323.6
16	West Bengal	259.9	279.3	287.0	291.1	305.8	320.7	338.0
	All India	261.3	273.8	284.8	293.9	315.3	326.6	348.0

Source: Indian Labour Journal, Labour Bureau, Government of India, Various Issues * Yearly average wage rates have been calculated from monthly average wage rates. * All India data for 2020-21 is the average of 11 months as data for April 2020 is not available

West Bengal and Chhattisgarh, and in rural areas Odisha, Maharashtra, Gujarat, Madhya Pradesh and Chhattisgarh.

Kerala's high level of education, social environment, political views and the emergence of labour welfare boards have contributed to higher wages in the State. In Kerala, the trade unions are also quite vigilant in monitoring the implementation of minimum wages. The wage rates of male and female unskilled labourers in Kerala are much higher than the national average wage as well as the minimum wage prescribed for the State. Minimum wages have been ensured in 85 sectors in Kerala. **Table 7.1.4 (A)** depicts the State wise average daily wage rate in rural India (Men non-agricultural labourers) and the **Table 7.1.4 (B)** shows the average daily wage rate in rural India (Men - agricultural labourers) in the major 16 States.

According to the 2022-23 estimates, Kerala ranks top in daily wage rate (state-wise average daily wage rates in rural India - Men – Non Agricultural Labourers) among the States with Rs 696.6

followed by Kashmir with Rs 517.9 and Tamil Nadu Rs 481.5. It is understood from the wage rate in Kerala that, it is 100.17 per cent more than the all India wage rate in this sector.

It is also evident from the table 7.1.4 (B) that, from the year 2016-17 to 2022-23 as in non-agricultural work, the wage rate in agricultural work in Kerala is also much higher than other states in India and all-India average rate.

According to the 2022-23 estimates, the wage rate in the agriculture sector in Kerala is 38.86 per cent higher than the wage rate in the next-ranking state of Jammu and Kashmir, and 121.08 per cent higher than the all-India rate.

According to PLFS 2021-22 (April- June 2022), the wage rate of women in Kerala is also higher than the other States and all India average with 64 per cent. Though the women in Kerala are able to receive higher wage rate compared to their counterparts in other States, they get lower wage in comparison to men in Kerala.

Table 7.1.3 (B) State-Wise Average Daily Wage Rates in Rural India (Men - Agricultural Labourers)

Sl No	State/Union Territory	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
1	Andhra Pradesh	249.1	269.5	282.0	302.6	318.6	340.5	384.4
2	Assam	229.3	237.5	248.5	252.1	277.4	307.6	344.1
3	Bihar	212.7	223.0	240.3	258.4	272.6	290.3	308.7
4	Gujarat	184.0	187.9	199.3	208.6	213.1	220.3	241.9
5	Haryana	359.3	361.4	391.9	389.5	384.8	395.0	424.8
6	Himachal Pradesh	339.8	368.3	388.6	419.0	421.7	457.6	473.3
7	Jammu & Kashmir	409.8	436.0	443.6	451.6	501.1	524.6	550.4
8	Karnataka	251.9	267.3	288.7	292.0	312.5	335.2	379.5
9	Kerala	644.0	659.8	682.4	700.9	706.5	726.8	764.3
10	Madhya Pradesh	173.1	191.3	196.3	198.6	217.6	217.8	229.2
11	Maharashtra	196.8	207.4	213.7	231.8	267.7	284.2	303.5
12	Punjab	319.3	324.6	337.7	349.2	357.0	372.5	393.3
13	Rajasthan	285.5	287.1	292.9	298.1	327.1	358.3	366.4
14	Tamil Nadu	378.7	385.9	398.7	410.4	434.2	445.6	470.0
15	Uttar Pradesh	211.8	229.8	247.1	258.8	274.5	288.0	309.3
16	West Bengal	237.6	255.9	263.1	267.5	288.6	305.3	323.7
All India		252.6	267.1	277.4	287.1	309.9	323.2	345.7

Source: Indian Labour Journal, Labour Bureau, Government of India, Various Issues * Yearly average wage rates have been calculated from monthly average wage rates. * All India data for 2020-21 is the average of 11 months as data for April 2020 is not available

Labour and Labour Welfare in Kerala

The Government intends to create job opportunities to enhance productivity, envisage schemes to develop skills, ensure gender equality, minimum wages and health protection, thereby creating a better workplace atmosphere. The Government aims at the overall well-being of labourers of all sectors by ensuring wage protection and social security.

Labour Welfare Boards

The Labour Department plays a key role in implementing labour welfare activities, and create a harmonious employee-employer relationship. There are 28 Labour Welfare Boards in the State (Labour Commissionerate). At present, 16 Welfare Fund Boards function under the Labour Department to provide welfare to the respective sector of labour. The remaining 12 Boards function under various Departments, such as Agriculture and Industry. The welfare boards under the Labour Department and their registered members are shown in **Appendix 7.1.4**.

It is clear from the **Appendix 7.1.4** that, there are 53,30,706 workers registered with 16 labour

welfare boards under the labour department in the year 2022-23. Out of 16 boards, Kerala Building and other Construction Worker's Welfare Board has the highest number of live members i.e. 20,71,520 members.

Compared to the last financial year (2021-22), there has been a decline of 10 per cent of live members in the total number of members.

Overseas Development and Employment Promotion Consultants (ODEPC)

Overseas Development and Employment Promotion Consultants Limited, a Public Sector Undertaking under the Department of Employment and Skills, has been performing commendably in the field of overseas recruitment for the past four decades.

The main objective of this public sector organization is to find suitable employment areas for educated job seekers, and skilled, unskilled and semi-skilled workers in foreign countries at low cost. An IATA - accredited travel division also operates under ODEPC.

Apart from foreign recruitment and air ticketing, ODEPC has also expanded its activities in the fields of packaged tours, training, and study abroad.

Achievements

Foreign Recruitment: ODEPC mainly focuses on recruitment of manpower to Government organisations in overseas countries. Details of recruitments conducted by ODEPC from 2016 to 2022 are given below.

Table 7.1.4 Details of recruitments conducted by ODEPC

Financial Year	Total employment in foreign countries
2016-17	650
2017-18	325
2018-19	347
2019-20	284
2020-21	646
2021-22	475
2022-23	157
Total	2,884

Source: ODEPC

As mentioned in table 7.1.5 ODEPC has conducted 2884 recruitments for various foreign countries from 2016-17 to 2022-23. The highest recruitment was in 2016-17. ODEPC recruited mainly to the Gulf countries, but after 2016, has reached out to employers in Germany, Belgium, and Uzbekistan, resulting in more job openings.

ODEPC is still recruiting for various hospitals under the Ministry of Health in Saudi Arabia for nurses, doctors, and other paramedical staff.

Nurses have also been recruited to Belgium. The 22 nurses of first batch left for Belgium in March 2022, and 37 nurses of the second batch left for Belgium in January 2023. The training of the third batch of 36 nurses is in progress. A monthly stipend of Rs 11,000 is given to participants in the course.

Of the 120 teachers selected by ODEPC for public schools in Uzbekistan, 96 have been employed. Thus, the number of foreign government institutions recruiting through ODEPC has been increased.

Training: ODEPC opened Asia's largest Occupational English Test (OET) exam centre opened in January 2021, at Angamaly. It is the first exam centre in India to be owned by the Government. Till 2023, 11,455 candidates have written the exam through this centre, and 2000 candidates have been trained in various foreign languages.

Travel Division: An IATA-accredited travel division operates under ODEPC, since 1990. In the context of the Russia-Ukraine war, the State Government utilised the services of ODEPC's travel division to bring back students from Ukraine.

Tour Division: A tour division was launched in 2018 under the Travel Division to execute tour packages, in collaboration with leading tour operator, Thomas Cook. Various domestic/foreign tour packages are available. Luxury ship entertainment packages are also offered. Special concessions are available for employees of Government/ Public Sector Undertakings.

Study Abroad: By 2023, 23 students have gone to study abroad through ODEPC, of which 16 students are in Australia and 7 are in the UK. 'Unnati' Scholarship for Overseas Studies is a new scheme implemented by the Scheduled Castes and Scheduled Tribes Development Department, facilitated by ODEPC. Students from Scheduled Castes and Scheduled Tribes who want higher education in foreign countries are offered scholarships of up to Rs 25 lakh, according to their family's annual income.

Factories and Boilers Department

The Department of Factories & Boilers is under the Ministry of Labour and Skills. The main responsibility of the Department is to check compliances to the Factory Act 1948 and the Indian Boiler Act of 1923. The Department is vested with statutory enforcement powers to ensure the safety, health, and welfare of the approximately 7 lakh workers working in registered factories in Kerala, and the general public in the vicinity of hazard-prone factories, through 20 different laws, and eliminating occupational hazards, occupational diseases, and industrial disasters.

Educational Strategy: The Department adopts the EEE strategy- Engineering, Education and Enforcement, to reduce occupational accidents and occupational diseases. Through the Occupational Health and Safety Training Centre established at Ernakulam and with the help of department's flagship project "Suraksharatham" mobile training vehicle, the Department works to create awareness among workers about occupational hazards and occupational diseases. Training is imparted on safety and health issues such as electrical safety, fire safety, LPG safety, chemical safety, and first aid through regional centres.

Enforcement Strategy: As part of the enforcement strategy, officials of the Department carry out priority inspection in hazardous factories and in other factories according to Kerala - Centralised Inspection System (K-CIS.) If violations are found, legal action is taken against the factory management and measures are taken to reduce accidents.

Apart from this, the Occupational Health Survey has been started in India to detect occupational diseases. With the help of OHRC (Occupational Health Research Centre) established in Kollam, an occupational disease survey study was completed among workers in coir, cashew, fish processing, crusher, packing, textile, and tea factories.

With the help of the Industrial Hygiene Laboratory, industrial hygiene surveillance studies are conducted in workplaces to identify the factors that cause occupational diseases, and measures are taken to prevent occupational diseases by amending the relevant Factory Act.

Factory workers in Kerala

Table 7.1.5 shows the number of workers under the purview of the Factories and Boilers Department, from 2016 to 2023 (As on 31.08.2023). Though there is a declining trend in the number of workers in the factories from the

year 2019 to 2022, the number has risen in 2023. Details of working factories from 2016 to 2023 (up to 31.08.2023) are given in **Appendix 7.1.5**.

Table 7.1.5 Number of workers in the factories

Year	No. of Workers
2016	702129
2017	678058
2018	698679
2019	726195
2020	702901
*2021	665775
*2022	582419
*2023	661698

(As on 31.08.2023)

Source: Labour Commissionerate

*data provided by Factories and Boilers Department

Safety of Factory Workers

The Department of Factories and Boilers carries out various programmes for the safety of the workers. In 2023-24 (As on 31.08.2023), 16 priority inspections in Major Accident Hazard (MAH) factories, and 22 inspections in hazardous factories by specialist inspectors have been done. The Department has also been conducting training programmes, not only for factory workers and employees, but also for school children and the general public near factory premises. Details of various activities done by Factories and Boilers Department are provided in **Appendix 7.1.6**.

Industrial Accidents in Kerala

The number of fatal accidents and non-fatal accidents in industries under the Factories and Boilers Department has been declining continuously, since 2019. It is understood that the Department's exemplary interventions have led to a reduction in the number of accidents in industrial establishments under the department. **Table 7.1.7** shows the accident details from 2016 to 2023 (up to October).

Table 7.1.6 Industrial Accidents in factories under the purview of Factories and Boilers Department in Kerala - 2016 to 2023 (in number)

Accident	2016	2017	2018	2019	2020	2021	2022	(2023up to October)
*Fatal	14	16	22	26	14	12	9	16
*Non-fatal	192	236	129	121	58	117	67	51
Total	206	252	151	147	72	129	76	67

Source: Factories and Boilers Department, GoK

* Industries working under the Factories and Boilers Department

Industrial Disputes

A platform for raising grievances and settlement of the issues between employee and employer is an essential to ensure harmonious labour relations in the State. Industrial Disputes Act of 1947, provides the legal framework for this, though it applies only to the organised sector. It also regulates lay off and retrenchment.

The number of disputes pending at the beginning of the year 2022-23 was 2950, and the number of disputes that arose in 2022-23 was 2347. Total number of disputes handled during the year 2022-23 is 5297. Total number of disputes settled in the year 2022-23 was 3784. This indicates that around 72 per cent of the disputes were settled during the year 2022-23. The details of industrial disputes and settlements from 2016-17 to 2023-24 (up to 31.08.2023) are shown in the **Appendix 7.1.4**.

Number of Working Days lost due to strikes, lockouts and lay offs

Strikes, lockouts, and layoffs are the reason for loss of working days. In 2022-23, 10,15,150 man days were lost in Kerala. Details are provided in Number of Working Days lost due to various reasons are shown in **Appendix 7.1.8, 7.1.9 and 7.1.10**.

Labour Commissionerate

The Labour Commissionerate emphasizes on developing a good employee-employer relationship, create awareness about the rights but duties of employees. The interests and rights of both employers and employees need to be protected. Hence, the Department aims to increase efficiency without losing person-days and to ensure the benefits of labour laws to the employee, and the whole society. In Kerala, the socio-economic security of the unorganized sector, including self-employed groups, are given due importance.

Social Security and welfare activities for Workers in Kerala

Major labour Welfare Schemes under Labour Commissionerate

Income support to workers in traditional sector activities

This is a flagship scheme of the Labour Commissionerate. This scheme was introduced during 2010-11 to give financial support of Rs 1250 to workers engaged in the traditional sectors such as beedi, khadi, etta and pandanus, fisheries, fish processing and coir, in the

State. The Scheme is implemented through the Departments of Coir, Fisheries, Khadi, Handloom & Textiles, and various welfare fund boards. An amount of Rs 86 crore has been spent on 4,14,043 beneficiaries in 2022-23, through the Income support scheme.

1. Better accommodation for plantation workers and affordable housing for the unorganized poor

The scheme aims to provide housing to workers in the plantation sector, considering the working conditions in the plantation sector, wage system, lack of facilities, and poor infrastructure.

2. A Work Order for 40 houses was given to COSTFORD, but only 6 units were completed in the financial year 2020-21.

Social Protection for unorganised sector workers
This scheme has following three components:

a. Unorganised daily waged employees distress relief fund

This scheme was sanctioned in 2007-08 and implemented through Labour Department to provide financial assistance of Rs 2000 to daily wage workers, not covered under other welfare schemes, and having sustained injury during the course of employment.

b. Tree-climbers disability pension scheme

This pension scheme was introduced from January 1, 2012 to provide pension to the beneficiaries of deceased workers who have received financial assistance under the Kerala Tree Climbers Welfare Scheme.

c. Maternity allowances to workers in the unorganised sector

The Government commenced a Maternity Allowance Scheme for workers in the unorganized sector in 2011-12. This is to bring out a uniform pattern of assistance in the payment of maternity benefits provided by various Welfare Fund Boards, and to ensure that minimum eligible wages are paid as maternity benefit. The maternity benefit amount is disbursed to the workers through various welfare fund boards.

Rs 7.65 crore has been disbursed to 5952 beneficiaries in 2022-23 through the social protection for unorganised sector workers scheme.

Guest Workers in Kerala

Till 2001, migrants to Kerala were primarily from the neighbouring States of Tamil Nadu, Karnataka, and Maharashtra. However, in recent years, migrants are mostly from West Bengal, Assam,

Odisha, and Bihar. The construction sector has the largest number of migrant workers- 17.5 lakhs- followed manufacturing with 6.3 lakhs migrants. The distribution of registered migrant workers from other States/Union Territories in various Districts of Kerala under the Awaaz registration (as on 31.08.2023) is shown in **Table 7.1.12**.

Welfare activities for guest workers in Kerala

As per Parida and Raviraman's study in 2021, the

Table 7.1.7 Distribution of registered migrant workers from other States/ Union Territories in the districts of Kerala (as on 31.08.2023) as per AAWAZ Registration

Sl.No.	District	Total
1	Thiruvananthapuram	63788
2	Kollam	24946
3	Pathanamthitta	24119
4	Alappuzha	36927
5	Idukki	19587
6	Kottayam	34251
7	Ernakulam	115053
8	Thrissur	41900
9	Palakkad	24694
10	Malappuram	29856
11	Kozhikode	44628
12	Wayanad	11839
13	Kannur	28874
14	Kasaragod	15858
Total		516320

Source: Labour Commissionerate

number of guest workers is nearly 31 lakh, and the number of registered workers under the awaaz scheme of the Labour Commissionerate is over 5 lakh. The current migration of guest workers is to stay and work in Kerala for a short period of time and return to their home land. Therefore, it is difficult to make an accurate estimate of this kind of migration flow.

Apna Ghar

The Government has started the "Apna Ghar" project to provide dwelling places for the migrant workers at reasonable rates. The project provides good quality, hygienic, and safe hostel accommodation, on rental basis for interstate migrant workers while working in Kerala. These hostels are designed with shared rooms, multiple kitchens, mess areas, bathrooms, toilets and recreational facilities. These hostels also have sewage treatment plant, rain water harvesting, diesel generator backup, and CCTV systems.

An Apna Ghar hostel with 620 beds is ready in Palakkad. Similarly, the 100 bed hostel in Kinalur, Phase 1, is also complete.

Health Insurance for Interstate Migrant Workers (AAWAZ)

The Government has introduced a health cum death insurance scheme for guest workers. Accordingly, an insured person will get health insurance of Rs 25,000, and Rs 2 lakh as accident death insurance claim. A total of 5,16,320 guest workers have registration cards under this scheme. As of October 2023, medical benefits have been provided to 48 guest workers, and accident cum death assistance to the dependents of one guest worker.

Box 7.1.1 International Labour Conclave 2023

The International Labour Conclave was organised by the Government of Kerala, from May 24 to 26, 2023, at Thiruvananthapuram. The Conclave commemorated the history of the association of ILO with India and Kerala, and Kerala's contributions in upholding the objectives and principles of ILO in the world of work.

The Conclave was jointly organised by Department of Labour and Skills and Kerala State Planning Board. The Conclave was inaugurated by Hon'ble Chief Minister of Kerala, Sri. Pinarayi Vijayan.

The themes for the Conclave were:

1. Rights, legislation, and social protection
2. Traditional industries: Problems of transition
3. Internal migration and migrant workers' rights
4. Care workers, scheme workers, and domestic workers
5. Skilling and future forms of work
6. Gig and platform workers' welfare
7. Labour statistics in India

7.2 EMPLOYMENT

Global Employment Perspective

According to the “World Employment and Social Outlook: Trends 2023” published by the International Labour Organization (ILO), global unemployment declined significantly in 2022 to 205 million, down from 235 million in 2020, but still 13 million above the level of 2019. The unemployment rate, standing at 5.8 per cent in 2022, was still above its 2019 rate. The report also projects that global unemployment is expected to remain above pre-COVID-19 levels. The ILO’s report cautions that in 2022, around 268 million people were not in the labour force but were nevertheless interested in obtaining employment. This group includes workers who are discouraged because they don’t see any possibility of obtaining profitable employment and also those who are not currently available to take up employment. The global Labour Force Participation Rate (LFPR) is estimated to have recovered to close to 60 per cent in 2022, slightly below its level in 2019. It is projected to continue its long term downward trend through 2023, declining by 0.2 percentage points till 2024. The impact has been particularly serious for developing nations that experienced higher levels of inequality, more divergent working conditions, and weaker social protection systems before the pandemic. In 2023, the global unemployment is expected to increase to 208 million, and the unemployment rate to 5.8 per cent.

Employment Scenario: India and Kerala Unemployment Rate

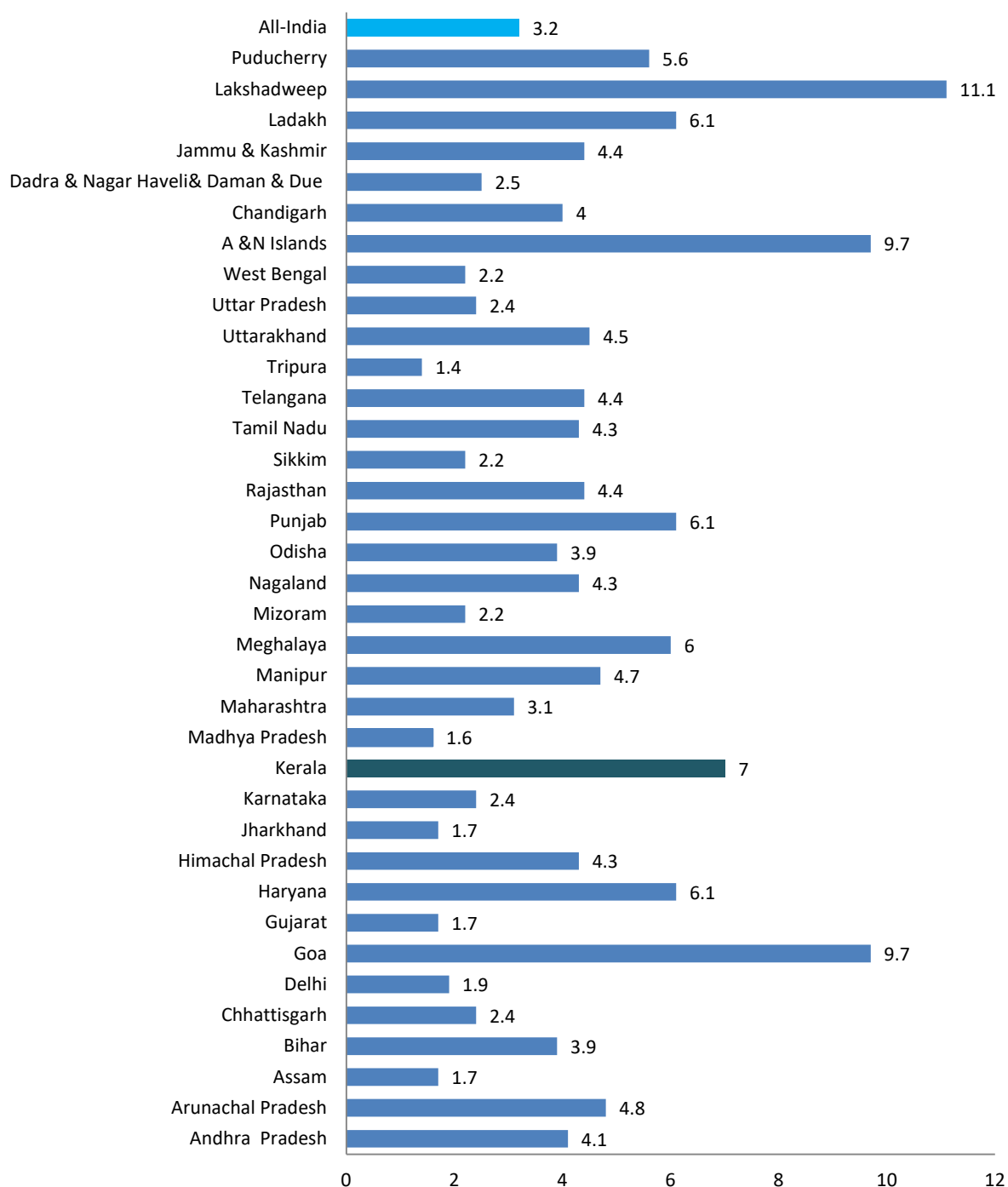
In the Periodic Labour Force Survey (PLFS), Unemployment Rate (UR) is defined as the

percentage of unemployed persons in the labour force, and is measured in terms of usual status principal status and the subsidiary status (ps+ss) and weekly status. This captures the portion of the labour force actively seeking/available for work. According to the PLFS conducted from July 2022 to June 2023, unemployment under usual status (ps+ss) for persons of age 15 years and above, among the major States, Kerala has an unemployment rate of 7.0 per cent as against the all India-level of 3.2 per cent (**Figure 7.2.1**).

The all India unemployment rate has declined from 4.1 per cent in 2021-22 to 3.2 per cent in 2022-23. The unemployment rate among males was 3.3 per cent and among females 2.9 per cent in 2022-23. In 2021-22, these rates were 4.4 per cent and 3.3 per cent respectively. In 2022-23, unemployment rate was 2.7 per cent among males and 1.8 per cent among females in rural areas, and 4.7 per cent among males and 7.5 per cent among females in urban areas.

The unemployment rate in Kerala decreased from 10.1 per cent in 2021-22 to 7.0 per cent in 2022-23. The unemployment rate in 2022-23 among males was 4.8 per cent, and 10.7 per cent among females. The unemployment rate was 4.7 per cent among males and 9.2 per cent among females in rural areas, while the rates were 4.8 per cent among males and 12.9 per cent among females in urban areas. Details of unemployment rate (in per cent) according to usual status (ps+ss) for persons of age 15 years and above for each State/UT are given in (**Appendix 7.2.1**).

Figure 7.2.1 Unemployment Rate (UR) in per cent, according to usual status (ps+ss) for persons of ages 15 years and above, for each State/UT



Source: PLFS report, 2022-23, GoI

For educated (secondary and above) persons of age 15 years and above, in usual status (ps+ss) unemployment rate in India was 7.3 per cent: 6.6 per cent in rural areas and 8.4 per cent in urban areas in 2022-23. In this category, unemployment

rates among rural males and rural females of age 15 years and above were 6.1 per cent and 8.3 per cent respectively. In urban areas, the unemployment rate was 6.8 per cent among males and 13.7 per cent among the educated females of age 15 years

and above. For educated (secondary and above) persons of age 15 years and above, unemployment rate in Kerala was 12.2 per cent, 12.2 per cent in both rural and urban areas in 2022-23. Details of unemployment rate (in per cent) according to usual status (ps+ss) for educated (secondary and above) persons of age 15 years and above, for each State/UT in 2022-23 are given in **(Appendix 7.2.2)**.

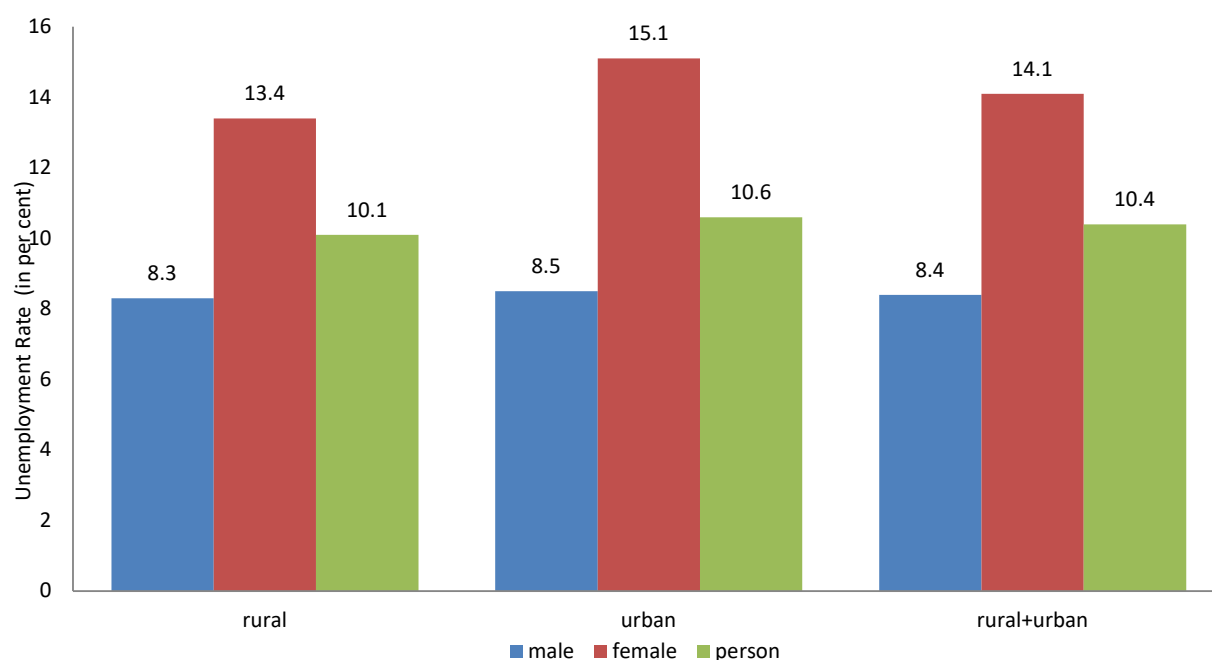
In current weekly status (CWS), for persons of age 15 years and above, the unemployment rate was 5.1 in India and the corresponding unemployment rate of Kerala was 10.4 in 2022-23. The unemployment rate in India was 4.6 per cent among males and was 4.0 per cent among females in rural areas while the rates were 6.3 per cent among males and 9.1 per cent among females in urban areas. The corresponding unemployment rate in Kerala was 8.3 per cent among males and 13.4 per cent among females in rural areas while the rates were 8.5 per cent among males and 15.1 per cent among females in urban areas in 2022-23. The details of unemployment rate in current weekly status are given in **(Appendix 7.2.3)**. Unemployment rate in Kerala in 2022-23 as per Current Weekly Status CWS] for persons of ages 15 years and above, in per cent for age group 15 years and above is shown in **Figure 7.2.2)**.

The female labour force participation rate (LFPR) in all the age group in Kerala is estimated at 31.3 per cent, which is higher than the all India-level of 27.8 per cent in 2022-23. The LFPR among rural and urban women in Kerala is 34.1 per cent and 28.0 per cent, while the corresponding figure for India is 30.5 and 20.2 respectively. The details is shown in **(Appendix 7.2.4)**.

Unemployment Rates (UR) of the Youth

Productive employment of youth (persons aged 15-29) is an essential factor for economic development. Unemployment rate (UR) among the youth is measured at the all-India-level in PLFS, and in the last three erstwhile quinquennial rounds of NSSO. The unemployment rate of the youth is 10.0 per cent (usual status (ps+ss), as per PLFS 2022-23. It is seen that over the period from 2004-05 to 2011-12, the unemployment rate among the rural male youth ranged between 3.9 to 5 per cent and it rose to 11.6 per cent in 2020-21, the rate declined to 8.3 per cent in 2022-23. The unemployment rate among the rural female youth ranged between 4.2 per cent to 4.8 per cent between 2004-05 and 2011-12 and rose to 8.2 per cent in 2020-21, has been declined to 7.4 per cent in 2022-23. The unemployment rate among the urban male youth ranged from 7.5 to 8.8 per

Figure 7.2.2 Unemployment rate in Kerala in 2022-23 as per Current Weekly Status (CWS) for persons of ages 15 years and above, in per cent



Source: PLFS report, 2022-23, GoI

Note: The estimate of unemployed in current weekly status (CWS) gives an average picture of unemployment in a short period of 7 days during the survey period.

cent between 2004-05 and 2011-12. It rose to 16.6 per cent in 2020-21, has shown a decrease to 13.8 per cent in 2022-23. The unemployment rate for urban female youth ranged from 13.1 per cent to 14.9 per cent between 2004-05 and 2011-12 and rose to 24.9 per cent in 2020-21, the rate declined to 21.7 per cent in 2022-23.

The UR among youth in Kerala is 29.4 per cent in rural areas and 27.9 per cent in urban areas, while the all India rate is 8 per cent and 15.7 per cent respectively, in 2022-23. In Kerala, in rural area, 44.7 per cent, and in urban area, 42.8 per cent of females are unemployed, and the corresponding unemployment rates among males are 21.7 per cent and 19.3 per cent. (Figure 7.2.3).

In order to face the challenge of unemployment among the youth, the ongoing programmes for skill development and employment generation are to be made effective to equip the youth to find better employment opportunities.

Employment in the Organised Sector in Kerala

In Kerala, employment in the organised sector has remained more or less stagnant, showing only a marginal increase from 10.9 lakh in 2013 to 12.6 lakh in 2023 (as on March 31, 2023).

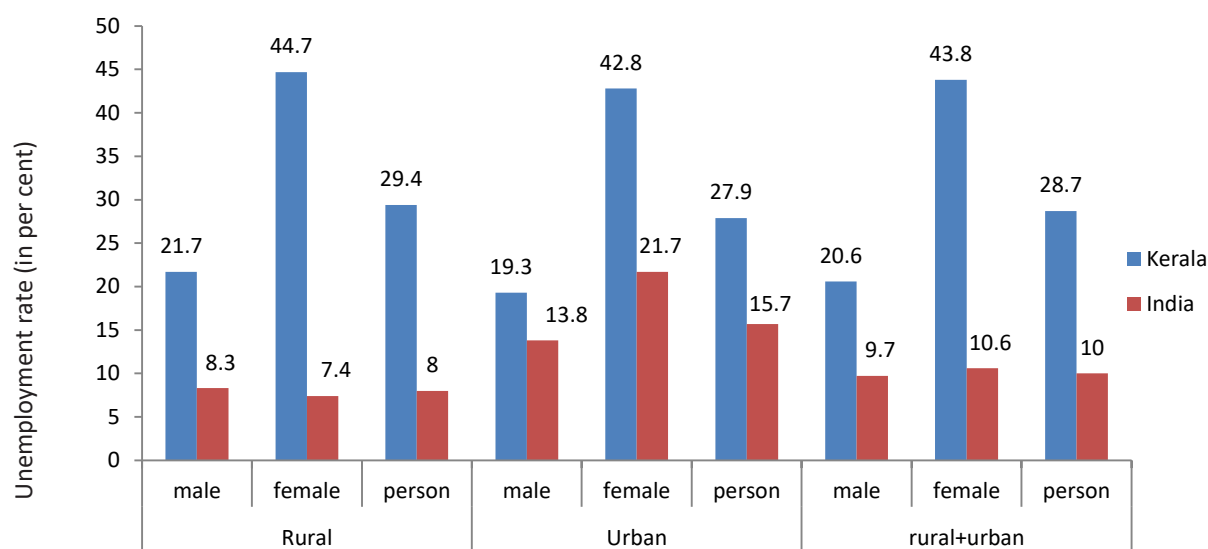
The organised sector in Kerala is comprised of private and public sectors, and it is noteworthy

that private sector employment was slowly rising up to 2020, but slightly declined in 2021 and 2022, and now, in 2023, shows a slight increase. In 2023, out of the 12.6 lakh persons employed in the organised sector, 5.6 lakh (44.5 per cent) are in the public sector and 7.0 lakh (55.5 per cent) are in the private sector. Public sector employment shows stagnation since 2016, as compared to previous years. Employment in the organized sector is shown in (Appendix 7.2.5 and, Figure 7.2.4).

Within the public sector in Kerala, 46.6 per cent are employed in State Government, 10.8 per cent in Central Government, 23.6 per cent in State quasi-institutions, 4.5 per cent in LSGI, and 14.5 per cent are in Central quasi-institutions in 2022-23. The distribution of employment in various branches in public sector in Kerala is detailed in (Figure 7.2.5 and Appendix 7.2.8).

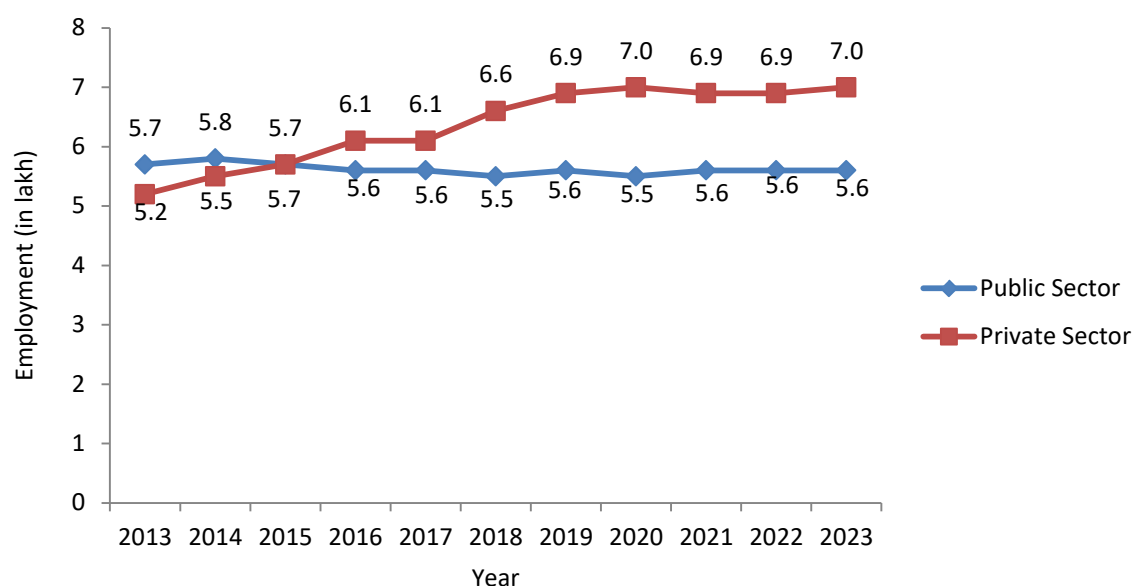
Data on district-wise employment as on March 2023 reveals that Ernakulam and Wayanad are the two Districts which account for the highest and lowest employment, respectively. Total organised sector employment in Ernakulam District is 2.7 lakh persons, which accounted for 21.2 per cent of the total employment of the State. In Wayanad, employment in the organised sector is 35,286 persons, which accounted for 2.8 per cent of the total employment. (Appendix 7.2.7)

Figure 7.2.3 Unemployment rate (in per cent) among the youth (15 to 29 years) in Kerala and India in 2022-23 as per usual status (ps+ss)



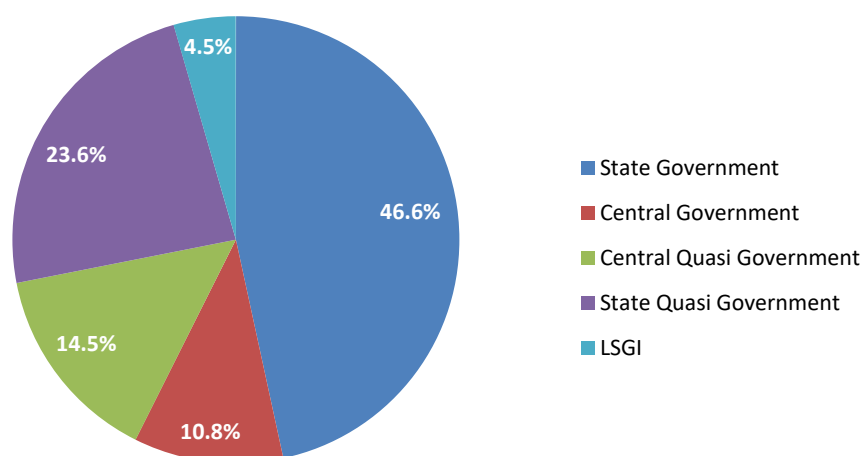
Source: PLFS report, 2022-23, GoI

Figure 7.2.4 Employment in the organized sector in Kerala (in lakh)



Source: Directorate of Employment, GoK, 2023

Figure 7.2.5 Distribution of employment in various branches in public sector in 2023



Source: Directorate of Employment, GoK, 2023

In Kerala, men outnumber women in public sector employment, in public sector as on 31st March 2023, 3,63,172 men and 1,94,323 women are employed. The private sector employs slightly more women than men- 3,54,098 and 3,41,195, respectively (**Appendix 7.2.5**). In 2022-23, the share of males in public sector employment was 65.1 per cent, while that of women was 34.9 per cent. Thiruvananthapuram and Idukki account for the highest and lowest women employees in the public sector, respectively. In Thiruvananthapuram, 30,677 women are employed in public sector, followed by Ernakulam (23,086), Thrissur (21,989), Kollam (16,985),

Malappuram (14,902), Kozhikode (13,595), Kannur (13,537), Palakkad (13,523), Kottayam (10,584), and Alappuzha (10,539). In Idukki, 3,442 women are employed in the public sector, preceded by Kasaragod (6,522), Wayanad (6,880) and Pathanamthitta (8,062). Women's participation in the public sector employment is shown in (**Appendix 7.2.8**) and **Table 7.2.1**

Recent statistics on industry-wise distribution of workers in the organised sector in Kerala indicates that the dependence on service sector continues to rise while the dependence on agriculture continues to decline. Employment in agriculture, relative to

Table 7.2.1 Women's Participation in Public Sector Employment in 2023

Sl. No.	Branch	No. of Women Employed	Share (%)
1	State Government	105711	54.4
2	State Quasi Government	39182	20.2
3	Central Government	14751	7.6
4	Central Quasi Government	25407	13.1
5	Local Self Government Institutions	9272	4.8
Total		194323	100.0

Source: Directorate of Employment, GoK, 2023

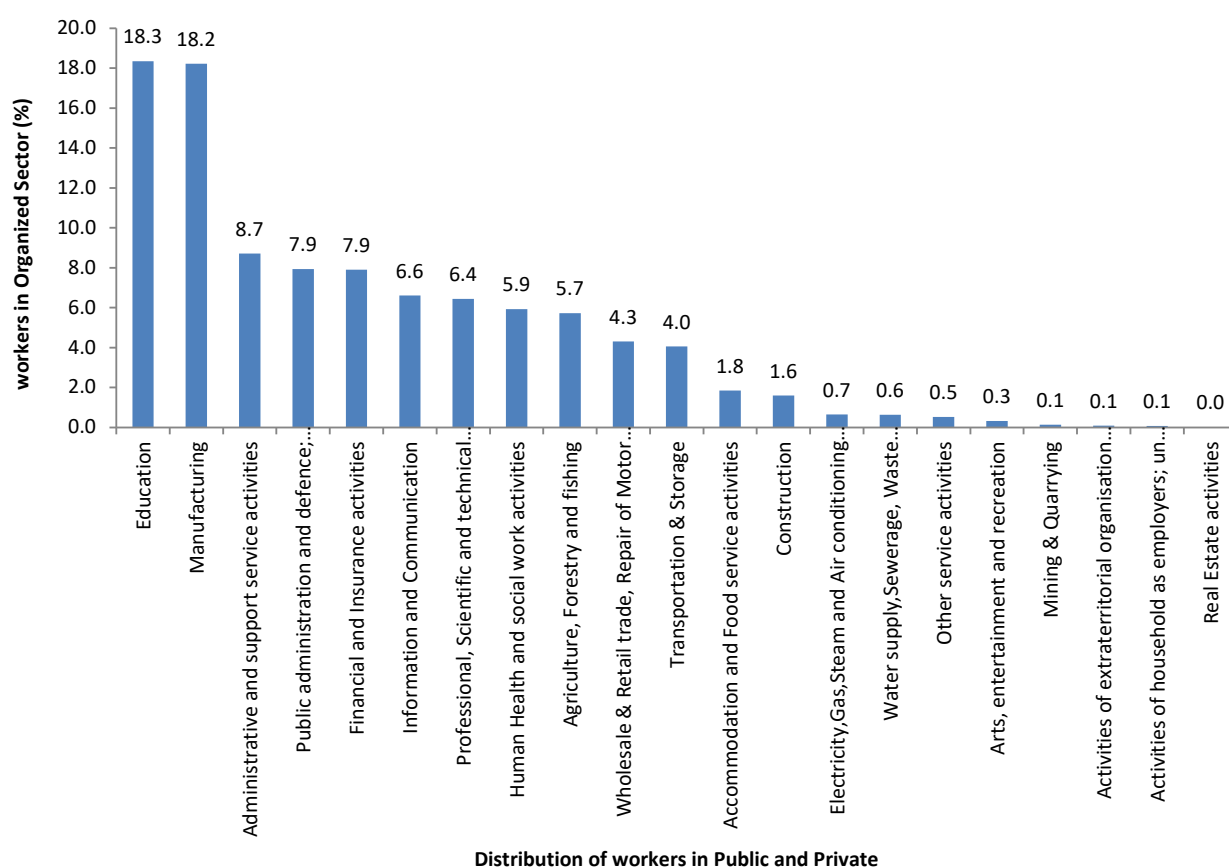
other sectors, has fallen. The shares of employment in education and manufacturing have risen. Major sectoral distribution of employment in the organised sector in Kerala is detailed in **Appendix 7.2.9** and **Figure 7.2.6**.

Employment in Unorganised Sector

The unorganised sector plays a crucial role in the Indian economy in terms of employment and its contribution to the Gross Domestic Product, savings, and capital formation. In India, and in Kerala, a high proportion of the socially and economically weaker sections of society are engaged in unorganised economic activities.

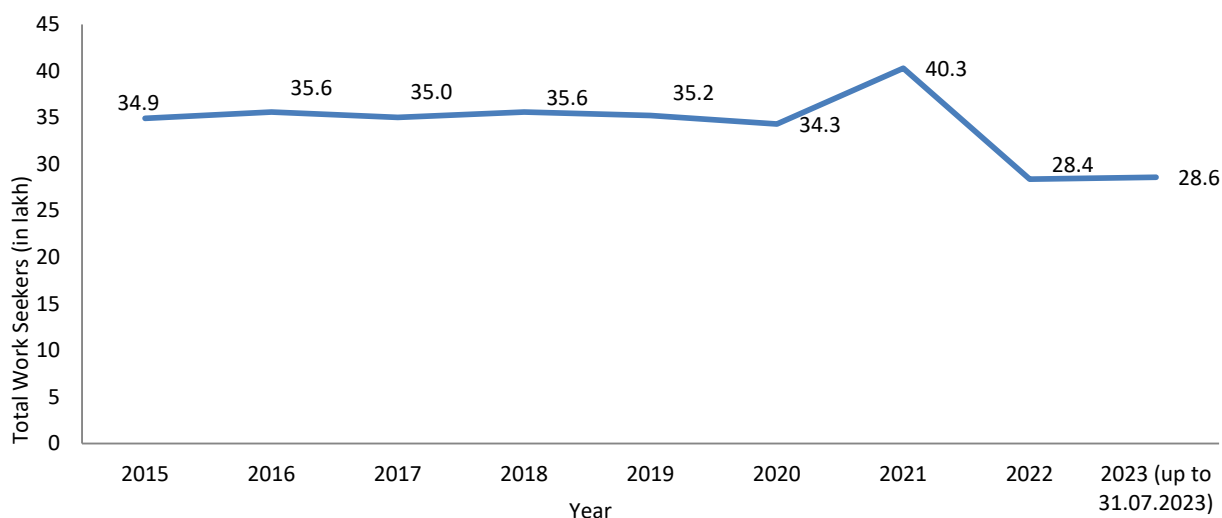
Employees of enterprises belonging to the unorganised sector have lower job security, no social protection, lesser chances of upward mobility, and no paid holidays. In Kerala,

Figure 7.2.6 Major sectorial distribution of employment in the organised sector in Kerala March 2023, (in per cent)



Source: Directorate of Employment, GoK, 2023

Figure 7.2.7 Work Seekers in Kerala, (number in lakh)



Source: Directorate of Employment, GoK, 2023

the Directorate of Employment is the nodal department entrusted with the responsibility of reducing unfair practices in the unorganised sector. In recent years, the Government of Kerala has initiated several measures to provide social security to workers in the unorganised sector.

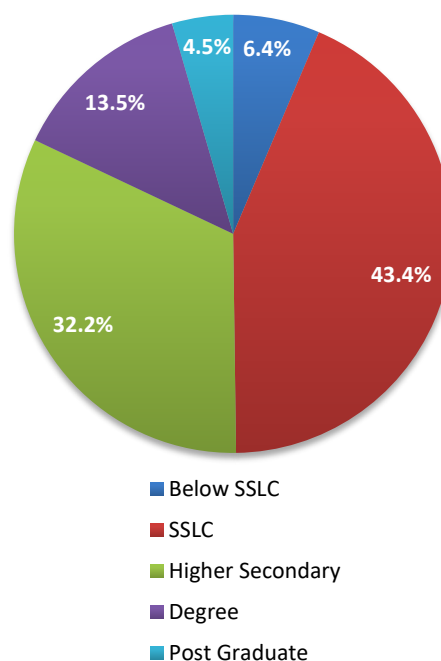
Employment Exchanges and their Services Registered Job Seekers

According to live registers of employment exchanges in Kerala, the total number of job seekers as on December 31, 2015 was 34.9 lakh, and it decreased to 28.4 lakh as on December 31, 2022. The number of job seekers up to July, 2023 is 28.6 lakh. Details of job seekers for various years are given in **Appendix 7.2.10** and **Figure 7.2.7**.

Live registers in Kerala indicate a larger number of women jobseekers than men. Of the total job seekers in 2023 (up to July 31, 2023), 63.86 per cent are women. Distribution of job seekers by educational-level indicates that only 6.5 per cent have qualification below SSLC. About 93.5 per cent of the job seekers have qualifications of SSLC and above. The distribution of work seekers in Kerala by educational level is detailed in **Figure 7.2.8** and **Appendix 7.2.11**.

The number of professional and technical job seekers as on July 31, 2023 is 2.5 lakh. Data reveals that ITI certificate holders, diploma holders and engineering graduates together constitute 63.7 per cent of the total professional and technical job seekers.

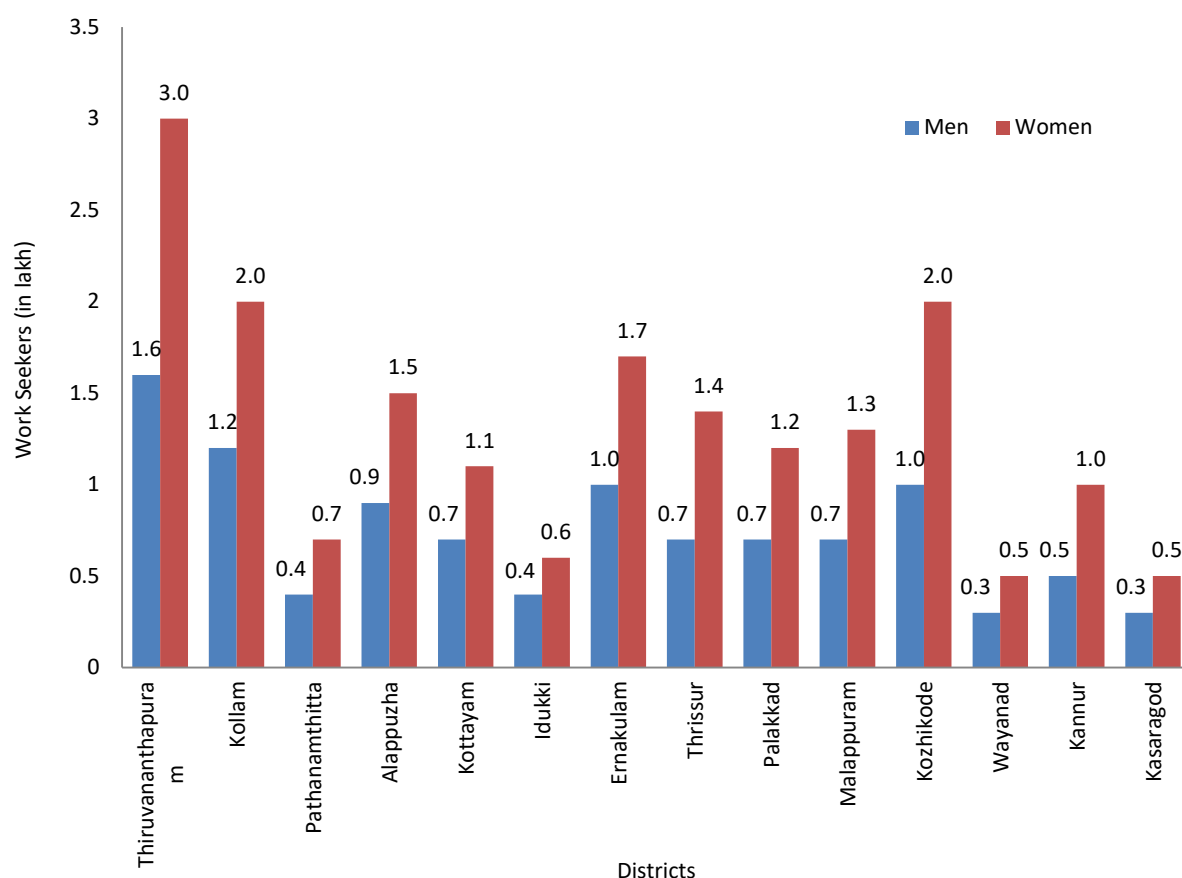
Figure 7.2.8 Distribution of work seekers in Kerala by Educational-level in 2023



Source: Directorate of Employment, GoK, 2023

There are 45,932 registered engineering graduates and 8,308 medical graduates and 1,81,757 other professional candidates (candidates having PG second class and above, LLB, Ph.D,etc). The distribution of work seekers in Kerala by Educational-level is detailed in (**Appendix 7.2.12**). District-wise job seekers in Kerala are shown in **Figure 7.2.9**.

Figure 7.2.9 Job seekers in Kerala, men and women in 2023 (in lakh)



Source: Directorate of Employment, GoK, 2023

The district-wise details of work seekers as on July 31, 2023 show that Thiruvananthapuram District has the highest number of job seekers, followed by Kollam District. The total number of job seekers in Thiruvananthapuram District is 4.6 lakh; of which 3.0 lakh are women and 1.6 lakh men. There are 3.3 lakh job-seekers in Kollam. The lowest numbers are registered in Kasaragod District – 0.8 lakh persons. The details are given in **Appendix 7.2.13**.

Kaivalya

Kaivalya was introduced by the National Employment Service (Kerala) Department in 2016 to achieve the goals of social inclusion and equality of opportunity for all citizens with disabilities. The primary objective of the scheme is to create a social and physical environment favouring accessibility, integration, and full participation of persons with disabilities. Kaivalya comprises of the following four components;

1. Vocational and career guidance

2. Capacity Building
3. Coaching classes for competitive examinations
4. Interest-free loan for self-employment ventures.

An amount of Rs 368.00 lakh was spent in 2022 for implementing the above activities, benefiting 736 persons. In 2023 (as on July 31, 2023), Rs 20.60 lakh has been disbursed. Details of amount disbursed and beneficiaries of Kaivalya are given in **Appendix 7.2.14**

Self-Employment Schemes

Three self-employment schemes are implemented through the Employment Exchanges in Kerala.

1. **Kerala Self-Employment Scheme for the Registered Unemployed (KESRU):** KESRU has been implemented since 1999, and is intended for unemployed persons in the live register between the ages 21 to 50 years with annual family income not exceeding Rs 1 lakh. Preference will be

given to those with ITI/ITC certificate, professional or technical qualifications, graduate women, and beneficiaries of unemployment dole scheme. Bank loans up to Rs 1 lakh, with a 20 per cent subsidy, are given for self-employment ventures. In 2022-23, an amount of Rs 137.02 lakh was allotted to the scheme, and Rs 74.20 lakh has been spent for 417 beneficiaries.

2. **Multi-Purpose Service Centres/Job Clubs (MPSC/JC):** This is a group-oriented, self-employment scheme for the development of enterprises in the unorganised sector. Bank loans up to Rs 10 lakh, with 25 per cent subsidy subject to a maximum of Rs 2 lakh, are given for starting self-employment group ventures. Groups of two to five members between the ages of 21 and 45, who are registered as unemployed in the live registers, are eligible. The scheme is incorporated with Credit Guarantee. In 2022-23, an amount of Rs 76.50 lakh was allotted to 101 job clubs.
3. **Saranya:** This employment scheme for destitute women aims at uplifting the most vulnerable sections among women in the State- widows, divorcees, deserted, spinsters above the age of 30, unwed mothers belonging to Scheduled Tribes, women with physical disabilities, and wife of bedridden persons. Under this scheme, interest-free bank loans up to Rs 50,000, with 50 per cent subsidy, are given for starting self-employment ventures. In 2022-23, an amount of Rs 1,900.00 lakh was allotted, and Rs 1,329.85 lakh was spent for 2,995 beneficiaries.

Model Career Centre

Model Career Centre is a joint venture of the Directorate General of Employment and Training, Ministry of Labour and Employment, Government of India, and the Department of National Employment Service, Government of Kerala. This centre functions at the University Employment Information and Guidance Bureau, Thiruvananthapuram. The Centre acts as a one-stop solution centre for all assistance needed for aspiring youth to find suitable careers that match their qualifications and skills. The Centre's activities include partnering with industry, candidate engagement, job and skill mapping, and conducting placement drives/job fairs.

Navajeevan

The Navajeevan scheme, implemented through the Employment Department, aims at ensuring the

financial self-reliance of senior citizens in the age group of 50 to 65 years, who were unable to secure employment despite registration at Employment Exchanges in Kerala. Loans of up to Rs 50,000 are granted, 25 per cent of which (up to Rs 12,500) can be subsidy, and 75 per cent can be bank loan. . Applicants should not have an annual income over Rs 1 lakh, and no collateral security is required. In 2022-23, an amount of Rs 40 lakh was allotted, all of which has been utilized for 329 beneficiaries.

Samanwaya

This scheme is a Comprehensive Career and Employability Development Programme for SC/ST communities all over the State. Various services such as coaching for competitive examinations, skill development, support for self-employment, practical training for interview and group discussion, assistance for online registration for competitive examinations, entrepreneurship development, career guidance and development, are offered.

Niyukthi Mega Job fair

The National Employment Service Department has started mega job fairs with the title 'Niyukthi' throughout Kerala, from 2015. Niyukthi acts as a platform for potential job seekers to find suitable job. During 2022-23, three job fairs were conducted.

Unemployment Assistance

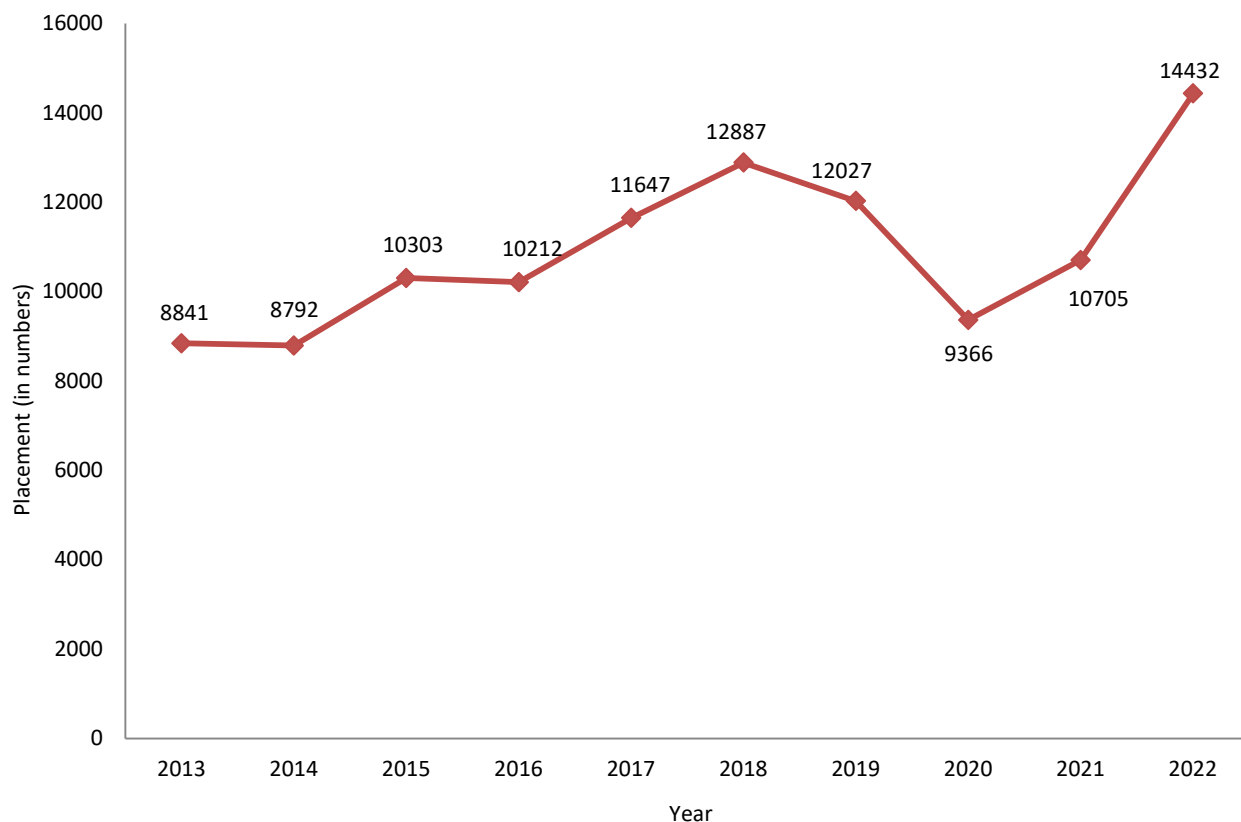
The Government of Kerala had introduced an unemployment assistance scheme in 1982. Under the scheme, unemployed youth over the age of 18, having passed SSLC (for SC/ST and persons with disabilities, candidates need only have appeared for the examination), with family income below Rs 12,000, monthly personal income below Rs 100, and having remained in the live register for over three years (two years for persons with disabilities), are eligible for unemployment assistance of Rs 120 per month, up to the age of 35. Since 1998, with the enactment of the Kerala Panchayati Raj Act and Kerala Municipality Act, the unemployment assistance scheme was transferred to rural and urban Local Governments. Under the scheme, eligible candidates submit their application for unemployment allowance in the prescribed form to the Local Government. The Welfare Standing Committee at the Local Governments finalise the list of candidates based on the eligibility criteria. In 2022, Rs 157.27 lakh was disbursed to 21,985 beneficiaries as unemployment assistance, and Rs 2,454.25

lakh to 5,251 beneficiaries as self-employment assistance. In 2023 (as on August 31, 2023), Rs 30.53 lakh was disbursed to 4,289 beneficiaries as unemployment assistance, and Rs 732.82 lakh to 1,695 beneficiaries as self-employment assistance. The details are given in **Appendix 7.2.15**.

Placement through Employment Exchanges in Kerala

The total placement through Employment Exchanges in Kerala has mostly fluctuated since 2010. In 2022, the placement through employment exchanges increased to 14,432 persons, from 10,705 in 2021. The placement through employment exchanges in Kerala since 2010 is given in **Figure 7.2.10**.

Figure 7.2.10 Placement through employment exchanges-Kerala



Source: Directorate of Employment, GoK, 2023

7.3 SKILL DEVELOPMENT

Skill development is an important driver to address poverty reduction by improving employability, productivity, and helping sustainable enterprise development and inclusive growth. In recent times, skill development has become a priority for both developed and developing countries. As individuals with the right skills and knowledge are more likely to find employment, skill development can have positive effects in reducing unemployment, raising incomes, and improving living standards.

Skills and knowledge are the driving forces of economic growth and social development for any country. India currently faces a severe shortage of well-trained, skilled workers. Therefore, India must focus on scaling up skill training efforts to meet the demands of employers and drive economic growth¹.

India is one of the youngest nations in the world, with more than 54 per cent of the total population below 25 years of age, and over 62 per cent of the population in the working age group of (15-59 years). The country's population pyramid is expected to bulge across the 15-59 age groups over the next decade².

National Skill Development Mission (NSDM)

National Skill Development Mission (NSDM) was launched by the Hon'ble Prime Minister on 15th July, 2015 on the occasion of World Youth Skills Day. The National Skill Development Mission was launched to implement and coordinate all skilling efforts in the country towards the objectives laid down in the National Skill Policy. It aims to create convergence and expedite cross-sectoral decisions through a high powered decision making framework. It is expected to converge, coordinate, implement and monitor skilling activities on a pan-India basis. The Mission consists of a three tier institutional structure, where the functions of the bodies consist of providing policy directives and guidance, reviewing and monitoring overall progress and actual implementation in line with Mission objectives.

Skill development alone is not going to matter, unless it is complemented with employment generation. Therefore, there is a need for the government to generate enough employment and to do that it has to focus on industries that are labour intensive and not merely capital-intensive or technology-driven³.

¹National Skill Development Mission - Ministry of Skill Development and Entrepreneurship, GoI; also see Mehrotra S, Kalaiyaranan A, Neha Kumra and Ravi Raman (2015), Vocational training in India and the duality principle: A case for evidence-based reform, Prospects 45 (2): 259-73

²National Policy for Skill Development and Entrepreneurship, Ministry of Skill Development and Entrepreneurship, GoI-2015

Challenges in Skilling and Entrepreneurship in India

Countries with higher levels and better standards of skills adjust more effectively to the challenges and opportunities in domestic and international job markets. As per NSSO, 2020-21 (78th round) report on Multiple Indicator Survey in India, the percentages of persons of age 15-35 years in formal and non-formal education and training during last 12 months from date of survey by persons at the all-India level are 25.6 per cent and 29.6 per cent in rural and urban area respectively.

India is currently facing an acute shortage of well-trained and skilled workers. As per PLFS 22-23, only 4.4 per cent persons in the age group 15-59 have received formal vocational/technical training. One of the biggest challenges of skill development in our country is that 74.3 per cent of the workforce is engaged in informal/unorganised sector (PLFS 2022-23). Consequently it is difficult to map existing skills in the unorganised sector and gauge the skilling requirement in the sector

Women constitute almost half of the demographic dividend. The key challenge here is to increase their participation in the country's labour force, which is directly linked to economic growth of the country. According PLFS (Usual Status) 2022-23 report, women workforce participation rate in rural areas is 30.5 per cent and 20.2 per cent in urban areas. In Kerala the same is 34.1 per cent and 28 per cent respectively.

Skill Development initiatives in Kerala

Skill development is critical for achieving faster, sustainable and inclusive growth and for providing decent employment opportunities to Kerala's young population. Given its high social and human indicators, Kerala can contribute to the requirements of technically trained workforce not only for the country's growing economy, but also for rest of the world.

As per the 2011 Census, Kerala is the most literate state in the country, with literacy recorded at 94 per cent, compared to the India average of 74.0 per cent. The male literacy rate was reported to be 96.1 per cent and female literacy rate was recorded at 92.1 per cent. The literacy levels in urban and rural areas are also not too diverse with 94.9 per cent urban literacy and 92.9 per cent rural literacy rates. However, there is a huge gap in Kerala in terms

of skills suitable for the internal and international labour markets

Skill development is a critical component to increase the efficiency and quality of the labour force for improved productivity and economic growth. Convergence of skilling activities by various departments would help to avoid overlapping and to bring out synergy across the interventions. In this regard, Government of India has launched Skill India Mission Operation (SIMO)/ Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) scheme, with a pan India view on the skilling activities and this envisages a State Skill Development Mission.

For institutional strengthening at the national, State, and District levels, Kerala Academy for Skills Excellence (KASE) under department of Labour and Skills has been designated as the State Skill Development Mission (SSDM). The mission guides, coordinate, monitors and evaluate skilling initiatives, and brings all skill development activities of the State under a single umbrella.

Skill Training Programmes through various department

1. Additional Skill Acquisition Programme (ASAP) Kerala

a. Additional Skill Acquisition Programme (ASAP)

Kerala is a Kerala Government undertaking, under the Higher Education Department, providing industry-relevant skills to students and the general public to enhance their employability. Skill training is imparted both online, and in-person at schools, colleges and Community Skill Parks.

b. K-Skill Training Campaign

ASAP Kerala's K-Skill campaign for the year 2022-23 started in March 2022. It ran through 4 windows, each for 3 months, and ended in February 2023. 104 batches were formed with 3965 students. 1409 students completed 38 courses, and the remaining candidates will be trained by December 2023.

c. Basic English skills training for Model Residential School students in association with the Scheduled Tribe Development Department

The Model Residential School students are being trained in basic English skills as part of the Scheduled Tribe (ST) Development

Department's effort to improve the community's fundamental communication abilities. The programme was started in December 2022, and currently, 2016 students are enrolled in the course. 194 students have completed their training.

d. Skill training for entrepreneurial aspirants in association with the Directorate of Industries and Commerce

ASAP Kerala has completed skill training for 560 entrepreneurial aspirants in the selected domains of design, electronics, food processing, beauty and wellness, media, and BFSI, with funding support from the Directorate of Industries and Commerce.

e. Wastewater Treatment Plant Technician course in association with WASH Institute

WASH Institute associated with ASAP Kerala to skill candidates for the job role of 'Wastewater Treatment Plant Technician' in the Green job sector aimed at building competencies in this field. A total of 20 candidates completed training, assessment and certification.

2. Skill Development Programmes of the Scheduled Tribes Development Department

In order to reduce intensity of unemployment among the Scheduled Tribes youth, the Department intends to assist ST families with skill training in modern skill sets, and in earning a livelihood by giving assistance for individuals and self-help groups for self-employment. Various skill training programmes and career guidance campaigns were organised for improving livelihood activities among STs. Details of skill training and placement effected for ST youth for the last 5 year is mentioned in the **Table 7.3.1**.

The Department has conducted 23 skill training courses in the last 5 years, and 4217 people have participated. As an outcome, 1870 candidates have been employed in India, and 21 have been placed in abroad.

3. Skill Training Programmes under SC Development Department

To provide livelihood security to the weaker sections, different types of skill development training programmes, including human resource development training and job oriented training programmes, were implemented by the Scheduled Caste Development Department.

Apart from providing high-end skills in collaboration with other agencies, skill training is also provided for those who would like to start a small enterprise. The details of the persons that have benefitted from the skill trainings and self-employment schemes are given in the Table 7.3.2.

District-wise details of SC beneficiaries under the self-employment scheme in 2022-23 and 2023-24 (as on October 31, 2023) are given in **Table 7.3.2**. During 2022-23, 51 Scheduled Caste persons got employment through the self-employment training programme conducted by the Department, and an additional 51 in 2023-24 (up to October 31st)

Skill Training Programmes under Kudumbashree

Kudumbashree, the State poverty eradication mission, was formed with the objective of poverty eradication through the empowerment of women. As a part of skill development among women, this agency conducts several training programmes.

Table 7.3.1 Details of skill training and Placement for ST youth

Year	No. of skill training course conducted	No. of person attended	Placement	
			India	Abroad
2018-19	4	870	659	0
2019-20	2	1148	647	10
2020-21	6	1600	306	11
2021-22	2	100	84	0
2022-23	2	150	140	0
2023-24 (up to 30.09.2023)	7	349	34	0
Total	23	4217	1870	21

Source: Scheduled Tribes Development Directorate

Table 7.3.2 Number of SC persons benefited under Self Employment scheme during 2022-23 and 2023-24

Sl.No.	District	No. of Persons Benefited	
		2022-23	2023-24*
1	Thiruvananthapuram	6	4
2	Kollam	4	1
3	Pathanamthitta	5	1
4	Alappuzha	5	6
5	Kottayam	1	0
6	Idukki	7	1
7	Ernakulam	0	11
8	Thrissur	8	8
9	Palakkad	0	11
10	Malappuram	0	4
11	Kozhikode	5	1
12	Wayanad	0	0
13	Kannur	8	1
14	Kasaragod	2	2
Total		51	51

Source: Scheduled Caste Development Directorate

* (up to 31.10. 2023)

It is the nodal agency of centrally sponsored programme Deendhayal Antyodaya Yojana- National Rural Livelihood Mission [DAY-NRLM]. Under this scheme, with the aim of demand-led skill training at no cost to the rural poor, Deen Dayal Upadhyaya Grameen Kaushalya Yojana

[DDU GKY] provides skill-based training to men and women, among whom large numbers are Kudumbashree members.

DDU-GKY is a job-oriented skill development scheme jointly implemented by the Ministry of

Table 7.3.3 DDU GKY status in Kerala

DDU GKY status				
Cumulative	Commenced	Completed	Appointed	3 months Job Completed
	76616	65821	47286	37809
2022-23	2618	3819	3128	2128
2021-22	5664	5718	1568	3143
2020-21	3358	3152	1787	2931
2019-20	15221	12812	9957	9100
2018-19	16428	13736	10972	9656
2017-18	12998	10693	9196	5093
2016-17	10722	11630	8232	5077
2015-16	9607	4261	2446	681

Source: Kudumbashree

Rural Development (MoRD) and Kudumbashree. DDU-GKY is uniquely focused on rural youth between the ages of 15 and 35 years from poor families. As on September, 2023, 65,821 persons have been completed training, and 37809 persons have completed 3 months in a job.

4. Kerala Development and Innovation Strategic Council (K-DISC)

K-DISC is the primary agency for promoting innovation in the State. K-DISC has also been given the additional task of facilitating Kerala's transition to a knowledge economy. Promoting innovations for local economic development, and local employment generation also are a priority.

One of the most important objectives of K-DISC is the strengthening of skills, behaviours and attitudes of knowledge economy talent pool, particularly of the youth, to strengthen innovation and eliminate barriers to physical, human and knowledge capital.

Kerala Knowledge Economy Mission

The Kerala Knowledge Economy Mission is an innovative scheme proposed by the Government of Kerala to open new avenues of opportunities for job seekers. The mission aims to enable and provide opportunities for educated job seekers to find better jobs in global workplaces by up-skilling them in their preferred occupations. The Kerala Development and Innovation Strategic Council (K-DISC) is responsible for its implementation.

The aim of the mission is to provide employment to 20 lakh people by 2026 through a digital platform called Digital Workforce Management System (DWMS).

The performance of the KKEM and its outcome as on July 2023 is depicted in the **Table 7.3.4**.

5. Industrial Training Department

The Industrial Training Department functions under the Labour and Skills Department, Government of Kerala. It is also the state-level nodal agency for implementing various skill development activities of Director General of Training, Ministry of Skill Development and Entrepreneurship, Government of India. The department implements the major two schemes introduced by the DGT, namely Craftsman Training Scheme and Apprenticeship Training Scheme, through various Government and private Institutes in urban, semi urban, and rural areas of the State. The free training and other assistance given to the trainees help bring marginalised sections of society to the mainstream of technological advancement. The aim of the Department is to create a skilled and technically qualified workforce who would contribute to the growth and development of the nation.

a. Craftsman Training Scheme (CTS)

The Craftsman Training Scheme was introduced by the Government of India in 1950 to ensure a steady flow of skilled workers in different trades for domestic industry, to quantitatively and

Table 7.3.4 Achievements related to Kerala Knowledge Economy Mission

Total employers	4,264
Total vacancies created	5,66,640
Job opportunities made available in Kerala	2,54,958
Number of job seekers provided with skilling	8,005
Number of trainers empanelled	114
Number of job seekers registered under skilling	13,305
Thozhil Sabha conducted	3,586
Total job seekers registered	14,22,236
Total candidates applied	9,29,021
Number of candidates interviewed	38,140
Selected/short listed	27,797
Employment provided	50,695

Source: Kerala Knowledge Economy Mission (KKEM)

qualitatively raise industrial production through systematic training, to reduce unemployment among educated youth by providing employable training. The National Council for Vocational Training (NCVT) is the apex authority in the country for the implementation of the scheme. As per the scheme, National Trade Certificate (NTC) is issued to the trainee who completes the training in a particular trade and passes the All India Trade Test.

b. Apprenticeship Training Scheme(ATS)

The Apprenticeship Training Scheme is being conducted as per the provisions mentioned in the Apprentices Act 1961. Apprentices Act, 1961 was enacted with the objectives to regulate the programme of training apprentices in the industry so as to conform to a standard syllabi, period of training, skill sets etc, and to utilize the facilities available in industry for imparting practical training with a view to meet industry requirements of skilled manpower. Apprenticeship is a contract between an apprentice and an employer to provide a stipend fixed as per the Apprentices Act 1961.

The Central/State Government act as the third party in contract regulating and monitoring the process.

Recently, Government of India introduced the National Apprentice Promotion Scheme (NAPS), through which the Central Government will reimburse 25 per cent of stipend to establishments.

Apprenticeship training in Kerala is both a Central and State initiative. National Apprenticeship Certificate (NAC) is issued to those who completes the apprenticeship training in an organization and passes the National Apprenticeship Trade Test. Apprenticeship schemes in the State are implemented through the office of the State Apprenticeship Advisor, and Assistant Apprenticeship Advisors in 14 Districts. There are 81 trades in which seats have been identified for Apprenticeship Training.

c. Industrial Training Institutes

There are 104 Government Industrial Training Institutes functioning in the State, with a total capacity of around 33,000 seats (1st year and 2nd year), of which 30 per cent seats are

reserved for women candidates. This includes 14 women ITIs in the Government sector.

The List of Government and Private ITIs and year-wise enrolment details, trade-wise details (1st year and 2nd year courses), institution-wise details of apprentices, and placement details, are shown in **Appendices 7.3.1,7.3.2, 7.3.3,7.3.4, 7.3.5 and 7.3.6, 7.3.7.**

It is evident from the Appendix 7.3.1 that, the total seat strength in Government ITIs in 2022-23 is 23369 and the total enrolment of students is 22759. Among the total enrolment in 2022-23, 5429 are girls. The number of Scheduled Caste and Scheduled Tribe students are 4207 and 733 respectively. The number of women and the number of Scheduled Castes and Scheduled Tribes students have shown a slight increase as compared to the previous year.

Appendix 7.3.7 indicates the placement details of ITI students in the last 7 years from Government and private ITIs. In 2022-23, 4763 students from government ITIs and 1090 students from private ITIs have been placed in jobs. The total placements include 980 girls and 91 SC/ST students.

d. Skill Updating Institute for Industrial Training (SUIIT) – Kerala, Kazhakkuttom

Skill Updating Institute for Industrial Training – Kerala, was started in 1999 at Kazhakkuttom, Thiruvananthapuram, to update the skills and knowledge of instructional staff and others, in pace with technical developments. The activities of this Institute include study on Training Needs Analysis (TNA) and preparation of course design, research in new methods of skill

Table 7.3.5 Details of SUIIT training programmes

Course Title	No. of Training	No. of officials
IMG	35	734
SUIIT	36	1247
DGT Field Institutes	7	162
International Training Programmes	1	1
Others	17	413
Total	96	2557

Source: Industrial Training Department

training and teaching, skill updating programmes for technical staff, soft skill training, training programmes under State training policy at IMG, off-campus training programmes, monitoring of virtual class training, and coordinating Diploma Learning Programme (DLP) training of Directorate General of Training (DGT). Details of Training Programmes conducted by SUIIT-Kerala are as follows:

The table shows that, around 95 national and 1 international training programmes have been conducted by the Department for 2557 officials, during the year 2022-23.

Major achievements during the financial year 2022-23

- Land acquired for ITI Thiruvarpur, Vazhakkadu, Elappara, Chithirapuram and Kodembellur
- Provided nutritious food around 32,000 trainees in 104 Government ITIs
- Inaugurated new buildings of ITI Eriyadu, Peravoor, Beypore and Arakkuzha
- Administrative sanction has been issued for construction of building for RIC Palakkad, ITI Pilicode, and ITI Kuttikkol

6. Kerala Academy for Skills Excellence (KASE)

The Kerala Academy for Skills Excellence (KASE) stands as a beacon of skill development and empowerment in Kerala, established with the vision of nurturing talent and bridging the gap between education and industry. KASE has emerged as a pioneering institution in fostering skill development initiatives. By aligning its initiatives with the evolving needs of the industry, KASE has become a catalyst for socio-economic growth, transforming lives and propelling Kerala towards a brighter future.

KASE has been set up to act as the apex entity to initiate, regulate and co-ordinate focused skill development for different industrial domains. KASE is also designated as the State Skill Development Mission (SSDM) to function as the nodal body for the convergence of all skill training initiatives of the State. The main objectives of SSDM are to promote, establish, setup, monitor, govern and regulate institutions and academies for skills excellence for development.

Furthermore, KASE establishes a Training of Trainers (ToT) Academy, dedicated to nurturing a qualified and competent pool of trainers in

domains of industrial relevance. By investing in the development of skilled trainers, KASE ensures that the quality of training remains consistently high, ultimately benefiting learners and industry alike. In summary, as the State Skill Development Mission, KASE's multifaceted roles are geared towards not only equipping individuals with the skills they need but also transforming the landscape of vocational training to be more accessible, inclusive, and aligned with industry needs, thereby contributing significantly to the state's socio-economic development.

Skill Convergence in Kerala

Various departments have their own skilling programmes, which inadvertently result in duplication. This emphasises the need for convergence across the departments under a mission at the State level. KASE would guide, coordinate, monitor and evaluate skilling initiatives and bring all skill development activities of the State under a single umbrella.

A brief overview of major initiatives of KASE is as follows;

KASE was selected as the Special Purpose Vehicle (SPV) for implementing the works of Industrial Training Department such as up gradation of ITI s to international standards.

Kaushal Kendras

These are the community skill centres focused on the rural population, with facilities for career guidance, information on educational loans, career prospects of a particular course, details of institutions for higher education, various competitive examinations and scholarships.

During the financial year 2022-23, classes started in all the completed Kaushal Kendras. An MoU with NIELIT (National Institute of Electronics & Information Technology) was executed and the course named 'Digital Literacy' has been conducted. A total of 67 students were trained through this programme.

International Skill Training & Employability Programme (iSTEP)

The international outreach initiative - iSTEP (International Skill Training and Employability Programme), is a system envisaged for faster, simpler and efficient processing required for the setting up of Centres of Excellence (CoE)

in various sectors. as per the standards laid out by KASE, the basic shell infrastructure will be provided by KASE, whereas the training, certification and placement, including overseas placement, are the mandate of the industrial partner. iSTEP is open to any sector of the industry where a skill gap is identified by the stakeholders. Models under iSTEP are as follows:

- Centres of Excellence (CoE)
- Accreditation of Skill Training Courses

Centres of Excellence (CoE)

The various Centres of Excellence functioning under KASE are detailed below:

Nursing Institute for Career Enhancement (NICE)

Nursing Institute for Career Enhancement (NICE), the Centre of Excellence in Nursing, is a first-of-its-kind initiative in India which provides world-class training facilities for enhancement of the employability of nurses. KASE partnered with M/s. Trivandrum Speciality Hospitals (NMC Healthcare Group, UAE) to set up this Centre of Excellence at KINFRA International Apparel Park, Thiruvananthapuram. KASE, in association with Scheduled Caste Development Department (SCDD) and Scheduled Tribe Development Department (STDD), has been conducting a series of skill development training programmes for SC and ST students through NICE.

Enlighten Skill Programme for Oil and Rig (ESPOIR)

KASE has partnered with Eram Engineering WLL, Qatar to set up the Centre of Excellence in Oil and Rig at Inkel Tower, Angamali, to equip youth with the requisite skills needed for this industry. The programme offers courses in mechanical, instrumentation & electrical related trades viz. Industrial Electrician, Instrument Technician, Pipe Fabricator, Certified Welders, Instrument Fitter, Certified Scaffolders, Supervisors, etc. ESPOIR focuses on imparting practical skills and hands-on training through its well-equipped labs and workshops which meet international standards. The institute is also actively involved in the upliftment of the students belonging to Scheduled Caste community.

Indian Institute of Infrastructure and Construction (IIIC)

Indian Institute of Infrastructure and Construction (IIIC) is the Centre of Excellence (CoE) in the

infrastructure and construction domain, which aims to provide employability skills to personnel in all cadres of the infrastructure and construction sector- from the lower level workers to supervisory and managerial levels. IIIC works to make them readily employable in the national and international market, and to act as an intermediary to connect these skilled personnel with probable employers. With a state-of-the-art, 9 acre campus at Chavara, Kollam district, Kerala, the objectives of IIIC include establishing a world class skill centre for imparting international quality skill sets to the personnel in construction industry of all cadres, increasing the reach of the skill centre in terms of capacity intake as well as sub sectors, obtain high recognition for the courses of the centre across the globe, and ensure maximum employment through linking the courses with employment wide industrial tie ups. The institute was formally inaugurated on 23rd July, 2018 and the classes for the first batch commenced in October 2018. The institute is also actively involved in the upliftment of the students belonging to Scheduled Caste community.

Establishing Multi-Language Learning Institute at Angamaly in partnership with ODEPC

KASE, in partnership with Overseas Development and Employment Promotion Consultants Ltd. (ODEPC), has established Multi-Language Learning Institute at INKEL Towers, Angamaly for conducting IELTS/OET courses. The courses provided by the institute aims to provide finishing skills to qualified nurses, to make them readily employable in international markets, and act as an intermediary to connect the nurses who have successfully completed the courses with probable employers.

Centre of Excellence in Renewable Energy

KASE, in association with ANERT, has set up a Centre of Excellence in Capacity Building in Renewable Energy projects, as well as green jobs for imparting skill development training and quality control in Kerala. The Centre of Excellence has been established at the headquarters of ANERT at Thiruvananthapuram, and various extension Centres and technology Centres across the state.

Centre of Excellence in Life Science

KASE, in association with Noorul Islam Institute of Medical Sciences (NIMS) and Research Foundation, have established a Centre of

Excellence in the Life Sciences sector. The Centre conducts short-term job-oriented skill training programmes in molecular diagnostic techniques. The Centre aims to train students in state-of-the-art technology and skills to make them employable within the country, and abroad, in the application areas of biotechnology, molecular diagnostics and healthcare, and to promote entrepreneurship and growth of biotechnology in Kerala. The Institute offers the courses in RT-PCR and NGS-based molecular diagnostics, and molecular diagnostics techniques on NGS platform for targeted gene panel.

OET Examination Centre

KASE, in association with Overseas Development and Employment Promotion Consultants Ltd. (ODEPC), has established an Occupational English Test centre at INKEL Towers, Angamaly for healthcare professionals. The centre assesses the language communication skills of healthcare professionals who wish to register and practice in an English-speaking environment.

Accreditation of Skill Training Institutes

Reputed skill training institutions can associate with KASE in getting accreditation to enhance their reach and acceptance in attracting suitable candidates. The public acceptance in the services of accredited institutions is increased when they know that standards are being monitored and enforced. The KASE symbol is a means of identifying institutions that uphold and sustain high standards.

The trained and placed details are enumerated below:-

Table 7.3.6 Trained and placed details of KASE

Year	Total Trained	Total Placed
2021-22	870	489
2022-23	6102	256
Total	6972	745

Source: Kerala Academy for Skills Excellence (KASE)

Table 7.3.6 shows the placement details of various institutions under the KASE. From the table, it can be seen that during the last two years total trained candidates were 6972, among them 745 were placed in various establishments.

Kerala State Job Portal

The Department of Labour and Skills, Government of Kerala, has launched a unique single window facility called State Job Portal for job seekers and employers to boost employment in the State. The State Job Portal is a one-stop solution or all-inclusive support system for job search and recruitment. It provides employers with end-to-end recruitment solutions starting with job posting till final offer letter issuance. Job seekers can update their information on the portal to find the right job for them, and the employer can find the right candidate for them by entering the job openings portal.

During the Financial year 2022-2023, 148 employers and 17,716 jobseekers registered in State Job Portal. Of these registered job seekers, 327 were offered job in various establishments.

Pradhan Mantri Kaushal Vikas Yojana 3.0

Ministry of Skill Development and Entrepreneurship (MSDE) has launched the third phase of its flagship scheme - Pradhan Mantri Kaushal Vikas Yojana (PMKVY 3.0) in January 2021. PMKVY 3.0 will encourage and promote skill development throughout the country to address industry needs, meet market demands, and impart skills in services and in new-age job roles that have become crucial in the post-pandemic era. The scheme aims to provide livelihood to unemployed and dropout youth through Short Term Skill Training Programme (STT) and Recognition of Prior Learning (RPL).

Table 7.3.7 Details of Pradhan Mantri Kaushal Vikas Yojana 3.0

Name of scheme	No. of enrolled	No. of trained	Place-ments
PMKVY 3.0 (STT)	2330	2319	610
PMKVY 3.0 (RPL)	2788	2655	1754

Source: Kerala Academy for Skills Excellence (KASE)

As seen in **Table 7.3.7**, 26.18 per cent of the total registrants under PMKVY 3.0 STT (Short Term Skill Training Programme) and 62.91 per cent under PMKVY 3.0 RPL (Recognition of Prior Learning) have got placement.

Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP)

SANKALP is a joint initiative of the Department of Labour and Skills (Government of Kerala) and Ministry of Skill Development and Entrepreneurship (MSDE) (Government of India) with loan assistance from the World Bank. SANKALP aims to improve short term skill training qualitatively and quantitatively through strengthening institutions, bring in better market connectivity, and inclusion of marginalised sections of the society. The scheme aims to remove barriers between the demand and supply of skilled labour, and to promote a decentralised bottom up skill development strategy that is driven by States.

Skilling is crucial to modern employment, and Kerala has the potential to be Kerala's skilled labour hub. The State's skilled professionals have been the preferred choice of employers in India and abroad. The Government of Kerala recognises that skill training and development play a crucial role in promoting economic growth. Efforts to make the most modern skill training and development available are being made, especially in the new sectors emerging with the fast-changing nature of work.

CHAPTER

08

INITIATIVES FOR SOCIAL
INCLUSION

INITIATIVES FOR SOCIAL INCLUSION

8.1 GENDER AND DEVELOPMENT

Gender equality is a development goal in its own right, as well as a precondition for the achievement of many other developmental goals. Greater gender equality can enhance economic productivity, improve development outcomes and make institutions and policies more representative.

Gender Development Index (GDI) and the Gender Empowerment Measure (GEM) are the two main commonly used gender-related indices, developed by the United Nations Development Programme. The GDI is concerned with basic capabilities and living standards. It uses the same variables as the Human Development Index (HDI) but focuses on the inequality between men and women as well as on the average achievement of all people taken together. The Gender Development Index, based on data collected in 2021 and published in 2022 has arranged countries based on the absolute deviation from gender parity in HDI values. The position of India in HDI is 132 among 191 countries listed. Although much debate has arisen surrounding the reliability, and usefulness of the Gender Development Index (GDI) in making adequate comparisons between different countries, it is a guiding stone to the need of promoting gender-sensitivity and gender sensitive development. Countries are divided into five groups by absolute deviation from gender parity in HDI values and India's position in Gender Development Index group is 5 i.e. low equality

in HDI achievements between women and men. Human Development Report 2021/2022).

Achieving gender equality and empowering all women and girls is one of the sustainable goals of the United Nations (UN) Sustainable Development Goal 5 (SDG 5). The UN recognises ending discrimination against women as not only a basic human right but as a necessary condition for a sustainable future. It is very evident that significant progress toward gender equality and women's empowerment has happened in the past four decades. However, as a global community, we are still far away from being a gender-equal world.

India is ranked 127th in terms of gender parity among 146 countries in the World Economic Forum's Global Gender Gap Report 2023. Further, the Gender Inequality Index (GII) also offers a picture of gender disparities in India in sectors such as health, empowerment and the labour market.

Kerala Stands Out Among the States of India in Terms of Several Indicators of Women's Development.

Kerala took a historic step in 2010 by implementing legislation to reserve 50 per cent of seats for women in Local Government. In 2021, there were 602 women headed Local Self-Governing bodies out of a total of 1,200

Table 8.1.1 Percentage of literacy at various levels in adults (age 15-49), in India and Kerala

Rural/Urban	Kerala			India		
	Urban	Rural	Total	Urban	Rural	Total
Male literacy	99.2	97.4	98.2	89.6	81.5	84.4
Female literacy	99.1	97.5	98.3	83	65.9	71.5
Male who have ever used Internet	78.3	74.2	76.1	72.5	48.7	57.1
Female who have ever used Internet	64.9	57.5	61.1	51.8	24.6	33.3

Source: NFHS-5, 2019-20

local bodies (Department of Panchayat, Kerala Government 2021). Kudumbashree Mission, one of the largest women empowerment programme in India has also been playing a key role in women's development. Women's participation in local bodies needs to be seen also as a reflection of Kudumbrashree's constant involvement in empowering lakh of women through training, entrepreneurship support and education. In this era of neo-liberalism, despite the impact of fiscal policy all over India, social spending in Kerala is still sensitive to areas like gender and development. The Government of Kerala and its various agencies play a significant role in paving a leading path towards a gender-equal society.

As per the 2011 Census, the ratio of women to men for Kerala is 1,084, which is high compared to the national figure of 940. Women constitute 52 per cent of the total population in Kerala. Children aged 0-14 years represent 23.44 per cent of the total population in Kerala, 48.91 per cent of whom are girls. In contrast to the national average of 11 per cent, 22 per cent of all households in Kerala are female-headed. In recent years there was an increase in women's employment in Departments such as Police and Excise. In 2023, 515 women police personnel were recruited. In Excise Department, 577 women were inducted for patrolling in 2023. The total beat officers in forest department is 3,126 of which 756 are women beat officers. After the pandemic substantial recruitment of health workers has been occurred, large number of the new health workforce being women.

Education and Gender Parity

The Socio-cultural development of the State can be attributed to high female literacy and education. Kerala has the highest female literacy rate among Indian States at 92 per cent and gender gap in literacy is very small (Census, 2011). It is also seen that the gender gap has narrowed during these six

decades in Kerala (for more details see Chapter 6 of this Review). As per the NFHS-5, 2019-20 statistics, literacy rate of women (age 15-49) in Kerala has further increased to 97.4 per cent. But women lag behind men in terms of other levels of literacy like computer literacy and basic internet knowledge and it is prominent in rural areas. The gender as well as rural-urban differences in different levels of literacy is given in **Table 8.1.1**.

In the case of general education, enrolment is universal at the primary-level and gender parity has been achieved; girl students constitute 49.05 per cent of total student enrolment in schools. Girls outnumbered boys in terms of enrolment in higher secondary education at 50.80 per cent. At the tertiary-level also the enrolment of girls is higher than boys. But the percentage of girls in technical schools is very low at 6.36 per cent. Details are given in **Table 8.1.2**.

Percentage of enrolment of girls in undergraduate and post-graduate courses in various Arts and Science colleges in Kerala is 65.28 in 2022-23. But when the annual intake of girls in engineering colleges and polytechnics is considered, the

Table 8.1.2 Enrolment of Girls at Different Levels, Kerala 2023-24

Area	Total	Girls	Percentage
LP	1308415	642618	49.11
UP	1169557	575719	49.22
HS	1268675	619328	48.82
*HSS	384556	195357	50.80
VHSS	28059	10871	38.74
Technical High schools	7924	504	6.36

*Data pertains to 2022-23

Source: DGE, DVHSE, DTE, DHSE

situation is different. Out of the total intake of students, girls constitute only 48.52 per cent in engineering colleges and 23.04 per cent in polytechnics. The proportion is high in the case of health and allied sciences. Compared to any other category, girls constitute a large majority of students in medical science related courses. Enrolment of girl students in agricultural courses under Kerala Agricultural University is 72.02 per cent. More than 60 per cent of students in Kerala Veterinary and Animal Sciences University in 2022-23 are girls. Similarly, more than 70 per cent of students in Kerala University of Fisheries and Ocean Studies (KUFOS) are girls.

Table 8.1.3 Enrolment of Girls in Higher Education Institutions (Govt. & Aided) 2022-23

Category	Girls	Total	Percentage
UG and PG (Arts and Science)	230350	352874	65.28
Poly Technic*	2700	11718	23.04
B.Tech and M.Tech*	3480	7172	48.52
UG and PG (KAU)	2162	3002	72.02
UG and PG (KUFOS)	368	513	71.73
UG and PG (KVASU)	1291	1986	65.00
Health and Allied Sciences*	18874	23378	80.73

* Annual intake details

Source: DTE, DCE, KAU, KUFOS, KVASU, KUHS

More than 80 per cent of the students in health and allied courses are girls (**Table 8.1.3**)

Female annual intake in medical education shows that more than 80 percent of female students in medical education in Kerala are girls. (**Table 8.1.4**)

Health Status of Women in Kerala

Kerala has achieved high status in terms of most of the indicators related to women's health such as maternal mortality, life expectancy and sex ratio. Life Expectancy at birth of women in Kerala at 77.9 years is the highest in India; much higher than for women in India as a whole, which is 70.7 years. The high health status of women in Kerala compared to women in other parts of the country is a reflection of overall social development of the

Table 8.1.4 Proportion of Annual Intake of Girls in Medical Education, Kerala 2022-23 as on August 2023

Name of Branch	Male	Female	Total	Female percentage
Modern Medicine	1765	3954	5719	69
Dental	237	1433	1670	86
Homeo Medicine	36	344	380	91
Ayurveda Medicine	121	772	893	86
Unani Medicine	8	17	25	68
Sidha Medicine	3	6	9	67

Source: Kerala University of Health Science (KUHS)

State. Most of the health indicators are highly favourable to women in the State. As per the figures released by the Registrar General of India, all the demographic indicators are favourable to women of Kerala (**Table 8.1.5**).

Low maternal mortality rate and high female life expectancy in Kerala are attributed to the extensive public provisioning for maternal health care in the State. As per SRS Statistical Report 2018, total fertility rate of women in Kerala in the age group of 15-49 who are illiterate is 1.8 and that of literate women is 1.7, while at national-level it is 3 and 2.1 respectively. The universal access to health care institutions helps to ensure maternal care as well as institutional delivery to all. For more details of maternal care indicators of Kerala, see Table 8.1.6. These achievements are the results of decadal long efforts of Government of Kerala since its formation in providing public health care.

The high literacy, educational status and the favourable health indicators are however not reflected in the life style health indicators. In terms of Body Mass Index, obesity and anaemia, women's position is not good as per the reports of NFHS, 2019-20. In Kerala as well as India, the percentage of women with Body Mass Index below normal is high compared to their male counterparts even though Kerala women are better compared to all India average. But in the case of obesity, the percentage of women in Kerala is higher than that of India as well as that of their male counterparts in the State. In the case of anaemia, it is seen that the percentage has increased from 2015-16 to 2019-20 though Kerala's situation is better than that of all India average (**Appendix 8.1.1**). The adolescent

Table 8.1.5 Health Status of Women in India and Kerala

Sl. No.	Indicator		Kerala	India
1	Infant Mortality Rate #	Total	6	30
		Male	6	30
		Female	7	31
2	Mean age at effective marriage of female *	Below 18	17	16.8
		18-20	19.1	19.2
		Above 21	24.6	24
		All age	23.2	22.3
3	Maternal Mortality Rate**		43	113
4	Expectancy of Life at Birth***	Total	75.3	69.4
		Male	72.5	68.2
		Female	77.9	70.7

*SRS Statistical Report 2018

**Special Bulletin on MMR 2016-18

***SRS Life Table 2014-18

Source: # SRS bulletin 2021 October

Table 8.1.6 Indicators of Maternal Care

Indicators	India			Kerala		
	NFHS-3 (2005-06)	NFHS-4 (2015-16)	NFHS-5 (2019-20)	NFHS-3 (2005-06)	NFHS-4 (2015-16)	NFHS-5 (2019-20)
Adolescent pregnancy	16	7.9	6.8	5.8	3	2.4
Mothers with Antenatal Check-ups	43.9	58.6	70	91.9	95.1	93.6
Institutional Births (per cent)	38.7	78.9	88.6	99.3	99.8	99.8
Mother and Child Protection (MCP) card holder (per cent)	NA	89.3	95.9	NA	84.2	91.3
Total Fertility Rate (children per women)	2.7	2.2	2	1.9	1.6	1.8
Full Antenatal Care (per cent)	11.6	21	NA	66.7	61.2	NA
Mothers received post natal care (per cent)	34.6	62.4	78	84.6	88.7	93.3
Delivery by caesarean (per cent)	8.5	17.2	21.5	30.1	35.8	38.9
Anaemic adolescent (per cent)	55.3	53.1	57	32.8	34.3	36.3
Experienced violence during pregnancy (per cent)	NA	3.9	3.1	NA	1.2	0.5

Source: National Family Health Survey

pregnancy also is very low in Kerala. As the proportion of aging population in Kerala is high, non-communicable diseases like hypertension, diabetes, and cardiovascular diseases etc. are also on increase. Lack of physical activities creates number of health issues like obesity and high prevalence of non-communicable diseases among women. According to NFHS-5 statistics, 24.8 per cent of

women in Kerala have diabetes mellitus and 30.9 per cent have hypertension.

As per NFHS-5 report, anaemia among women and children in Kerala has also increased as compared to NFHS-4 in spite of various schemes such as Supplementary Nutrition Programme, Poshan Abhiyaan and First 1,000

days implemented by the Women and Child Department (WCD) to improve the nutritional status of women and children. To address the issue of malnutrition we need integration of health and nutrition platforms at the community-level and awareness creation among the public. VIVA Programme for addressing the anaemia among women was launched on January 12, 2021. The programme is implemented by health department in collaboration with local bodies and WCD.

As regards family planning, the knowledge of contraception is almost universal in Kerala. The availability of contraception within and outside marriage is a concern. Male participation in contraceptive methods is negligible as per NFHS 5. Data indicates that female sterilisation rate as 46.6 per cent as opposite to male 0.1 per cent in Kerala. At national-level, it is 37.9 per cent among females and 0.3 per cent among males.

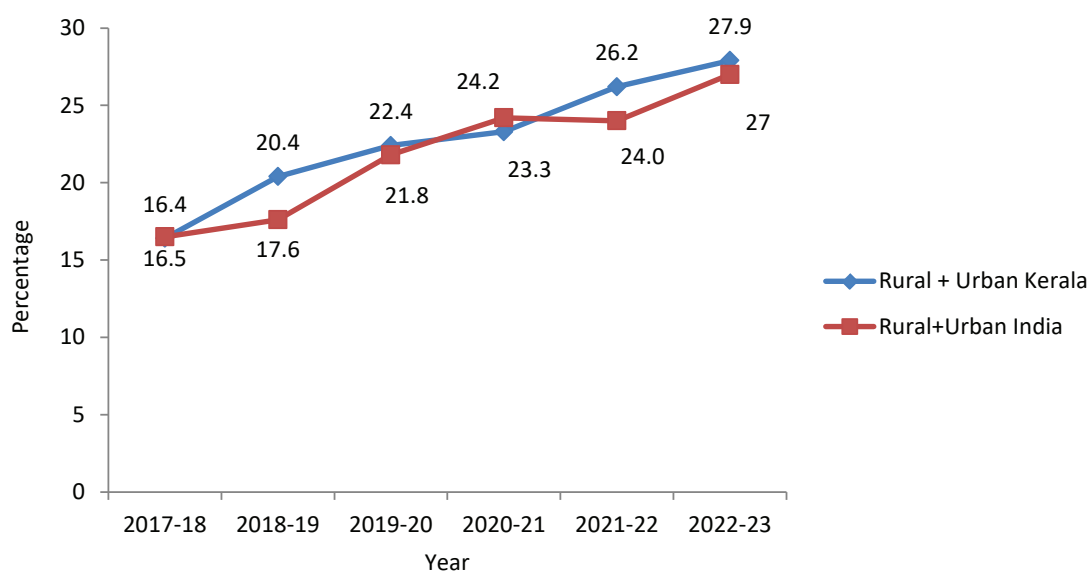
Participation in Economy

Though in terms of health, education and many other development indicators, women of Kerala are better than their male counterparts; their participation in economic domain is yet to improve. During the previous rounds of NSSO, there were wide gaps between men and women both in terms of the Labour Force Participation Rates (LFPR) and Work Participation Rates (WPR). The gender paradoxes in contemporary Kerala society are particularly reflected in the low

labour participation rate and a disproportionately high unemployment rate of women. Workforce participation rates of women in urban areas have always been much higher in Kerala reflecting the advantages of a literate State. The recent Periodic Labour Force Surveys (PLFS) show that gap between men and women has been to some extent reduced in this regard. Likewise, in 2021-22 they have reached a better position when compared to their counterparts in India (**Appendix 8.1.2**). As per the PLFS of 2018-19, both male and female LFPR and WPR had slightly increased when compared to their counterparts at national-level. But this has again reduced in 2020-21 due to the impact of COVID-19 pandemic on the economy. Female WPR has increased from 20.4 per cent in 2018-19 to 27.9 per cent in 2022-23 in all age groups. In the productive age group of 15-59 years, the WPR of women in Kerala is 37.4 while the all India average is 38.5. At all age groups, WPR of women is higher than that of all India average. The constant efforts of WCD, Kudumbashree and other government institutions in this regard has started to show positive results which is depicted in **Figure 8.1.1**

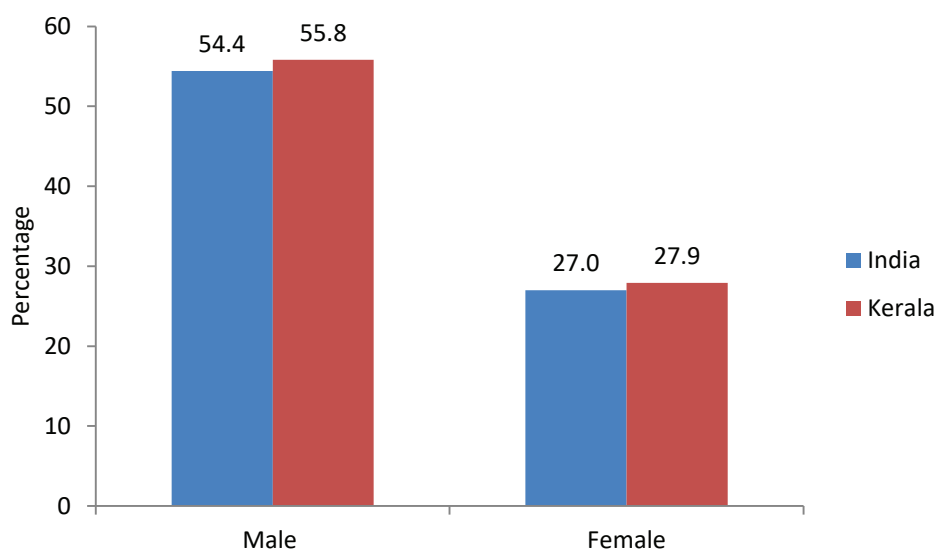
The gender gap in levels of employment both in India and Kerala in terms of WPR is brought out in **Figure 8.1.2**. Though both male as well as female WPRs show upward trends, the increase was taken up by self-employment and casual labour; especially in rural areas. The detailed discussion

Figure 8.1.1 Women's participation in Labour Force in Kerala and India (All Ages)



Source: Periodic Labour Force Survey 2022-23

Figure 8.1.2 Work Participation Rates of Males and Females in Kerala and India (All Ages)



Source: Periodic Labour Force Survey 2022-23 Inequality in Wage Rates

on LFPR and WPR is given in Labour and Labour Welfare section in Chapter 7 of this Review.

Inequality in Wage Rates

In terms of wages and remuneration, significant gender inequality exists in the State as well as at national-level. The prevalence of inequality in the wage rates among men and women in salaried job, self-employment and casual work has been detailed in the section on Labour in Chapter 7 of this Review. The gender disparity in wage rate is prevalent not only in informal or unorganised sector but also in regular/salaried employment as shown in **Appendix 8.1.3**. The gender difference in earnings is more prevalent in casual labour works than salaried jobs and self-employment. Though women and men in Kerala are higher paid in casual work than their counterparts in India, the gender difference in wage rate persists in Kerala also (**Table 8.1.7**).

The economic empowerment of women is attained when they become an integral part of labour force and are gainfully employed without having to bear the full burden of household and care responsibilities. It is necessary that this is recognised, and efforts are taken to reduce and redistribute unpaid household and care work in more just ways promoting shared responsibility within the household. The State should play a crucial role in designing appropriate policies/schemes that support its reduction and redistribution.

Industrial Distribution of Women Workers

A project report on female LFPR in Kerala by Centre for Development Studies, 2015 showed the shift of the female workforce away from agriculture was quite marked in Kerala. As per PLFS 2022-23 the proportion of women in manufacturing is high in Kerala compared to all India (**Figure 8.1.3**). This may be because large numbers of women are engaged in low productivity, labour intensive traditional industries like handlooms, khadi, coir, and cashew. Concentration of women in low remunerative industries would be clear from the membership of females in different Welfare Fund Boards in Kerala.

Status of Employment

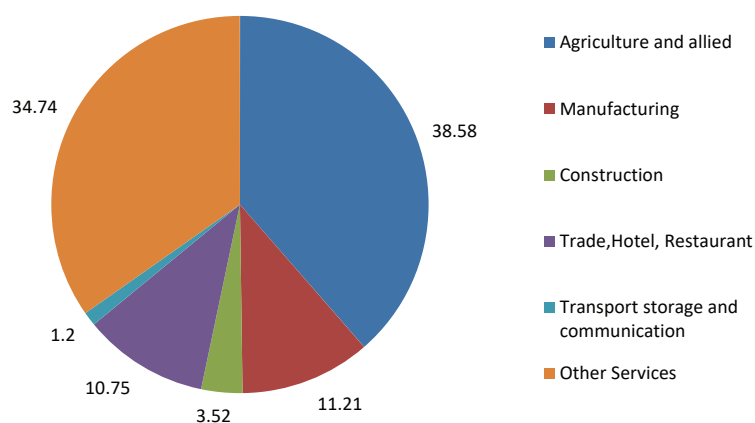
The status of female employment as shown in **Table 8.1.8** shows that out of the employed women in Kerala, nearly half were in regular salaried employment, nearly twice that in the rest of India. Similarly, it is more than that of all self-employed women in Kerala. While helper in household enterprise occupied the majority of the female workforce in the rest of the country, in Kerala this accounts for only 11.7 per cent. This points towards the better quality of employment that the State has been able to provide to its female workforce. Kerala has a relatively good share of women regular salaried employees compared to all India-level in 2021-22 and in 2022-23. Kerala has a small share of women casual labours compared to all India level.

Table 8.1.7 Gender Difference in Average Wage/Salary/Earnings per day from casual labour work other than public works

Period	Kerala/India	Rural		Urban	
		Male	Female	Male	Female
July-Sep-2019	Kerala	667.71	372.05	744.50	385.75
	India	297.30	185.01	374.96	243.43
Oct- Dec 2019	Kerala	721.39	395.56	736.51	369.43
	India	305.40	193.10	384.32	244.10
Jan- Mar 2020	Kerala	715.96	430.54	729.58	351.86
	India	315.13	205.43	391.31	264.86
April-June 2020	Kerala	685.12	318.79	697.62	489.62
	India	309.02	209.10	390.06	256.20
July-Sep 2021	Kerala	758.36	439.85	812.65	490.19
	India	381.04	260.68	450.44	317.43
Oct-Dec 2021	Kerala	824.55	452.01	820.96	412.12
	India	387.03	260.79	466.13	322.1
Jan-Mar 2022	Kerala	817.91	414.02	838.63	415.77
	India	392.12	258.08	473.48	325.42
April- June 2022	Kerala	842.36	433.74	846.14	404.41
	India	393.34	264.68	482.61	333.48
July- Sep 2022	Kerala	795.54	446.73	858.97	416.73
	India	437.06	258.72	488.09	325.47
Oct- Dec 2022	Kerala	826.03	404.93	869.77	401.87
	India	413.20	270.45	503.65	336.20
Jan- Mar 2023	Kerala	834.53	431.46	880.96	440.81
	India	413.16	280.20	506.73	343.03
April- June 2023	Kerala	845.63	418.86	903.26	493.54
	India	416.14	286.66	515.34	332.85

Source: Periodic Labour Force Survey 2022-23, CWS

Figure 8.1.3 Industry-wise proportion of female workforce in Kerala in 2022-23



Source: PLFS 2022-23.

Table 8.1.8 Percentage distribution of working women in India and Kerala (CWS)

Employment Category		2021-22		2022-23	
		India	Kerala	India	Kerala
All self employed	Own Account Worker, Employer	60.6	36.1	64.3	35.9
	Helper in household enterprises				
Regular salaried		20.0	44.5	18.6	47.4
Casual labour		19.4	19.4	17.1	16.7

Source: PLFS

Table 8.1.9 Employment in the Organised Sector in Kerala, in number and in per cent

Year	Public Sector		Private Sector		Total	
	Women	Total	Women	Total	Women	Total
2019	193807	560619	342877	686881	536684	1247500
Percentage to the total	34.60	100	49.90	100	43	100
2020	193224	554919	368153	699447	561377	1254366
Percentage to the total	34.82	100	52.63	100	44.75	100
2021	194080	556634	349978	691134	544058	1247768
Percentage to the total	34.86	100	50.64	100	43.60	100
2022	194191	556933	351822	693146	546013	1250079
Percentage to the total	34.86	100	50.75	100	43.67	100
2023	194323	557495	354098	695293	548421	1252788
Percentage to the total	34.85	100	50.92	100	43.77	100

Source: Directorate of Employment

Women in Organised Sector

In 2023, the proportion of women workers (43.77 per cent) in organised sector in Kerala was low compared to that of men (56.23 per cent). But the total number of women workers in the organised sector has increased during the last ten years (**Appendix 8.1.4**). But it can be seen that out of the total women workers (5,48,421) in the organised sector, majority (64.57 per cent) are engaged in the private sector (**Table 8.1.9**).

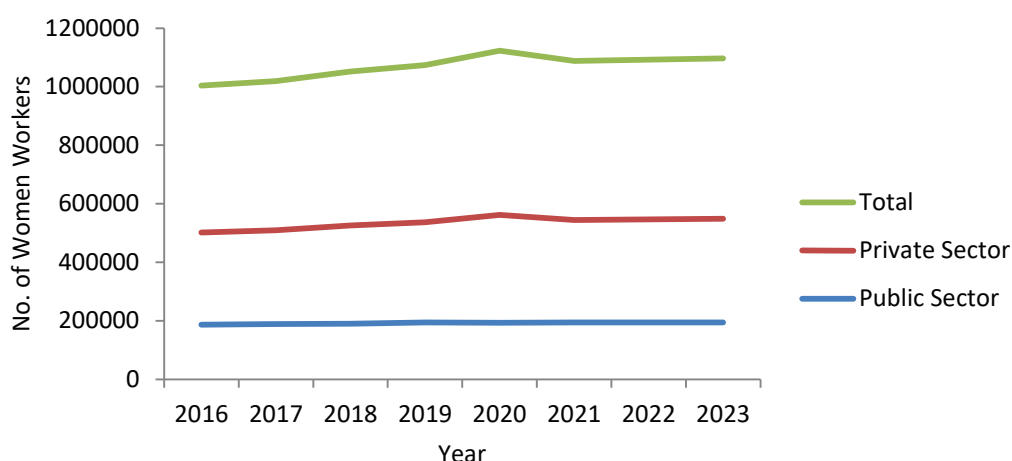
An examination of sector-wise percentage share of employment statistics in the organised sector reveals that females are in a disadvantaged position compared to their male counterparts in public sector. Women employment share in public sector is 1.9 lakh which accounts for 34.85 per cent in 2023. The situation is better in the case of private sector where 3.5 lakh women (50.92 per cent) are employed.

The employment of women in organised sector is growing over the last 6 years, both in public and private sectors. (**Figure 8.1.4**). The increase in the private sector employment is more than that of public sector and women outnumber men in private sector in 2022 and 2023.

An examination of distribution of public sector employment of women in different types of Government organisation as shown in **Table 8.1.10** reveals that the proportion of women is high in the State Government in 2021-22 and in 2022-23.

The District-wise employment of women in different type of Government organisations is given in **Appendix 8.1.5**. Both the number and proportion of women workers in public sector is highest in Kollam followed by Wayanad. But

Figure 8.1.4 Growth of women's employment in organised sector



Source: Directorate of Employment

Table 8.1.10 Distribution of Women Employees in Different Levels of Government in Kerala

Year	2022-23			2021-22		
Type of Government	Total	Women	Percentage to the Total	Total	Women	Percentage to the total
Central Government	60215	14751	24.49	60063	14726	24.51
State Government	259560	105711	40.72	259339	105627	40.72
Central Quasi	80812	25407	31.43	80736	25391	31.44
State Quasi	131614	39182	29.77	131372	39120	29.77
LSGI	25294	9272	36.65	25296	9272	36.65
Total	557495	194323	34.85	556933	194136	34.85

Source: Directorate of Employment

the highest number of women workers in State Government is from Thiruvananthapuram followed by Thrissur. In the case of women in Central Government employment, Thiruvananthapuram followed by Ernakulam stands ahead.

Skill and Entrepreneurship Development

Kerala State Industrial Department, Kudumbashree, Women Development Corporation and many other Government Departments are conducting various programmes including Entrepreneurship Development Programmes (EDPs) to cater to the needs of potential women entrepreneurs, who may not have adequate educational background and skills. There are also several other schemes of the Governments at Central and State-levels, which provide assistance for setting up training cum-

income generating activities for needy women to make them economically independent. Some banks and financial institutions like NABARD have also been implementing special schemes for women entrepreneurs. In addition to the special schemes for women entrepreneurs, various Government schemes such as Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY), National Rural Livelihood Mission (NRLM), and MSME schemes of Kudumbashree and entrepreneur support scheme of Industrial Department for small and micro enterprises also provide certain special incentives and concessions for women entrepreneurs. The Government has also made several relaxations for women to facilitate the participation of women beneficiaries in this scheme. Additional Skill Acquisition Programme (ASAP), Kerala Academy for Skills Excellence (KASE), and Labour Departments have various

Table 8.1.11 Employment generation in Information Technology (IT) sector in Kerala

IT Parks	2021-22			2022-23		
	Total	Women	Per cent	Total	Women	Per cent
Techno Park	64000	28800	45	72000	32400	45
Info Park	63600	25440	40	67000	26800	40
Cyber Park	1237	495	40	2078	832	40

Source: Techno Park, Info Park, Cyber Park

skilling programmes for women to create a skilled women labour force and create more opportunities for women.

Women in IT Sector

The IT sector (Techno Park, Cyber Park, and Info Park) has shown an increase in employment in 2021-22 and 2022-23. The proportion of women employees remained constant during the periods for Techno Park, Info Park and Cyber Park. **(Table 8.1.11)**. Kerala University of Digital Sciences, Innovation and Technology –Women Incubation, Start-ups and Entrepreneurship (WISE) scheme aims to empower woman through entrepreneurship. Start-up Mission (of Industrial department) has given the employment opportunities to 43,150 employees of which women constitute 15,100.

Economic Participation of Women through Kudumbashree

Kudumbashree, a community organisation of Neighbourhood Groups (NHGs) of women, setup in 1998 as the State Poverty Eradication Mission is functioning under the Local Self Government Department. Starting initially with thrift and loan activities, the NHGs focused on empowering women through income generation activities and micro-credit, besides engaging in a range of other activities such as health, nutrition, agriculture,

and social development. Kudumbashree has played an important role with regard to financial inclusion of poor women and has enhanced the financial status of less privileged women through its thrift and credit programmes. Internal loan is given to the deserving members from the pooled small regular savings (thrift) of neighbourhood groups. Though, NHG is autonomous and has a discretionary role in financial activities, each and every NHG is bound to act in accordance with the Kudumbashree by law. The activities are to be reported to Area Development Society (ADS) and Community Development Society (CDS). The total thrift collected by NHGs in 2022-23 was more than Rs 532 crore and the internal loan generated out of this thrift amount comes to more than three times of the thrift amount **(Table 8.1.12)**

In 2018, Kudumbashree initiated “Harsham” programme realising the opportunities existing in the service sector in Kerala. Harsham programme aims at providing intensive training of 15 days to women and equip them to provide service in geriatric care sector. Training for caregivers was provided with the assistance of doctors, nurses and hospital management in selected hospitals in the State. Harsham team is all set to provide full time professional care on enterprise model to the elderly, provide day time care, provide service as bystander

Table 8.1.12 Financial Inclusion through Neighbourhood Groups

	2019-20	2020-21	2021-22	2022-23
No of NHGs	287723	294436	306551	317226
No of NHG Members (in lakh)	45.1	45.85	45.86	48.02
Amount of Thrift (in crore)	443.7	406.71	514	532
No of Bank linked NHGs	73522	250018	52837	93080
Disbursement of bank loans(in crore)	2670	4070.26	3436	6550.8
Internal Loan (in crore)	1778.4	1323.11	2510	2660

Source: Kudumbashree

in hospitals and extend service as caretaker for old people in care homes. Training has been provided to 636 people, out of which 198 have already got opportunity to serve on monthly salary basis in various firms/care homes/houses.

The major income generation activities under Kudumbashree are Joint Liability Groups (JLGs) and enterprises. These women are aggregated into small farming groups called Joint Liability Group and are supported by Kudumbashree by means of training, financial assistance, convergence opportunities facilitated by District missions and provided exposure to a vast arena of livelihood ventures for income enhancement. Most of the women involved in collective farming activities had the experience in farming as wage earners, workers or helpers in their family farms or casual labour in agriculture. Now the project has transformed them from the status of labourer to women farmers. For

a sustainable financial growth and quality of life the supports extended apart from the above include, linkage loans from nationalised bank at practically a zero-percentage interest with no collateral security as well as continuous and uninterrupted service of the Community Resource Persons called Master Farmers throughout the year for all activities. As shown in **Table 8.1.13**, more than 3.7 lakh of women farmers are actively involved in farming and they are cultivating in more than 38 thousand hectares of land in 2022-23.

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA)

In Kerala, over 90 per cent of the workers in MGNREGA are women. There has been an increase in person days of employment generated in 2022-23 and the percentage of women person days generated through MGNREGA is 89.82 per cent) (**Table 8.1.14**).

Table 8.1.13 Joint Liability Groups and Micro Enterprises under Kudumbashree

	Joint Liability Groups (JLGs) under Kudumbashree	
Year	2021-22	2022-23
No. of JLGs	74776	74783
No of JLG members	343271	373915
Total area cultivated (in Ha)	33310.05	38956.824
Area of Fallow land cultivated (in acre)	6634.62	4468.725
	Women Enterprises under Kudumbashree	
No of Enterprises	54471	106981*
No. of Women Members	175006	283512

*including Start-up Village Entrepreneurship Programme (SVEP)

Source: Kudumbashree

Table 8.1.14 Status of MGNREGA Employment Provided in Kerala from 2018-19 to 2022-23

Year	No. of Active Job Cards (No. in Lakh)	No. of households got Job (No.in Lakh)	per cent of women person days generated	Person days generated (No.in Lakh)	Average wage rate per day per person in Rs	Average days of employment provided to a household	No. of H Hs completed 100 days of wage employment
2018-19	20.20	14.78	90.41	975.25	274.2	65.97	4,41,479
2019-20	20.00	14.38	89.8	802.3	274.29	55.75	2,51,141
2020-21	20.43	16.17	90.49	1023	294.65	63.25	4,70,410
2021-22	21.59	16.45	89.57	1059.66	294.94	64.41	5,12,823
2022-23	21.79	15.51	89.82	965.78	310.5	62.26	4,49,638

Source: MGNREGA data base

In Women Mate deployment vis-a-vis Group-wise Task Naapi Payment System (GTNPS) 100 per cent of selected mates are women. Annual training is given to all mates deployed in the State and 90,789 mates were trained in 2020-21. 37.34 per cent of the semi-skilled workers and 25.6 per cent of the skilled workers are women in NREGA.

Women Empowerment and Participation in Decision Making

Women need to play a pro-active role in decision making at home as well as in the policy decisions of the State. This would ensure an integration of their needs and interests into the development process and in developing a gender just society. The NFHS-5 report shows 89 per cent of married women at the age group between 40-49 in Kerala are self-sufficient in cash earning either themselves or jointly with their partners. Women who earn more or equal to their partners are 32.8 per cent among the age group 40-49 and 32.2 per cent among 30-39 age group. 92.8 per cent of the women educated above 12th standard are self-sufficient either themselves or jointly with their partners.

In Kerala, 72.7 per cent women at age group 30-39 and 56.5 per cent among the age group 20-24 participate in the decision making process such as health care, major household purchasing and their visits to family or relatives. 73.1 per cent of employed women are involved in their everyday decision making, while it is 67.8 per cent among the women who are not employed.

The fraction of women aged 15-49 years who have bank accounts in their names is 76.48. 61.4 per cent among the age group of 40-49 and 62.6 per cent of 30-39 have bank accounts and they are aware of micro credit programme. But women who know about micro credit programme among the age group 15-19 are 35.9 per cent only. 15.4 per cent of the employed women and 7.8 per cent unemployed women have taken loan from micro credit programmes. 24.5 per cent women owns a house or jointly with their partners among the women aged 15-49 years whereas women those who own land alone or jointly is 11.5 per cent only. 86.5 per cent of the women between the age group 15-49 years have mobile phones.

Women's participation in decision making of the family is considered here in terms of three indicators as gathered in NFHS, 2019-20, namely, the percentage of women who usually participate in the household decisions, percentage of women having a bank/savings account that is operated by them and percentage of women having a mobile phone that they themselves use. As shown in **Table 8.1.15** women in Kerala actively participate in the decision making process more than their counterparts at all India-level.

The participation of women voters in the Lok Sabha elections has increased over the years from 46.63 per cent in the third Lok Sabha election in 1962 to 66 per cent in the election for 16th Lok Sabha. The participation of women voters in Kerala is very high compared to all India average. But in terms of women's representation in

Table 8.1.15 Women's Participation in Decision Making in India and Kerala

Indicators	India				Kerala			
	NFHS-5 (2019-20)			NFHS-4 (2015-16)	NFHS-5 (2019-20)			NFHS-4 (2015-16)
	Urban	Rural	Total	Total	Urban	Rural	Total	Total
Currently married women who usually participate in household decisions (per cent).	91	87.7	88.7	84	93.6	94.6	94	92.1
Women having a bank/savings account that they themselves use (per cent)	80.9	77.4	78.6	53	78.9	78.2	78.5	70.6
Women having a mobile phone that they themselves use (per cent)	69.4	46.6	54	45.9	86.2	86.9	86.6	81.2

Source: NFHS

Parliament and Legislative Assembly, Kerala lags behind. In 16th Lok Sabha, women constitute 12 per cent of the total Members of Parliament while only one woman MP (5 per cent) could reach the Parliament from Kerala. Likewise representation of women in State Assembly is also low.

But the participation of women in Panchayathi Raj institutions is higher than the all India average and half the position in decision making bodies of Local Governments is reserved for women. It is remarkable that of the total number of persons elected to local bodies in the elections of 2020, 54 per cent were women. Women's representation in the apex bodies of social, political and religious significance is negligible, despite there being an adequate representation at the lower rungs of such institutions. It is appalling to note that women MLAs ever elected in Kerala have never exceeded 10 per cent of Kerala legislative assembly in its 64-year political history.

Violence Against Women

Crimes against women continue to be a major threat in Kerala, though the total number of crimes against women has decreased in the last two years. The Crime Record Bureau in Kerala gives data on crimes against women in the following categories such as Rape, molestation, kidnapping and abduction, eve teasing, dowry death, cruelty by husband/relatives, other offences. The highest proportion of crimes committed are in the category of other offences (33 per cent) and molestation (24.5 per cent). Crime against women in Kerala during the year 2016-2023 are shown in **Appendix 8.1.6**. According to National Family Health Survey (NFHS-5) data for 2018-19, nine per cent of women in Kerala have experienced physical violence and one per cent have experienced sexual violence.

Programmes Initiated by the State Government to Address Gender Based Violence

Prevention and redressal of gender based violence and rehabilitation of the survivors are important for women's development. This includes several departments as WCD being the nodal agency and police and judiciary critical for redressal. A large number of measures ranging from gender sensitisation, public awareness, community based crime and vulnerability mapping, counselling to adolescent girls, self-defence training, pink police control rooms, shelter homes, short stay homes, one stop crisis centre, medical care for victims of violence, and so on are part of the programme.

Nirbhaya Policy: Government of Kerala had formulated the Nirbhaya Policy for combating sexual violence against women and children and to safeguard them against trafficking for exploitation. Nirbhaya cell has been formed under the Directorate of Women and Child Development. Nirbhaya programmes include shelters for sexually abused women, where they are provided with life skill education to earn a living and gain employment. The Nirbhaya Cell has set up twenty three child care institutions across the State.

SOS Model Home: This model shelter home was started in Thiruvananthapuram for POCSO survived girls below the age of 12 years.

One Stop Centres: These centres by WCD provide support to those women who are affected by violence in public and private places, within the family, community and at the work place. These centres will provide a range of integrated services including, transportation, medical assistance, and facilitation in dealing with the police and accessing legal aid, psychosocial counselling and temporary shelter, if required. In 2019-20, Kerala became one of the first States in India to have One Stop Centres in all the districts.

Kathorth: The online consultation programme of WCD for women commenced in February 2021 and is aimed at resolving their various issues through counselling, legal aid and police assistance. Complaints can be submitted through the website kathorthu.wcd.kerala.gov.in.

Aswasanidhi: Realising the need to provide financial support to victims of sex crimes and heinous gender based violence; the State Government has announced the setting up of a corpus fund of Rs 300 lakh in the State Budget of 2018-19 for providing interim relief to such victims. The Department of Women and Child Development maintains it for release to victims of sex crimes, domestic violence, acid attacks and heinous gender based violence. The expenditure incurred in 2022-23 is 2.32 crore for 294 beneficiaries.

Bhoomika: Government had launched a programme on medical and psychological care for the victims of gender based violence/social abuses with the support of NRHM. "Bhoomika", a gender based violence management centre provides social and psychological support to the victims.

Snehitha: Kudumbashree Gender Help Desk Snehitha provides services to women and children in distress. The services include short stay homes for women and children facing atrocities and violence, individual, adolescent and premarital counselling, awareness campaigns, legal and medical assistance, and rehabilitation through convergence with other departments and NGOs.

“Aparajitha is online”: This is a quick response mechanism for the grievance redressal of harassment of women and girls and is operated by the Department of Police.

Mithra Helpline (181): The helpline was initiated by Kerala State Women’s Development Corporation (KSWDC) and is presently functioning successfully as a 24/7 accessible and emergency response service for women in need.

Dheera: An innovative project named “Dheera” is being implemented by Women and Child Development Department through Nirbhaya Cell with the help of Police Department in order to instil confidence and courage, improve physical and mental health, raising awareness against violence, enable self-defence among girl children. 90 girls between the age group of 10-15 years from vulnerable areas were selected from each district and they were given martial arts training such as Karate, Taikondo and Kalaripayattu by master trainers. 1260 beneficiaries were benefitted in 2022-23.

VIVA Programme: Department of Women and Child Development under the leadership of Department of Health has launched a program called “VIVA” in 2022-23 to study the problem of anemia among women in Kerala and devise programs to eradicate anemia. Steps have been taken to implement various programmes to spread the message through mass media so that awareness on the issue of anaemia can be circulated in the public domain.

Setting up of the Department of Women and Child Development

One significant achievement of the Government was the setting up of the Department of Women and Child Development (WCD) in June 2017, bifurcating the Social Justice Department to give a more focussed thrust to activities aimed at social assistance and empowerment of women and children. It is an umbrella structure that includes the State Women’s Commission, State Women’s

Development Corporation, State Commission for Protection of Child Rights, Gender Park, Nirbhaya project, women and children homes, ICDS and Anganwadis. A large part of its working is concerned with running of 44 welfare institutions for the care, protection and rehabilitation of women and children (16 for women and 28 for children); NGOs and voluntary organisations also play a major role in providing institutional care to the vulnerable population. The Department of Women and Child functions for ensuring the holistic, physical, psychological, cognitive and emotional developments of women and children and to build up a gender sensitive family and community.

Initiatives of WCD during 13th Five-Year Plan (2017-22)

In Kerala, women not only outnumber men, but also outlive them. The marital status of women could influence the overall-level of support and economic security they receive from their family and community. Statistics shows only 3.5 per cent of the total male population in Kerala are widowers and the proportion of the widowed female population is 11.56 per cent. This gender gap adversely affects women in every sphere of her life. It is in this context, the Government of Kerala introduced a scheme, Mangalya to encourage widow remarriage. The scheme imparts financial assistance for widows/divorced to remarry. With an objective of providing a safe and better living environment to destitute and homeless widows, Abhayakiranam scheme provides monthly financial assistance of Rs 1,000 to the close relatives of destitute widows who provide protection and shelter to them. Majority of the families of widows are living in deplorable conditions. The Sahayahastham scheme proposes to extend a helping hand to these families by way of providing financial assistance to self-employment. Padavukal is a scheme which gives educational assistance for professional courses to the children of widows whose annual income is less than Rs 3,00,000.

Athijeevika is a scheme that has been envisaged to provide one time financial assistance up to a maximum of Rs 50,000 to women headed families in cases of unforeseen financial crisis.

Thejomaya After Care Home has been set up at Edakkattuvayal, Ernakulam. It is intended for the POCSO survivors in Women and Children Homes who have completed their studies and are interested in various vocations. In 2020-21,

a career assessment programme was done with the help of HLFPT (Hindustan Latex Family Planning Promotion Trust) and 42 inmates were selected for various vocations namely catering, tailoring, beautician, driving etc. A psychological intervention programme/wellness programme was also conducted for 26 inmates.

Home for Mental Health: Home for Mental Health is intended for the POCSO survivors of Women and Children Homes with psychological problems. Government had accorded sanction for an amount of Rs 39.87 lakh for starting the Home for Mental Health in Thrissur and entrusted Gandhi Bhavan International Trust, an NGO, for starting the same. It has started functioning in 2019-20.

One Day Home: With an objective to ensure safe accommodation for women who travel alone and reach the capital city for various purposes, a One Day Home was started at the 8th floor of the Kerala State Road Transport Corporation building in the heart of Thiruvananthapuram city as a joint venture of Thiruvananthapuram Corporation and Women and Child Development Department. The main objective of the scheme is to provide a safe stay and food at a reasonable rate. The One Day Home started functioning from March 7, 2020 onwards.

Dowry Prohibition: A popular campaign to eradicate dowry was initiated by the Department in 2019-2020. A five year long action plan has been prepared aiming at complete eradication of dowry through awareness creation and empowerment. Importance of women's education and economic independence are highlighted to ensure an umbrella approach towards this age old custom. The initial phase of campaign was a success mainly because of the tools like memes used to address the youth. The campaign will continue over the next 3 years. According to the amendment (July 13, 2021) of Kerala Dowry Prohibition Rules, District Dowry Prohibition Officers (DDPOs) were appointed to create awareness about the ill effects of dowries among the public and manage the activities against the dowry in all the districts.

Dowry Complaints portal: As part of the effective implementation of the Dowry Prohibition Act, the Department has launched a Dowry Complaints portal. Through this portal, individuals, members of the public or organizations can submit a

complaint regarding the purchase or payment of dowry.

Pandemic Strategies for Women by the WCD

The impact of COVID-19 pandemic has adversely affected women. As the COVID-19 pandemic deepens economic and social stress coupled with restricted movement and social isolation measures, gender-based violence is increasing exponentially. As the nodal department for ensuring the welfare and protection of women and children, the Department of Women and Child Development implemented various projects to address the issues faced by children and women during the pandemic.

A 24 hour Whatsapp/SMS helpline "9400080292" was initiated by the Department with the support of NSS technical cell to enable people to report cases related to domestic violence, a new scheme named "Rakshadooth" was initiated in collaboration with Postal Department to enable access services to women in remote area and women those who do not have a phone and transportation facilities. Department took the initiative to keep in touch with maximum number of beneficiaries through WhatsApp and video conference calls. The concerns of beneficiaries were addressed by conducting sessions on pregnancy issues, lactating issues faced in providing child care and feeding practices. Nearly 3.5 lakh people were covered. On World Population Day the Department addressed the issues of unplanned pregnancy, contraception and other reproductive issues for women and couples. Nearly 96000 family/couples were covered. As part of "PoshanMaah" activities nutrition garden and wayside planting of fruit trees and vegetables, nutrition challenges for women, children and men were conducted. Tele nutrition counselling and tele-consultation facility were conducted in all projects to address the issue of malnutrition, immunisation and proper development of the growing child and concerns of pregnant women and lactating women were also addressed with the help of Indian Association of Dieticians and Indian Academy of Paediatricians and IMA. Nearly 7.31 lakh people were covered. Daily nutritive recipe shared through the department communication network.

Kerala State Women's Development Corporation (KSWDC)

KSWDC aims at the all-round development of women in the State to make them active

participants in social development and progress. The Corporation focuses on providing financial support to women entrepreneurs, trainings and gender awareness programmes. Upto the financial year 2022-23, the Corporation has implemented “She Pad” menstrual hygiene management awareness project in 2,198 Government/aided Schools for 4.5 lakh girl students. Phase-I construction of ‘Vanitha Mithra Kendra’ Working Women’s Hostel at Kakkanad, (Ernakulam) was inaugurated on February 12, 2021. ‘Vanitamitra Kendra’ Working Women’s Hostel operates in nine districts and has a total of 1100 residents.

Safe Stay project for ensuring safe, secure and affordable stay for women was inaugurated on February 5, 2021. Comprehensive app has been developed and its tie-ups with 30 women’s hostels for first phase programme rolled out. More than 100 women have benefitted from this service.

Gender Sensitisation Programme for Police Personnel: ‘Bodhyam’ Gender sensitisation programme for police personnel was launched by KSWDC on September 4, 2019. The training was conducted in batches coordinated from Police Training College (PTC), Thiruvananthapuram and Kerala Police Academy (KEPA), Thrissur. The aim of the programme is to improve effectiveness of emergency response services for women as well as to create a gender-friendly environment in the State. In the financial year 2022-23, the corporation has completed the training of 902 police personnel.

Women Cells in Women’s Colleges: As part of its gender awareness programmes, KSWDC has started Women Cells in selected colleges in the State which initiated various programmes like gender awareness trainings, pre-marital counselling, open forums, cultural programmes, manuscript publishing, training in IT/Soft skill, creative workshops and community intervention programmes in selected women’s colleges in Kerala. In 2022-23, women cells have functioned in 111 women colleges with over 22,000 members. The main objective of a women cell is to make the youth aware of the issues involved in the society and to equip them with adequate management skills to handle day-to-day affairs.

Finishing School for Women: KSWDC started “Reach” for enhancing employability skills among women to improve their job prospects. In 2022-23, a total number of 2105 students were provided

training. Through advanced skill enhancement programme for nurses (ASEPN), 270 professionals were trained.

Gender Park: It is an initiative of the Women and Child Development Department to pioneer gender equity and empowerment in the State. Its main campus located at Kozhikode, a convergence centre for various projects, cultural and academic programmes. It includes an International Convention Centre, Amphitheatre, Gender Library and Gender Museum. A Gender Data Centre is established in collaboration with UN Women, along with Heritage Museum and Library which would make Gender Park the South Asian hub for gender activities. Based on the Sustainable Development Goals of the United Nations, an International Women’s Trade Centre (iWTC) will be set up at the Kozhikode campus of the Gender Park. The iWTC will be a platform for women to safely start and expand enterprises, and market their products globally. A Memorandum of Understanding has been signed between Gender Park and UN Women in December 2020 to come together as equal partners to address gender equality in the South Asian region. Avant Garde is an awareness programme, designed and organised in partnership with the UN Women India. The objective is to create awareness among young boys and girls about various issues related to gender-biased violence persisting in society through art performances.

Gender Self-Learning Programme (GSLP): GSLP was initiated by Kudumbashree in 2007 in order to make women capable of learning and understanding the gender issues themselves. It is a “participatory education programme through which women in NHGs address gender and its manifestations in their lived experience.” The learning process helps the women to develop a collective consciousness on women issues and understanding of how to express their views. Under this programme, nearly a total of 86,307 women were trained as resource persons for a cascading training programme till NHG-level and in all, 4,33,313 women underwent training including resource persons and 3,47,006 support team members. The programme is expected to cover 35 lakh women in the State. The five thematic areas selected for the learning process are: (1) women and employment, (2) women and health, (3) women and mobility and (4) gender justice and equality and (5) theme against dowry and gender-based violence. Theme against dowry and gender

based violence started in 2021 with the name “Sthreepakshanavakeralam programme”.

Kerala Women’s Commission: Gender Awareness Programme-A significant activity of KWC is the training of JagrataSamithi (a watchdog institution at the grassroot-level) members, which can work very effectively in prevention of crime with community participation. The Commission conducts seminars/legal workshops, training programmes for Panchayat JagrathaSamithis on various laws related to women and other legal procedures and adalaths. In order to sensitize the youth in our State about the issues faced by them during the adolescent period, a year-long awareness programme, “Kaumaram Karuthakkoo” was conducted by the commission. During 2022-23 (as on March 31, 2023) Women’s Commission received a total of 74,991 complaints of different cases against women in Kerala. The highest number of cases were in Thiruvananthapuram (27,076 complaints) followed by Kollam with 7,161 complaints. Out of the total, 14,551 complaints were related to family problems, 8,215 of domestic violence cases and 6,399 of property related. Category-wise and district-wise details of complaints received as on March 2023 are given in **Appendix 8.1.7**.

“**Saranya**” is a self-employment scheme to support by providing financial assistance to the unemployed widows, deserted/divorced/unmarried women/unwedded mothers, women with disabilities, wives of bed ridden persons; it is implemented by the Employment Department. In 2022-23, 2,995 women were benefitted by the scheme. 100 women in 2022-23 and 63 women in 2023-24 (upto November 28, 2023) received financial assistance through Kaivalya i.e. rehabilitation and welfare scheme of registrants with disabilities in employment exchanges, implemented by the Employment Department. International Centre for Free and Open Source Software (ICFOSS) provide support through gender and technology hackathon, back to work, women winter school and summer school, virtual training, campaigns and fellowships in their gender technology initiative component.

Transgender Community in Kerala

The Government of Kerala issued a right based transgender policy in 2015, after the landmark judgment of the Supreme Court of India in 2014 which firmly established the right to equality and

equal protection for transgender persons (TGs). Transgender Persons (Protection of Rights) Act, 2019, has raised several concerns regarding the status of transgender people in India, especially with respect to right of self-identification. The policy also recommends the establishment of District-level TG Boards that can register TGs and issue identification cards. The visibility of transgender people in public sphere in Kerala has also been increased during the last few years. But the issues of people with other sexual identities are still not highlighted in that manner. The survey conducted by the Social Justice Department on TGs revealed that they are unable to acquire even basic capabilities essential to a life of well-being and dignity. Hence, interventions for inclusion of TGs cannot be limited to merely economic measures.

Various schemes for the welfare of TGs are being implemented by various departments, primarily by Social Justice Department. Likewise, schemes/programmes aiming at the welfare of LGBTs have been initiated under Health and Family Welfare Department. DHS has initiated steps for sex reassignment surgeries in Kottayam Medical College. A programme, viz, “Nisarga” has been started by Directorate of Homeopathy for counselling and medication for transgender. All transgender people and people with disabilities are included under the health insurance scheme Karunya Arogya Suraksha Padhathi (KASP) from 2023-24. Apart from these, Kerala State Literacy Mission Authority (KSLMA) has initiated special literacy programme, which focuses on providing free and continuing education for the transgender persons in the State. As part of Samanwaya programme, they have joined 4th, 7th, 10th and 12th equivalency programme of KSLMA. 96 TGs were benefitted by the programme in 2022-23. As part of the continuing education programme, KSLMA conducted a survey among 918 persons from the transgender community, which revealed that 20.35 per cent of them were unemployed and 16.70 per cent worked in the private sector. While 1.65 per cent had Government jobs, 5.86 per cent were working in semi-Government institutions. Over 30 per cent were engaged in some form of self-employment. A majority of the people who were employed had not disclosed their distinct gender identity before society in any official records. The survey also found that six out of 100 transgender persons were engaged in begging and eight out of 100 in sex work. Over four per cent

of the people did not have any documents to prove their identity. The survey found that only 1.2 per cent of the transgender surveyed were unable to read or write. The number of school dropouts among transgenders increased as they progressed to higher classes, mostly due to social stigma. While 10.61 per cent of transgenders were dropped out of school between classes IV and VII, around 40 per cent dropped out between classes VII and X. Among the transgenders surveyed, 26.55 per cent had passed the plus two courses. While 13.60 per cent transgenders were graduates 2.10 per cent were post graduates. Around 67.14 per cent of the persons surveyed were keen to enroll in continuing education programmes of KSLMA.

As per the Disability Census conducted in Kerala, there are 1,187 transgender persons with disabilities; various schemes are to be implemented by Government of Kerala on a rights based approach for the wellbeing of Transgenders. In 2018-19, the Transgender Person Cell in the Social Justice Directorate was set up for design, coordination and implementation of various activities for the transgender persons giving them a voice in their own planning. Since then, all the schemes under SJD came under this comprehensive umbrella scheme “Mazhavillu”. Community-level programme, institutional intervention, research and survey, sensitisation and workshops, pension, insurance and loan, and skill development are the major components of the scheme. Transgender persons’ arts festival was organised, marriage assistance was provided and they are included as a priority category in the LIFE Housing Mission project. A Transgender persons’ helpline (24x7) and crisis management centre was established with the help of accredited NGOs working in the field. Financial assistance is given for education (school drop outs being high), vocational training, self-employment and for writing competitive exams. Financial assistance for Sex Re-assignment Surgery (SRS) in hospitals based on medical advice was increased to Rs 2 lakh in 2019 and further to Rs 5 lakh by 2020.

In 2020-21, 3,576 transgender persons have benefitted from various schemes implemented by various departments. Hostel facility, beautician course, continuing education scheme, sewing machine distribution, entrepreneurship development programmes, TG short stay/shelter homes, further treatment post SRS surgery, HIV zero surveillance centre (KSSWB), imparting

driving training, TG friendly toilet, self-employment assistance, Varnam (TG fest) and sensitisation in school/colleges, among various officials, elected representatives are the other schemes for TGs implemented by SJD during 13th Five-Year Plan.

KSWDC launched self-employment loan scheme for transgender persons in 2020-21 to help them become self-reliant through self-employment. This scheme is being implemented with the funding support of Directorate of Social Justice. An amount of Rs 30 lakh was sanctioned in the initial phase disbursement of loans in the scheme and 22 transgender persons benefitted from the scheme.

Gender Budgeting

A gender-responsive Budget at the local-level was introduced in Kerala at the time of 9th Plan itself with the mandatory inclusion of Women Component Plan (WCP) in Local Governments’ Annual Plan. With the devolution of 35-40 per cent of funds from the State to the Local Self-Government Institutions (LSGIs), the first form of Gender budgeting was seen in the State in 1996 where each Panchayat was directed to prepare a chapter on the status of women in their development Plan document. During 9th Plan, 10 per cent of the Plan Outlay of the local bodies had to be set apart to address the needs of women or women specific projects, which came to be known as the Women Component Plan (WCP).

To institutionalise the process of Gender Budgeting, the Gender Budget Statement had been introduced in the Union Budget 2005-06. In Kerala, conscious efforts have been taken to make the State Budget gender responsive. While the process started with the 11th Plan, the first Gender Budget for the State Plan was released in 2017-18 aggregating resources earmarked for girls/ women across departments as a separate document included in the Budget papers.

In 2022-23, an amount of Rs 1,619.82 crore (7.26 per cent) has been provided for women specific schemes (Part A) and an amount of Rs 3,045.38 crore (13.64 per cent) for composite schemes in Part B has been made available for women. A total amount of Rs 4,665.20 crore has been earmarked for women which is 20.90 per cent of total Outlay. Out of this amount, Rs 5.0 crore is allocated for Mazhavillu, scheme for transgenders. Gender budgeting in the State has a total outlay

of Rs 4,670.22 crore for the 2023-24 financial year. Allocations for women have touched a high of 21.12 per cent of the total Plan outlay, up from 19.54 per cent (Rs 4,025.4 crore) for 2021-22. While the resource allocation for 90-100 per cent women-specific schemes is 6.69 per cent, up from 6.54 per cent in 2021-22, that for schemes in which the resource allocation is less than 90 per cent is 14.43 per cent, an increase from 13 per cent in 2021-22. This indicates a marginal but steady growth in both categories.

Way Forward

Gender and development is an integral part of the State Plan. Kerala continues to strive towards gender equality and in promoting and encouraging women's development in the State. Kerala is way ahead of other States in terms of some dimensions of women empowerment. However, there are areas of concern such as wage disparity and concentration of women in low income jobs and gender based violence that need to be addressed. Likewise the participation of women in the decision making bodies at higher levels (legislative assembly and parliament) is also very low which needs to be considered seriously. Further, providing a safe and secure environment will go a long way in enabling women to move out of their houses freely and thus increase their economic participation.

8.2 ADDRESSING SOCIO-ECONOMIC VULNERABILITIES

Scheduled Castes and Scheduled Tribes

The Government of Kerala strives to safeguard the Constitutional rights of the people of Scheduled Castes and Scheduled Tribes and to ensure their progress and welfare by specifically addressing the developmental needs of these communities through various plans and programmes. The policy of the Government of Kerala is to allocate a share of the total State Plan Outlay which is higher than the proportional representation of SCs and STs in the population, for their welfare and development and to remove social disabilities imposed on them by ensuring equality of opportunity in every sphere of life.

In Kerala, the people of Scheduled Castes and Scheduled Tribes constitute 9.1 per cent and 1.45 per cent of the population, respectively. District-wise details of Scheduled Castes and Scheduled Tribes population are given in **Appendix 8.2.1 and 8.2.2** respectively. A comparative picture regarding literacy and sex ratio of SC and ST population in Kerala with the national level is presented in **Appendix 8.2.3**. As per Rule 14(a) of the Kerala State and Subordinate Service Rules 1958, 10 per cent representation (8 per cent for SCs, 2 per cent for STs) is reserved to SCs/STs in Gazetted, Non-Gazetted and Last Grade posts in Government departments. According to the annual review data from 46 out of 89 departments on January 1, 2023, the representation of SCs and STs was reported to be 12.58 per cent of the total. Of this, 9.63 per cent were SCs and 2.94 per

cent were STs. As per the review of 82 out of 89 departments on January 1, 2022, 9.61 and 2.55 percent were the representation of SCs and STs respectively in the employment in Government. Details of the representation of SC/ST employees in Government Departments are given in **Appendix 8.2.4**.

Development Programmes for Scheduled Castes and Scheduled Tribes

The Government of Kerala is committed to ensuring the development and well-being of the people of the Scheduled Castes and Scheduled Tribes. As already stated, the State Government earmarks a portion of the Annual State Plan Outlay as Scheduled Caste Sub Plan (SCSP) fund and Tribal Sub Plan (TSP) fund which is higher than their population proportion. At present, 9.81 per cent of total State Plan outlay is earmarked for the welfare of SCs and 2.83 per cent for the STs. Out of this, around 45 percent of funds allocated for SCSP and 23 percent of funds allocated for TSP are given to the Local Self Government Institutions for implementation of schemes under decentralised planning, and the remaining funds are allocated to the SC/ST Development Departments.

The Plan Outlay set apart for the development of SCs and STs in 2023-24 is Rs 2979.40 crore and Rs 859.50 crore respectively out of the total State Plan outlay of Rs 30370 crore. Year-wise details of allocation from 2018-19 to 2023-24 under SCSP and TSP is given in **Table No.8.2.1**.

Table No. 8.2.1 Year-wise Outlay for SCSP and TSP 2018-19 to 2023-24, in Rs crore

Year	Total State Plan Outlay	SCSP Outlay				TSP Outlay			
		Department	LSGIs	Total	Per cent of Total State Plan	Department	LSGIs	Total	Per cent of Total State Plan
2018-19	29150	1570.36	1289.26	2859.62	9.81	632.59	193.60	826.19	2.83
2019-20	30610	1649.00	1353.84	3002.84	9.81	663.27	202.99	866.26	2.83
2020-21	27610	1487.39	1221.15	2708.54	9.81	598.26	183.10	781.36	2.83
2021-22	27610	1487.39	1221.15	2708.54	9.81	598.26	183.10	781.36	2.83
2022-23	30370	1638.10	1341.30	2979.4	9.81	657.95	201.55	859.50	2.83
2023-24	30370	1638.10	1341.30	2979.4	9.81	657.95	201.55	859.50	2.83
Total	175720	9470.34	7768.00	17238.34	9.81	3808.28	1165.89	4974.17	2.83

Source: Budget Documents, GoK.

Development of Scheduled Castes

According to the 2011 Census, the Scheduled Caste population of Kerala is 30.39 lakh persons, constituting 9.10 per cent of the total population of the State. There are 26,342 SC Habitats/Colonies in the state. There are 53 SC communities, and the communities like Vedar, Nayadi, Kalladi, Arundhathiar/Chakkiliar are identified as the vulnerable communities among Scheduled Castes. The people of these specific Scheduled Castes are 3.65 per cent of the total Scheduled Caste population in the State.

The Government of Kerala allocates Plan fund to the SC Development Department and the Local Governments for implementing various development programmes. Besides this, the Central Government also allocates fund for the implementation of Centrally Sponsored Schemes. An amount of Rs 2,979.40 crore was earmarked in the 2022-23 Budget for the welfare of Scheduled Castes. Out of this, an amount of Rs 1,638.10 crore was allocated to the SC Development Department and Rs 1,341.30 crore for Local Governments. SC Development Department spent Rs 1295.36 crore (79.08 per cent) while the Local Governments utilised Rs 1127.35 crore (84.05 per cent) out of the allotted budgeted outlay. Out of Rs 2,979.40 crore earmarked for the welfare of Scheduled Castes in the 2023-24 Budget, SC Development Department received Rs 1,638.10 crore and the LSGIs received Rs 1341.30 crore. A detailed account of the

allocation of SCSP funds from State Plan Outlay and its utilisation from 2017-18 to 2023-24, is given in **Appendix 8.2.5**. Likewise, the Scheme-wise outlay and expenditure and the physical targets and achievements for the years 2022-23 and 2023-24 (as on September 30, 2023) of the schemes implemented by SC Development Department are given in **Appendix 8.2.6 and 8.2.7** respectively. The SC Development Department is implementing a variety of schemes and programmes for the welfare of Scheduled Castes. Some of the major programmes and schemes are summarised below.

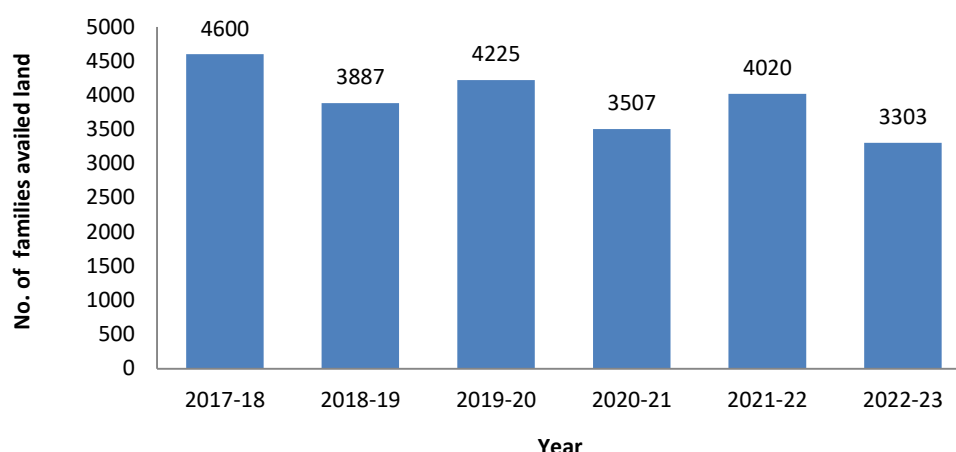
Major Development Programmes for the Welfare of Scheduled Castes

Land and Housing

The Government of Kerala provides financial assistance for purchasing land to the landless Scheduled Caste households under the scheme 'Land to landless families for construction of houses'. In 2022-23, 3,303 families were assisted under this scheme. Out of the budgeted outlay of Rs 180.00 crore, Rs 128.88 crore (71.6 per cent) was spent in 2022-23. The potential of the scheme can be fully explored to address the issue of landlessness among SCs. Number of families benefited under this scheme from 2017-18 to 2022-23 are given in **Figure 8.2.1**.

District wise details of land provided to SCs under the land to

Figure 8.2.1 No. of SC Families Aailed Land, 2017-18 to 2022-23



Source: SC Development Department, 2023

landless scheme from 2021-22 to 2023-24 (as on September 30, 2023) is given in **Appendix 8.2.8**.

Under the housing scheme, LIFE Mission has undertaken the construction of new houses and completion of incomplete houses undertaken by SC Development Department from 2007-08 to 2016-17. From 2017-18 onwards, new house constructions are being implemented in three phases of LIFE Mission. The construction of 92,411 houses of the SC beneficiaries is completed so far in all the three phases and the additional beneficiary lists (as on September 30, 2023). In the first phase of LIFE Mission (completion of incomplete houses), construction works of 19,153 houses were completed out of the eligible 19,566 incomplete houses identified.

In the second phase (housing for homeless with land), out of the total 69,804 eligible beneficiaries, 58,905 families executed agreement for house construction and 50,114 beneficiaries completed house construction. The construction of 8,791 houses is progressing. In the third phase (housing for landless and homeless), out of the total 22,570 beneficiaries identified by the LIFE Mission, 7,489 families executed agreement for construction, and 5,363 families completed the construction. The construction of 2,126 houses is progressing.

In the additional list of 'Housing for homeless with land', 21,519 of the 32,818 eligible beneficiaries executed agreement, and 15,791 of them completed the work. The construction of 5,728 houses is progressing. Likewise, in the additional list of 'Housing for landless and homeless', 2,288 of the 17,587 eligible beneficiaries executed agreement and 543 of them completed the construction. The construction of 1,745 houses is progressing.

In the case of LIFE 2020 (Housing for homeless with land), 26,449 of the 68,147 eligible beneficiaries executed agreement, and 1,447 of them completed the construction. The construction of the 25,002 houses is progressing. Likewise, in LIFE 2020 (Housing for landless and homeless), 46,505 SCs are identified as eligible beneficiaries. District wise details of the house construction under LIFE Mission is given in **Appendix 8.2.9**

A new initiative called SAFE (Secure Accommodation and Facility Enhancement) has been introduced for maintenance, completion and renovation of houses built after 2010 which are technically completed but in an uninhabitable stage. Under this initiative, Rs 2 lakh is allowed for the renovation/maintenance of the houses.

Education

SC Development Department runs 87 nursery schools, 10 Model Residential Schools, 44 Industrial Training Institutes, 86 pre-matric hostels, 19 post-matric hostels, 4 Pre-Examination Training Centres, an Institute for Civil Services Exam Training Society (ICSETS), a Community College in Vadakkancherry, Centre for Research and Education for Social Transformation (CREST) in Kozhikkode and a Medical College in Palakkad for imparting education for the SC students. Palakkad Medical College is a pioneering initiative of the SC Development Department which creates opportunity for around 70 SC students annually to pursue MBBS. The 44 ITIs affiliated to NCVT offers training in 11 trades and gives admission to around 1600 trainees per year. Government provides various types of educational assistances such as primary/secondary education aid, lump sum grant, monthly stipend, pocket

money, tuition fee re-imbursement for unaided school students, special incentive, medical and engineering coaching assistance, pre-matric and post-matric scholarships, overseas scholarships etc. for improving the educational status of SC students. Major educational assistances given to SC students in 2022-23 are given in **Box 8.2.1**. An online centralised system called 'E-grantz system' is in place for the disbursement of scholarship for all pre-matric and post matric students belonging to SC/ST/Backward class communities. E-Grantz pre matric platform covers more than 3.5 lakh SC students per year and its post-matric platform covers nearly 1.5 lakh SC students per year. Two new Model Residential Schools were started in Kozhikode and Kannur districts in 2020-21. In 2019-20, the rate of assistances, including lump sum grant, stipend, and scholarships given to SCs, STs and OEC students for pre-matric, post-matric and professional courses were enhanced.

Box 8.2.1: Major educational assistances given to SC students in 2022-23 (No. of students benefited)

• Pre-matric scholarships	4,15,171
• Post-matric scholarships	1,35,515
• Primary education aid	2,66,728
• Additional State Assistance to Post-matric students	1,20,759
• Assistance for studying abroad	330
• Assistance for studying in other States	365
• Assistance for purchasing laptop	1,151
• Assistance for purchasing stethoscope	127
• Ayyankali Talent Search scholarship	6,914
• Special incentive (Cash award given to those students who achieve excellence in annual examinations including SSLC to PG and other professional courses)	1,555
• Initial expenses to those admitted to Engineering/ Medical Courses	591
• Lump sum Grant	1,32,184
• Stipend	1,09,572
• Pocket Money	13,351
• Vision-2013 (Medical and Engineering Coaching)	314

Source: SC Development Department, 2023

Among the educational assistances provided by the SC Development Department, 'Unnathi Overseas Scholarship' scheme deserves special mention. Through this scheme, SC students receive scholarships of up to Rs 25 lakh to pursue their studies abroad. In 2022-23 alone, Government supported 330 SC students to study in reputed foreign educational institutions, and 181 students were assisted so far in 2023-24 (as on September 30, 2023).

Details of lump sum grant, stipend and pocket money provided to Scheduled Castes students in 2022-23 and 2023-24 (as on September 30, 2023) are given in **Appendix 8.2.10** and the number of students who availed various kinds of scholarships and assistances from 2019-20 to 2023-24 (as on September 30, 2023) are given in **Appendix 8.2.11**.

The construction of 5,012 study rooms were completed in 2022-23 for the students of high school and higher secondary classes hailing from families having annual income of less than Rs 1.00 lakh. Out of this, 81 study rooms were for those children who belong to the vulnerable communities among SCs. Likewise, 1,351 study rooms were constructed in 2023-24, of which 245 study rooms belongs to the students from the vulnerable communities among SC (as on September 30, 2023) (**Box 8.2.2**).

Health

Under the health care scheme, treatment assistance is provided to the deserving patients through 'T-Grants' site. Financial assistance of Rs. 2 lakh as a relief for the death of sole income earning member of an SC family is also a part of the scheme. Treatment assistance was given to 13,190 persons in 2022-23 for various diseases

in the State. As on September 30, 2023, total of 2,331 persons received treatment assistance under this scheme. In the case of financial assistance for the death of sole income earner of SC households, 676 families in 2022-23 and 211 families in 2023-24 (as on September 30, 2023) received such assistance. Besides this, 29 homeo dispensaries are functioning in SC colonies. In 2022-23, Rs 47.82 crore and in 2023-24 (as on September 30, 2022), Rs 19.09 crore were spent under health care scheme. Details of outlay and expenditure under health care scheme and number of patients availed treatment assistance for the last five years are given in **Appendix 8.2.12**.

Skill Training and Employment

For providing livelihood security to the weaker sections, various types of job oriented skilling programmes are implemented for the people of Scheduled Castes. In 2022-23, Rs 32.85 crore spent for the scheme. Self-employment assistance is given to individuals/self-help groups with one-third of the loan as subsidy for undertaking self-employment ventures. Self-employment subsidy was given to 51 beneficiaries during 2022-23. Details of assistance under the self-employment scheme in 2022-23 and 2023-24 (as on September 30, 2023) is given in **Appendix 8.2.13**. Financial assistance up to Rs 1.00 lakh is given for unemployed SC youth with annual family income limit of below Rs 2.50 lakh for seeking job abroad. During 2022-23, assistance was given to 864 persons for seeking job abroad and in 2023-24 (as on September 30, 2023) 700 persons availed this assistance. The details of foreign employment assistance are given in **Appendix 8.2.14**. An initiative called TRACE (Training for Career Excellence) has been started under which internships/apprenticeships/ placement training for professionals and qualified

Box No.8.2.2 Construction of Study Rooms (Padanamuri)

This scheme was introduced in the year 2017-18 aiming to support around 6 lakh Scheduled Caste students studying in various Pre Matric and Post Matric institutions in Kerala. Providing an environment at house which is conducive for their study is essential as economic condition of the parents may prevent the arrangements of such facilities to their children. Hence, this initiative intends to provide financial assistance of Rs 2 lakh for the construction of an additional room of 120 sq.ft to the existing house of SC Students who are studying in class V to XII in government, aided, special, technical schools and Kendriya Vidyalayas and whose family/ parents have an annual income of up to Rs 1 lakh. Furthermore, the project aims to provide additional facilities such as bookshelf, chair, table, fan and light, computer and computer table. Since its inception in 2017-18, construction of more than 34,000 study rooms has been completed.

Source: SC Development Department, 2023

Box No.8.2.3 TRACE (Training for Career Excellence) and Apprenticeship Programmes

TRACE offers qualified youths from SCs with the opportunity to gain work experience and skill development through apprenticeships/job training over a period of 2 years, in government system and its implementation process of various schemes. Appointment of 300 B.Tech, M.Tech graduates and Civil Engineering diploma holders as Accredited Engineers and Overseers, 245 Apprentice Clerks, 1,217 SC Promoters, 60 Community Social Workers, 18 SC youth with law degrees under the Justice, Welfare and Legal Assistance (JWALA) project, are some of the important programmes implemented in 2022-23 under TRACE and Apprenticeship Programmes. In 2023-24 (as on September 30, 2023) 300 Accredited Engineers, 60 Community Social Workers and 87 law graduates under JWALA project were successfully given placement under the TRACE and Apprenticeship Programmes.

Source: SC Development Department, 2023

SC youth in various areas is given, which will help them acquire experience (**Box 8.2.3**). In order to help the youth of SC communities to secure jobs and to start new enterprises, skill development trainings were conducted in areas like information technology, automobile, electrical, textile designing, health care, printing technology etc. through agencies like KELTRON, KASE, ASAP, CIPET, Kuttukkaran Institute etc. In 2022-23, 421 persons received training under various skill development programmes, and 100 of them received placement. The 'WINGS' scheme was introduced to expand scholarship opportunities for SC/ST youth in commercial pilot training, which will secure jobs for them in that field. Three SC students can avail this scholarship, and at present, five SC students are studying at the Rajiv Gandhi Aviation Academy in the Commercial Pilot license course. The 'Lakshya' initiative was started with an aim to provide scholarship for SC youth to get coaching for Civil Service Examination at any recognized institutes across India. At present, 60 scholarships are provided and it includes course fees, hostel fees, book allowance, assistance for test series etc.

One major initiative in the realm of employment is the inception of 'Unnathi-Kerala Empowerment Society'. It envisions a thriving, inclusive ecosystem empowering vulnerable SC & ST communities with abundant livelihood opportunities and aims to transform educated SC and ST youths into both entrepreneurs and employers. This is to be achieved by providing them with the necessary education, skill training, and job/entrepreneurship opportunities with the broader goal of socio-economic development in changing modern world. The Empowerment Society will support SC and ST youth groups/co-operatives and individuals in their entrepreneurial endeavors, in the improvement of their livelihood opportunities, along with

facilitating their direct involvement in executing welfare projects. It has the potential to re-orient the employment, entrepreneurship and livelihood programmes of the SC development department and to facilitate the activities/programmes that needed to address the second generation needs of the SC communities.

Infrastructure Development in SC colonies

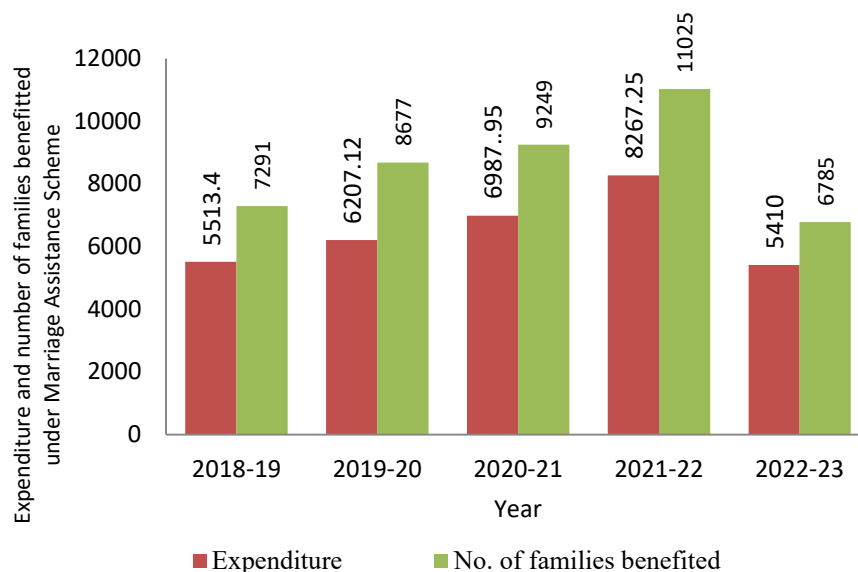
For providing better infrastructure facilities in the habitats, the 'Ambedkar Village Development Scheme' was launched in SC colonies, where more than 25 SC families reside. As part of the scheme, Rs 1.00 crore is provided to each colony for undertaking various developmental activities including provision of drinking water, toilet and sanitation, waste management, road connectivity, electrification, land protection wall, irrigation, playground, community hall, renovation of houses, financial support for income generating activities, assistance for protection and renovation of burial grounds inside/adjacent to the colony. Works have been undertaken in 60 colonies in the year 2022-23. The details of the 'Ambedkar Village Development Scheme' are given in **Appendix 8.2.15**.

Other Social Development Programmes

Assistance for Marriage

Under this scheme, financial assistance is given to SC families as a support for the marriage of the girls. In 2022-23, 6,785 SC families were assisted under the scheme and Rs 54.10 crore was spent. In 2023-24, by disbursing Rs 30.68 crore, 3,054 SC families were assisted under the scheme (as on September 30, 2023). The rate of marriage assistance was enhanced from Rs 50,000 to Rs 75,000 in 2016-17. It has been further enhanced to Rs 1,25,000 as per the announcement in the budget speech of 2021-22. Expenditure

Figure 8.2.2 Expenditure and families benefitted under Marriage Assistance Scheme, in Rs lakh



Source: SC Development Department, 2022

under marriage assistance scheme and number of persons benefitted from the scheme for the last five years is given in **Figure 8.2.2**.

Special Package for Vulnerable Communities

A special package was introduced in 2019-20 for providing assistance for purchasing agricultural land for vulnerable communities such as Vedar, Nayadi, Kalladi and Arundhathiyar/Chakkliar. Under this package, assistance was provided up to a maximum of Rs 10.00 lakh for purchasing minimum 25 cents of land. In 2022-23, Rs 50 crore was earmarked for the development activities for the vulnerable communities, and Rs 32.26 crore was expended. Altogether, assistance was provided to 21 beneficiaries for the

purchase of agricultural land and 200 families for purchasing land for house construction in 2022-23. Besides this, 81 study rooms, 284 houses, and 89 toilets were constructed for the vulnerable communities, along with assistance to 212 families for repairing houses in 2022-23. A micro planning programme called HOME has been designed for the comprehensive development of the families from these vulnerable communities (**Box 8.2.4**).

Legal services

The Government of Kerala shows its commitment in protecting the Constitutional rights of the people of SCs. It strives for the strict implementation of the Protection of Civil Rights Act, 1955 and the Scheduled Castes and Scheduled Tribes

Box No.8.2.4 HOME (Household Oriented Micro Planning for Empowerment)

HOME is conceptualised and devised as a programme for the social, economic and educational development of the families belonging to the vulnerable communities among SCs such as Vedar, Nayadi, Kalladi and Arundhathiyar/Chakkliar. The programme aims to devise and implement social welfare programmes and sustainable income augmenting projects as a permanent solution to the backwardness of these communities. The approach of the initiative is to assess the needs of each family through family based micro planning and to devise plans according to their needs with complete participation of these families. Its implementation is conceptualised in 4 phases, i.e., (1) house visit-data collection of the families of vulnerable communities included in the Extreme Poverty Survey list, (2) preparation of beneficiary list based on deprivation factors, (3) Micro level plan formulation and (4) plan implementation and evaluation. In the first phase, data collection of the families falling under the extreme poor category is completed. House visits of 454 such families, preparation of their Need Assessment Report and Micro planning process for them have been completed.

Source: SC Development Department, 2023

(Prevention of Atrocities) Act, 1989 by allocating the required resources. Special Courts, SC Protection Cell and Special Police Stations have been formed in the State for the trial of offences and provision of relief and rehabilitation of the victims of atrocities. In 2022-23, Rs 13.10 crore was earmarked for this scheme and Rs 3.64 crore was expended. Inter caste marriage assistance were provided to 227 couples under this scheme in 2022-23. Apart from this, 244 victims of atrocities received compensation grant. Year-wise details of beneficiaries received inter caste marriage assistance for the last five years are given in **Appendix 8.2.16**. As part of the strict implementation of the PoA Act, one legal councilor in each district, one legal advisor and three call center assistants in state level were appointed in order to hear atrocity complaints, find solutions for them, take steps for the timely provision of compensation assistance, give the victims necessary legal assistance and create awareness against atrocities.

Valsalyanidhi

For the holistic development of girl children belonging to Scheduled Castes, an insurance linked social security scheme namely, 'Valsalyanidhi' was launched in 2017-18. Under this scheme, SC Development Department deposits Rs 1,38,000 in the name of the girl child in LIC in 4 installments. Rs 30,000, as the first installment, when the child attains 6 months; Rs 33,000 as the second installment when she gets admission in primary school and attains 5 years; Rs 36,000 as the third installment at 5th standard or at the age of 10; and Rs 39,000 as the fourth installment on completion of 10th standard. Rs 3,00,000 is assured when she attains 18 years. Besides this, insurance benefits are also available to the income earning member of the family. Yearly educational assistance of Rs 1000 is also given to the brother or sister of the girl child studying in 9th standard to 12th standard.

Corpus Fund for SCSP (Critical Gap Filling)

SC Development Department earmarks a portion of outlay as Corpus fund in the Budget annually to fill critical gaps identified in the Scheduled Caste Sub Plan schemes. Corpus fund is intended to provide funds for addressing any critical gap in the SCSP provision under various schemes, on project basis with emphasis on human resource development, improvement of basic amenities and economic development of the people of SC communities. One third of the total amount earmarked for the Corpus Fund scheme

is allocated to the districts for implementation. Administrative sanction for projects up to Rs 25.00 lakh can be accorded at the districts by District Level Committee for SC/ST, and the projects above Rs 25 lakh is implemented with the approval of State Level Working Group. In 2022-23, 79 projects were completed by using Corpus Fund for an amount of Rs 17.05 crore. Road works, drinking water schemes, cultural centres and side protections for SC houses are the major works undertaken under 'Corpus fund'. Outlay and expenditure under the scheme from 2019-20 to 2023-24 (as on September 30, 2023) is given in **Appendix 8.2.17**.

Central Assistance to Scheduled Castes Sub Plan in Kerala

Government of India has provided Special Central Assistance to Scheduled Caste Sub Plan (SCA to SCSP) to the States for undertaking mainly economic development programmes for the people of SCs. It has helped the State governments to fill the gaps which is not met from the Central, State and Local Government Plans. In 2022-23, by merging SCA to SCSP with other two Centrally Sponsored Schemes such as Pradhan Mantri Adarsh Gram Yojana (PMAGY) and Babu Jagajivanram Chhatrawas Yojana (BJRCY), a new Central Scheme called Pradhan Mantri Anusuchit Jaati Abhyuday Yojana (PMAJAY) was formed. The new scheme aims to (a) reduce poverty of the SC communities by generating additional employment opportunities through skill development, income generating schemes and other initiatives, (b) improve socio-economic developmental indicators by ensuring adequate infrastructure and requisite services in the SC dominated villages and (c) increase literacy and encourage enrolment of SCs in schools and higher educational institutions by providing adequate residential facilities in quality institutions, as well as residential schools where required, especially in the aspirational districts/ SC dominated blocks and elsewhere in India. The Central Government supports the state in the implementation of the Protection of Civil Rights Act, 1955 and the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989. The Centre also provides a portion of the share capital assistance to the Kerala State Development Corporation for Scheduled Castes and Scheduled Tribes Ltd. However, in recent years, Central Government is reducing its support for various scholarship schemes for SCs by changing the funding pattern of major schemes such as 'Post Matric Scholarship for SC Students',

'Pre-Matric Scholarship for SC Students Studying in Classes IX and X' and 'Pre-Matric Scholarships to the Children of those Engaged in Occupations Involving Cleaning and Prone to Health Hazards' from 100 per cent Centrally Sponsored schemes to 60 per cent Centrally Sponsored schemes for which 40 per cent of the cost has to be borne by the State Government.

Scheduled Tribes

The Government's approach to addressing the needs of Scheduled Tribes is primarily grounded in the constitution which ensures equality before the law, thereby dismantling the customary norms of the caste system as per the provisions of Article 14. It promotes the political, educational, and economic interests of SCs/STs while safeguarding them from social injustice and exploitation. Special measures such as reservations in government services and democratic political institutions are outlined to empower these communities. In broad strokes, the government's approach and strategy concerning Scheduled Tribes are shaped by the following key principles. Firstly, it aims to provide legal protections to shield them from exclusion and discrimination in various aspects of civil, cultural, political, and economic life. Secondly, specific measures are taken to address the historical disadvantages faced by them. In the Fourteenth Five-Year Plan (2022–27), the state has embraced a development strategy that prioritizes sustainability and inclusivity of the marginalised sections, especially, Scheduled Castes and Scheduled Tribes community and backward classes. Programmes are designed to enhance their access and participation in social, economic, and political processes, through the development of inclusive policies to bring them at par with the other sections of the society.

There are 37 Scheduled Tribes communities in the State, who constitute 1.43 per cent of Kerala's total population. According to the latest ST survey conducted by Scheduled Tribes Development Department, the total population of the Scheduled Tribes in the State is 4,88,053 which includes 1,47,868 tribal families, living in 6748 settlements. Major portion of the tribal population is residing in Wayanad and Kasargod districts with a population share of 34.05 per cent and 16.97 per cent respectively. Among the 37 Scheduled Tribe communities in the State, five communities are identified as particularly vulnerable tribal groups: Kadar, Kurumba, Kattunaikan, Koraga, and

Cholanaikan. Distribution of PVTG's in the State is given in **Appendix 8.2.18**.

Due to the typical settlement pattern, cultural practices and traditional identities the Scheduled Tribe population is consolidated in clusters and are concentrated in interior forest and adjoining areas. In Kerala, about 11 per cent of the scheduled tribal residential settlements are situated inside the forests and 20 per cent are situated in the immediate vicinity of reserve forests.

The State has consistently allocated fund to the TSP at a rate exceeding the proportion of the Scheduled Tribes' population in the state, which stands at 1.43 per cent according to the latest survey by the ST Development Department. The allocation to the TSP in the last few years has remained consistent at 2.83 per cent of the State Plan starting from 2017.

The major sources of funds for ST development are (i) State Plan allocation, (ii) Funds under TSP components of CSS (iii) Grant under Article 275 (1) of the Constitution. Between 2016-17 and 2023-24 the State Government has earmarked Rs 6408.05 crore for the welfare of people belonging to Scheduled Tribes. Of this Rs 4909.95 crore was allocated to STDD and Rs 1497.89 crore was allocated to local governments.

In the financial year 2022-23, an amount of Rs 859.50 crore was earmarked for the welfare of Scheduled Tribes. Out of this, Rs 657.95 crore was allocated to the ST Development Department, and Rs 201.55 crore for LSGIs. The Scheduled Tribes Development Department spent Rs 584.45 crore while LSGIs spent Rs 173.59 crore from the budgeted outlay. The total State Plan provision for the development of Scheduled Tribes in 2023-24 was Rs 859.50 crore. Out of this, an amount of Rs 657.95 crore (76.55 per cent) is earmarked to the ST Development Department, and Rs 201.55 crore (23.45 per cent) was provided as grant-in-aid to Local Governments. In 2023-24, under the 50 per cent and 100 per cent Centrally Sponsored Schemes (CSS), the budgeted outlay for the Central share was Rs 1.49 crore and Rs 77.07 crore, respectively.

Outlay and Expenditure of State Plan and Central share from 2016-17 to 2023-24 is given in **Appendix 8.2.19**. Details of financial and physical achievements of schemes implemented

by the Department in 2022-23 and 2023-24 (as on September 30, 2023) are given in **Appendix 8.2.20.** and in **Appendix 8.2.21.**

Major Developmental programmes undertaken for the welfare of STs are given below

Land

The Tribal Resettlement and Development Mission (TRDM) was established in 2001 for providing land to landless tribals. The major programmes of TRDM are provision of land to landless and overall development of the Resettlement areas. As per the latest data from TRDM, there are 7449 landless Scheduled Tribes (STs) in the State. District-wise details of landless families are given in **Appendix 8.2.22.** Land distribution under TRDM is through land bank scheme, distribution of vested forest land and Forest Rights Act. Major achievements under the scheme in 2022-23 are outlined below.

- Under the Land Bank scheme, 32.40 acres of land were distributed to 145 beneficiaries of Thiruvananthapuram, Palakkad, Kozhikode and Kasargode Districts.
- Under Forest Rights Act, 1555.18 acres of land was distributed to 1,054 tribals. Of this, 73.07 acres of land to 128 beneficiaries in Thiruvananthapuram District, 112.57 acres of land to 195 beneficiaries in Pathanamthitta District, 1,000.17 acres to 313 beneficiaries in the Attapady region of Palakkad District, 110.22 acres to 210 beneficiaries in Wayanad District, and 145.17 acres to 81 beneficiaries in Idukki District.
- Under Vested Forest Land, 52.20 acres were distributed to 117 beneficiaries of Wayanad and Palakkad Districts.

In 2022-23, as per TRDM, 1639.78 acres of land were distributed among 1,316 tribals. As of September 30, 2023, 1,196.07 acres of land have been distributed among 966 tribals under various schemes. At Chettachal in Vithura Panchayat, 33 families were given RoR (Record of Rights) under the Forest Rights Act after ending their struggle for land for 20 years. With this, Thiruvananthapuram became a district where there are no landless tribal people. In Pathanamthitta district, 20 nomadic Malampandaram families were given one acre of land each under the Forest Rights Act.

Details of land distribution from 2018-19 to 2023-24 up to September is given in **Appendix**

8.2.23. and District-wise details of land distribution to Scheduled Tribes under various schemes is given in **Appendix 8.2.24.**

Other Major Development activities in rehabilitated areas

- During 2022-23 Rs 14.07 crore has been spent on the house construction project implemented by the TRDM in tribal resettlement areas. As part of this project, construction works of 86 new houses has been started and the constructions of 473 houses started in previous years have been completed. In Wayanad district, an amount Rs 0.80 crore has been sanctioned for the electrification of houses in rehabilitated area. Additionally, Rs 0.492 crore had been sanctioned for the drinking water projects and the construction of 2 roads have been completed at a cost of Rs 2.97 crore
- During 2023-24 (up to September, 2023) Rs 6.06 crore has been sanctioned for house construction project implemented by the TRDM in tribal resettlement areas. Furthermore, Rs 1.97 crore has been sanctioned for construction of road and Rs 0.0178 crore has been sanctioned for electrification in Wayanad district.
- **Elephant wall:** The Aralam Rehabilitation Zone borders the Aralam Wildlife Sanctuary at a distance of 16.5 kilometers. As a result, the inhabitants of the area have been subjected to frequent wild animal attacks. To address this issue, the government has decided to construct the Elephant Protection Wall and related works. The construction of the elephant protection wall and associated projects (rail fence, coop road, and gate) will be done in two phases, out of the project cost of Rs 53.23 crore, an amount of Rs 41.77 crore has been sanctioned to the Public Works Department during 2022-23 financial year for the construction purpose. Preliminary works of construction has been commenced.

Housing

The policy of the State Government is to provide housing to all Scheduled Tribes, so that no Scheduled Tribe family remains homeless in the State. According to the estimation of ST Department, about 7251 tribal families with land are currently homeless. From 2017-18 onwards housing programme is implemented through LIFE Mission. The funds earmarked by

the Local self-Governments from their Tribal Sub-Plan fund and Prime Ministers Awaas Yojana are also utilised for providing housing for STs. Since 2016-17 out of the 7708 houses sanctioned by the ST Department under various housing schemes, 3901 houses have been completed as of September 30, 2023. In the first phase of LIFE Mission, which focused on completing unfinished houses, 17,400 out of 18,182 houses have been completed. Under Phase II, which aimed at providing housing for homeless with land, 21,302 out of 46,003 identified houses (including additional listings) have been completed. In Phase III, which aimed at housing for landless and homeless, 618 out of 16,171 identified houses (including additional listings) have been completed.

District wise details of the house construction under LIFE Mission is given in **Appendix 8.2.25**. Outlay and expenditure of housing scheme from 2018-19 to 2023-24 is given in **Appendix 8.2.26**.

Electrification in Settlements

Regarding the extension of electricity, out of the total 6,748 settlements, 6,672 settlements are electrified. Currently, every settlement in nine districts achieved the status of full electrification. The district wise data of electrified settlements is provided in **Appendix 8.2.27**.

Educational Programmes

ST communities in Kerala have achieved outstanding growth in the education sector due to the concerted efforts of the State Government over the last few decades. The residential schooling programmes for tribal students coupled with extensive coverage of scholarship programmes, have led to progress of tribal education, especially among girls. In the past two decades, the state government has significantly focused on creating model residential schools and hostels, with a strong emphasis on constructing hostels for girls. All boarders are provided free boarding and lodging facilities, uniforms, toiletries, and necessary amenities by the State Government. A sizable budget is earmarked each year for the functioning and regular maintenance of these schools and hostels. The residential facilities clubbed with schooling effectively address access related issues faced by children of tribal communities in remote regions and also reduce burden of the disadvantaged tribal families by covering all expenses towards their children's education. Another major initiative of the State Government

is the Scholarship programme aimed at supporting students and incentivizing educational attainment among the Scheduled Tribe students. This programme is implemented through state plan even when the central government changed the norms and pattern of funding of scholarships against the interest of the state. Apart from post matric and pre-matric scholarships, Ayyankali Talent Search scholarship, peripatetic & pre-school education and sports promotion helps in overall development of tribal students.

Major physical achievements & new initiatives in education sector in 2022-23 are given below.

- As a part of 'Ayyankali Memorial Talent Search and Development Scheme' 1,200 talented tribal students were assisted in 2022-23, and 636 students during 2023-24, up to September 2023
- During 2022-23, 9,457 students availed pre-matric scholarships, and 17,652 students availed post-matric scholarships.
- A total of 2,965 brilliant students availed special incentives during 2022-23
- In 2022-23, 502 orphans availed special assistance, and during 2023-24, up to September 2023, 474 orphans availed special assistance.
- Laptops were distributed to 382 students in 2022-23, and during 2023-24, 313 laptops were distributed (up to September 2023)
- More than 7600 students in 20 MRSs were benefited through career guidance cell, and also a vocational training cell was started to enhance the quality of MRS.
- Civil Service Coaching: ST Department provides scholarship to civil service aspirants for coaching at any recognized center across India. ST youths below the age of 30, whose family income is below 2.5 lakh and who have attained a degree with 50 per cent marks are eligible to apply for the scholarship.
- Community Study centres in tribal hamlets (Samuhya Padanamuri): To help tribal children to achieve academic excellence, 364 community study centers were established in various settlements to offer tuition and e-learning facilities to tribal children. These centres helped to address the issue of dropout, improved school retention and enhanced the quality of education.
- Unnathi Overseas Education Scholarships initiative: Under this scheme, ST students receive scholarships up to Rs 25 lakh for post-graduate studies abroad. Since its inception to March 2023, 24 ST students have benefitted to

pursue studies in foreign institutions.

- As part of providing digital learning facilities, ST Department provided internet facility in 1,083 tribal villages out of 1,284 villages that did not have connectivity. 'The Digitally Connected Tribal Area' project was started in Wayanad in collaboration with C-DAC, focusing Community Study centres with emphasis on education, health and employment of the people in the ST areas.

The other major initiatives taken to improve education include ensuring efficient functioning of all the educational institutions under STDD, modernizing ITIs into comprehensive vocational training centres, starting of Ekalavya Model Residential Schools (EMRS) in Attappadi and Kasaragod, and providing free membership to ST students in all libraries under the State Library Council.

Details of scholarships and assistance availed by students from 2018-19 to 2023-24 (as on September 30, 2023) are shown in **Appendix 8.2.28**. Details of lump-sum grant, stipend and pocket money provided to ST students in 2022-23 and 2023-24 (as on as on September 30, 2023) are given in **Appendix 8.2.29**. Educational institutions run by the ST Department are given in **Appendix 8.2.30**.

In 2022-23, Rs 148.05 crore (22.50 percentage of the total allocation for the department) was earmarked for education. Year-wise details of outlays and expenditure under education sector are given in **Appendix 8.2.31**.

Health programmes

The Scheduled Tribe Development Department is undertaking various programmes to provide better health care to the people of tribal communities. Comprehensive Tribal Health Programme, Financial assistance for sickle cell anemia patients, Janani Janmraksha for addressing the nutritional status of pregnant women and adolescents, Financial assistance to tribal healers, and the Running of Mobile Medical Clinics are major health care schemes for STs. The 'Kaithang' scheme is for Scheduled Tribe children who have lost their parents and 'Katadi' (Kerala Accelerated Tribal Ability Development & Inclusion Initiative) is implemented for the welfare of differently-abled persons belonging to Scheduled Tribes (**Box 8.2.5**). The assistance provided in health sector in 2022-23 is detailed in **Box 8.2.6**.

In 2022-23, out of the budgeted amount of Rs 73.07 crore for health sector, an amount of Rs 64.15 crore was spent for health programmes. In

Box No.8.2.5 Kerala Accelerated Tribal Ability Development & Inclusion Initiative

KATADI : This project is being implemented to provide assistive devices, including wheelchairs and hearing aids, to the differently abled Scheduled Tribes in the state to overcome their disabilities. The first phase of the project is being implemented in Wayanad and Kozhikode districts and will be extended to other districts also. The project is being implemented jointly by the State Scheduled Tribes Development Department and the Composite Regional Centre For Skill Development, Rehabilitation and Empowerment of Persons With Disabilities (CRC-Kozhikode), an organisation working under the Union Ministry of Social Justice.

Source: ST Development Department, 2023

Box No.8.2.6 Assistance provided in Health sector in 2022-23

- 1,67,912 people received medical assistance under the Comprehensive Tribal Health Care Scheme
- As part of the distress relief Component Of The Health Care Scheme, Rs 1.005 crore expended to assist 54 families who were suffering due to the death of the sole breadwinner.
- Monthly financial assistance of Rs 2,500 was provided to 889 sickle cell anemia patients.
- Monthly financial assistance of Rs 2,000 was provided to 9,601 pregnant women and lactating mothers under the Janani Janmaraksha scheme.
- Annual grant was given to 261 tribal healers @ Rs 10,000 under the scheme 'Financial Assistance to Traditional Tribal Healers'
- 3,900 medical camps were arranged by mobile medical clinics for ensuring health Services to tribals at their door steps.

Source: ST Development Department, 2023

2023-24, Rs 20.53 crore was spent under the healthcare scheme, as on September 30, 2023. Details of outlay, expenditure and physical achievements under health sector for the last five years is shown in **Appendix 8.2.32**. Major Health institutions run by the ST Department are given in **Appendix 8.2.33**.

Skill development, Employment and Livelihood programme

As a part of the government's efforts to overcome unemployment, the Department conducts career guidance camps and skill training for unemployed youths belonging to the Scheduled Tribes in the state. Based on the feedback from the career guidance programmes and skill gap analysis, skill training was provided in different job-oriented technical courses. Trained youth were given placements in both Government and private firms, including multinational companies abroad.

Innovative initiatives

- **Training for Career Excellence (TRACE):** TRACE offers SCs and STs a chance to gain job training, skill development and work experience in different government departments over a period of 2 years. The programme has successfully placed 500 engineers, 114 social workers with MSW qualification, and 380 management trainees in various departmental offices.
- **'WINGS'** scheme: Scholarships for pilot training are provided as part of the programme. Moreover, 150 ST individuals have been trained as part of two skill development programmes in the airport-airline management in aviation sector, and about 140 of them have been able to get employment in various international airports and related sectors of the country. Through these training programmes, the department has also been able to mould the first cabin crew (air hosts) from the Scheduled Tribes of the state. In 2022-23, training of 65 students in the field of aviation is in progress.
- As a part of **Justice, Welfare and Legal Assistance (JWALA)** programme, law degree holders among STs receive hands-on training. Those selected from the law graduates of the Scheduled Tribes appeared for internships for three years in notable legal offices. There are 25 STs slated for selecting under this project and administrative sanction was accorded with an amount of Rs 1.62 crore for availing this scheme.

- **Tribal Paramedics Trainee:** The Scheduled Tribes Development Department, in collaboration with the Health Department, has devised a scheme for the appointment of Scheduled Tribes who have successfully completed various para-medical courses, including nursing, in health centres ranging from Primary Health Centers to Medical Colleges in the Scheduled Tribes areas on a temporary basis. It is intended to provide temporary employment to around 250 Scheduled Tribe women and youth. Initial activities like the selection of beneficiaries, are progressing.
- **Punarjani :** This programme is designed to transform ST cooperative societies into self-sufficient societies with the help of the Department of Co-operatives.

The state government appointed 500 STs as Beat forest officers through the Kerala Public Service Commission. Similarly, processes of appointments for 100 STs as Excise Guards are in progress. In addition, employment opportunities are being broadened for those in teaching, and other in innovative sectors. Opportunities in cabin crew training, supply chain, transportation, and marine structural fitting are also in the pipeline, ensuring diverse job opportunities across sectors.

In 2022-23 & 2023-24 (upto 30.09.2023), 499 ST youths participated in 9 skill training programmes. Among them 174 youths have successfully completed their training and they were placed in different capacities in various institutions. Details of skill trainings conducted and placement effected for the last six years are given in **Appendix 8.2.34**.

Food security and nutritional development programmes

To address the issues of malnutrition and poverty among the STs, under the Food Security scheme food grains are distributed to tribal families during the monsoons, from June to September. Community kitchen programme is also implemented for the nourishment of the vulnerable population, including pregnant and lactating mothers, children, adolescents, senior citizens and chronically ill tribes of Attappady and Wayanad districts. Several agricultural projects were undertaken in various districts using the Corpus Fund and Pooled Fund of ST Department. In addition, the millet village programme and nutrition sufficiency programme were implemented

Sustainable agricultural intervention

Sustainable agricultural intervention among Scheduled Tribes, better known as 'Haritha Rashmi,' aims to generate sustainable livelihoods by addressing critical issues such as the underutilisation of distributed land, financial constraints and marketing challenges. The project is implemented in the Idukki and Wayanad districts and was designed, developed, and implemented by the Centre for Management Development, funded by the Scheduled Tribes Development Department of Kerala. The objective of this scheme is to promote scientific and modern agriculture on the unutilised land owned by the Scheduled Tribes, thereby improving their income and living standards. The project benefits 3,000 selected families in Wayanad District and 1,113 selected families in the Idukki district. 157 Farmers' Groups have been formed as part of the scheme. The project adopts an absolute decentralisation model, empowering tribal communities in decision-making and implementation. The project is carried out in three interlinked phases, with a holistic approach, flexibility in crop selection, and a focus on long-term sustainability.

Under Haritha Rashmi, more than 1.65 lakh kg of seeds and 2.88 lakh individual seedlings were distributed in project areas in both Idukki and Wayanad districts. Alongside practical training in farming methods, scientific harvesting, seed management, and nursery management, fertilizers and planting materials were distributed to the beneficiaries. Monitoring and supervision, along with a phased approach, ensure responsiveness to dynamic community needs. The Haritha Rashmi project actively marketed cool-season vegetables through initiatives such as the Haritha Rashmi Organic Market, weekly markets, and special events, including the Onam fair at En Ooru in Wayanad. The produce was distributed to several supermarkets, Janakeeya Hotels, and MRS Hostels. The project has ensured better prices, eliminated intermediaries, improved market access, and reduced vulnerability to price fluctuations, fostering sustainable income generation for tribal farmers.

Source: ST Development Department, 2023

in Attappady specifically to address the nutrition issues. To ensure special nutrition food to all tribes beyond 60 years of age, food kit containing cereals, pulses, oil etc. has been provided. The ST Department has initiated an innovative pilot project namely, 'Haritha Rashmi' to address nutrition sufficiency in Idukki and Wayanad tribal areas.

Millet Village Scheme

This initiative intended to rejuvenate agriculture in Attappady. The programme is jointly implemented by the Agriculture Department and Scheduled Tribes Development Department. The total project cost of the programme is Rs 7.41 crore and covers 70 settlements covering 1,900 acre. Apart from the production of millets, pulses, oilseeds, vegetables and apiculture, it includes procurement, processing, packing, labeling, and marketing value-added finished products of millets. Products are marketed under the brand 'Attappady Organic'. Ultimate objective of this project is to attain food and nutrition security to the scheduled tribes living in Attappady, besides employment generation and creation of livelihood.

Nutrition-sufficiency in food through Agroecology in Attappady

The programme Nutrition sufficiency in food through Agroecology (in local language named 'Namuth Vellame'), being carried out in Attappady in 1,671 acres across 19 hamlets, benefits 1208 families.

Achievements under the scheme in the last three years

- Acres of barren forested land have been converted into agricultural land. Through this, disputes related to forest encroachment have been resolved to certain extent.
- The grains produced are used for consumption and marketing.
- The conventional millet-based diet has been instrumental in addressing malnutrition issues among the beneficiaries.
- The project has successfully restored the distinct way of life and agricultural tradition of the Scheduled Tribes in the project region.

Kerala Tribal Plus under MGNREGS

Kerala Tribal Plus scheme is introduced by the State Government aims to provide up to 100 additional days of wage employment beyond the guaranteed period of 100 days provided under Mahatma Gandhi NREGS, to every tribal

household in the State. 'Kerala Tribal Plus Scheme' is fully funded by the Government of Kerala. Since 2017-18, the scheme is being implemented by Mahatma Gandhi NREGS Mission, and the funds are provided by the Tribal Development Department. In India, Kerala is a model state and the only state which has offered 200 labour days. Kerala is far ahead of the national average in providing employment to Scheduled Tribe families. Similarly Kerala is ahead when looking at the average of families provided with 100 days of employment. Construction of roads to Scheduled Tribe hamlets, construction of livelihood assets for ST families and land development activities on their land have been undertaken and implemented under the scheme, along with providing labor days.

In order to bring more ST workers into the Scheme, the State decided to adopt the system of advance unskilled wage payment to MGNREGA. Scheduled Tribes Households of Attappady Block in Palakkad district, Wayanad district and Aralam farm in Kannur district are included in the programme. Wages are to be paid every week in advance to the worker's bank accounts using the corpus fund by the state Government, and the advance amount is later recouped from the beneficiaries' bank accounts, with their consent.

The progress attained under the Kerala Tribal Plus Scheme from 2018-19 to 2023-24 (up to September 2023) is given in **Appendix 8.2.35** and the district wise progress of the Tribal Plus scheme in 2022-23 year is provided in **Appendix 8.2.36**.

Scheduled Tribes and Kudumbashree

Kudumbashree's tribal interventions have achieved an impressive inclusion rate of 96.8% in its Neighbourhood group's membership. The implementation of various programs in hamlets is facilitated by community resource persons known as animators. The primary objective of Kudumbashree's tribal intervention schemes is to establish a robust foundation for the execution of development activities within tribal communities. A significant focus area is the education sector, where the Bridge Course initiative provides educational assistance to those who need assistance in their studies or displaying inconsistency in attending school.

Achievements of 2022-23 & 2023-24

- Identified 1,170 self-reliant NHGs, and provided revolving funds to 122 NHGs, all of which are now capacitated in Panchasutra.

- Established of 811 goat rearing units and 357 backyard poultry units. Additionally, 341 new tribal member Joint Liability Groups for farming activities have been formed.
- Launched 76 group units and 112 individual units as new microenterprises by tribal families. Marketing of tribal products is facilitated through the Kudumbashree bazaar.
- Support for 355 tribal JLGs through the distribution of corpus fund of Rs 4000 per JLG.
- Continuation of the bridge course for tribal school-going students at 190 centers, benefiting 2675 students through the regular tuition program at hamlet.
- Provision of corpus funds to 217 NHGs for their start-up activities.
- Established of 91 Tribal Youth Clubs and ensured sports-related support for existing youth clubs.

Social Development programmes

Important social security programmes implemented for welfare of STs include, assistance for the marriage of ST girls, special package programmes for the development of Adiyas, Paniyas and the Primitive Tribal Groups, through the Gothravatsalyanidi and Ambedkar Settlement Development scheme. Major physical achievements under social development schemes are given below.

- Marriage assistance to 337 ST girls at the rate of Rs 1.50 lakh.
- Infrastructure works in 65 out of 94 colonies selected under the Ambedkar Settlement Development Scheme have been completed.
- Assistance provided to 489 beneficiaries under the plan scheme for the Special Program for Adiyas, Paniyas, PVTGs, and Tribes living in Forests.
- **Microplan-** A community based empowerment process, is being to prepare a road map for the development and maintenance of tribal settlements. There are 6748 tribal settlements in Kerala. Microplan is prepared for each settlement based on the needs of these settlements. Villages are being chosen for the microplan, and basic data is being gathered.
- **Edamalakudi special package-** As part of the package, Rs 13.70 crore has been sanctioned for the construction of the Pettimudi-Idaliparakudi Road (7.2 KM), and concrete work for road construction has started. Administrative sanction of Rs 4.75 crore has been made

Box No.8.2.8 'Oorinte Tharattu' in Attappady

Oorinte Tharattu" is a joint project implemented by the Tribal Development Department and the District Administration in three phases to address infant mortality among the Scheduled Tribes, concentrating on the villages inhabited by the Scheduled Tribes to prevent neonatal deaths in the future and disseminate knowledge about newborn care. The project is currently functioning in Attappady. The anticipated project cost is Rs 20.78 lakh and the funding is sourced from the Comprehensive Tribal Health Care scheme.

In the first phase, adolescent boys and girls from each village are formed into groups called Karuthal Kootam. The idea of this phase is to give them clear training on lactating positions and accurate knowledge about pregnancy. The first phase has been successfully completed through many programs like quizzes, role-playing, and poster design.

The second phase entails providing pregnant mothers with the required neonatal kit under the name 'Loving Mother'. Everything a newborn infant needs, such as bath items, powder, clothing, and toys are included in this kit. Pregnant women will receive the kit upon registering with Janani Janma Raksha.

The third phase of this project, aims to impart comprehensive training, raise awareness, and distribute neonatal kits. This phase also envisions providing guidance on childcare for mothers and pregnant women in the villages through specialized pediatricians.

The execution of the 'Oorinte Tharattu' initiative is anticipated to contribute improvement in newborn care knowledge among the Scheduled Tribes in the region, particularly in Attappadi, and prevent neonatal mortality.

Source: ST Development Department, 2023

available for the construction of a related road from Idaliparakudi to Societykudi. And as part of the special package, Internet connectivity was made available to the Edamalakudy area by expending Rs 4.30 crore.

- **The ABCD Project (Akshaya Big Campaign for Document Digitization):** This is a ground breaking initiative aimed at providing essential documents to all Scheduled Tribe families in the state. The scheme focuses on securely and permanently storing these documents in a digital format. This is the first of its kind in India. Notably, this pioneering project has already been successfully implemented in Wayanad and Palakkad districts and is currently expanding to other districts.

Major Farms under Scheduled Tribe Development Department Aralam Farm

In 1970, Aralam Farm was established as Central State Farm on 7,000 acres of land in Kannur District. The farm has been producing quality planting materials for various agricultural crops, including rubber plantations. Notably, 3,500 landless Scheduled Tribal families in Kannur and nearby districts were given one acre of land

each out of the 7000 acres of Aralam Farm. By earmarking half of its land to landless tribals and utilising the remaining area for farming, Aralam Farm has the legacy of fostering the development and well-being of the tribal communities. As part of Agricultural Income Initiatives, the Schedule Tribe Development Department is being implemented a project on farm activities to support 3000 tribal families. The project comprises of the implementation of Mushroom Cultivation, Ginger Plantation, Spices, Oil Seeds and Organic inputs, Cultivation of lemon grass, Hi-tech Nursery unit at Aralam farm and scientific bee keeping and honey processing with a total cost of Rs 2.69 crore.

Attappady Co-operative Farming Society

In 2020, the Kerala Agricultural University prepared an outline of activities lasting up to 10 years for the renovation of the Attappadi farm under the Scheduled Tribes Development Department, and based on this, Rs 1.424 crore had been allocated to the Attappadi Co-operative Farming Society (ACFS) for farming activities. Additionally, Rs 43.52 lakh had been sanctioned for the construction of Godown for storage and preservation of agriculture products. The amount for farming activities has been utilised for

activities of planting new saplings, strengthening the management of existing crops, constructing fencing etc. which helped to increase the income of Scheduled Tribes people. With the objective of farm modernisation and mechanisation, machinery has been procured in collaboration with the Department of Agriculture.

Priyadarshini Tea Estate and Priyadarshini Tea Factory

Mananthavady Tribal Plantation Co-operation Ltd., popularly known as Priyadarshini Tea Estate is a Co-operative Society formed in 1984 for the rehabilitation of bonded tribes in Wayanad District. The society has been running the Priyadarshini Tea Estate and Priyadarshini Tea Factory engaging in agricultural activities for the last 38 years. Out of 995.23 acres of land, tea is cultivated in 402.10 acre the remaining 593.13 acre are designated for the expansion of Tea and Coffee plantations and cultivation of fruit plants.

As part of diversification, the estate decided to engage in the marketing of Priyadarshini Agro products. The Tribal Development Department has implemented two projects in Priyadarshini Tea Estate for providing employment and livelihood opportunities to the tribal workers of the estate and creating viable income for its members to rejuvenate the tribal society. The first one includes the infilling of tea plants, the expansion of coffee plants, the cultivation of fruit plants, and the marketing of Priyadarshini Agro products at a total cost of Rs 63.79 lakh. The second project includes planting of pepper as an intercrop and vegetable cultivation with a total cost of Rs 1.22 crore. These projects will benefit the tribes by improving their livelihood and welfare.

Legal Protective Measures: Protection of Civil Rights and Enforcement of Prevention of Atrocities Act.

In order to provide constitutional and legal protection to safeguard the interest and protect the marginalised sections of society from exploitations, the Protection of Civil Rights Act and Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1989 Act, was enacted. The provisions of the Act prevent offences against the SCs and STs. In 2022-23 out of Rs 1.711 crore of grant-in-aid sanctioned, a sum of Rs 1.266 crore has been utilised for the purpose of implementation of the PCR and SCs/

STs (Prevention of Atrocities) Acts. About 110 atrocity victims were provided relief fund. In 2022-23, inter-caste marriage assistance was given to 44 couples. In 2023-24, inter-caste marriage assistance was given to 12 beneficiaries (as on September 2023). Details of number of beneficiaries received marriage assistance and inter caste marriage assistance from 2018-19 to 2023-24 is given in **Appendix 8.2.37.**

Corpus Fund for TSP (Critical Gap Filling)

ST Development Department earmarks a portion of the Annual Budget for filling critical gaps identified in the Tribal Sub Plan schemes. In 2022-23, Rs 49.79 crore was earmarked for the scheme and Rs 45.42 crore was expended for various projects undertaken by the ST Department. Outlay and expenditure under the scheme from 2018-19 to 2023-24 (as on 30 September 2023) is given in **Appendix 8.2.38**

Special Central Assistance to Tribal sub Plan

The Special Central Assistance to Tribal sub Plan is released by Government of India in addition to State Plan funds and is meant for undertaking programmes of education, health, and employment cum income generation activities beneficial to Scheduled Tribes families. During 2022-23, the scheme was brought under the scheme, viz Prime Minister's Adi Adarsh Gram Yojana.

Kerala Institute for Research Training and Development Studies for Scheduled Castes and Scheduled Tribes (KIRTADS)

Kerala Institute for Research, Training and Development Studies of Scheduled Castes and Tribes (KIRTADS) is purely a Government research institute under the Scheduled Caste and Scheduled Tribes Development Department and functions as a separate Directorate. Its main objective is to carry out research that helps to promote, development among the Scheduled communities in Kerala. This institute was established in 1972 as Tribal Research and Training Centre (TR & TC) in a national pattern, which subsequently got recognized as KIRTADS in 1979. It has three major wings namely Research, Training and Development Studies. The Research Wing conducts ethnographic as well as socio-cultural studies of various communities, especially on the Scheduled Communities of the State, by incorporating theoretical perspectives from the domain of Anthropology and Sociology as part of its research and classification of community

studies. The Development Studies Wing conducts various evaluation studies of the programmes implemented for the development of the Scheduled Communities of the State. The Training Wing co-ordinates and conducts a large number of programmes on empowering the SC/ST communities of the State. This wing also conducts programmes on awareness, capacity building, empowerment and education.

Apart from these there is a hostel building for residential training programmes, an Ethnological Museum and an Adikala kendram, a documentation centre of art forms of scheduled communities in Kerala. Besides, a library is also functioning in the main building.

Ethnological Museum

The Ethnological Museum is one of the most informative and interesting storehouse for people who want to know about the Tribes of Kerala. It was established in 1973. Its initial objective was to collect a wide range of items of material culture from the Tribes in order to assist researchers and students in the study of tribal culture. Later, access was granted to the interested public. The Museum houses a large collection of artefacts, costumes, jewellery, household utensils, agricultural tools, musical instruments, and ceremonial paraphernalia of all the Tribal communities in Kerala. There are also displays of the various cultural features and backgrounds of each tribe living in Kerala.

Tribal Freedom Fighters Museum at Wayanad.

The project, “Setting up of Museum for Tribal freedom fighters of Kerala” is a special project of KIRTADS. It focuses on rediscovering the Tribal Freedom Fighters of Kerala along with the incredible indigenous knowledge system and culture. Tracing threads and rediscovering the history of the unsung heroes from the past is arduous but essential. The project has been sanctioned for Rs 16.66 crore by Ministry of Tribal Affairs for the construction of Tribal freedom fighters Museum (90% central fund and 10% state fund). The Detailed Project Report is approved by the Government of Kerala. It is expected that the work will be completed within one year.

The scheme-wise outlay and expenditure of KIRTADS is given in **Appendix 8.2.39** Number of anthropological investigation cases against Scheduled Castes and Scheduled Tribes in Kerala from 2017-18 to 2022-23 conducted by

KIRTADS (as on 30 September, 2023) is given in **Appendix 8.2.40** Achievements under various programs (Physical and Financial) during 2022-23 (up to 30 September 2023) is given in **Appendix 8.2.41**.

The Kerala State Development Corporation for Scheduled Castes and Scheduled Tribes Ltd

The Kerala State Development Corporation for SCs and STs (KSDC for SCs and STs) implements various income generating and other welfare programmes designed to meet the needs and aspirations of entrepreneurs from SC/ST communities. Schemes being implemented by the Corporation can be broadly grouped as (i) Sole Lending Scheme (ii) Schemes implemented in association with the National Scheduled Caste Finance and Development Corporation (NSFDC) and (iii) Schemes implemented by National Scheduled Tribes Finance and Development Corporation (NSTFDC). Income generating and self-employment schemes of the Corporation includes Beneficiary Oriented Schemes, Multi-Purpose Unit Loan, Transport Scheme, Loan to Start up Entrepreneurs, Loan for Rehabilitation of Return Emigrants, Foreign Employment Loan, Micro Credit Finance System, Laghu Vyavasaya Yojana, Loan for Tribal Entrepreneurs, Women Empowerment Programme for SHGs, Mahilasamridhi Yojana, Professional Service Schemes, Land Purchase Scheme for Agricultural Labourers, Working Capital Loan to Petroleum Dealers etc. Education Loan, Foreign Education Loan, Marriage Assistance, Housing loan, Housing Renovation Loan etc. comes under the Social welfare schemes. In 2022-23, the Corporation disbursed an amount of Rs 95.06 crore through the schemes meant for assisting SCs and benefited 5,283 people. Altogether, 643 ST beneficiaries got the assistance through various schemes which disbursed Rs 9.83 crore. In 2023-24, assistance has been given to 2,467 SC and 304 ST beneficiaries (as on September 30, 2023). Major initiatives of the Corporation in 2022-23 are given below.

Income Generating/Self Employment Schemes

Beneficiary Oriented Schemes for SC and STs helps unemployed youth among SC, and STs to start self-employment ventures with a maximum project cost of Rs 3 lakh. Through this scheme, 1024 and 101 people from SCs and STs respectively received assistance in 2022-23. The Multi-Purpose Unit Loan for SC

and ST finances small and medium sized projects of SC and ST entrepreneurs which are viable and require less gestation period. In 2022-23, 51 SC entrepreneurs and 5 ST entrepreneurs availed assistance under this scheme. There is loan for start-up entrepreneurs which funds small and medium sized technology driven projects of young SC entrepreneurs and innovators with investment needs not exceeding Rs 50 lakh at 7 per cent rate of interest. Priority is given for newly passed out students of professional courses. Likewise, there is scheme called Loan for Tribal Entrepreneurs to help poor ST youths for starting small projects, including in areas of agriculture, trade etc. This scheme created 129 entrepreneurs from ST communities. Likewise, through Laghu Vyavasaya Yojana, 1,531 SC entrepreneurs received assistance in 2022-23. Through 'Loan for Rehabilitation of Return Emigrants', KSDC extends need based loan subject to a maximum of Rs 20 lakh to those SC-ST applicants identified by NORKA ROOTS to start viable income generating ventures. NORKA releases 15 per cent of the project as capital subsidy.

KSDC for SCs and STs is implementing Women Empowerment Programme in association with Kudumbashree for the empowerment of rural women through social mobilisation and under this scheme; loan is given to groups of SC/ST women entrepreneurs. In 2022-23, 817 SC and 180 ST beneficiaries were assisted under this programme. Apart from this, KSDC have Mahila Samridhi Yojana which offers soft loan assistance to SC women entrepreneurs and Adivasi Mahila Sashakthikaran Yojana (NSTFDC) for ST women. In 2022-23, through Mahila Samridhi Yojana and Adivasi Mahila Sashakthikaran Yojana, assistance has been given to 141 SC and 96 ST women respectively for their self-employment initiatives.

Social Welfare Schemes

KSDC for SCs and STs also offers loans and assistances for many social welfare enhancing aspects of SCs and STs. Education Loan for professional courses, Foreign Education Loan up to Rs 10 lakh, Marriage Assistance up to Rs 2.50 lakh, Housing loan which materialises the concept of a home, Housing Renovation Loan etc. are few such schemes that assists the people of SC and ST. The Scheme-wise details of physical and financial achievements of the Corporation in 2022-23 and 2023-24 (as on September 30, 2023) are given in **Appendix 8.2.42.**

Welfare of Other Backward Classes

After independence, multitudes of initiatives were taken to improve the conditions of backward sections of the society. Articles 15(4) and 16(4) of the Indian Constitution ensure special provisions and reservation to the backward classes in the realms of education and employment. As per Article 340 of the Constitution of India and the recommendations of the Mandal Commission Report, the State Government formed a special Department in November 2011 to promote the welfare of socially and educationally backward classes of the society. Within the category of OBCs, those that are particularly underprivileged are classified as Other Eligible Communities (OECs).

Kerala stands as a trailblazer among Indian states to ensure reservation for OBCs in public employment and education. This proactive approach has yielded notably greater social advancement for the backward class in Kerala, and they are far better than their counterparts in other states of India. In Kerala, around 65 per cent of the population belongs to the OBC category. 84 communities are included in the OBC list, and 83 communities are included in the Socially and Educationally Backward Classes (SEBC) list. The most prominent OBC groups in Kerala are Ezhava and Muslim. Other backward communities with sizable populations are *Viswakarma*, Latin Catholic, Scheduled Castes Converted to Christians, Hindu *Nadar*, SIUC *Nadar*, and *Dheevera*.

The OBC Development Department undertakes various educational schemes such as the provision of scholarships to pre-matric and post-matric students, employment generation schemes, skill training and assistance to people involved in traditional occupations. The Department had initiated many schemes to uplift the traditional working-class communities, especially the most vulnerable groups through focused interventions and programmes.

Educational Assistance

The Backward Classes Development Department provides numerous educational scholarships to OBCs, including overseas scholarships to study at foreign universities. Pre-matric and post-matric scholarships are provided for OBC as well as OEC students. The OEC students are eligible for all educational assistance given to SCs and STs, without any income limit. Major educational

Box No.8.2.9 Kedavilakku -Pre-matric Scholarship for OBCs from 1st to 8th standard

From 2023-24 onwards, the Central Government has withdrawn assistance for pre matric scholarship for OBC children from 1st to 8th standard and will provide scholarships only to 9th and 10th standard. In this context, State government formulated a new scheme namely, 'Kedavilakku-Pre-matric Scholarship for OBCs from 1st to 8th standard with an allocation of Rs 2500.00 lakh to continue providing scholarship to OBC students from 1st to 8th standard. The scheme will support around 1,60,000 students from disadvantaged families.

interventions to OBC and OEC students in 2022-23 are outlined below.

- Provided pre-matric assistance to 32,281 students and post-matric assistance to 38,550 OEC students.
- Provided pre-matric scholarship to 60,002 students and post-matric scholarship to 1,49,107 OBC students.
- Provided Overseas Scholarship to 36 students for higher studies in rated foreign Universities. A maximum amount of Rs 10.00 lakh per student has been provided.

Schemes for Employment Generation

To enhance the employability of the backward classes, schemes such as 'Employability Enhancement Programme' and 'Career in Automobile industry through public private participation' are implemented. Financial assistance is provided to students to support their preparation for medical/engineering entrance exams, civil service exams, as well as competitive exams like UGC/NET/JRF/GATE/MAT in esteemed educational institutions and also for starting self-employment ventures under the scheme 'Employability Enhancement Programme'. In 2022-23, 1533 beneficiaries availed assistance under the scheme. Placement-oriented training is imparted in areas such as automobile, logistics, travel and tourism, hotel management, total station survey and polymer technology through the scheme 'Career in automobile industry through public-private participation and 397 individuals benefited under the scheme.

Numerous OBC communities are involved in distinct traditional vocations such as pottery crafting, fishing, weaving, laundry, oil extraction, and hairdressing, among others. To encourage and support these traditional occupations among OBCs, financial assistance was extended to pottery artisans, barbers, and skilled artisans. In the fiscal year 2022-23, 70 pottery artisans and 222 traditional barbers received financial assistance. The department also offered financial support

to working-class communities with a tradition of craftsmanship, enabling them to procure toolkits to enhance the quality of their work. A total of 1,712 individuals underwent skill development training and obtained assistance for toolkit procurement through the 'Skill Development Training and Toolkit Grant for Traditional Craftsmen' programme.

The "Kumbara Colony Infrastructure Development Programme" is a comprehensive initiative aimed at uplifting densely populated Kumbhara colonies in Kerala, which are home to traditional pottery-making communities, including the Kumbharan, Kushavan, Kulalan, Odan, and Velaan groups among the Other Backward Classes (OBCs). These communities face significant socio-economic challenges, and their living conditions lack even the most basic amenities such as work sheds, chimneys, and modern equipment.

In response to these urgent issues, the program was introduced to provide essential services, including clean drinking water, electricity, well-maintained roads, footpaths, community halls, and libraries, among other necessities. Additionally, it seeks to modernise the pottery trade by offering work sheds, chimneys, and transportation facilities to market their products. For the financial year 2022-23, an outlay of Rs 50.00 lakh has been allocated for this initiative. In its initial phase, the program has been implemented in the Kodakara Kumbhara Colony in Thrissur District. An expenditure of Rs 1.00 crore has been expended to provide basic amenities and pug mill and this initiative has significantly improved the living conditions of 85 disadvantaged families residing in the colony.

A total amount of Rs 731.19 crore has been spent by the Department to provide assistance to 23,49,815 beneficiaries during the 13th Five-year plan period. An amount of Rs 161.44 crore was allocated by the State Government to the Backward Classes Development Department

in 2022-23 and the expenditure incurred was Rs 166.60 crore. An amount of Rs 127.14 crore was allocated by the State Government to the Backward Classes Development Department in 2023-24. The scheme-wise outlay, expenditure, and the physical achievements of the Department in 2022-2023 and 2023-24(as on September 30, 2023) are given in **Appendix 8.2.43 and 8.2.44.**

Kerala State Backward Classes Development Corporation (KSBCDC) Ltd

Kerala State Backward Classes Development Corporation (KSBCDC) acts as the major State level channelising agency of three national financial agencies, National Backward Classes Finance and Development Corporation (NBCFDC), National Minorities Development and Finance Corporation (NMDFC), National Safai Karamcharies Finance and Development Corporation (NSKFDC). The main objective of the Corporation is to eradicate poverty and backwardness from among the target groups- OBCs and Minorities by providing financial assistance at a lower rate of interest to the members of backward communities living below poverty line. KSBCDC also utilises the State Government assistance and its own fund reserves to implement various welfare schemes including loan assistance for self-employment, education loans and microfinance. KSBCDC also provides assistance such as marriage assistance, house building/maintenance and personal loans.

KSBCDC has disbursed an amount of Rs 2,727.21 crore to Rs 2,77,539 beneficiaries under various loan schemes in 13th Five Year Plan. The corporation has been actively organising exhibition cum trade fairs and has also been providing marketing opportunities to its beneficiaries through exhibitions and trade fairs organized by State Government and National Financial agencies. Additionally, KSBCDC has introduced a 'loaner's distress relief fund' (LDRF) to assist the beneficiary or his family in the event of the beneficiary's death, permanent disability, accident, or chronic illness. The Corporation also implemented 'New Swarnima' for women under the OBC category for starting individual enterprises and has disbursed Rs 1.10 crore among 65 women beneficiaries. The Corporation has disbursed loans worth Rs 795 crore in 2022-23 benefiting 67, 722 persons. In 2023-24, an amount of Rs 283 crore has already been disbursed among 20,782 persons (as on September 2023). The source-wise expenditure and the physical achievements of the Corporation in 2022-23

and 2023-24(as on September 2023) are given in **Appendix 8.2.45** and Physical and Financial Achievement of the Corporation in 2022-23 and 2023-24 (as on 30.09.2023) are given in **Appendix 8.2.46.** Some best practices of corporation are the Green Card Benefit, Loaner's Distress Relief Fund Scheme (LDRF), Subsidy Linked Loan Schemes (Re-Turn Loan Scheme, Startup loan scheme)etc.

Kerala State Development Corporation for Christian Converts from Scheduled Castes and the Recommended Communities Ltd

Kerala State Development Corporation for Christian Converts from Scheduled Castes and the Recommended Communities was incorporated in 1980 under the Indian Companies Act 1956. The main objective of the Corporation is to promote the social, educational, cultural, and economic upliftment of the Christian converts from Scheduled Castes and the Recommended Communities in a comprehensive manner for ameliorating their living conditions. The source of finance for the Corporation is the share capital assistance and grants sanctioned by the Government of Kerala on an annual basis, and the loan assistance from NBCFDC. Major programmes implemented by the corporation include loans for agricultural land purchase, self-employment loans, loans for construction and revamping of houses, marriage loans, agriculture and allied sector assistances, small business and educational loans. In addition to these loan schemes, the corporation has been providing grants and scholarships to students among the target groups through various schemes such as incentive grants, spot the talent, career guidance programme, Coaching assistance for competitive examinations such as Medical Engineering Entrance, Civil Service and PSC. In the fiscal year 2022-23, the corporation started a foreign education loan scheme with a lower interest rate to support the disadvantaged students in this community. The corporation formulated an action plan for loan recovery to reduce the NPA status, which helped to recoup earlier losses. Corporation collected Rs 11.7 crore as loan recovery in the financial year 2022-23.

An amount of Rs 5.70 crore was allocated to the Corporation in 2022-23 for various programmes and expenditure was Rs 10.33 crore. The excess of expenditure over outlay in 2022-23 is due to the loans issued from loan repayments. Details of year-wise disbursement of State Government

assisted loan schemes from 2018-19 to 2023-24 (as on September, 2023) are given in the **Appendix 8.2.47**. The scheme-wise details of physical and financial achievements of the Corporation are given in **Appendix 8.2.48**.

Kerala State Pottery Manufacturing Marketing and Welfare Development Corporation Limited

Kerala State Pottery Manufacturing Marketing and Welfare Development Corporation Limited was set up in 2016 with the objective of modernizing the traditional pottery sector in the State, thereby increasing the living standards of the families engaged in the sector. The functioning of the Corporation started only in 2020-21. Major programmes implemented by the Corporation include loans for manufacturing and marketing of pottery, marriage assistance loan, Self-help group loan and education loan. The corporation had stalls and mobile marketing units at different exhibitions and melas. On a pilot basis, the corporation has been distributing pottery products procured from various pottery units in the State to agricultural university, agro-bazaar, and other private institutions. In 2022-23, an amount of Rs 14.95 lakh was expended by the corporation for various activities.

Welfare of Minorities

The Indian Constitution has emphasised the importance of equality of citizens and the responsibility of the State to preserve, protect and assure the rights of minorities in the matters of religion, language, culture and education. The UN declaration of 1992, on minority rights as per the Article (1) underscores that 'States shall protect the existence and the national or ethnic, cultural, religious and linguistic identity' of minorities within their respective territories and shall encourage conditions for the promotion of that identity. According to the 2011 census, 79.8 per cent population of India practices Hinduism, 14.2 per cent professes Islam, 2.3 per cent adheres to Christianity, 1.7 per cent practices Sikhism, 0.7 per cent follows Buddhism, 0.4 per cent adheres to Jainism and a microscopic minority 0.006 per cent follows Parsi religion. Though India achieved remarkable progress in the human development indicators like literacy, education, health and shelter, not all religious communities and social groups have shared equally the benefits of development of the nation.

In Kerala, around 45 per cent (26.56 per cent Muslims, 18.38 per cent Christians, 0.014 per cent Buddhists, 0.013 per cent Jains, 0.011 per cent Sikh and Parsi) of total population are minorities. They are entitled to minority rights as envisaged in the Article 29 and 30 of Indian Constitution. Among them, Muslims, Latin Catholics, Converted Christians and Neo Buddhists are considered as backward communities in Kerala. The Directorate of Minority Welfare was formed under Government in 2008, for the overall welfare and advancement of notified minority communities, namely, Muslims, Christians, Buddhists, Sikhs, Jains and Parsis. The Minority Welfare Department prepares and implements projects, focusing on education, health, housing and employment of minorities. Major schemes implemented by the Minorities Welfare Department are educational assistance, water supply scheme in minority concentrated areas, housing scheme for divorcees, widows and abandoned women from the minority communities, PMJVK (Pradhan Mantri Jan Vikas Karyakram-60 per cent CSS), pre-marital counselling centres and Minority Research Wings in Universities for the welfare of the minorities. The physical achievements of various schemes are given below:

- During the 13th five year plan, 97 projects were approved for an amount of Rs 216.55 crore under the scheme Pradhan Mandhri Jan Vikas Karyakram (PMJVK). In 2022-23, a total of Rs 40.00 crore was allocated to the scheme, of which Rs 6.75 crore was spent.
- Department has been providing free coaching to students of minority communities for PSC/UPSC/SSC/Railway Recruitment/Banking sector competitive examinations through various coaching centers across the State. A total of 37,470 students were given coaching during the 13th five year plan period and among them, 2,837 students got permanent employment in State and Central governments. In 2022-23, about 11,294 students were given coaching and among them, 581 students got employment in State and Central governments.
- Under Imbichi Bawa Housing/Renovation scheme for Widows/divorcees and abandoned women, an amount of Rs 500.00 lakh was provided for the completion of houses and 747 incomplete houses has been completed and 241 are in progress.
- The scheme 'Water supply in Minority Concentrated Areas' benefited around 1000 families.

Major educational assistance provided in 2022-23

- Scholarships were provided to 1196 minority students for pursuing CA/CMA/CS, UGC, CSIR, NET, NTSE coaching and PG Diploma in GST.
- Prof. Joseph Mundassery scholarship award for talented minority students has been provided to 4248 students and Civil service Coaching fee reimbursement has been provided to 55 minority students.
- Reimbursement of interest on educational loan for studying in selected foreign Universities was provided for 73 minority students.
- Fee reimbursement was provided to 3960 students pursuing technical courses or trades in recognised ITCs in order to promote skill training among minority students.
- Scholarships are provided to 411 students pursuing three year Diploma courses in Govt/ Govt-Aided Poly-technic colleges.
- Scholarships are provided to 388 students pursuing Nursing Diploma/Para medical courses.
- Pre-marital counseling and soft skill development has been provided to 9000 adults.

Pradhan Mantri Jan Vikas Karyakram-PMJVK

The Pradhan Mantri Jan Vikas Karyakram-PMJVK is a centrally sponsored scheme with the objective of enhancing infrastructure projects that are community assets in identified areas with development deficits for the socioeconomic development within minority populated areas. In 2018-19, the Ministry of Minority Affairs restructured and renamed the erstwhile Multi Sectoral Development Programme as Pradhan Mantri Jan Vikas Karyakram (PMJVK) with a funding pattern of 60:40 between Centre and the State. The revised PMJVK will now be implemented in the identified areas where the concentration of minority population is more than 25 per cent within 15 km radius. The projects to be taken up under PMJVK would be related to creation of infrastructure mainly in the sectors of education, health and skill development, besides innovative schemes for improving the socio-economic and living conditions of minority communities and other communities residing in the designated area. In 2022-23, an amount of Rs 40.00 crore was allocated to the scheme, of which Rs 6.75 crore was spent. Major achievements are construction of school buildings, additional class rooms and toilet facilities within schools. Details

of works completed under this scheme are given in **Appendix 8.2.49.**

An amount of Rs 76.01 Crore was allocated by the State Government for the welfare of minorities in 2022-23 of which Rs 31.36 crore (41.26 per cent) was spent. An amount of Rs 76.01 crore was allocated by the Government in 2023-24. Scheme-wise outlay and expenditure and the physical achievements of the Department in 2022-23 and 2023-24 (as on September 5, 2023) are given in **Appendix 8.2.50** and **8.2.51.**

Kerala State Minorities Development Finance Corporation Limited

The Kerala State Minorities Development Finance Corporation is a fully owned Government company started on March 22, 2013, with an intention of looking after the welfare of minority communities including Muslims, Christians, Buddhists, Jains, Sikhs and Parsis. The main schemes implemented by the Corporation are self-employment loan, business development loan, education loan, visa loan, pravasi loan, employee's multi-purpose loan and housing loan for Madrassa teachers and others.

The Corporation's multipurpose loan scheme namely *Sumithram* includes marriage loan, treatment loan and critical illness related loan. KSMDFC has disbursed loans amounting to Rs 53.17 crore to 875 beneficiaries belonging to minority communities for the year 2022-23. During 2023-24 (as on September 30th, 2023), an amount of Rs 14.19 crore has been disbursed among 183 beneficiaries. The financial and physical achievements of the Corporation are given in **Appendix 8.2.52.**

Welfare of Forward Communities

Forward communities of Kerala include 168 communities, of which 19 communities are Christians, which are out of the ambit of any form of caste based reservation. The Government of Kerala constituted the Kerala State Welfare Corporation for Forward Communities Limited branded as Samunnathi on November 8, 2012. KSWCFC was established for promoting comprehensive development and welfare of economically backward sections of the Forward Communities in Kerala through rendering assistance to their members for improving their educational status, living conditions and all-round development.

By utilising the fund availed as Grant-in Aid from Government of Kerala, the Corporation undertakes various activities which include *Vidyasamunnathi* merit scholarships, *Vidyasamunnathi* coaching assistance, *Samrambha Samunnathi* term loan assistance, *Naipunya Samunnathi* skill and entrepreneurship development, renovation of dilapidated *agraharas* and *Mangalyasamunnathi*. KSWCFC's *Samunnathi Thoosanila* Mini Café programme is intended to prepare and serve quality food at reasonable rates to public through women joint liability groups of economically weaker sections among Forward communities. There are 52 *thoosanila* mini cafes functioning in various places of Kerala under this programme. The Corporation has been providing interest subsidies to loans (at 3 per cent interest on term loans) availed by self-help/joint liability groups of unemployed members from Forward Communities in Kerala in order to promote self-employment and entrepreneurial activities. The physical achievements of various components are given below:

- Merit scholarships were provided to 19,059 students for pre-matric and post-matric studies.
- Coaching assistance has been provided to 555 students for pursuing medical/engineering entrance examinations, bank tests and civil service examinations.
- Interest subsidies to loans were provided to 1843 individuals.
- 357 Joint Liability Groups, 12 individuals and 28 *thoosanila* mini cafes were assisted under 'Skill and Entrepreneurial Development Programme'.
- Financial assistance for marriage has been provided to 198 girls.

An amount of Rs 38.05 Crore was allocated to the Corporation in 2022-23 for various programmes of which, Rs 22.56 crore was expended (59.42 per cent). An amount of Rs 38.05 crore was allocated to the Corporation in 2023-24. The Scheme-wise outlay and expenditure and the physical achievements of the Corporation in 2022-23 and 2023-24 (as on October 5, 2023) are given in **Appendix 8.2.53**.

8.3 SOCIAL SECURITY MEASURES

The concepts of social security and welfare of citizens are envisaged by the Government of Kerala as its basic principles, and hence the Government plays a key role in the protection and promotion of social and economic well-being based on the principles of human dignity, socio-economic justice, equitable distribution of wealth, and public responsibility, for those unable to avail themselves of the minimal provisions for a good life. It is an important policy instrument in the fight against poverty and of human well-being. Social security measures not only provide support at every stage of life, but also provide psychological security. Social welfare programmes involve a broad and varied range of Government programmes implemented through various Departments, and are intended to improve the quality of life for all segments of society, especially the less fortunate.

The Kerala model of development stands for the principles of equity and justice in the developmental process, and has succeeded in accomplishing societal well-being at par with developed nations in selected quality of life indices. State interventions are spread across health, nutrition, palliative care, education, training, employment, livelihood development, and other sectors, and thereby protect the people to contribute towards the total welfare of the country. Kerala has achieved significant progress in ensuring social protection through programmes of educational, economic and social development, and rehabilitation aiming at supporting and

empowering target groups. Social security pensions are a source of stability for the elderly, differently-abled, widowed, and so on. Pension distribution is effected by the State Government for various categories through Local Self Governments.

Social welfare is a basic commitment of the State Government. The leading Government hands in social security and welfare programmes are the Social Justice Department, Women and Child Development Department, and agencies under these departments. The major activities of these agencies are given in **Appendix 8.3.1**. This section deals with the institutional care and financial support by Government agencies for the aged, differently-abled, women, children, and transgender.

The social security programmes in Kerala can be categorised into two: institutional care and social assistance programmes.

Institutional Care

Government, as well as Non-Governmental Organisations (NGOs), provide institutional care to disadvantaged sections of the population. Government institutions in this sector are run by the Social Justice, and Women and Child Development Departments. There are 16 welfare institutions for senior citizens and 15 for people with disabilities under the Social Justice Department (SJD). The Women and Child Development Department (WCD) run 64 institutions for women and children. The list

Table 8.3.1 Category of Government Welfare Institutions

SL. No.	Particulars	Number
Social Justice Department		
1	Old age Homes	16
2	Asha Bhavans	6
3	HMDC	1
4	Prathyasa Bhavan	1
5	Pratheeksha Bhavan	1
6	Home for Physically Handicapped	3
7	Care home for handicapped children	1
8	Vocational Training Centres	2
9	Priya Home	1
10	Transit Home	1
Women and Child Development Department		
1	Govt Children's Home	16
2	Govt Observation Home	8
3	Govt Special Home	2
4	Place of Safety	1
5	Mahilamandiram	12
6	After Care Home	3
7	Rescue Home	1
8	Short stay Home	1
9	Entry Home	13
10	Integrated Care Centre	1
11	Model Home and SOS Model Home	4
12	Thejomaya After care Home	1
13	Home for Mental Health	1

Source: Social Justice Department and Women and Child Development Department

of institutions is given in **Table 8.3.1**. The total sanctioned strength of these institutions is 4304 and total occupancy in 2022-23 was 2814. The number of occupants is less than the sanctioned strength of inmates for certain categories of institutions. The changes in the number of inmates are due to death, returning with relatives, and new admission. The District-wise number of residents in welfare institutions of the SJD and WCD in 2022-2023 is given in **Appendix 8.3.2**.

Institutions registered under these Departments also run care homes. The District-wise number

of residents in all registered welfare institutions under SJD and WCD in 2022-2023 is given in **Appendix 8.3.3**. The total number of residents in these institutions 2022-23 was 50,191. Highest occupancy was in old age homes, with 25,330 residents, and the next in institution for persons with disabilities, with 12,440 residents. The least occupancy is in Foundling Homes, with 318 residents.

Social Assistance Programmes

Social security pension

Pension schemes for agricultural workers, the elderly, people with disabilities, unmarried women above 50 years of age, and widows, are the major pension schemes of the State Government. Welfare pensions have increased from Rs 600 per beneficiary in 2016 to Rs 1,600 per beneficiary in 2021. The number of social security pensioners, which was 34 lakh in 2015-16, increased to 52.38 lakh on October 2022, and is 46.77 lakh as on November 2023. There are various welfare board pensions which are not included in the above total number. From April 2015, the amount has been disbursed as Direct Benefit Transfer (DBT) and 51.75 per cent of beneficiaries receive pensions as bank transfers. The rest receive their pensions through the Direct to Home method, successfully implemented through a large network of primary cooperative societies. The beneficiaries select the mode of transfer according to their condition and convenience. As on November 2023, of the 46.77 lakh pensioners, 29.45 lakh (63 per cent) are women. Category-wise, 56.5 per cent of beneficiaries fall under old age pension, 27.1 per cent widow category, 7.8 per cent for people with disabilities, and around 6.8 per cent for agriculture worker pension. Pension for unmarried women is given to 81,377 beneficiaries. District-wise, Malappuram has the highest number of beneficiaries and Wayanad the least. The District-wise coverage is given in **Appendix 8.3.4**.

Care for Persons with Disabilities

As per the World Health Organisation, disability is the impairment in a person's body structure, physical or mental functioning, and activity limitation or participation restrictions in normal daily activities. It counts visible or invisible, congenital or acquired impairment under disability. The Rights of Persons with Disabilities (RPwD) Act, 2016, stipulates an umbrella of 21 types of disabilities, against the earlier seven types under

the Persons with Disabilities Act 1995. In Kerala, a disability census was conducted by the Social Justice Department through the Kerala Social Security Mission (KSSM) in 2015. The categories of disabilities, as per the above census, are given in **Appendix 8.3.5**. As per the disability census the final number of PwD is 7,93,937. This is 2.37% of the total population i.e., 3,34,06,061 of the State. The census found that 8.66 % of the houses in Kerala are having PwDs. Among the 22 Category of disabilities, the highest number is of locomotor disability i.e., 2,61,087, which is 32.89%. The prevalence of this disability is 78 among 10000 population. Multiple disabilities stand second in number i.e. 1,37,441, the percentage is 17.31%. The prevalence of multiple disabilities is 41 among 10000 population. The least prevalent disability among the 22 categories is Multiple Sclerosis, 515 in the State.

The enactment of the Rights of Persons with Disabilities Act, of 2016 gave effect the optional protocol of the United Nations Convention on the Rights of Persons with Disabilities (PwDs). It upholds rights-based approach to the needs of persons with disability. Followed by the enactment of RPwD Act, 2016, the State Government introduced new schemes to fill gaps and mainstream persons with disabilities into society. Schemes include the Barrier Free Kerala project, Individual Care Plan, State initiatives on disabilities, etc. The Government also supports the efforts of NGOs in providing quality care and support to PwDs. Another landmark in this sector was the identification of suitable posts in State Government Services, and reservation of 4 per cent of vacancies for PwDs. The global commitment to the Sustainable Development Agenda 2030 recognises and requisites the promotion of rights, perspectives, and well-being of persons with disabilities, in line with UN protocols.

Organisations and Agencies in Disability Sector under state Government

The Directorate of Social Justice is the nodal agency for implementing the social welfare schemes of the State and Union Governments. Kerala Social Security Mission (KSSM) implements specific programmes on a mission mode, and Kerala State Handicapped Person's Welfare Corporation (KSHPWC) implements welfare schemes. State Commissionerate for Persons with Disabilities (SCPwD), a quasi-judicial institution,

oversees activities, educates stakeholders and society, conducts awareness camps, adalats, provides free legal aid for PwDs, and undertakes research and development.

National Institute of Speech and Hearing (NISH)

NISH is an institution of national repute, working in areas of disability and rehabilitation, including early intervention, education of persons with disabilities, disability and rehabilitation services, and capacity creation. It also provides an excellent environment for the pursuit of higher studies for persons with disabilities. NISH conducts degree courses in various streams such as BSc. Computer Science (HI), Bachelors in Fine Arts (HI), BCom (HI), MSc Audiology, MSc Speech Language Pathology exclusively for the deaf and hard of hearing. In 2020, the institution launched the Bachelor of Occupational Therapy (BOT) programme, affiliated to Kerala University of Health Sciences (KUHS). Various programmes were organised by NISH in 2022-23 where, 3107 pupils participated in early intervention programmes, 14,649 cases were attended through audiology, and 4792 cases were attended by speech-language pathology divisions, while 7404 cases were attended under medical, psychology and allied services. Various academic programmes conducted in 2022-23 benefitted 507 students.

Kerala State Differently Abled Welfare Corporation

The Kerala State Handicapped Person's Welfare Corporation (KSHPWC) is a Public Sector Undertaking under the State Government aimed at formulating, promoting, and implementing various welfare schemes for rehabilitating and improving the living conditions of the visually impaired, hearing and speech impaired, people with locomotor or intellectual disabilities, and also to provide financial and technical assistance to such categories.

The services offered through the Corporation in 2022-23 are the following.

- Supply of various disabled friendly equipment to 1,124 persons.
- Distribution of self-employment loans to 300 disabled persons.
- Financial assistance of Rs 20,000 as fixed deposit to 236 children with disabilities through "Hastadanam" scheme.
- Financial assistance of R 25,000 to 73 persons

with disabilities for self-employment, to those who have no security to offer for obtaining loan.

- Financial assistance for starting lottery ticket sales of Rs 5,000 to 89 persons.
- Motorised scooter subsidy of Rs 15,000 given to 13 persons with disabilities.
- Cash award of Rs 5,000 given to 507 SSLC and higher secondary students with disabilities.
- State Commissionerate for Persons with Disabilities.

State Commissionerate for Persons with Disabilities.

The Commissionerate for Persons with Disabilities functions at the State level and is a semi-judicial body that can exercise the power of a Civil Court under Section 63 of Persons with Disabilities Act. The Commissionerate monitors various programmes and schemes designed for the benefit of the people with disabilities, conduct awareness camps, adalats, provide free legal aid for the disabled persons, and undertake research and development for their rehabilitation.

National Institute of Physical Medicine and Rehabilitation (NIPMR)

National Institute of Physical Medicine and Rehabilitation (NIPMR) is a Centre of Excellence in disability management and rehabilitation. The institute, along with its routine activities including early intervention, therapy and academic programmes, also runs numerous projects with other stakeholders including LSGIs, KSSM, SJD, and Department of Education. The academic programmes conducted by NIPMR are Bachelor of Occupational Therapy (BOT), Diplomas in Education, and Certificate Course in Caregiving. The organisation has various therapeutic departments and units to provide medical and therapeutic services. Special Training and Empowerment Programme for Parents (STEPS), a programme under the Department of Developmental and Behavioural Paediatrics, aims at early intervention and also to empower parents of children with disability. Rehab on Wheels is a mobile outreach programme run by NIPMR which aims to provide assessment, health care and assistive solution at field level using specially designed low-floor buses. A project for transportation of people with disabilities, Wheel Trans, is also run by the institution. The Centre for Mobility and Assistive Technology (C-MAT), a wing under NIPMR, manufactures and distributes mobility assistive solutions to people with

disabilities. Another major initiative is the spinal cord injury rehabilitation unit which has proven to be very effective in rehabilitating persons with spinal cord injury, and bringing them to main stream society.

Directorate of Social Justice

Several welfare schemes are being implemented through the Department of Social Justice to ensure the rehabilitation of the marginalised. Major programmes for beneficiaries are listed in **Table 8.3.2**. As given in the **table 8.3.2**, SJD ensures protection in terms of financial assistance for education, health and livelihood of disabled persons.

Kerala Social Security Mission (KSSM)

Kerala Social Security Mission is the nodal agency for the issuance of the Universal Disability Identity (UDID) Card. It organises disability certification camps across the State to ensure that the entire PwD population receives the disability certificate and UDID card, and has issued 91,511 UDID cards. KSSM provides monthly assistance of Rs 600 to the caregivers of patients who need full-time care, such as people with 100 per cent visual disability, bedridden patients with cancer, cerebral palsy, autism, mental illness, intellectual disabilities, and also to the bedridden elderly, under the Aswasakiranam scheme. State Initiative on Disabilities (Anuyatra) is an umbrella programme that encompasses a strategic framework, interventional approach, and convergence plan for establishing the organised network of systems and institutions for prevention, early intervention, and management of disabilities. Anuyatra includes District Early Intervention Centres (DEIC) to ensure early screening of disabilities and provide appropriate services, and Regional Early Intervention Centres (REICs) established in five Medical Colleges. Kathoram is a life cycle approach in hearing disability management. Under Universal Hearing Screening of new born babies 1,10,244 neonates were screened and 6,965 referred for higher diagnosis. Under the Shruthitharangam project, 109 Cochlear Implant surgeries were conducted free of cost in the State. In special anganavady project, 1,343 children having development delay and disabilities were supported. Of these, 338 children joined regular schools. Mobile Intervention Units were established to provide regular services and therapy to PwDs. and 1,34,151 children received the service. Under Regional Early Intervention Centres, 27,783

Table 8.3.2. Major programmes of Social Justice Department 2022-23

Scheme	Category/criteria	No. of Beneficiaries	Total Amount (In Rs)
Parinayam	Marriage assistance to girls with disabilities and Daughters of people with disabilities	520	1,56,00,000
Scholarship	Disabled students with disabilities (40 per cent) having annual family income below Rs 36,000	*	88,500
Mathrujyothi	Mothers with disabilities for taking care their child	80	21,85,031
Vidyakiranam	Educational assistance to children of People with disabilities and annual income limit of Rs1 lakh	6079	3,00,73,150
Vidya Jyothi	Uniform assistance to students with disabilities	177	4,01,685
Swasraya	Single mothers of children with disabilities for their self-employment	49	17,10,000
Vijayamrutham	Students with disabilities who have achieved high marks in degree/equivalent courses, PG/professional courses	36	3,09,139
Niramaya Insurance Scheme	Insurance scheme for persons with Autism, Cerebral Palsy, intellectual disability and Multiple Disabilities	77359	1,61,98,212
Imprest Money	Rehabilitation of orphans abandoned in public places	*	1,32,583
Pariraksha	Financial Assistance to PwDs for emergency treatments and in case of natural calamities	50	15,33,199
Prathyasa	Repatriation of inmates of Rehabilitation centres to their own States. Rehabilitation of Other State inmates in the MHCs and other Rehabilitation centres	64	11,71,800
Sahachari	Assistance to students with disabilities in studies as well as other extra-curricular activities	12	1,54,060
Psycho Social Grant in Aid	Institutions which are rehabilitated people which having Govt. approval under Psycho Social Scheme	42	4,93,64,000
Athijivanam	People with disabilities with NGO collaboration to ensure rehabilitation of the marginalised	13	1,40,67,262
Barrier free Kerala	Converting physical infrastructure, public places, transporation facilities, IT related facilities etc accessible to PwDS	*	4,50,70,332

Source: Social Justice Department *Data Not Available

children with development delay and disabilities have been supported. Autism Centres services have been availed by 33,260 children. 2,102 children benefitted from regional autism rehabilitation and research centre at NIPMR.

General Education Department - Activities for Inclusive Education

School education in Kerala is known for its inclusivity in supporting students with disabilities. There are resource centres in schools, along with a resource teacher and staff for various therapies. Also under Buds Rehabilitation Centres, one resource centre functions in each sub-District. The Department also implements the model inclusive school programme which envisages strengthening of certain general schools to function as model

centres of inclusive education in specific disabilities. The Department also provides financial assistance to accredited institutions that offer care to children with intellectually disabilities, to meet their infrastructural needs, water supply, medical aid facilities, and so on. Assistance is also provided by the Department to enhance the capacity of teachers in special schools. Autism Park has been established to mainstream children with autism by helping them manage behavioural symptoms, by encouraging social participation and enhancing communication levels.

CH Mohammed Koya Memorial State Institute for the Mentally Challenged

Under the General Education Department, the CH Mohammed Koya Memorial State Institute for

the Mentally Challenged imparts special education, training, and rehabilitation services to people with intellectual disabilities. The Institute offers various services in the field of intellectual disability, such as special schools for children with intellectual disabilities, clinical services, physiotherapy centre, early intervention centre, vocational training centre, and diploma courses on special education. Among the above schemes, 40 community-based parent training programmes were conducted for 4,000 beneficiaries, early intervention model programme benefitted 1,700 children, and augmentation and documentation benefitted 376 students.

Department of Labour and Employment

A rehabilitation package (Kaivalya) is provided by the Department of Labour and Employment for the welfare of people with disabilities registered with employment exchanges, by way of loans, up to a maximum of Rs 50,000 for commencing self-employment ventures, vocational career guidance, soft skill training, and so on. By disbursing Rs 2.47 crore in 2022-23, the Kaivalya scheme benefitted 277 People with disabilities. Another major self-employment scheme is 'Saranya' for low-income women under the categories of unemployed widows, deserted/divorced/unmarried women, unwed mothers, women with disabilities, and wives of bedridden persons. The scheme provides an interest-free loan and 50 per cent subsidy for the eligible beneficiary.

Care For Elderly

Ageing population constitute a higher proportion of the population in Kerala than any other part of India. The demographic trend shows that Kerala is currently passing through a critical stage of demographic transition as a result of Kerala's high levels of social development which resulted in low fertility rate, declining mortality rate, and increasing longevity. Population ageing reflects the achievements of the State in improving the health status of the state. These demographic changes however pose some challenges for the State, its families, and the elderly, as the number of elderly is on the rise.

The elderly are becoming an increasingly vulnerable population due to many problems that they face in a fast-changing society which include declining psycho-social and emotional support from family and society, health issues, increasing elderly abuse, accessibility issues, digital divide, poor employment opportunities, insufficient social

security benefits, loneliness, etc., which requires responsive and pre-emptive policies and measures to prepare the State for social protection of elders.

The State is very particular about the protection of the rights of the elderly and the effective implementation of the Maintenance and Welfare of Parents and Senior Citizens Act, 2007. This includes strengthening Maintenance Tribunals and improving the quality and reach of community-level services including doorstep delivery of services and day care facilities 'Sayamprabha Homes' in collaboration with LSGIs, Kudumbasree, and NGOs. During 2022-23 an amount of Rs 53,62,007 has been expended for 54 day care centres. However, the State Government stands for a change in the outlook of society and elder people towards aging as 'Active Aging'. The policy framework of the World Health Organisation in 2002 defined active aging as the process of optimising opportunities for health, participation, and security to enhance the quality of life as people age". This calls for a collaborative effort from the Social Justice Department as the nodal department for the activities for the elderly and multiple other departments and agencies involved in the care of the elderly, including the LSGIs, NGOs, and the local communities.

The Government of Kerala provides an old age pension to 26.44 lakh senior citizens in the low income group, and supports health care and palliative and home care facilities that focus on the care of senior citizens. The Government has also strengthened community-based support programmes in collaboration with Local Governments. The Department of Social Justice and the Kerala Social Security Mission implement several programmes such as the Vayomithram Scheme, which is being implemented in 6 municipal corporations, 85 municipalities, and 4 block Panchayats in the State. The scheme provides the aged with periodic medical check-ups. It had 2,89,030 beneficiaries during 2022-23. Treatment service and extended emergency response and support to the elderly is delivered through Vayaraksha, and Vyokshema.

The Government has also instituted an award for promoting the elder support programmes of LSGIs and NGOs. The Department has been preparing a standard operating procedure (SOP) for the registration, operation, and monitoring of elderly care homes, especially for homes operated

by different agencies. Programmes are also being prepared to engage seniors in the community through social events and help them maintain a sense of identity and self-worth, and also to harness the wealth of knowledge and experience they have. More details of programmes for elderly care are included in the section Human Development- Impact of Changing Demographic profile.

Transgender Welfare

Kerala is the first State in India to declare a Transgender (TG) Policy in 2015. Subsequently, the State has launched separate programmes for TGs, under the umbrella scheme Mazhavillu, for mainstreaming the target population. The programmes include financial assistance for vocational training, sex reassignment surgery (SRS) and post-SRS surgery care, marriage assistance, scholarships, pension, and insurance. The Government has issued ID cards to TGs, opened a TG cell, a crisis management centre, and 24x7 Helpline. The Government is also promoting NGOs and CBOs to conduct activities for TGs such as skill development and rehabilitation programmes. Institutional interventions like sensitisation programmes and workshops for the public, family members of TGs, teachers, and other Government functionaries were also undertaken to change the attitude and approaches of people to TGs, and established shelter homes and short-stay homes. Loans for self-employment and other activities are being undertaken to mainstream TGs in the State.

Major schemes for TG s in 2022-23 were the following;

- Educational assistance in the form of scholarships of Rs 1000 per month for school students, and Rs 2000 for college students. An amount of Rs 4,67,000 was expended to 25 beneficiaries across the State.
- TG students in Government/ Aided/ Unaided/ Self finance institutions can avail hostel facility. Eligible students will get Rs 4,000 per month, and a total amount of Rs 7,44,000 was expended for 23 beneficiaries.
- Marriage assistance of Rs 30,000 is given to legally married TG couples who have undergone Sex Reassignment Surgery. Rs 2,40,000 for 8 beneficiaries in 2022-23.
- Under Saphalam scheme, TG students who are pursuing degree, diploma and professional courses are given financial assistance of

Rs 1 lakh per year. Rs 1,90,000 was expended to 2 beneficiaries in 2022-23.

- Karuthal scheme gives assistance to needy TGs who require immediate support when facing crises like atrocities and violence. Rs 2,08,142 was expended to 2 beneficiaries.
- Another major initiative for TGs is Sex Re-assignment Surgery and after care. The department provides Rs 2.5 lakh for transwomen and Rs 5 lakh for transmen each for this surgery. An additional fixed amount of Rs 3,000 per month is given upto 12 months for after care support. In 2022-23, an amount of Rs 1,70,11,717 has been expended to 277 TGs.
- TGs preparing for competitive exam get financial support under the Yathanam scheme. In 2022-23, a total of Rs 62,000 was expended as assistance for 2 beneficiaries.

Empowerment and Social Welfare of Women

Kerala, over the years, has seen several interventions that have ensured the enhancement of participation of women in social, political, and public affairs. The State Government has also taken considerable efforts through several policy measures to ensure equal opportunities for women in all spheres of public employment, and to facilitate their equal access to public spaces in the State. This is reflected in the much lower gender gap in basic capabilities, such as education and health, its favourable sex ratio of 1,084 women per 1,000 men (Census 2011), and several other indices.

The Women and Child Development Department conducted a popular campaign against dowry in 2019-2020, and formulated a five year action plan for awareness creation and empowerment. For effective implementation of dowry prohibition, the Kerala Dowry Prohibition Act, 2004 has been amended, designated officers have been appointed, District Advisory Board has been constituted, a portal for Dowry Complaints has been launched, etc. The Department has taken up marital/pre-marital counselling to prevent domestic violence and dowry, an online consultation programme to take heed of the grievances of women and help solve problems, and provided legal aid and police assistance to address violence against women.

The Government has constituted Aswasanidhi – a corpus fund of Rs 300 lakh for providing interim relief to victims of sex crimes, domestic violence, acid attacks, and heinous gender-based violence,

over and above any other statutory provisions for them. Besides this, the Government started One Stop Centres in all Districts for victims of violence in private and public spaces, within the family, community, and at the workplace. The One Stop Centres provide 24 hours specialised services including medical assistance, assistance in lodging FIR/NCR/DIR, psycho-social support and counseling, legal aid, shelter, and referral services.

It is a global phenomenon that women live longer than men and in Kerala, life expectancy for women, as per the population projections for 2021-25, is 79.15 years as against 73.49 years for men (National Commission on Population, MoHFW, 2020). The increase in life expectancy coupled with a favourable sex ratio may explain the jump in the widowed population in Kerala. It is in this context, the Government of Kerala has formulated various schemes for widows. These include one-time financial assistance of Rs 30,000 for self-employment through the scheme Sahayasthanam, educational assistance for their children enrolled in professional courses through the scheme Padavukal, and monthly financial assistance of Rs 1,000 to close relatives of destitute widows through the scheme Abhayakiranam. In addition, a scheme called Mangalya has been envisaged to encourage widow remarriage by providing a financial incentive for widows/divorcees to remarry.

The Department has implemented a few popular initiatives such as Ponvakk and Thejomaya After Care Home. The former stands for the eradication of child through community participation, by incentivising the informants. Thejomaya After Care Home is another progressive step of the Department to ease the process of transition of inmates of Women and Children Homes to society, after completing studies.

Kerala State Women's Development Corporation

The prime objective of the Corporation is the empowerment of women by helping them overcome the constraints and challenges that hamper their growth and advancement. It enables women's access to economic empowerment and opportunities, education, employment, and self-employment. The Women's Development Corporation mainly focused on providing financial support to women entrepreneurs to start new ventures for gaining economic independence in

the family. The Corporation through loan schemes and State Plan schemes handhold deprived and less fortunate women aspirants and implemented vocational training programme, project assistance, and financial assistance in starting self-enterprises. Providing marketing and technical assistance to small-scale women entrepreneurs to develop their production and marketing skills, strengthening the employability of women through skilling, and providing awareness programmes at the school and college-level to change the outlook of girls, are some of the activities that WDC took up for empowering women economically. The Corporation provided self-employment loans to 21,257 beneficiaries and disbursed Rs 248.17 crores. Programmes like EDP, and awareness and vocational training programmes benefitted 1,095 beneficiaries. The Corporation runs finishing schools (REACH) where 2,570 students were trained in 2022-23. The Women Development Corporation has implemented several notable programmes such as Working Women's Hostels, short stay facility for women, Vanamithra Skill Development Centre for Tribal Women, Bodhyam gender sensitisation training for Police, Women's Cell in Colleges, and Mithra 181 Women helpline.

Kerala Women's Commission

The Kerala Women's Commission is a statutory body constituted under Section 5 of the Kerala Women's Commission Act, 1990. According to the Act, the Commission was constituted to improve the status of women in the State of Kerala and to inquire into unfair practices affecting women and for the matters connected therewith or incidental thereto. It is a quasi-judicial body, and the Commission conducted gender awareness programmes, legal workshops/seminars, adalaths and initiated Face to Face with Commission for adopting ideas and views. It was formed to investigate specific problems relating to women, apart from studying women-related issues in the State. The Commission is equipped with powers to safeguard the rights of women and ensure their protection and equality against any form of harassment and issues faced in the family and community. For more details see section on Gender and Development.

Gender Park

The Gender Park was conceptualised to develop strategies, policies, programmes, and projects to achieve the goal of gender equality. Functioning as a gender convergence hub, it works through

a multi-pronged approach rooted in gender-sensitive methods for research, dialogue, policy interventions, and awareness generation. Gender Park is in the process of creating an environment for sustainable entrepreneurial ventures that contribute to the economic empowerment of women.

Welfare of Children

Child welfare is concerned with the physical, social, and psychological well-being of children, particularly children suffering from the effects of poverty or lacking normal parental care and supervision. It is a continuum of services designed to ensure that children are safe and that families receive the support they need to care for their children. United Nations Convention on the Rights of the Child, 1989 recognises that humankind owes to the Child the best that it has to give, declare, and accept it as its duty beyond and above all considerations of race, nationality, or creed.

The child care programmes support or coordinate services to prevent child abuse and neglect, receive and investigate reports of possible abuse and neglect, provide services to families who need help to protect and care for their children, assess the needs, strengths, and resources of the child, and ensure the well-being of children with families, relatives, or foster families. This includes ensuring children's access to health care and education, developing their personality, growing up in a happy environment, and information about their rights.

As per NFHS-5 report, the infant mortality rate (IMR) in Kerala is 4.4 deaths per 1,000 live births as against IMR of 5.6 deaths reported in NFHS-4. Under-5 Mortality Rate (U5MR) also shows an improvement with 5.2 deaths per 1000 live births against 7.1 deaths as per NFHS-4. But, anaemic rates reveal a decrease in health status among children. NFHS-5 data shows an increase in the rate of anaemia among children aged 6-59 months, from 35.7 per cent (NFHS-4) to 39.4 per cent (NFHS-5). Data on the nutritional status of children is also disturbing, as per NFHS-5 data. Data reveals that the percentage of children under 5 years who are underweight has risen to 19.7 per cent as compared to NFHS-4 figure of 16.1. Similarly, children under 5 years who are stunted account for 23.4 per cent (NFHS-5) against 19.7 per cent (NFHS-4).

The holistic development of children up to 18

years includes physical, mental, emotional, and social development. In Kerala, free education and health facilities are provided to all children in Government institutions. Child marriage violates the rights of children and adversely affects their health and well-being. It is essential to create a safe and caring environment for all children, free from neglect, violence, abuse, and exploitation. The Kerala State Commission for Protection of Child Rights has continued to review existing laws for the protection of child rights, inquire into cases of violation of child rights, look into factors inhibiting the enjoyment of those rights, and suggest remedial measures.

The State Adoption Resource Agency and 17 specialised adoption agencies functioning in Kerala executed adoptions from 2013-14. As of 2022-23, a total of 1,298 adoptions have been facilitated in-country, and 130 inter-country. In 2022-23, 108 children were adopted from Kerala- 96 in-country and 12 inter-country adoptions). Of these, 47 were female. The number of children adopted is given in **Appendix 8.3.6**.

The Government of Kerala's Responsibility to Children programme implemented in schools aims at scientifically identifying and addressing the behavioural, emotional, learning, and psychological challenges faced by children, in collaboration with teachers, parents, and the general public. The project is currently operational in schools across the State. Kaaval Plus focuses on community-based rehabilitation and re-integration, through psychosocial approach, for children who need care and protection and also for POCSO survivors.

The Protection Of Children From Sexual Offences Act, 2012: The POCSO Act was enacted to protect children from offences of sexual assault, sexual harassment and pornography, and to provide a child-friendly system for the trial of these offences.

Nirbhaya Policy: The Government of Kerala formulated the Nirbhaya Policy for combatting sexual violence against women and children, and to safeguard them against trafficking for exploitation. The policy is aimed at the prevention of sexual violence against women and children, protection of sexual violence victims, prosecution of sexual violence perpetrators, rehabilitation of sexual violence survivors, and re-integration of sexual violence survivors. To

co-ordinate the Nirbhaya Programme, a separate cell (Nirbhaya Cell) has been created under the Directorate of Social Justice headed by an officer of the rank of Joint Director.

Early childhood is the most significant phase of development of a person. Recognising the criticality of 1000 days from a woman's pregnancy (270 days) to her child's 2nd birthday (730 days), the Government launched the 1,000 days programme. The programme includes regular medical camps for pregnant and lactating women, the supply of therapeutic food, and awareness classes for reducing the child mortality rate. The project was initiated in Attappadi on a pilot basis, and has been extended to 42 ICDS Projects in coastal and hilly areas in 2022-23.

Integrated Child Development Services (ICDS) is a major Government of India programme that addresses the needs of children under the age of six. The Department owns and operates 33,115 Anganwadi Centres (AWC) in the State (as on March 2023). District-wise coverage of ICDS beneficiaries is given in **Appendix 8.3.7**.

5.12 lakh beneficiaries are children in the age group 0-3 years and 4.30 lakh beneficiaries are children in the age group 3-6 years. The WCD Department, in collaboration with World Food Programme (WFP), has initiated the fortification of rice which is served in hot cooked meals to children of 3 to 6 years in Anganwadies. Under this project, rice is fortified with 8 micronutrients (Iron, Folic Acid, Zinc, Vit. A, Vit.B12, Niacin, Vit.B6, and Thiamine). Raw rice is blended with fortified rice kernels in a ratio of 100:1. In addition to this, a micronutrient fortification of Amrutham Nutrimix which is given as Take Home Ration to children in the age group of six months to three years. This was started in Wayanad, and later extended to all Districts. In addition to this, the State Government has initiated a new programme providing egg on two days and milk on two days in all Anganwadi Centres, in 2022-23.

The Department initiated Nutrition Clinics to improve the health of women, children, and adolescents through nutritional counseling, guidance, referrals, and other social support with the help of a nutritionist. The project aims to look at an individual's overall dietary health and identify the risk of malnutrition in the initial stages and

intervene before the person gets malnourished. Nutrition Clinics have been set up in 152 Blocks and six Corporations.

The Department has been modifying Anganwadi Buildings into Smart Anganwadies with sufficient space for Class rooms, dining hall, kitchen, store room, creative zone, and indoor and outdoor play areas. The first one has been constructed in Thiruvananthapuram District, and the construction of another of 204 Smart Anganwadi Centres has been approved. The Department also developed theme-based preschool activity posters and distributed them to children.

Social security of children through health care

Cancer Suraksha and Thalolam Schemes provide free treatment to children below 18 years who are suffering from cancer. Cancer Suraksha Scheme is being implemented through 13 Government hospitals, covered 8,652 beneficiaries, and expended Rs 439.17 lakh. Thalolam Scheme is being implemented for children with life-threatening diseases through 16 major Government hospitals in the State. During 2022-23 und an amount of Rs 700 lakh for 1,857 beneficiaries was expended under Thalolam.

Cochlear implantation in Children (Sruthitharangam) provides support to children in the age group of 0-5 years. 591 children benefitted through this in 2022-23. Social Support Scheme for Children Affected with Juvenile Diabetes (Mittayi) provides comprehensive care to children/adolescents with Type-1 diabetes through Mittayi clinics established in five Government Medical Colleges in the State. 1,469 children benefitted through this in 2022-23, and Rs 378.01 lakh has been spent.

Specific schemes have been implemented for the rehabilitation of endosulfan victims in Kasaragod District. Snehaswanthwanam scheme gives financial assistance of Rs 2,200 for bedridden victims, and Rs 1,700 to those who are getting disability pension. There were 5,376 beneficiaries during 2022-23. Special Aswasakiranam scheme provides monthly assistance to the caregivers of endosulfan victims who are fully bedridden or have intellectual disabilities. Rs 700 is given per month to 684 beneficiaries. Children from Endosulfan-affected families in classes I to XII are given

educational assistance- Rs 2000, Rs 3000 and 4000. This scheme supported 804 children in 2022-23.

Snehapoorvam provides educational assistance to those children who lost both or either of their parents and are not in a position to look after the child because of financial constraints. Children including HIV/AIDS-affected students will be provided with educational assistance up to degree-level. This programme benefited 21,742 children in 2022-23.

The Way Ahead

There should be prime focus on ensuring rights-based service delivery to all, particularly the most needy. For this, a comprehensive and scientific approach in the management of institutional mechanisms is necessary. Social security programmes must be supported by strong institutions, and require multi-departmental integration in order to be effective.

CHAPTER

09

ART, CULTURE AND SPORTS

ART, CULTURE AND SPORTS

9.1 ART AND CULTURE

Art and culture play an important role in progressive, secular and democratic social transformation. Kerala has a great tradition of a wide range of art forms and cultural traits, that have undergone transformation from time to time, imbibing progressive values. Kerala has world renowned art forms that have been appreciated for their composition, fineness, and richness of content. Government of Kerala has been very keen on fostering art and culture by taking a variety of initiatives to take art to the people; help artists, writers, and performers; support various institutions of art and culture; and create an overall facilitating environment for the dissemination of progressive and secular values through different forms of art.

The Government of Kerala has been keen on bolstering the art and culture milieu of the state in view of the perilous impact of the Covid-19 pandemic and the economic distress that persists. Art and culture sector was supported by creating opportunities for the artists to perform in as many as possible and assisting the institutions of art and culture to expand their horizons through a slew of measures to modernise their management systems and introduce new measures for revenue generation.

Kerala's artistic and cultural landscape is a synthesis of the various cultural customs, art forms, and lifestyles of the state's many castes and religions. The many populations of Kerala have coexisted peacefully in large part due to the eclectic

cultural environment of the state. Kerala's rich history is anchored in secularism, tolerance, and an open mind to value diversity. The Government of Kerala has shown strong commitment to maintain these values and propagate them as a model to the country, which has witnessed instances of intolerance, divisiveness, and regressive thinking instead of social harmony and progressiveness.

Directorate of Culture

The Directorate of Culture was formed for effectively co-coordinating and regulating the activities of all the art, literary and cultural institutions functioning under the Department of Cultural Affairs.

The Directorate primarily facilitates and coordinates the activities of various autonomous institutions including Kalamandalam Deemed University, Sangeetha Nataka Academy, Sahithya Academy, Lalitha Kala Academy, Folklore Academy, Mahakavi Moyin Kutty Vaidyar Mappila Kala Academy, KSFDC and Chalachithra Academy.

Directorate also coordinates the distribution of annual grants to all the cultural institutions, which do not avail plan assistance. Other important responsibilities of the Directorate include the promotion of creative activities in the memorials of distinguished artistic, literary and cultural geniuses distribution of assistance to artists and litterateurs who are suffering from financial hardships; distribution of monthly pension to the dependents

of prominent artists and writers and coordination of the activities of South Zone Cultural Centre in Kerala.

Various schemes are being implemented by the Directorate to preserve and nurture the rich cultural heritage of the State. The Directorate has the responsibility to aid financially disadvantaged artists. Accordingly, artists and dependents of deceased artists and writers of eminence are provided with monthly pension. The Directorate of Culture distributes annual grants to all cultural institutions in the state to promote their functions.

Achievements and Performance

Major achievements of the Directorate are given below:

Diffusion of Culture: Cultural dissemination implies creating the opportunity to see, hear, enjoy and experience the unique arts and heritage of Kerala so that the next generations become familiar with these cultural endowments. As part of this programme, publications for the cultural institutions were prepared and the doyen of Malayalam literature, Shri. M T Vasudevan Nair was honoured. A coffee table book including a photo gallery of the Vastu Vidya Gurukulam was also published through this programme during the last financial year. The Department liaison with various cultural institutions to make their contributions more visible.

Mazamizhi : The project has evolved into a helping hand for the communities of artists and performers who are in deplorable conditions and have lost their means of livelihood due to the Covid pandemic and the floods. The goal of this initiative is to bring together everyone involved in the arts and culture to enable them to showcase their creations online and receive financial support. Under the auspices of the Department of Culture, Bharat Bhavan conducted the programmes in collaboration with various academies and institutions under the Department of Culture. In the post Covid situation, the project proposes to conduct the performances offline as well as on line. This programme has been hailed widely as it tried to overcome the barriers to promote art and culture through innovative means of employing information technology.

Samam: This project conceived by the Department of Culture proposed to promote

gender equality in all spheres of art and culture, by responding creatively to the exploitation and atrocities against women and children. This has been conceived as a collaborative programme involving the Youth Welfare Board, Youth Commission, National Service Scheme, Scouts and other institutions working under the Department of Culture.

Diamond Jubilee Fellowship: The Diamond Jubilee Fellowship Scheme for thousand young artists is a widely appreciated project, intended to promote, and assist young talented artists to give orientation to the people on different art forms. Young artists with certain qualifications in fine arts and proficiency in folk arts are provided with a platform to train people. These artists are supported by means of fellowships for a fixed period. This project is implemented with the active participation of local governments. As part of this, 1,000 young artists have been selected as trainers. These artists are offering training in 45 different art forms. Any one irrespective of age and gender can attend the training programme. Currently, the programme is implemented through more than thousand training centres located in 171 local governments (municipal corporations, municipalities, and block panchayats). The fellows are given a monthly fellowship of Rs 10,000 by the state government and Rs 7,500 by the local government concerned for two years. District-wise details of the distribution of Diamond Jubilee Fellowships are given in **Appendix 9.1.1**.

The programme is a structured one, implemented based on a syllabus in all the 45 art forms offered, which was prepared with the help of subject experts. This has helped in providing uniform training across the state. It has been stipulated that an artist should conduct at least four classes of two and a half hours each in a week.

Rural Art Hub/Grameena Kalakendram: It is a project initiated with the objective of ensuring livelihood sustainability of the rural artists and artisans of the state, strengthening their skills and establishing sustainable market linkages by avoiding exploitation by middlemen. The project is being implemented in 25 selected heritage villages in the State. Details of the heritage villages and products are given in **Appendix 9.1.2**. In each selected village, a marketing centre to showcase the products has also been set up.

Box No.9.1.1 Non recurring grants to cultural institutions

The scheme provides financial assistance to cultural organisations and associations to strengthen their activities and encourage them to undertake creative initiatives. As per the provisions of this scheme, an organization will be provided financial assistance three times in five years. An amount of Rs 50,00,000/- has been sanctioned for the following 11 institutions and cultural activities during the last financial year.

1. Kumaranashan Smarakam, Pallana
2. International Film festival at Thrisuur
3. Thilakan Samaraka Vedi, Koduman
4. Prof. N. Krishnapillai Foundation, Thiruvananthapuram
5. Sreechithira Thirunal Sangeetha Natya Kala Kendra
6. Kattaal Pusthakamela
7. O.V. Vijayan Samaraka Samithi
8. Thakzhi Smarakam, Sankaramanaglam
9. All India Agribusiness Health Exhibition
10. Mata Theatrical Arts, Kozhikode
11. Purogamana Kala Sahitya Sangam, Thiruvananthapuram

Source: Directorate of Culture, 2023

Non recurring grants to cultural institutions

Major Institutions under the Directorate of Culture

There are 23 institutions working under this department, which utilise plan funds. These include various academies, institutes, memorial buildings, or institutions, which carry out their activities with the financial aid of the Government through the Department of Culture. The important institutions under the Department of Cultural Affairs are given in **Appendix 9.1.3**.

Besides these institutions, Department of Archaeology, Department of Museums and Zoos and the Department of Archives also work under the Cultural Affairs Department.

The Kerala State Film Development Corporation (KSFDC)

The Kerala State Film Development Corporation (KSFDC) was established on 23rd July 1975 with the prime objective of facilitating the production and promotion of Malayalam cinema and developing a culture of recognizing and appreciating quality and excellence. KSFDC owns and runs 17 global standard theatres spread across different parts of Kerala. The Chitranjali Studio, at Thiruvallam, Thiruvananthapuram was established by KSFDC with the intention of bringing Malayalam cinema production industry from Madras to our own state. In a bid to promote domestic film industry, KSFDC runs a non-plan scheme providing subsidy for

feature films and children films produced under the Chitranjali package scheme. Around 40 - 45 films are produced yearly utilizing the subsidy provided by the Government of Kerala. With the headquarters at Kalabhavan, Vazhuthacad, Thiruvananthapuram, KSFDC Theatres are the main venues of the well acclaimed International Film Festival of Kerala (IFFK).

A significant contribution by the Department of Culture is establishment of cultural complexes in every district, with KIIFB assistance. KSFDC is the Special Purpose Vehicle for this project. Sri Narayana Guru Cultural Complex at Kollam was inaugurated by Sri. Pinarayi Vijayan, the Chief Minister of Kerala on 04th May 2023. The Cultural Complex in Palakkad is nearing completion and the construction in Kasaragod is underway.

Films by women directors and directors belonging to SC/ST category:

The Government is keen on promoting attempts by talented women and members of marginalized communities to direct films. Kerala State Film Development Corporation is entrusted with the production of these films. As part of the scheme, a film namely 'Divorce' directed by Ms. Mini I G was released across Kerala on 24th February 2023. The Film 'B32 to 44' directed by Ms Shruthy Sharanyam and 'Nila' directed by Ms Indu Lakshmi were released on 4th August 2023. It is heartening that 'B32 to 44' directed by Ms Shruthy Sharanyam bagged the Kerala State Film Award 2022 for the

Best Women/ Transgender Film under special category. Both the films are being screened across India and abroad in various film festivals and have bagged many appreciations.

Women directors selected for the financial year 2022-23 are Ms Athira T. N. (*Cafe Unlimited*) and Ms Mini Poongattu (*Koothu*).

Directors belonging to SC/ST category selected for the financial year 2022-23 are Mr. Ajith V. (*Attumali*) and Mr. Sumesh C. S. (*Break Sukumaran*).

Kerala State Chalachitra Academy

Kerala State Chalachitra Academy is an autonomous, non-profit institution functioning under the Department of Cultural Affairs, Government of Kerala. It was founded in August 1998 for the promotion of cinema in the State. The Academy is an effort to counter gross commoditisation of the film medium and to promote rightful recognition of the contribution of cinema to the cultural enlightenment of the society.

Important initiatives and performance by the Academy

27th IFFK: The Kerala International Film Festival is the biggest cultural event organized under the auspices of the Government of Kerala. Though the 26th IFFK was held in March 2022 due to Covid 19, the 27th edition was held in December 2022 itself, to streamline the schedule. Thus, for the first time in the history of IFFK, two international film festivals were held in one year.

The 27th International Film Festival was held in Thiruvananthapuram from December 9 to 16, 2022. The festival which spanned over 8 days screened 180 well acclaimed films from 70 countries on 15 screens. The festival was inaugurated by Hon'ble Chief Minister Shri. Pinarayi Vijayan at Nishagandhi Theatre in Thiruvananthapuram. Showing remarkable increase in the interest to watch world cinema, 13,000 delegates attended the festival by paying fees. In addition, about 20,000 representatives in media, official, patron and co-patron categories participated in the fair. The IFFK has grown into a prestigious event that attracts film connoisseurs from all around the world.

The Lifetime Achievement Award was presented to famous Hungarian director Bela Thar. *The Spirit*

of Cinema Award was presented to Iranian director Mehnas Mohammadi.

The 4th International Women's Film Festival:

The decision of the Government to conduct a film festival exclusively screening the works of women directors has received great appreciation. The festival was held in Alappuzha from March 17 to 19, 2023 at Kairali and Sri Theatres. The festival screened 25 films by women directors under the categories viz. Malayalam, Indian, World Cinema, Documentary and Short Fiction.

15th International Documentary Short Film Festival (IDSFFK):

The 15th International Documentary and Short Film Festival 2023 was held at Kairali, Sri and Nila Theatres, Thiruvananthapuram from 4th to 9th August 2023 with the participation of more than 15000 delegates. The Lifetime Achievement Award was presented to renowned documentary director Mrs. Deepa Dhanraj. IDSFFK has been the venue for many films on relevant contemporary issues.

Margi

Margi had continued its activities to promote and nurture the temple arts of Kathakali, Koodiyattam, Chakyarkoothu, Nangyarkoothu and Pathakam. Margi stages its activities at two places in Thiruvananthapuram. Koodiyattam and Nangiarkoothu are performed at Margi centre, Valiyassala. The other one near East Fort is devoted exclusively for Kathakali. At both the centres, students are trained in their chosen fields of performing art forms. Margi also provides training in musical instruments such as *chenda*, *maddalam*, *idakka* and *thimila*.

From 14th to 17th August 2022, Padmashri Kalamandalam Krishnan Nair Commemoration and Guru Day was held at Margi. Along with this, Kathakali, Nangiarkoothu were also performed. On November 21, 22, 26 and 27, 2022, Kathakali Nangyarkoothu and Chakyar Koothu programmes were held at Margi. These kinds of programmes are conducted in Margi every month.

Kerala Sahitya Academy

The Kerala Sahitya Academy was established on 15th August 1956 by the Government of Tiru-Kochi. In 1958, the headquarters of the Academy was shifted to Thrissur. The main objective of Kerala Sahitya Academy is facilitating the

development and growth of Malayalam language and literature. The Academy is planning and implementing various activities for this purpose. Several activities were undertaken during 2022-23.

‘Athiranipadam@50’: Kerala Sahitya Academy and S.K. Pottekkat Cultural centre jointly organised the 50th anniversary celebrations of the novel ‘Oru Desathinte Kadha’ by Shri. S K Pottekkad. The programme was inaugurated on 15th January 2022 by Sri. Saji Cherian, Minister for Culture.

Pooram Book Festival: Pooram Book Festival was organized by Kerala Sahitya Academy in connection with Thrissur Pooram. Dr. R. Bindu, Minister for Higher Education and Social Justice inaugurated the programme on 28th April 2022. During the book festival from 28th April to 7th May, 2022, a cultural festival was organised, which was highly appreciated by the public.

Women: Language, Writing and Theatre: One Day Workshop: Academy and Darshanam Santharavedi jointly organized a workshop on ‘Women: Language, Writing and Theatre’ at Gender Park, Vellimadukunnu, Kozhikode on 20th June 2022.

Samam: Cultural Advancement for Women’s Equality’: Department of Culture and Sahitya Academy jointly organized the programme ‘Samam: Cultural Advancement for Women’s Equality’ on 2nd July 2022. This was followed by staging of the play ‘Swathanthra’ by Cherukad.

‘Durvastha’, ‘Chandalabhikshuki’: Centenary Celebrations: The state-level inauguration of the centenary celebrations of Kumaranashan’s classics, ‘*Duravastha*’ and ‘*Chandalabhikshuki*’ was held at the Kerala Sahitya Academy on 15th October 2022.

Language Day Celebration: Kerala Sahitya Academy, District Planning Committee and District Planning Office, Thrissur jointly organized Language Day celebration at Academy Auditorium on 1st November 2022. This was followed by lectures delivered by Kalamandalam Manikanthan and Vivekdas M. M on the Koodiyattam performance, language and reading of Kerala Art at Changampuzha Hall, Thrissur.

Kerala Lalithakala Academy

Kerala Lalithakala Academy, established in

1962, with the objective of conserving and promoting visual arts, is an autonomous cultural organization under the Government of Kerala. Kerala Lalithakala Academy has art galleries at Thiruvananthapuram, Kilimanoor, Kayamkulam, Kottayam, Alappuzha, Ernakulam, Thrissur, Kaladi, Malampuzha, Malappuram, Kozhikode, Thalassery, Payyannur, Mananthavady and Kanhangad. The Lalithakala Academy has undertaken and initiated several programmes during this period.

Artist Residency Studio: An Artist Residency Studio has been opened at Kilimanoor Raja Ravi Varma Cultural Centre for artists to stay and make paintings and sculptures.

Construction of an art gallery at GHSS, Karaparambu, Kozhikkode was inaugurated by Shri. Saji Cherian, Hon Minister for Culture on May 19, 2022. This marked the launching of the government project to set up art galleries to display the art works of students in selected government schools in all the fourteen districts of Kerala to promote art appreciation among children right from school level.

National Wooden Sculpture Camp: A 11-day national sculpture camp was organised at Srikandapuram Kakkannan Para KGS Kalagram, Kannur from May 20 to 29, 2022 under the auspices of Kerala Lalithakala Academy. The camp turned out to be a unique venue for traditional sculptors and professional artists to come together and exchange knowledge and experiences with each other. The event was appreciated as a landmark in the contemporary art history of the country.

Tohoku - Japanese Photography Exhibition: The Kerala Lalithakala Academy is committed to social and cultural exchanges in collaboration with cultural organizations and institutions of similar nature in India and abroad. As part of such initiatives, a photography exhibition ‘Tohoku’ - through the eyes of Japanese photographers - was organized from July 2 to 16, 2022 at the Academy’s Ernakulam Durbar Hall art centre in collaboration with the Japan Foundation.

Two-day painting and sculpture training camp for tribal students – Malampuzha: A two-day painting and sculpture training camp was organized with the participation of 100 tribal students

interested in painting from 30-31, July 2022, at Ashramam HSS, Malampuzha, Palakkad.

Bekal Art Project: As a part of B.R.D.C Access Development Project, Kerala Lalithakala Academy organized a National Art Wall Painting Camp at Bekal Beach, Kasaragod from 10th to 19th December 2022.

Akshara Varnam' National Painting Camp: Kerala Lalithakala Academy and the Indian Library Congress jointly organized "Aksharavarnamanal" National Art Camp from 8th to 12th December 2022 (5 days) at Kannur University Campus in Kannur district.

Kerala Folklore Academy

Kerala Folklore Academy, an independent centre under the Department of Cultural Affairs, was established on 28 June 1995. The main objective of the Academy is to promote and project the traditional art forms of Kerala. Kerala Folklore Academy is located at Kannur, Kerala.

P.K. Kalan Award 2022: Shri Cheruvayal Raman, a farmer of Kurichya caste, also known as 'Nellachechan', a world-renowned genome savior who conserves traditional agriculture was honoured with P.K. Kalan award. He preserves and propagates 51 traditional seeds that were cultivated in Wayanad for centuries.

Karkitakapperuma – 2022: *Karkitakapperuma* programme was organized on 10th September 2022 at the Academy headquarters with the intention of imparting knowledge to the new generation about Karkitakappattukal, Krishippattukal, Aativedan Karkitaka treatment and traditional food. Three types of Karkidaka Kanji were cooked and served. A variety of traditional leaf curries were introduced in the programme.

Folklore Day Celebration: In collaboration with the Department of Folklore, University of Calicut, a seminar and Mudiyyettu were conducted in connection with the Folklore Day celebration held on 22nd August 2022.

Nattulsavam: In collaboration with Malayalam Department, University of Kerala Nadodi Vijnaniyam Seminar, Folk Arts Sodaharana

Class, Folk Songs and Folk Arts Sangamam were organized.

Chengannur Peruma: The Academy organized Grama Sandhya and Chengannuradhi Mahotsavam in 9 panchayats of Chengannur constituency to showcase the legacy of Chengannur in art forms, from October 22 to November 5, 2022.

Ayodhana Kala Paithrukotsavam : Kerala Folklore Academy, in collaboration with Kathirur Gram Panchayat and Pullodi Patyam Gopalan Library organized Ayodhana Kala Paithrukotsavam from February 21 to 27, 2021 at Thalassery Ponnyam Ezharakandathu. As part of the programme, 'Kalaripayattu' exhibition and various folk-art performances were conducted.

Vasthu Vidya Gurukulam

Vastu Vidya Gurukulam has been working for three decades with the objectives of preserving and nurturing Kerala's vastu sculpture tradition, mural art heritage, Daru Shila sculpture, handicrafts traditions and propagating artistic and nature-friendly construction techniques. The organisation conducted the following programmes during the reporting period.

Membership in Green Building Council: Vastu Vidya Gurukulam is a member of Green Building Council of India as an organization promoting green building techniques.

Implementing agency of Rural Art Hub: Rural Art Hub Scheme has been initiated by the Department of Culture to ensure livelihood sustainability of rural artists and artisans, implement training schemes for them, establish extensive market networks and thereby protect the handicraft heritage of the country. Vastu Vidya Gurukulam is acting as its implementation agency.

Sustainable Construction Techniques: The institution is conducting research on earthen structures that survive flooding, recycling of construction and demolition waste, and the science of **Ashtabandha Koottu**, an organic bonding mixture. The proposal of Vastu Vidya Gurukulam on the architecture was selected and was considered as one of the 13 research institutes identified as competent on a national basis in this field by I.K.S division (Indian Knowledge System), All India Council for Technical education.

Laboratory facility for quality control of building materials: Research programmes on environment-friendly sustainable construction techniques are conducted in a fully equipped laboratory constructed from recycled demolition debris and concrete solid waste. Quality testing of building materials is also possible in this laboratory.

Kerala Kalamandalam

Kerala Kalamandalam is the premiere public institution in the country for the preservation and promotion of Kerala's traditional performing arts. Since its inception, it has been a beehive of activities attracting artists, art-scholars, historians, theatre-artists/directors, choreographers and art-lovers from all over the world.

Kerala Kalamandalam was declared a Deemed University for art and culture by the Ministry of HRD, Govt. of India, on the advice of the University Grants Commission, on 14th March 2006, and the Government of Kerala approved its Memorandum of Association and Rules on 15 May 2007.

Achievements

In the academic year 2022-23, 52 students qualified for higher studies in BA course and 9 researchers were awarded Ph.D.

At the Colorado Festival, organised under the auspices of the US-based Colorado Fine Arts Society, Kerala art forms such as Kathakali, Koodiyattam, Ottam thullal, Chakyar Koothu and Mazhayoli were presented by teachers and students of Kalamandalam and exhibited in the festival.

Margazhi Festival: The Margazhi Festival was jointly organized by the Chennai-based Kalakshetra Foundation and the Kalamandalam Deemed University. Famous artists in India performed in the festival.

Margazhi Mahotsavam jointly organized by Kalakshetra Foundation based in Chennai and Kerala Kalamandalam Deemed University was held on 7th and 8th January 2023 at Kalamandalam Koothambalam. Famous artists of India presented programmes in the said programme.

Nila National Dance and Music Festival: Nila National Dance Music Festival was organized at Kalamandalam from 21st to 30th January

2023. The programme included Ghazal Sandhya performed by Mr. Usman Mir, Carnatic music concert by Abhishek Raghuram, Mohiniyattam by Dr. Deepti Omcheri, Hindustani music recital by Pandit Umakant Guntecha, Kathak by Shri. Rajendra Gangani, music night led by Padmashri Umayalpuram Sivaraman and Padmashri Mattanur Sankarankutty Marar, dramatization of Sri. N.S. Madhavan's Higuira, Theyyam, Thirayattam, Mappilappattukal etc.

Kerala Kalamandalam Troupe: The art groups of Kerala Kalamandalam presented programmes at many venues within and outside Kerala, which was the major source of income for Kalamandalam. In the last financial year, 126 outdoor programmes were conducted.

Directorate of Museums and Zoos

The Department of Museums and Zoos is functioning under the administrative control of the Cultural Affairs Department. Thiruvananthapuram museum and zoo, art gallery, Thrissur zoo, and Krishna Menon museum at Kozhikode are the major centres of attraction for tourists. The Department of Museums and Zoos also provides opportunities for education and research on wildlife. It also focused on developing, preserving and exhibiting a significant collection of natural, art and historical objects. The institution has a mobile application named 'Trivandrum Zoo' for sharing information about Thiruvananthapuram Zoological Garden.

The list of important museums in Kerala under the Museum Department is given in **Appendix 9.1.4**.

The following are the major activities carried out under the Museum and Zoo Department during the last financial year.

New Raja Ravivarma Art Gallery

Keeping alive the memory of the world famous painter Raja Ravivarma, a new modern art gallery building named after him and located near the Sree Chitra Art Gallery, Thiruvananthapuram, was dedicated to the nation by Hon'ble Chief Minister Mr. Pinarayi Vijayan. on 25.09.2023. The gallery houses an invaluable collection of paintings by Raja Ravivarma and other famous painters.

Conservation Lab at Thiruvananthapuram

Thiruvananthapuram Museum Zoo Department

started the third phase of conservation work which is part of the timely preservation of the precious paintings and drawings of Raja Ravi Varma and other famous painters. As part of this, efforts to conserve 47 paintings and sketches of Raja Ravivarma have been initiated in the financial year 2023-24.

Establishment of AKG Smruthi Museum at Kannur

The construction of the museum building in memory of freedom fighter Shri. A K Gopalan at Peralassery in Kannur district was started during the financial year 2023-2024 by Uralungal Labour Contract Society.

Theyyam Museum

Based on Theyyam, the ritual art of North Malabar, the Museum and Zoo department has acquired 90 cents of land at Chandappura, Kannur to set up a new Theyyam Museum focusing on various Theyyakkolam, origin, expression, history, heritage, and faith of Theyyam.

Kerala State Archaeology Department

The Kerala State Archaeology Department was formed in 1962, integrating the Travancore Archaeology Department and the Archaeological Research Centre of erstwhile Kochi. The main functions of the department include publishing of volumes on stone-inscriptions discovered from various places, copying of writings on copper plates, conducting excavations and explorations and taking measures to protect ancient historical

monuments dating back to 200 BC that are scattered in different parts of the State. The important museums under this department are listed in **Box 9.1.2**.

Details of museums and monuments under the Department of Archeology which are open to public are given **Appendix 9.1.5**. List of protected monuments under the Archaeological Survey of India and Archaeology Department of Kerala are given in **Appendix 9.1.6** and **Appendix 9.1.7** respectively

Major Achievements of the Department

- The Department has issued a notification declaring Ochira Valiya Kulangara temple site as a protected monument.
- Kumaranashan's house and Ezhuthupura have been declared as protected monuments and issued notification
- A phase of excavation has been completed at the Farook Fort in Kozhikode, which holds an important place in the history of Malabar
- The Department has published books viz. 'Temple Architecture in Kerala' and 'Report on Archaeological Excavation at Kottapuram'
- The Pazhassi Raja Museum at Kozhikode East Hill has been fully restored and opened for visitors.

Kerala State Archives Department

The State Archives Department was formed in 1962. Archives Department is the custodian of all non-current records of permanent value

Box No. 9.1.2 Important Museums under the Archaeology Department

- Pazhassi Tomb Museum, Mananthavady, Wayanad
- Kunhali marakkar Memorial Museum, Kottakal, Vadakara.
- Pazhassi Raja Museum, East Hill, Kozhikode
- Gandhi Smriti Museum, Payyannur, Kannur
- Regional History Museum, Kandonthar, Kannur.
- Palakkad District Heritage Museum, Kalpathi, Palakkad
- Thrissur District Heritage Museum, Thrissur.
- Archaeological Museum, Shaktan Tampuran Palace, Thrissur.
- Ernakulam District Heritage Museum, Bastion Bungalow, Fort Kochi.
- Hill Palace Archaeological Museum, Tripunithura, Ernakulam
- Idukki District Heritage Museum, Painav, Idukki.
- Archaeological Museum, Krishnapuram Palace, Kayamkulam.
- Kottarakkara Thampuran Memorial Classical Arts Museum, Kotarakkara, Kollam
- Veluthampi Dalawa Memorial Museum, Mannadi, Pathanamthitta
- Koyikkal Palace Museum, Nedumangad, Thiruvananthapuram
- Padmanabhapuram Palace Museum, Thakala, Kanyakumari, Tamil Nadu

Source: Department of Archaeology, Government of Kerala

belonging to the State Government and its various departments, institutions and individuals. Department also works as the custodian of records of historical value, such as government records, palm leaf manuscripts etc. The department conserves such documents and protects them scientifically so that they are preserved for reference purposes.

Major Achievements and Performances

Setting up of palm leaves museum

India's first Palm leaf Manuscript Museum project has been set up under the aegis of the State Archives Department with a view to showcase the history and the rich cultural heritage of Kerala. The Museum was inaugurated by the Hon'ble Chief Minister on 22nd March 2022. The Kerala State Archives Department has in its custody a large collection of more than one crore of palm leaf manuscripts, which is considered to be one of the largest collections of its kind. Out of this huge collection of records, 160 rare palm leaf manuscripts depicting historical events that are miles stones in the history of the state of Kerala, have been selected and exhibited at different galleries of the museum.

Digitisation

The Department has already digitised 51,42,501 pages through M/s Pragyawan Technologies Pvt. Ltd during this financial year. The department has also digitized 10,22,822 pages of Cabinet records with assistance from C-DIT.

History Quiz

As part of creating historical awareness among children, quiz competition was organized at four levels in collaboration with the Department of Education. The state level competition was conducted on 21st November 2022.

9.2 SPORTS AND YOUTH AFFAIRS

Sports and youth welfare play a pivotal role in the development and progress of Kerala. Known for its rich cultural heritage and natural beauty, Kerala also places great emphasis on sports and youth empowerment. This emphasis is not only a reflection of its historical traditions but also recognition of the manifold benefits they bring to the state.

In the early 20th Century, there were limited sports infrastructure and organized activities. Traditional sports like Kabadies and Kalarippayattu were popular. During the post independent era, Kerala State Sports Council was established in 1954, focusing on promoting traditional and indigenous sports. But there was only limited access to modern sports and facilities.

Since 1970s the growth in sports infrastructure has been marked with the establishment of stadiums and sports schools. During the last decades of 20th Century, Kerala State Sports Council expanded its activities by organizing a large number of sports academies and clubs and started participating in national level competitions.

In the 1st phase of 21st century, Kerala emerged as a powerhouse in Indian football with clubs like Kerala Blasters. Kerala has developed cricket infrastructure and talent and enhanced focus on sports education and scholarships. Kerala continued to produce athletes in various sports including badminton and athletics. Kerala is also focusing on awareness of fitness and wellness

among the youth, and promoting traditional sports through events and festivals.

Throughout this period, the Kerala Government has played a significant role in promoting sports and youth welfare through financial support, infrastructure development and initiatives to identify and nurture young talents. However, the state still faces challenges such as limited resources, and the need for further investment in sports infrastructure to compete at the national and international levels effectively.

Sports Institutions under Government of Kerala

The Government of Kerala promotes various sports institutions to foster athletic talent and encourage healthy lifestyle. Some key sports institutions under Sports and Youth Affairs in Kerala are as follows.

- I. Directorate of Sports and Youth Affairs
- II. Kerala State Sports Council
- III. Kerala State Youth Welfare Board
- IV. Kerala State Youth Commission

I. Directorate of Sports and Youth Affairs (DSYA)

Directorate of Sports and Youth Affairs (DSYA), established in 1986, plays a leading role in the development and promotion of sports and games in Kerala. Its activities cover promotion and development of sports and games in the State by providing appropriate and good quality infrastructure, imparting awareness among public on the importance of sports, providing facilities for

training and grooming of sports persons to achieve international standards. Besides this, DSYA takes up activities to bring in latest technologies and innovations in sports to provide and augment the competitive skills of sports persons from Kerala.

Participation in Khelo India Youth Games

Khelo India Youth Games (KIYG), formerly known as Khelo India School Games (KISG), held annually in January or February, are the national level multidisciplinary grassroots games in India held for two age group categories, namely “under-17 school students” and “under-21 college students”. Every year best 1,000 children will be given Rs 5 lakh each as an annual scholarship to participate in the international sports events. The fifth Khelo India Youth Games was held from January 30, 2023 to February 11, 2023 in Bhopal, Madhya Pradesh as the hosting city. Among 27 disciplines of the event, Kerala won 46 medals (15 gold, 12 silver and 19 bronze) and came in the 6th place.

Kerala Shooting Academy

Kerala Shooting Academy was established on February 3, 2020 to mould world class shooting champions from Kerala in collaboration with the National Rifle Association of India. The Academy provides training to 90 students in one batch.

Special projects

- a. **Goal (Kick-off):** This programme is intended to sharpen the football playing ability of children. The “Kick off” scheme is a grassroots training programme which aims to bring up talented children from sub urban, rural, tribal and other vulnerable areas by catching them young. The scheme is implemented in 33 centres across the State, out of which 15 centres are exclusively for training girls and with 25 students in each centre. The Kickoff programme for boys and Girls has been combined and renamed as ‘Goal’.
- b. **Hoops:** Grassroots Basketball Programme: This is a project to find and train children who are interested in basketball at an early age. This scheme was launched in 2020 in 10 schools from 5 districts. The aim is to extend the programme to all schools in the State. The target is to give training to 120 students in each centre between the age group of 5 to 9 years within 6 months.
- c. **Sprint:** This programme is a grassroots training programme for Athletics. Sprint is a project designed to find world-class athletes

at an early age and restore Kerala’s lost glory at the international level. For performance enhancement, training at grassroots level across the State, with inter school and inter district tournaments has to be promoted. Hence, athletics has to be identified as a top priority sports discipline and continuous training has to be provided to school going children between the age group of 5 to 12 years. This scheme aims to encourage talented children from sub urban, rural, tribal and other less tapped areas by catching them at young age. Sprint project is being implemented in 6 centres, one each in 6 districts, viz., Kannur, Kasaragod, Idukki, Pathanamthitta, Kottayam and Palakkad.

- d. **Judoka:** The judoka is a significant step taken to motivate the sports enthusiasts in the State, who are aspiring to make it big in judo and for the fundamental development of the sports discipline. Judoka is a state-wide grassroots training programme in judo for school students between age group of 8-11 years by establishing basic training centres in the State. In the first phase, the project will be implemented in 10 centres in the state.
- e. **Healthy Kids (Play for health):** ‘Healthy Kids’ aims to enhance physical and mental abilities of children by initiating them to sports and games. The primary focus is to help the children to develop aptitude in a variety of games which could later be harnessed through systematic and scientific training. It also aims to convert schools as sporting hubs and ensure regular physical activity among school children. ‘Healthy Kids’ is an ambitious project aimed at improving the overall development of children in the age group of 4-12. The scheme was inaugurated on January 25, 2021 in Thalapp Mixed Upper Primary School, Kannur. The final goal is the inclusion of sports as a part of the education curriculum in Kerala. The target is to implement the scheme in 30 new centres along with 25 centres where the Play for Health scheme was implemented.
- f. **Punch:** The project aims to introduce a grassroots level training programme for boxing called punch at 5 centres across Kerala to strengthen the talent development structure at the grassroots level to familiarize the sport of boxing among the students of Kerala and enable them to win medals at state, national and international levels. This project helps to spread the knowledge and values of boxing across Kerala.

Box 9.2.1 Sports Policy

- A new sports policy was inevitable for the comprehensive sports development of Kerala. The Government has decided to implement it with importance. The policy aims to formulate long term strategies to accommodate future situations.
- The policy suggests to take the whole sports sectors in the State to a new level and to develop a high sports culture by encouraging participation in sports.
- Health for all is the basic principle of the policy. For that, the policy proposed a significant suggestion to make sports and physical fitness as the right of every citizen.
- By implementing the concepts of community sports, it is possible to achieve wellness of the people. For that, the policy suggests the dissemination of physical activities and sports competitions. Regardless of age, physical literacy will be provided to all.
- The policy prioritizes the discovery and nurturing of sports talents. There are clear guidelines to develop international quality players through scientific selection and training methods.
- With the help of local body level Sports Councils the sport will be activated at grassroots level.
- It gives guidelines to utilize our sport infrastructure effectively. These facilities should be most comfortable to maximum athletes. These should be used effectively for the health care of the common people.
- It explains the importance of school level sports and suggests compulsory implementation of sports from primary level onwards.
- New technologies, research and innovations in sports should be promoted. The potential of sports industry should also be exploited.
- We will create the human resources for sports by encouraging higher studies in the field of Sports Technology, Sports Management and Sports Science.
- The policy vision emphasizes a commitment to learning and implementing world's best practices in the field of sports.
- With the help of private entrepreneurs, Co-operative Sector, Public Sector Undertakings and Government Departments various activities and projects will be implemented. NGO, MSME, Social organizations and others will also be encouraged to get involved in the sports sector. PPP model will be promoted.
- The policy lays out ways to activate the sports economy. Through this, within 5 years the contribution of sports sector to the Kerala economy will be 4 percentage and by 2026, it will become a 40000 crore economy.
- The state should be self-sufficient in the manufacturing of sports materials and technology. StartUps and entrepreneurs in the sports sector shall be encouraged.
- Sports sector shall be developed as a source of employment. There shall be 100 per cent increase in employment opportunities within the next 5 years. Career opportunities of athletes shall also be increased.

In view of the revival of sports sector, the Government have formulated the Sports Policy 2023 considering the changing arena of society and sports in the national and international level.

Rural Playground (One Panchayat One Playground)

The scheme One playground for One Panchayat, aims to develop at least one playground in every panchayat, municipal corporations and rural areas. The scheme is envisaged with the primary objective of “health, fitness and happiness” for all. The scheme is formulated keeping in view the social standard and women friendly environment with extensive facilities of fitness pavilion and gym to improve mental physical capacity. The amount required for the work is raised by mobilizing sources such as State Fund, Asset Development Fund of MLAs, Fund of Local Self Governments,

Customer Contribution and CSR of Corporate Institutions. The detailed proposal and project guidelines have been given administrative approval vide G.O.(P)No.1/2022/S&YA, dated.12.07.2022. In the last financial year, 111 play spaces across the state are selected under the scheme.

Kerala State Football & Hokey Development- Sports Collaboration with Kingdom of Netherlands

In the Kerala – Netherlands Round Table Conference, it was decided to collaborate with the Kingdom of Netherlands to initiate a Collaborate Partnership with selected organizations in the disciplines of Football and Hokey. As a pilot project, conducted an 8 day coaching programme for football and hokey in August 2022 in association with the sports organizations in the kingdom of Netherlands-(1) KNVB

World Coaches Programme and (2) Boveland Foundation Programme. The pilot course included meeting and field visit to understand current situation level of coaches and players.

Che International Chess Festival

Kerala- Cuba ‘CHE’ International Chess Festival took place from November 16 to 20, 2023 at Hyatt Regency, at Thiruvananthapuram, Kerala. It was a prestigious chess event that featured a Cuban team comprising three Grandmasters (GMs) and one Woman Grandmaster (WGM). The event not only showcased the rich tradition of chess but also provide a unique opportunity for our state’s chess enthusiasts to compete and learn from some of the world’s finest players. In connection with the International Chess Festival, a curtain raiser chess event was conducted across all Districts of the State on November 12th, from which young talents were selected. There were competitive matches between Kerala and Cuban team in which Kerala team won. Chess training sessions were conducted by IM V Saravanan and GM RB Ramesh. The final day was graced by our national pride GM Praggnanandhaa and GM Nihal Sarin who played against each other and engaged in simultaneous chess matches with 16 young talents. All the chess dignitaries including all the grandmasters and other chess prodigies, arbitrators and digital board operators were honored in the valedictory ceremony.

Sports Life Fitness Centres

Sports and fitness play a vital role in the overall development of each citizen and inculcates team spirit and develops strategic and analytical thinking, leadership skills, goal setting and risk taking ability. International standard air-conditioned Sports Life Fitness Centres have already become operational at nine locations in the State. It is planned to establish at least one such centre in all the districts. The Sports Life Fitness Centres are expected to promote a sporting culture among the people of the region and encourage healthy living.

Stadiums

Stadiums are very important for budding sport prodigies, laying emphasis on high performance and helping in building and improving confidence level of children and youth. There are 36 stadiums in the State. The list of major 10 stadiums in Kerala with their use and capacity is given in **Table 9.2.1** and the complete list is given in **Appendix 9.2.1**.

Sports Kerala Foundation

For the construction, operations and routine maintenance of Stadium and associated infrastructures in the state, a Public Sector Enterprise (PSE) viz, Sports Kerala Foundation has been formed by Government of Kerala in 2021-22. It functions as a Special Purpose Vehicle with the twin objectives of being an asset construction and management company that

Table 9.2.1. Major ten Stadiums in Kerala, by use and seating capacity

SI No	Name of Stadium	Use	Seating Capacity (Appx. Nos)
1	Corporation Stadium, Kozhikode	Outdoor Stadium (Football)	80000
2	Greenfield Stadium Karyavattom , Thiruvananthapuram	Stadium (Cricket /Football)	50000
3	Lal Bahadur Shastri Stadium, Kollam	Outdoor Stadium	30000
4	Chandrasekaran Nair Stadium, Thiruvananthapuram	Outdoor Stadium (Football/Athletics)	25000
5	Medical College Stadium, Kozhikode	Outdoor Stadium (Football/Athletics)	15000
6	Corporation Stadium, Thrissur	Outdoor Stadium (Football)	15000
7	Rajiv Gandhi Stadium, Kochi	Indoor Stadium (Multi sports)	10000
8	Hockey Stadium, Kollam	Outdoor Stadium (Hockey)	5000
9	Indoor Stadium, Kannur	Indoor Stadium (Multi sports)	5000
10	Swimming Pool, Pirappancode, Thiruvananthapuram	Swimming Pool	5000

Source: Directorate of Sports and Youth Affairs

Box 9.2.2 Achievements of the Directorate of Sports and Youth Affairs in 2022-23

- Santosh Trophy- National Football Championship for Senior Men was hosted by the State from April 13 to May 02, 2022. Kerala won the championship after four years. The winning Kerala team members have been felicitated and awarded by the government through a special function.
- All India Tennis Association organized National Tennis Tournaments (AITA U-14 Talent Series, AITA U-16 Championship Series, AITA U-18 Championship Series) at Kerala Tennis Academy, Kumarapuram in collaboration with Kerala Tennis Association and Thiruvananthapuram District Tennis Association through Sports Kerala Foundation.
- The Quicksand matches have been successfully conducted at Alappuzha beach by Sports Kerala Foundation in collaboration with Sports Exotica.
- As per the decision taken in the Kerala-Netherlands Round Table Conference, a pilot project, 8-day coaching Programme for football and hockey was conducted in August 2022 in collaboration with two sports organizations in the Netherlands-(i) KNVB World Coaches Programme and (ii) Bovlander Foundation Programme. 40 selected coaches from the State participated in the training programme conducted under the leadership of 8 coaches from sports organizations Bovlander Foundation and KNVB.
- A project called Health & Fitness Assessment and Antidrug Awareness Campaign was implemented to assess the health and fitness of school students and general public and to create anti-drug awareness among them. The project was implemented in collaboration with Sports Kerala Foundation and Trans Stadia where a mobile lab specially equipped to assess the basic fitness level travelled through various Districts at predetermined centres.
- As part of the awareness programme of the National Anti-Doping Agency, a workshop was held in Thiruvananthapuram district on April 4 and 5. 250 people including sports players, sports teachers, coaches, other officials in the field of sports, doctors, nurses and pharmacists participated in the workshop.

Source: Directorate of Sports and Youth Affairs Department

would focus on developing self-sustaining revenue generating sports assets and conducting of various grassroot level programmes and projects for the development of sports in Kerala. It also functions as the nodal agency for the construction and maintenance of sports infrastructure in the State of Kerala.

In the Asian Games 2023-24 Kerala won medals in various athletic items as follows

II. Kerala State Sports Council

Kerala State Sports Council is a statutory body formed as per Kerala Sports Act 2000 (Act 2 of 2001). Kerala State Sports Council was established in 1954 under Charitable Societies Registration Act and reconstituted in 1974 for promoting sports in Kerala under the name of Kerala Sports Council. The Kerala Sports Council was dissolved and Kerala State Sports Council came into existence and is at present functioning as per Kerala Sports Act 2000 and Kerala Sports Rules 2008.

Table 9.2.2. Medals won on various athletic items-2023-24

Sl.No.	Name	Item	Medal
1.	Muhammed Ajmal	4*400 metre Relay	Gold
2.	Muhammed Ajmal	4*400 metre Mixed Relay	Silver
3.	Muhammed Anas	4*400 metre Relay	Gold
4.	Ansi Sojan	Long Jump	Silver
5.	M.Sreesankar	Long Jump	Silver
6.	Muhammed Afsal	800 Metre	Silver
7.	Jinson Johnson	1500 Metre	Bronze
8.	Minnumani	Cricket	Gold
9.	P.R.Sreejesh	Hockey	Gold
10.	Arjun.M.R	Badminton	Silver

Source: Directorate of Sports and Youth Affairs Department

Sports Academies

Under the direct control of the Kerala State Sports Council, 31 District Sports Academies are functioning in different districts in different sports with the aim of selecting the best athletes and giving them high level training. In addition, there are 51 sports academies and 23 sports academies functioning at the college and school levels respectively with the aid of Council. Promising sports players are selected on merit after selection trials. Athletes in the academies are given boarding and lodging charges. In addition, their medical expenses and travel and daily expenses for participating in the competitions are met by the Council. They are trained under the expert guidance of the Council. The Council also provides sports equipment and sports kits for training in the academies.

Rural Coaching Centres and Day Boarding Centres

There are nine rural sports coaching centres functioning in the State under the control of Kerala State Sports Council. The Kerala State Sports Council gives remuneration to the trainers of these centres and monthly grant of Rs 25 is given per day to each student under the scheme. There are 61 day boarding centres in various sports in 14 Districts. The Council provides essential sports equipment and refreshment for the trainers. Funding for the day boarding scheme is provided through the District Sports Councils.

Centre of Excellence (Elite Training Centre -Athletics, Volleyball, Basketball)

Kerala State Sports Council has implemented Elite Scheme in various disciplines such as athletics, volleyball and basketball in order to nourish the sports skills among young talented sportspersons and to make them capable of securing medals in Asian, Common-wealth, and Olympic Games. Promising sports players are selected on merit after selection trials and they are provided with monthly boarding and lodging expenses, training under expert coaches, medical treatment, study facilities

and conditioning facilities. Currently there are four centres functioning under the Elite Scheme (**Table 9.2.3**).

Various awards

The various types of awards given by the Kerala State Sports Council are given in Table 9.2.4 and the award winners for the year 2022 are given in **Appendix 9.2.5**.

Dr. APJ Abdul Kalam Scholarship Scheme

Kerala State Sports Council implements Dr APJ Abdul Kalam Scholarship Scheme for encouraging eminent sports players in the State. Under this scheme, 11 sports persons from the age group of 14 to 20 years are granted scholarship of Rs 10,000 per annum. Scholarships are awarded to deserving athletes based on their performance in the respective year. The athlete will receive a scholarship till the completion of 24 years of age or up to a maximum of five years on the basis of performance each year.

Women Football Academy

Kerala has the best Football tradition in the country. But there are only limited projects for the development of women football in the State. The aim is to have a unique academy of national standard in a place suitable for accommodation and training. Training period is 5 year from 8th std to 12th std. It is divided in to two stages. After 3 year (8 ,9,10) those who are showing high level quality only will be promoted to next 2 year (+1,+2 class). 25 girls will be selected for the academy. The academy established in November 19, 2021 at Panambilly Nagar, Ernakulam. 15 children are training at Ernakulam Panambally Nagar Stadium and represented Kerala in last Subroto Cup Football Championship.

Kerala's performance in National and international events

The performance of the players in the State in terms of winning medals in national and

Table 9.2.3 Centres of Excellence functioning under the Elite Scheme

Centre	No of Students	No. of Coaches
Lakshmibai National College of Physical Education Kariavattom (athletics)	10	2
Thriprayar Volleyball Academy, Thrissur	23	1
Basketball Academy, Kannur	9	1
Football Academy, Ernakulam	6	1

Source: Kerala State Sports Council

Table. 9.2.4 Various Sports Awards by Kerala State Sports Council

Sl. no.	Awards	Description
1	GV Raja Award	The GV Raja Award is the highest honour presented to sportspersons instituted by the Council given in the name of Lt. Colonel Godavarma Raja for the best male and female athlete in Kerala A cash prize of Rs 3 lakh, a plaque and a certificate of appreciation are given to the awardee
2	Olympian Suresh Babu Memorial Lifetime Achievement Award	The award is instituted in the memory of Olympian Suresh Babu and given to individuals who have made comprehensive contributions in the field of national and international sports. A cash prize of Rs 1 lakh, a plaque and a certificate of appreciation are given to the awardee
3	Best sports coach	A cash prize of Rs 1 lakh, a plaque and a certificate of appreciation are given to the best sports coach in Kerala
4	Other sports awards	Best Sports Teacher (School Level) Best Sports Teacher (College Level) College with outstanding athletic achievements School with the best athletic achievements Best Sports Academy - School Level (Boys and Girls) Best Sports Academy - College Level (Men and Women) A cash prize of Rs 50,000, a plaque and a certificate of appreciation are given to the awardee
5	Kerala State Sports Council Media Awards	Best Sports Photographer Excellent Visual Media Feature Best Sports Book Best Sports Journalist A cash prize of Rs 50,000, a plaque and a certificate of appreciation are given to the awardee

Source: Kerala State Sports Council

international games is noteworthy. They have won 1705 medals in 2022-23 by participating in national and international games. 2584 persons participated in various sports and games meets in national and international events.

In the year 2022-23 the total numbers of participants were 2584 and total medals won were 1710. The total number of medals received from

national competition was 143.. Concentrated and focussed efforts in training sports persons will lead to better outcomes.

Kerala State School Sports and Games

The Director of General Education conducts sports and games events for school children every year. School level competitions are conducted in all high school and higher secondary schools in

Table 9.2.5.Details of number of participants and medals won in different competitions in 2022-23

	Participants	Gold	Silver	Bronze	Total Medals
International	7	0	0	0	0
National	477	35	46	62	143
All India Inter University	225	26	20	17	63
South Zone Inter University	171	5	15	15	35
South Zone National	70	13	17	14	44
State Meet	1171	356	246	243	845
Inter Collegiate	463	337	146	97	580
Total	2584	772	490	448	1710

Source: Kerala State Youth Sports Council

Table. 9.2.6 District-wise medal status in the Sports Meet, Kerala 2022-23

Sl No.	District	Gold	Silver	Bronze	Total
1	Thiruvananthapuram	214	153	165	532
2	Palakkad	61	87	118	266
3	Kozhikode	46	73	95	214
4	Thrissur	81	55	74	210
5	Kannur	66	58	83	207
6	Malappuram	47	68	89	204
7	Ernakulam	56	57	76	189
8	Kottayam	30	39	49	118
9	Alappuzha	16	26	48	90
10	Kasargod	21	29	37	87
11	Wayanad	19	19	40	78
12	Kollam	13	11	39	63
13	Idukki	15	14	28	57
14	Pathanamthitta	5	4	10	19
Total		690	693	951	2334

Source: Directorate of Public Instruction (Sports Wing)

games and athletics. Inter school competitions are held in the following six age groups--seniors (below 19 years), juniors (below 17 years), sub-juniors (below 14 years), kiddies (below 12 years), LP kiddies (below 10 years), LP mini (below 8 years) for aquatics, athletics, and 17 other category games. Regular school going students are eligible for grace marks. Sports and games are conducted in sub-district level, district level and state level. The performance details of aquatics, athletic and games for the year 2022-23 are given in the Appendix.9.2.2, Appendix.9.2.3 and **Appendix.9.2.4** respectively. The overall performance of Districts for the Sports Meet **2022-23** is given in **Table.9.2.6**.

In the Sports Meet conducted in 2022-23, Thiruvananthapuram district won 214 gold, 153 silver and 165 bronze medals and topped the list with a total of 532 medals. Palakkad district was in second place with a total of 266 medals followed by Kozhikode in the third place with 214 medals. In the National Meet 2022-23, Kerala won 54 medals (23 gold, 18 silver and 13 bronze medals).

III. Kerala State Youth Welfare Board

Kerala State Youth Welfare Board was constituted in 1985. The Board provides assistance to youth clubs and organisations for organising training

programmes and self-employment initiatives to the jobless youths.

Major Activities

- **Yuvasakthi:** Yuvasakthi programme is co-ordinated by the district co-ordinators posted on a monthly honorarium basis. The main responsibilities of youth coordinators are to organize youth clubs and conduct social development activities, volunteer activities, organize other activities for social growth, strive to increase youth participation in Keralotsavam, increase youth participation in gram sabhas, organize various job oriented activities including labour bank, and bring the activities of Youth Welfare Board to the grassroot- level.
- **Various Clubs:** Kerala State Youth Welfare Board aims to empower the youth clubs in Scheduled Caste/Scheduled Tribe colonies and coastal areas through awareness programmes, training for competitive exams, health campaigns, environmental activities and distribution of sports kits. The details of various registered clubs under the Kerala State Youth Welfare Board are given in **Table 9.2.7**.

In 2022-23, from the various clubs of the Kerala State Youth Welfare Board around 1,11,800 youth

Table. 9.2.7 Various types clubs and their activities

Sl. No.	Name of the clubs	Number of clubs/ beneficiaries	Objectives	Activities
1	Agriculture clubs (Kathir)	140/7000	To inspire and help young people who are interested in agriculture thereby helps to ensure food security and providing opportunities for youth groups.	Training programmes, exhibitions of agricultural products, meeting of farmers were conducted and agricultural competitions are organized
2	Women clubs (avalidam) clubs	1040/52000	As a part of women's empowerment, mainstream young women to make self-sufficient and aware of the violence against women.	Conducting awareness activities against dowry, violence against women, programs on women safety laws, training for women self-employment, health frontline services etc
3	Differently abled clubs(YES)	14/1400	To reduce the social isolation of intellectually disabled persons and to encourage the various talents in them.	Conducting trip, interact with eminent persons and organizing various training camps
4	Transgender clubs (Marivillu)	14/1400	Mainstream of transgender people in the society, making them self-sufficient and encourage various talents in them.	Conducting seminars, art programs, various camps etc. to bring transgender people into the mainstream of the society.
5	Youth clubs (Yuva)	290/50000	To encourage the youth by activities that are useful to society and to make them actively involved in the field of social work.	Conducting various activities benefitted to the youth.

Source: Kerala State Youth Welfare Board

across the state have benefited and out of this 52,000 were women and 1400 were transgender. Financial assistance of Rs 5,000 is given to the activities of each club.

- **Keralotsavam:** Kerala State Youth Welfare Board organises Keralotsavam with the aim to provide an opportunity for the youth to express their talents in the field of culture, arts and sports. In this festival, youth in the age group of 15 to 35 years can participate in cultural, arts and sports competitions at block, district and State levels. Primary and district level programmes are conducted in all 14 districts. The winners get cash prize at LSGD level and district level and trophy for individual champions who achieve high points in the State level. In 2022-23, a total of 2996 contestants participated in 59 items of State level art competitions of Keralotsavam held at Kannur and 3625 contestants participated in the State-level Sports competition of Keralotsavam held at Kollam.
- **Kerala Voluntary Youth Action Force (Team Kerala):** The Kerala Volunteer Youth Action Force (KVYAF) is a volunteer force formed

with the aim of preparing youth volunteers to deal with natural disasters. As the first phase of formation of Kerala Voluntary Youth Action Force, a voluntary service team formed by the Kerala State Youth Welfare Board in the Local Self-Government institutions. The project of selecting captains at Panchayat/ Municipality/ Corporation levels and imparting training to them has been completed. Training was given to 1034 captains from all the districts of the State. In collaboration with Police, Fire & Rescue, Forest, Excise and Health Departments, trainings were provided in the areas of disaster management, first aid, sports training, personality development and palliative care. Besides the captains selected from Panchayat, Municipality and/Corporation, 2800 members were also selected from 14 Districts and trained. Uniform, shoes and cap are also prepared and given to them. 25 nos. of Team Kerala members participated in Republic Day parade in Kollam, Ernakulam and Thrissur districts on January 26, 2023. Passing out parade of 2131 volunteers of Team Kerala was inaugurated by Hon. Chief Minister of Kerala on February 23, 2023 at University Stadium Trivandrum. Team Kerala is

working with the objectives of bringing youth's own voluntary service force to the grassroot level, getting youth interested in volunteering, making them socially responsible, helping the local youth in relief operations in the event of calamities, epidemics and other emergency situation. The work of this force becomes an asset to our state. About 60000 youths will become the beneficiaries of this scheme and all sections of the society.

Other Youth Development Programme

The Board acknowledges the young achievers in various fields in the society by felicitating them with "Swami Vivekananda Yuva Prathibha Puraskaram". Best youth club award is given at district level and one among them is selected for award at the state level. The Board organised media camps for young journalists and journalism students. Various schemes have been implemented for the youth under various fields, and provided financial assistance to various youth projects and schemes implemented through District Youth Centres. Social media workshops and seminars were organised to create awareness among the youth about the emerging trends in media. Youth Journal Camp (Neranweshanam) was conducted at Malampuzha and Konni for making awareness about responsibilities of a good journalist. Under the banner of 'Anti-Drug Campaign Jana Sabha', awareness programmes against drugs were organized. Programmes to commemorate Environment Day, Gandhi Jayanthi, Independence Day, Anti- Narcotic Day and other important days were organised. In connection with FIFA World Cup, KSYWB conducted big Screen

exhibition in coordination with various clubs in all the 140 assembly constituencies in the State. The Board also publishes a magazine namely "Yuvatha" to spread awareness among the general public about the activities of the Board and the youth clubs.

Kerala State Youth Commission (KSYC)

Kerala State Youth Commission is a quasi-judicial body constituted in 2013 to empower the youth in Kerala and to protect their rights. It is functioning as a grant-in-aid institution under the Government of Kerala. The objective of the Commission is to guide, assist, provide and develop the youth in the State and serve as a protector of youth affairs and educate the youth to maintain the dignity of labour and also for securing better education and employment.

The main activities of Kerala State Youth Commission in 2022-23 are;

- Awareness programmes and campaign against intoxicants, abuse of drugs, alcoholism, cybercrimes, road safety and mental health under Project Co-ordinator in colleges/venues for youth and in SC/ST Colonies: In 2022-23, the "Youth Defence Force" conducted 500 programmes. About 50000 youth participated in these programmes and the Commission could spread out its messages among more than one lakh youth people in Kerala.
- **District seminars, symposiums and workshops:** The Commission aims to guide, assist promote and develop abilities of the youth to formulate and implement programmes for the prevention of consumption of liquor,

Box 9.2.3 Achievements of Kerala Youth Welfare Board in 2022-23

- In connection with the Government programme 'No to drugs' Kerala Youth Welfare Board conducted various programmes such as mass run, IT professionals campaign, cycle/bike rally, film production workshop, anti-drug march, sports activities etc.
- As a part of women empowerment, awareness classes were conducted in fourteen districts under the leadership of Avalidam clubs, covering various topics such as legal awareness, dowry and women safety.
- Under Adventure activities Trekking was conducted at Ranipuram, Kanjirakkolli, Chembrakkudi Peak, Kolukkumala, Paithalmala and Aralam wild Life Sanctuary.
- Three Skill development training programmes were also conducted at Kasaragod, Thrissur and Thiruvananthapuram, for the strengthening of Transgenders and 30 nos participated in the same.
- A short film festival called Reels - 2022 was organized and 158 films were screened and 30 short films were played. Ten films were selected for award. The final screening and award distribution of Reels - Short Film Festival was organized on 28 March 2023 at Thrissur Regional Theatre.
- State Level folklore song competition called "Maninadam" was conducted on the death anniversary of Shri. Kala Bhavan Mani at Chalakudi in Thrissur District.

Source: Kerala State Youth Welfare Board

narcotics and take necessary steps to bring up environmental protection, civic sense, democratic sense and legal literacy etc. In order to achieve the above objectives and to formulate ideas for implementing programmes for the welfare of the youth, the Commission conducted seminars at National level on various subjects. A national level seminar was conducted by the Commission Jaladharshini Hall, Kollam on the topic “Alternative Resistance Youth”. 75 selected delegates have participated and experts in different fields led the sessions as per their portfolio.

- **Adalath and local level sittings:** The Commission has been able to restore the rights of many youth through its intervention on complaints related with the injustice to the youth. A total number of 136 petitions received during the Financial Year 2022-23 and 23 cases were disposed of and action is being taken in the remaining cases.
- **Youth Icon Awards:** The Commission presents the Youth Icon Award to honour young people who have excelled in the fields of art, culture, literature, sports, agriculture, social work and entrepreneurship.
- **Empowering the Marginalised Youth and Health Protection:** In collaboration with the Department of Social Justice and the Department of Scheduled Tribes, the Commission aims to provide health awareness to tribal women and to promote the employment, health and social development of youth in the tribal colonies. As part of the programme, the Commission conducted health camps at the tribal settlements in Kottur, Thiruvananthapuram, Tirunelli, Wayanad, endosulfan distress area of Kasaragod, Valavanad in Alappuzha district and Palakkad. A training camp on martial arts was conducted at Kannur College of Commerce for 100 youth.

- **Youth Legal Support Centre:** The Youth Legal Support Centre is a scheme to provide services to the economically and socially backward youth and those in need of legal assistance through the toll free number 7511100900. A team comprising of two legal experts was selected and they have developed a platform in collaboration with Vodafone-Idea network services to facilitate the legal assistance to the youth in regular manner.

- **EMS Memorial Inter University Elocution Competition and National Youth Day programme:** Every year on January 12, the birthday of Swami Vivekanada is celebrated as National Youth Day. On the occasion of National Youth Day, the winners of EMS Memorial Inter University Elocution Competition are applauded and prizes are distributed.

- **Facilitation Programmes:** Green youth programme, waste disposal and virtual employment exchange are the facilitation programmes conducted by the Commission. The green youth programme aims to develop social, civic, demographic, and environmental consciousness among the youth through their collective endeavor, and to ensure a healthy life. In association with ‘Suchitwa Mission’ as part of this project the rivers, streams and springs, is being cleaned for effective public use and to organize youths against environmental pollution and to ensure the rejuvenation of water resources.

In 2022-23, under virtual employment exchange programme job fest was jointly conducted with Kerala Academy for Skills Excellence at Thrissur, Kasaragod, Pathanamthitta, Alappuzha and Wayanad districts. The details are as follows:

Kerala State Youth Welfare Board and Kerala State Youth Commission help the youth to translate

Table. 9.2.8 Participation in virtual employment exchange programme job fest in 2022-23

Sl No.	District	No. of Employers participated	No. of Candidates participated	No. of Candidates Short listed	No. of Candidates Selected
1.	Thrissur	45	1395	585	159
2.	Kasaragod	37	850	420	205
3.	Pathanamthitta	20	540	220	130
4.	Alappuzha	52	950	360	190
5.	Wayanad	55	1100	510	300
Total		209	4835	2095	984

Source: Kerala State Youth Commission

their ideas into action, through appropriate counselling and mentorship, so that they become economically productive and socially responsible citizens. These departments help youth to acquire new-age skills, relearning of conventional skills and learn soft skills to meet the needs of the changing market. They are also acknowledging the importance of physical and psychological wellbeing of each individual youth through their various activities.

In conclusion, the state of Kerala has made commendable efforts in promoting sports and youth welfare. Through investment in infrastructure, grassroots development programmes, and the nurturing of local talent, Kerala has emerged as a hub for sports enthusiasts and aspiring athletes. Sports tourism in Kerala has shown upward trend in the recent years. In order to compete in the sports tourism market, we must develop an insightful understanding about the benefits and impacts of sports tourism.

Sport has always been an important part of society, but it is now becoming an increasingly important part of the economy. Hence, there is a need for evaluating economic impact of sport and its basis in national income accounting. The economic contribution or impact of sport is reflected in the extent to which it changes measured GDP.

The Government's initiatives have not only contributed to the physical well-being of its youth but have also fostered a sense of unity and pride among the people. However, there is always room for improvement and further investment in facilities, coaching and sports promotion strategies can help Kerala continue its journey towards becoming a sporting powerhouse. With its rich history, cultural diversity and passion for sports, Kerala is poised to achieve even greater success in the field of sports and youth welfare in the years to come.

CHAPTER

10

KERALA DIASPORA

KERALA DIASPORA

Migration is the process of shifting within or across borders, temporarily or permanently. Migration can improve the quality of life of people, and accelerate economic prosperity.

A migrant is defined as a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons. (IOM, UN Migration).

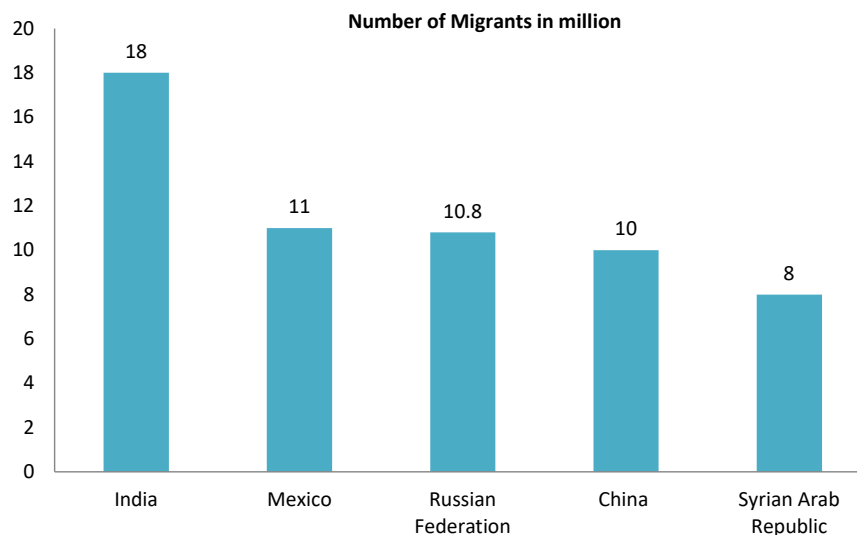
The current global estimate is that there were around 281 million international migrants in the world in 2020, which equates to 3.6 per cent of the global population.

United Nations (Recommendations on Statistics of International Migration) defines an international migrant as any person who has changed his or her country of usual residence, distinguishing between ‘short-term migrants’ (those who have changed their countries of usual residence for at least three months, but less than one year) and “long-term migrants” (those who have done so for at least one year).

Trends in International Migration

Overall, the estimated number of international migrants has increased over the past five decades. The total estimated 281 million people living in a country other than their countries of birth in 2020

Figure 10.1.1 The top 5 origins of migrants



Source: World Migration Report, 2022

was 128 million more than in 1990, and over three times the estimated number in 1970. (IOM, UN Migration).

The **Figure 10.1** shows the top five countries in the world of origin with respect to international migrants. With nearly 18 million people living abroad, India has the largest emigrant population in the world, making it the top origin country globally. Mexico is the second most significant origin country at around 11 million. The Russian Federation is the third largest origin country, followed closely by China (around 10.8 million and 10 million respectively). The fifth most significant origin country is the Syrian Arab Republic, with over 8 million people living abroad, mainly as refugees due to large-scale displacement over the last decade.

There is currently a larger number of male than female international migrants worldwide, and the gap has increased over the past 20 years. Men currently outnumber women as international migrants worldwide, and the gap has been widening over the past 20 years.

The percentage division between male and female migrants was 50.6 to 49.4 per cent (88 million male migrants and 86 million female migrants in 2000). In 2020, the split is 51.9 to 48.0 per cent, with 146 million male migrants and 135 million female migrants. The share of female migrants has

been decreasing since 2000, while the share of male migrants has increased by 1.4 per cent.

International Remittances

Remittances are financial or in-kind transfers made by migrants directly to families or communities in their countries of origin. Remittances data, however, do not capture unrecorded flows through formal or informal channels, and the actual magnitudes of global remittances are therefore likely to be larger than available estimates (World Bank, 2016).

Despite the initially projected 20 per cent decline in international remittances globally for 2020 (made in April of that year), the annual data show that there was only a slight dip in remittances globally (2.4% decrease) in 2020, amounting to USD 702 billion, down from USD 719 billion in 2019. However, the three consecutive years prior to 2020 witnessed an increase: from 2016 to 2019, global (inward) flows of remittances increased by an estimated 7.2 per cent, from USD 597 billion in 2016 to USD 640 billion in 2017, and by 8.4 per cent and 3.6 per cent from 2017 to 2018 (from USD 640 billion to USD 694 billion) and from 2018 to 2019 (from USD 694 billion to USD 719 billion), respectively. Consistent with this trend, remittances to low- and middle-income countries (which account for the majority of the global total) decreased in 2020 (from USD 548 billion in 2019 to USD 540 billion) after the positive trend from

Table 10.1.1 Top 10 countries receiving international remittances (2005–2020) (current USD billion)

2005		2010		2015		2020	
China	23.63	India	53.48	India	68.91	India	83.15
Mexico	22.74	China	52.46	China	63.94	China	59.51
India	22.13	Mexico	22.08	Philippines	29.80	Mexico	42.88
Nigeria	14.64	Philippines	21.56	Mexico	26.23	Philippines	34.91
France	14.21	France	19.90	France	24.07	Egypt	29.60
Philippines	13.73	Nigeria	19.74	Nigeria	20.63	Pakistan	26.11
Belgium	6.88	Germany	12.79	Pakistan	19.31	France	24.48
Germany	6.86	Egypt	12.45	Egypt	18.33	Bangladesh	21.75
Spain	6.66	Belgium	10.99	Germany	15.58	Germany	17.90
Poland	6.47	Bangladesh	10.85	Bangladesh	15.30	Nigeria	17.21

Source: World Migration Report 2022

2016 to 2018 (from USD 441 billion in 2016 to USD 478 billion in 2017 and USD 524 billion in 2018)¹.

In 2020 India, China, Mexico, Philippines and Egypt were (in descending order) the top five remittance recipient countries, although India and China were well above the rest, with total inward remittances exceeding USD 59 billion.

Remittances in India and Kerala

Remittances are the second major source of external financing for low and middle-income countries after foreign direct investment. Its effect on household income and contribution to financial asset building to improve people's quality of life is well recognised in the literature (Azizi, 2021; Basnet et al., 2021; Ogunniyi et al., 2020).

As per the 5th Round survey of RBI on remittances, the share of remittances from the GCC region in India's inward remittances is estimated to have declined from more than 50 per cent in 2016-17 (last surveyed period) to about 30 per cent in 2020-21.

According to the World Bank Report on Migration and Remittances (World Bank, 2021b), remittance flows to low and middle-income countries declined marginally to US\$540 billion in 2020, only 1.6 per cent below the US\$548 billion in 2019. India, being the top recipient country, was expected to be one of the worst affected (projected decline of 23 per cent) (World Bank, 2020) as its host country basket was vulnerable to the twin effect of economic slowdown and slump in oil prices.

The share of the traditional remittance recipient states of Kerala, Tamil Nadu and Karnataka, which had strong dominance in the GCC region, have almost halved in 2020-21, accounting for only 25 per cent of total remittances since 2016-17, while Maharashtra has emerged as the top recipient state surpassing Kerala.

Apart from host country dynamics, narrowing of wage differentials, increase in white-collar migrant workers to the GCC region, influx of low-wage semi-skilled workers from other states and Asian countries, and changes in employment patterns in these states might have lead to this structural change.

Table 10.1.2 State-wise Share in Inward Remittances, 2020-21

Sl No	Destination State	Share in total remittances (Per cent)
1	Maharashtra	35.2
2	Kerala	10.2
3	Tamil Nadu	9.7
4	Delhi	9.3
5	Karnataka	5.2
6	Andhra Pradesh	4.4
7	Uttar Pradesh	3.7
8	Gujarat	3.2
9	Punjab	3
10	Jharkhand	1.9

Source: RBI Remittances Survey, 2021

Migration in India

"Migrants are those whose last usual place of residence is different from the present place of enumeration. Usual place of residence is the place (village/town) where the person stayed continuously for a period of 6 months or more or intends to stay for 6 months or more" (Migration in India 2020-21, Periodic Labour Force Survey).

According to World Migration Report 2022, with nearly 18 million people living abroad, India has the largest emigrant population in the world, making it the top origin country globally. Mexico is the second most significant origin country at around 11 million².

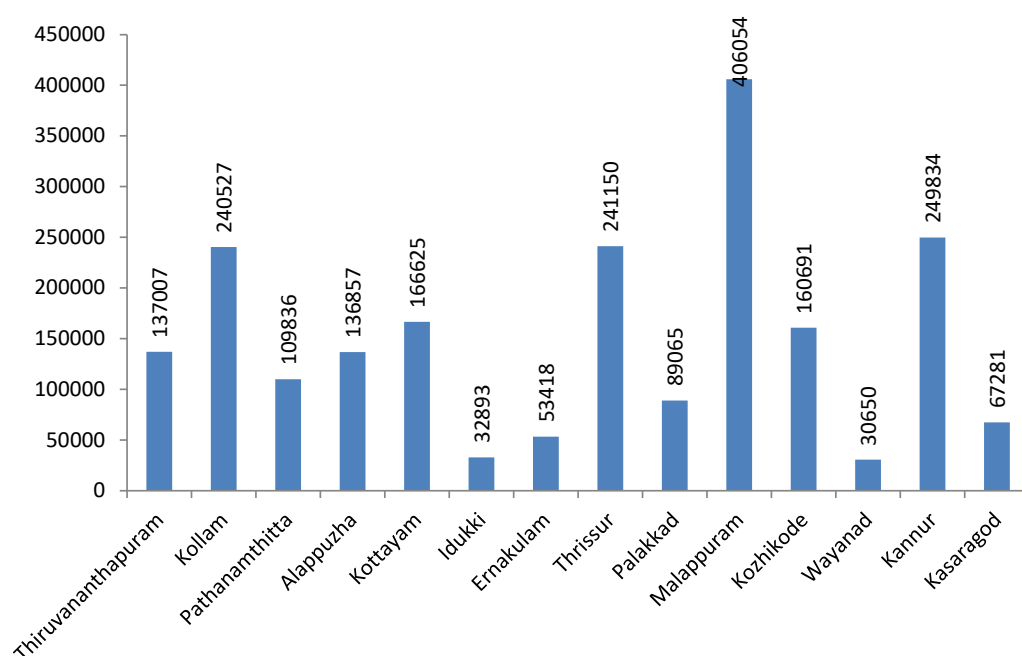
Migration from Kerala

As predicted in 2013, the Kerala Migration Survey (KMS) shows a decline in emigration. The total number of emigrants in 2013 was 24 lakh and it reduced to 21 lakh in 2018. This recorded a decrease of around 12 per cent from 2013 to 2018. The number of return emigrants estimated by KMS 2018 is 12.95 lakh, which is about 60 per cent of the total number of emigrants from Kerala. KMS 2018 has confirmed the trend that was observed in the last round – that emigration from Kerala is falling and return migration is on the rise.

¹IOM, UN Migration, World Migration Report, 2022

²RBI Bulletin July 2022

Figure 10.1.2 District-wise NRKs in Kerala 2018



Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

District wise emigrants

Figure 10.1.2 shows the District-wise emigrants from Kerala in 2018. Malappuram District had the highest number of emigrants (4.06 lakh) followed by Kannur (2.49 lakh), Thrissur (2.41 lakh) and Kollam (2.40 lakh). The two hilly districts of Kerala, Wayanad and Idukki, have the lowest number of emigrants. They are 0.36 lakh and 0.32 lakh respectively.

District-Wise Details of Emigrants in Kerala 2013 and 2018

District-wise details of emigrants from Kerala in 2013 and 2018 are given in **Figure 10.1.2**. The total number of emigrants in Kerala has decreased from 24 lakhs in 2013 to 21 lakhs in 2018. That is a decrease of 11 per cent within the time span of 5 years. Of these, Ernakulam District shows a decline of 72 per cent (**Appendix 10.1.1**)

Though an overall declining trend is currently being shown, the number of emigrants has increased in the districts such as Wayanad, Palakkad, Thrissur, Kottayam, Idukki, Alappuzha, and Kollam.

Figure 10.1.3 shows the number of emigrants from 2013 to 2018 in five year intervals. During 2015-2018, the number of NRKs decreased by

2.78 lakh. The details of emigrants from various districts from 1998 to 2018 (5 year interval) are shown in **Appendix 10.1.2**.

Return Migration

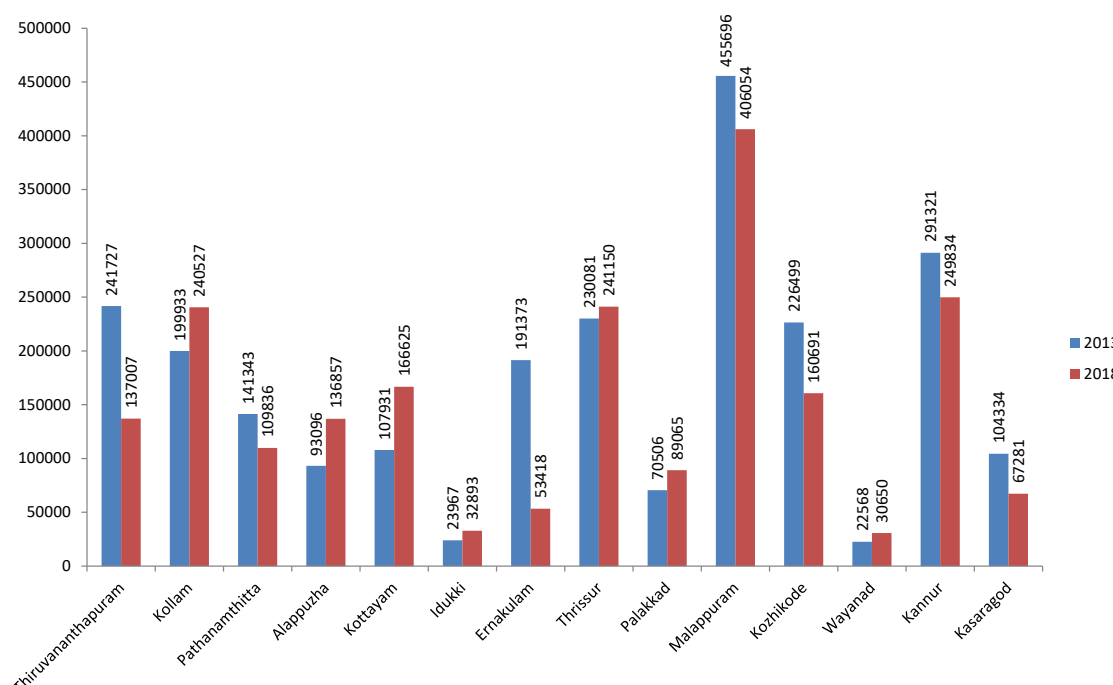
Return migrants are defined as persons who have lived outside Kerala for at least six months either for work or study or any other purposes (including accompanying spouses and parents) and now live in a household in Kerala. According to Kerala Migration Surveys, about 90 per cent of Kerala migrants leave for the Gulf for temporary contract employment. As the Gulf countries do not provide citizenship, all of them have to return to Kerala once their contract expires (Zachariah K.C., Rajan S. Irudaya, January 2019³).

Emigration Trends in Kerala

According to the Kerala Migration Survey 2018, there are 21,21,887 emigrants from Kerala across the world. That is 1.49 lakh persons less than the 2016 KMS and 2.78 lakh persons less than 2013 KMS data. Furthermore, there has been a reduction in emigration for the last ten years. It shows that the rate of growth of emigration is continuously decreasing since 2008. Although

³Zachariah K.C., Rajan S. Irudaya, January 2019: 'Emigration and Remittances: New Evidences from The Kerala Migration Survey, 2018'

Figure 10.1.3 Total number of emigrants in Kerala in 2013 and 2018



Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

a negative trend in migration is observed since 2008, it can also be noted that there was a positive growth in some years particularly in the year 2011 and 2013. More than 87000 people have emigrated more during the period from 2008 to 2011 and nearly 1.2 lakh more during the period from 2011 to 2013. The **Table 10.1.3** shows the inter survey change of the migrants.

Table 10.1.3 Emigrants and Inter Survey Change

Year	EMI	Inter survey difference	Increase/Decrease
1998	1361919	-	
2003	1838478	476559	25.9
2008	2193412	354934	16.2
2011	2280543	87131	3.8
2013	2400375	119832	5.0
2016	2271725	-128650	-5.7
2018	2121887	-149838	-7.1

Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

The inter-survey growth rate since 1998 has dropped. The inter survey differences vary from one interval to another from 4.7 lakh (1998) to -1.4 lakh (2018). It has shown positive growth for the

first four periods and negative growth for the last periods.

The diaspora plays an important role in socio-economic spheres in Kerala. The Government of Kerala has development-oriented and social justice-based projects and schemes for NRKs and NRK returnees.

NORKA Roots

NORKA Roots, earlier known as Non Resident Keralites Welfare Agency (NORKWA, is a field agency, working under NORKA department since 2002. The key objective of agency is to ensure NRK welfare and to serve as a single kiosk for all information pertaining to them.

Major Schemes of NORKA Roots Santhwana

It is a onetime assistance scheme. The NRK who applies for the Santhwana scheme should have worked abroad for not less than two years. The annual family income of the applicant/ beneficiary should not exceed 1.5 lakh rupees. The scheme can be availed for medical treatments (up to 50,000), death assistance (up to 1,00,000/-) marriage assistance (up to 15,000), and purchase of physical aids to combat disability (up to 10,000).

Under the Santhwana scheme, An amount of Rupees 26.19 crore has been sanctioned to 4016 beneficiaries in the financial year 2022-23.

Rehabilitation of Returnee Migrants (NDPREM)

To support the rehabilitation of returned migrants, Government has formulated a scheme namely 'Norka Department Project for Return Emigrants (NDPREM)' with a view to provide sustainable livelihood for return emigrants by promoting self-employment ventures. As part of initiating the project, applications are invited from prospective entrepreneurs among return migrants who wish to start their own ventures in the fields of agri-business, trading, services and manufacturing. Under the scheme, capital subsidy of 15 per cent would be sanctioned for projects having capital outlay up to 30 lakh per individual applicant. There is provision for giving interest subsidy at the rate of 3 per cent for the first 4 years provided the unit is in operation.

NDPREM scheme has 1200 beneficiaries in financial year 2022-23 and an amount of Rupees 16.29 has been expended through this scheme in the last financial year.

More than 6600 enterprises were started through this scheme.

Rehabilitation, Re integration and coordination of NRKs

This is designed to rehabilitate, re-integrate and co-ordinate NRKs into a new and successful life. One of the most important objectives of the government is to provide them new jobs or

opportunities for those who want to re migrate to other countries so that they can earn a regular income. The following are the rehabilitation proposals envisaged under the scheme.

Pravasi Bhadrata is a scheme launched in the financial year 2021-2022 for those who have returned home after losing their jobs due to Covid-19 and who are willing to be self-employed. Funding is provided through three sub-schemes namely PEARL, MICRO and MEGA.

During the financial year 2022-23 total number of beneficiaries under the scheme was 7359 and the amount of Rs 27.65 crore has been spent for the scheme.

Loka Kerala Sabha

The Government of Kerala has decided to constitute Loka Kerala Sabha (LKS) as a common platform for Keralites living across the globe; it is envisaged as a platform for the cultural, socio-political and economic integration of these myriad Keralites with the home Kerala.

Although Kerala has grown beyond the state borders and spread all over the world, Kerala administration and power still remain completely regionally centric. The Loka Kerala Sabha aims to solve this deficiency.

The Loka Kerala Sabha is a platform where the representatives of Malayalis from other states and foreign countries come together to discuss the problems of Kerala and the Diaspora with the people's representatives. The Loka Kerala Sabha is a modern democratic platform for making

Box 10.1.1 Interventions made by Norka ROOTS in the current war situation

After October 7, 2023, NORKA Roots officials, the NORKA Department and the Ministry of Foreign Affairs of the Central Government intervened together to bring back Malayali expatriates from Israel and Palestine.

Following this, Operation Ajay was started to evacuate Indians from conflict-affected areas of Israel and Palestine and the Indian Embassy in Israel was notified to register the names of Indians who want to return home.

By 23.10.2023, 123 NRKs had arrived in Delhi and they were received at the airport by the officials led by the Development Officer of Delhi NORKA Roots and provided necessary assistance. Of these, 99 people were brought to Kerala by NORKA Roots and 24 NRKs came home from Delhi at their own expense.

Source: SC Development Department, 2023

Table 10.1.4 KNRKWB - Details of pension sanctioned for the year 2021-22, 2022-23 and 2023-24 (up to October 2023)

Year	Total number of registrants	Number of pensioners	Amount (Rs.)
2021-22	64151	23117	525820325
2022-23	90354	34061	1244199081
2023-24 (October 2023)	35618	41471	982469217

Source: KNRKWB, Government of Kerala

constructive suggestions and contributions to the development of Kerala and bringing the issues of diaspora into the limelight.

So far 3 Loka Kerala Sabha conferences have been organized. (January 12to13, 2018, January 1to3, 2020, June 16to18, 2022). Currently, the last organized Loka Kerala Sabha of 2022 has 351 members including 182 non-resident representatives.

Kerala Non Resident Keralites Welfare Board (KNRKWB)

Kerala Non Resident Keralites' Welfare Board is a statutory Board of Government of Kerala constituted under the Non Resident Keralites' Welfare Act, 2008 for the purpose of carrying out activities for the welfare of the Non Resident Keralites' (NRKs). The Board is implementing the schemes envisaged under the Non Resident Keralites' Welfare Scheme, 2009 notified as per the provisions of the Act. A Welfare Fund is established as per the provisions of the Act and the Scheme for implementing the welfare activities.

The Board provides various assistance such as pension, family pension, invalid pension, death assistance, treatment assistance, marriage assistance, educational assistance and maternity assistance to its members of welfare boards.

The pension details provided by NORKA Welfare Board are described in the table given below.

The Table 10.1.4 shows that, the total number of registrants and pensioners from the year 2021-22 to 2023-24 up to October 31, 2023. It is evident from the table that, during the financial year 2021-22, more than ₹52 crore has been spent for 23117 members and in the year 2022-23 more than ₹123 crore has been spent for 34061 members through NORKA Welfare Board in the form of pension. As of October 2023-24, more than ₹98 crore has been spent on pension for 41471 members.

There is a transparent and secure online facility to enrol and pay dues in Pravasi Welfare Fund from anywhere in the world.

Pravasi Dividend Scheme

Kerala Non Resident Keralites' Welfare Board in collaboration with KIIFB is implementing Pravasi Dividend Scheme which is a long-term investment scheme to effectively utilize NRK investments for the development of the native land.

Pravasi Dividend Scheme offers lifetime financial and social security for NRKs and their spouses. This income guarantee scheme is well received by the NRK communities. Under this scheme, so far more than ₹323 crores have been collected and transferred to KIIFB.

Contributions made by non-residents for the development of Kerala cannot be measured only financially. The Kerala government has introduced and implemented many schemes for the welfare of Non Resident Keralites. However, considering the special features of this sector, it is necessary to pay more attention to this sector. NORKA Roots infrastructure, lack of accurate data on NRKs and problems of Malayalis living in other Indian states need to be addressed.

The Kerala Knowledge Mission has been set up by the Government of Kerala to transform Kerala into a knowledge-based economy. Returning NRKs look forward to the various investment opportunities for non-residents to accelerate capital growth in Kerala.

CHAPTER

11

INFRASTRUCTURE

INFRASTRUCTURE

11.1 TRANSPORT

Transport is critical for the economic development of any country and it impacts the pace, structure and pattern of development. Road transport is considered to be one of the most convenient and preferred mode of transportation, both for freight and passengers, keeping in view its level of penetration into populated areas and last mile connectivity. Thus, it is vital for economic development and social integration of the country. Roads supplement the other modes of transport through last-mile connectivity to the far-flung regions of the country. Road transport also acts as a feeder service to railway, shipping and air traffic.

Road Network in India

India has the second-largest road network in the world after US, spanning a total of 6.3 million kilometers. Road network has been growing over the years with improvement in connectivity between cities, towns and villages in the country. Easy availability, adaptability to individual needs and the cost savings are some of the factors which go in favour of road transport. India's road network comprises of National Highways, Expressways, State Highways, District Roads, Rural and Urban Roads and Other District Roads constructed by Government departments like Forest, Railways, etc. The total length of road network in India is given in **Table 11.1.1**.

Table 11.1.1 Road Network in India

Sl. No	Particulars	Length of Road (in km)
1	National Highways/ Expressway	1,44,955
2	State Highways	1,67,079
3	Other Roads	60,19,757
	Total	63,31,791

Source: Annual Report 2022-23, MoRTH

The National Highways have a total length of 1,44,955 km, which in totality serve as the arterial network of the country. The development of National Highways is the responsibility of the Government of India. National Highways are upgraded and strengthened through various phases of the National Highways Development Project (NHDP) and through the umbrella program of 'Bharatmala Pariyojna' and other schemes and projects.

The State Highways (SHs) are intended to carry the traffic along major centers within the State. Major District Roads (MDR) provide the secondary function of linkage between main roads and rural roads. The Other District Roads (ODR) and Village Roads provide accessibility to the towns and villages to meet their social needs and also the means to transport agriculture produce from villages to nearby markets.

Roads in Kerala

The State has a total road length of 2,35,643.36 km. This includes classified and non-classified roads as stipulated by Indian Road Congress. The Road density in Kerala is 545 km per 100 sq. km, which is roughly three times the national average. The length of road per lakh population is 705 km. The National Highways, considered to be the primary network, carries 40 per cent of the total traffic, and the State Highways and Major District Roads (MDRs), the secondary road network carries another 40 per cent of the road traffic. Thus about 13 per cent of the road network handles almost 80 per cent of the traffic in the State. The major development indicators of transport & communication sector in the State since 2013 are given in **Appendix 11.1.1**.

There are 11 National Highways (NHs) in the State having a total length of 1,781.56 km. Out of this, the NH wing of State PWD upkeeps 552.32 km of the National Highways and the remaining 1,229.24 km is maintained by the National Highway Authority of India (NHAI) under Ministry of Road Transport and Highways (MoRTH). The district-wise status of roads maintained by PWD (NH) wing is given in **Appendix 11.1.2** and the length of National Highways in the State is provided in **Appendix 11.1.3**.

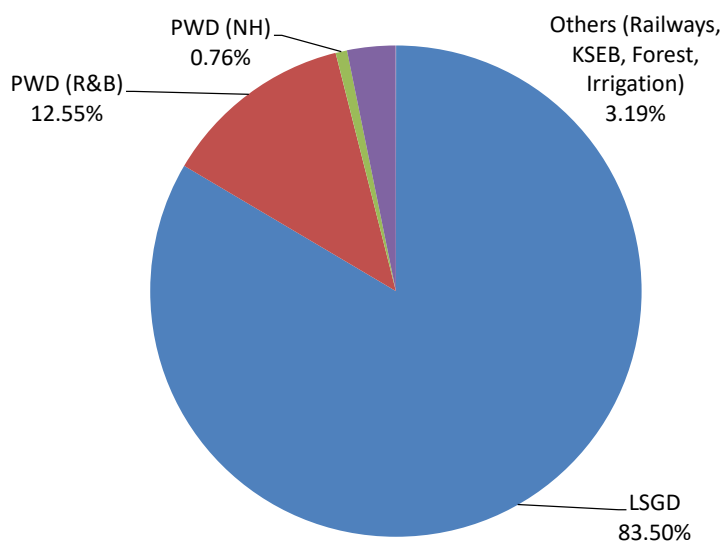
The major roads in the State are developed and maintained by the State Public Works Department. The total length of roads maintained by Public

Works Department (PWD)- Roads and Bridges (R&B) is 29,573.16 km in 2022-23. This comprises of 4,128.38 km (13.95 per cent) State Highways and 25,444.78 km (86.04 per cent) of Major District Roads (MDRs). Out of the total length of the State Highways, 898.74 km is four lanes, 3,193.50 km is two lanes and remaining 35.75 km single lane roads. The Major District Roads covers 25,444.78 km, of which, 52.51 km of roads are four lanes, 10,593.03 km two lanes and 14,748.46 km single lane roads. Local Self Government own and operate 83.50 per cent of the total road network in the State whereas the PWD (R & B) maintains 12.55 per cent of roads. The PWD (NH) wing upkeeps 0.76 per cent of the total length of national highways in the State and the remaining 3.19 per cent of roads are called other roads which are constructed and maintained by Railways, Irrigation, KSEB, Forest and Dewasom departments.

Apart from construction of roads, the Roads wing of Public Works Department focuses mainly on road improvements, repair & maintenance of existing roads, relaying and up gradation of roads with a view to address geometrical & junction improvement for bettering the riding quality and road safety.

Development and improvement of roads for a total length of 16,456 km have been carried out by Roads wing using Bitumen Macadam (BM) and Bitumen Concrete (BC). In 2022-23, 419.71 km of

Figure 11.1.1 Length of Roads Maintained by Different Agencies, in Per cent



Source: Various Departments

roads were resurfaced with chipping carpet, 628 km of road works was done using plastic waste and 1465.10 km using Natural Rubber Modified Bitumen (NRMB) and Geotextiles was used in 37.05 km of roads for stabilisation

Kottayam District has highest share of PWD (R &B) roads with 3,040.15 km (10.28 per cent). Wayanad District is at the bottom with share of 913.97 km (3.1 per cent). Details of district wise category and surface wise length of roads maintained by PWD (R&B) are given in **Appendix 11.1.4** and **Appendix 11.1.5**. Agency wise details of roads developed and maintained in the State is depicted in the **Figure 11.1.1**.

The total length of roads maintained by different local bodies in 2022-23 is 1,96,773 km., of which 1,70,101 km (86.44 per cent) is maintained by District and Grama Panchayats, 18,139 km (9.2 per cent) by Municipalities and 8,533 km (4.3 per cent) is maintained by the corporations. Roads maintained by various local bodies are given in the **Table 11.1.2**.

The PWD (Bridges) wing maintains a total of 2,831 bridges along State Highways (546 Bridges), Major District Roads (2,135) and Other District Roads Village Roads and Railway Over Bridges (ROB) (150 Bridges). The wing focus on the construction of aesthetic bridges. Bow string arch bridges, Extadosed bridges, integral and semi-integral bridges using modern technology. In 2022-23, the bridges wing had completed the construction of 35 bridges at a cost of Rs 258.72 crore. The recent achievement of the wing is the completion and opening of the Valiyazheekkal Bridge which is of 981 meter long, having bow string arch of 110 meter span and 12 meter height to facilitate water transport.

The department envisions to provide connectivity to inaccessible habitats like tribal settlements, islands and to reconstruct damaged bridges. Conversion of old bridges that have become obsolete into rest places and tourism attraction. Illumination of bridges across Kerala in international standard and projects to utilise under side space of ROB's as shuttle court, tennis court, turf, and resting places for the aged are the novel initiatives of the department. Details of bridges and culverts constructed by PWD (Bridges) wing as on August 31, 2023 is given in **Appendix 11.1.6**.

For the first time in the country, the State Public Works Department has brought out a draft design policy with the slogan 'Future by Design'. The draft policy aims to transform Kerala into a visually appealing State with a special focus on creating unique vision design for Government buildings. The key idea behind the policy is to ensure that construction align with the specific climate of each region and preserve its heritage. The department is planning to take the initiative forward to make Kerala a global design hub.

Road Traffic

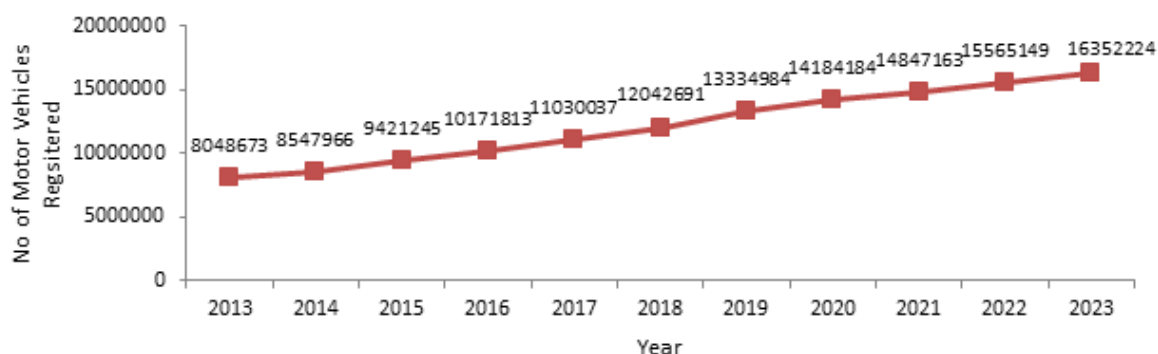
The number of motor vehicles having valid registrations as on March, 2023 is 163.52 lakh as against 155.65 lakh in the previous year, a growth of 5.06 per cent. The number of vehicles per 1,000 population for Kerala as on March, 2023 is 490. As of March, 2023, the total number of two wheelers (Motor Cycles/Scooters/Mopeds) registered in the State is 106.79 lakh and there are 7.28 lakh auto rickshaws and 34.62 lakh cars in the State. There are 79,621 contract carriages (including Omni bus) and 50,168 stage carriages are registered in the State as of March, 2023. The number of newly registered vehicles in 2022-23 is 7.87 lakh (7.18 lakh in 2021-22). The details are given in

Table 11.1.2 Roads maintained by various Local Bodies, in km

Sl.No	Local Body	Black Topped	Concrete / cement road	Earthen road	Total
1	Corporations	6,482	1,620	431	8,533
2	Municipality	12,089	3,189	2,861.	18,139
3	District Panchayat	12,306	327	533	13,165
4	Block Panchayat	No Road Asset for Block Panchayat			
5	Grama Panchayat	80,169	23,639	53,127	1,56,936
Total		1,11,046	28,775	56,952	1,96,773

Source: LSGD

Figure 11.1.2 Growth in number of Motor Vehicles, since 2013



Source: VMotor Vehicles Department, GoK

the **Appendix 11.1.7** and **Appendix 11.1.8**. The growth in the number of motor vehicles in the last ten years since 2013 is shown in **Figure 11.1.2**.

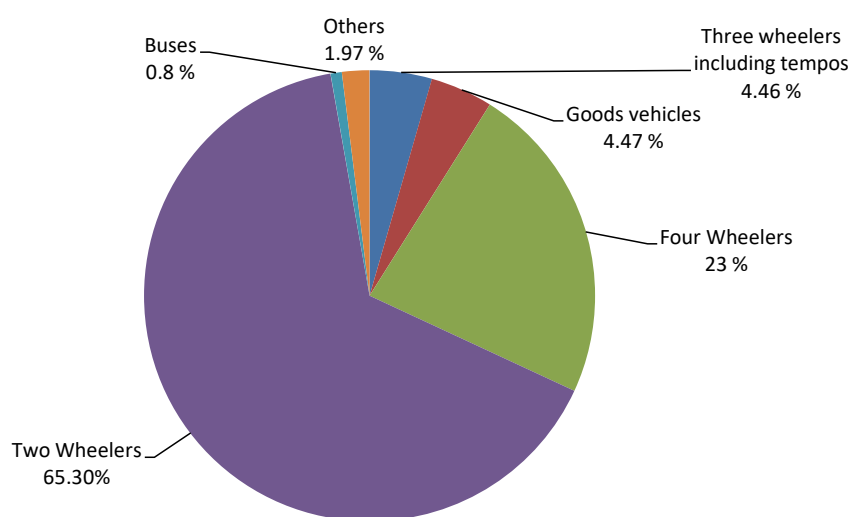
The highest vehicle population was recorded in Ernakulam District with 23.22 lakh vehicles (14.2 per cent) followed by Thiruvananthapuram with 20.31 lakh (12.42 per cent). Wayanad District has the lowest number of 2.75 lakh vehicles (1.68 per cent). The District-wise growth in number of motor vehicles in Kerala is given in **Appendix 11.1.9** and the category-wise growth of motor vehicles in Kerala in 2012-13 to 2022-23 is given in **Appendix 11.1.10**. The mismatch between growth in motor vehicles and the capacity augmentation of roads has resulted in increasing traffic congestion and road accidents throughout Kerala. Distribution

of motor vehicles registered in the State by type in 2022-23 is given in **Figure 11.1.3**.

E-Mobility

The State has been actively pursuing greener policies and environment-friendly programs. The adoption of electric mobility on a mass scale has benefited the State both environmentally and financially. Kerala is witnessing a growing inclination towards electric vehicles (EVs) and the total number of electric vehicles registered in the State from January to August, 2023 is 50,315 as compared to 39,576 in the previous calendar year. As of August, 2023, the total number EVs in the State is 98,332 which constitutes 0.6 per cent of the total number of vehicles registered.

Figure 11.1.3 Distribution of Motor Vehicles Registered by type, 2022-23, in per cent



Source: Motor Vehicles Department (MVD)

The growth in the number of registrations of electric motor cycles or scooters and motor cars in the State is noteworthy. The number of electric motor cycles or scooter increased from 33,226 in 2022 to 41,483 as in August 2023. In the case of electric motor cars also, the State witnessed an increase from 3,787 in 2022 to 6,360 as on August, 2023. The e-vehicle registration details in Kerala in 2022 and 2023 (up to August, 2023) is given in **Appendix 11.1.11**.

The State is extensively promoting electric vehicles (EVs) for the use in Government offices. Motor Vehicles Department (MVD) and other departments have switched to 'Plug-in Electric Vehicles' on dry-leased from the Energy Efficiency Services Ltd (EESL), a Central Government institution under the Ministry of Power, through the Agency for Non-Conventional Energy and Rural Technology (ANERT).

Road Safety

The major road network of Kerala, though well connected, faces severe constraints because of the urban sprawl and the haphazard ribbon development all along the routes. The existing traffic levels at most stretches are excessive and beyond the road capacity. The traffic on roads is steadily increasing and creating pressure on road network. Capacity augmentation of existing roads is beset with problems relating to limited right of way and land acquisition.

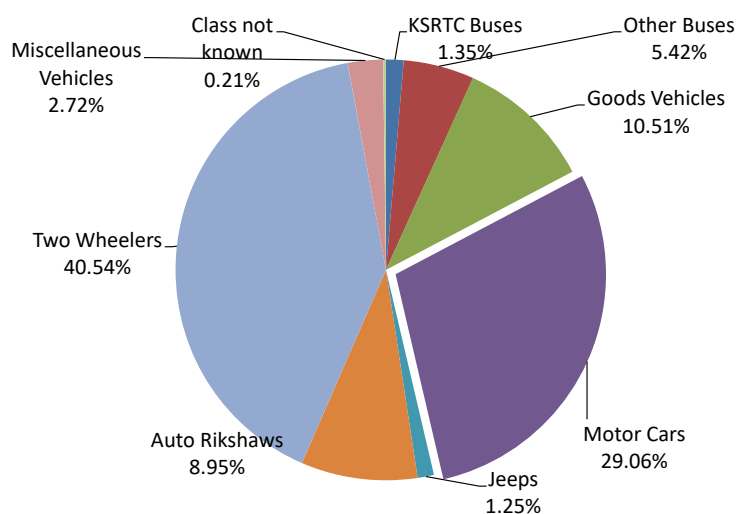
According to State Crime Records Bureau (SCRB), 4,317 deaths and 49,307 injuries were reported

in Kerala in 2022 from 43,910 road accidents. Thiruvananthapuram district reported the highest number of fatalities (543) in 2022 whereas Wayanad reported the least number (67) in 2022. As per the records of the SCRB, 2,776 deaths were reported in the State due to 32,073 motor vehicle accidents from January to August, 2023.

Road accidents are attributed mainly to rash driving, bad road conditions, unfit vehicle conditions and unfavorable environment. Road Safety being a complex issue, it requires consistent, prolonged and concerted efforts from various stakeholders to achieve the goals. Despite various road safety initiatives and enforcement measures taken by the Motor Vehicles Department and Police, increase in the number of road accidents at an alarming rate, especially that involving two wheelers, is a cause of concern. The District-wise motor vehicle accidents occurred in Kerala in 2022 and the category-wise details of motor vehicles involved in those road accidents are given in **Appendix 11.1.12** and **Appendix 11.1.13** respectively.

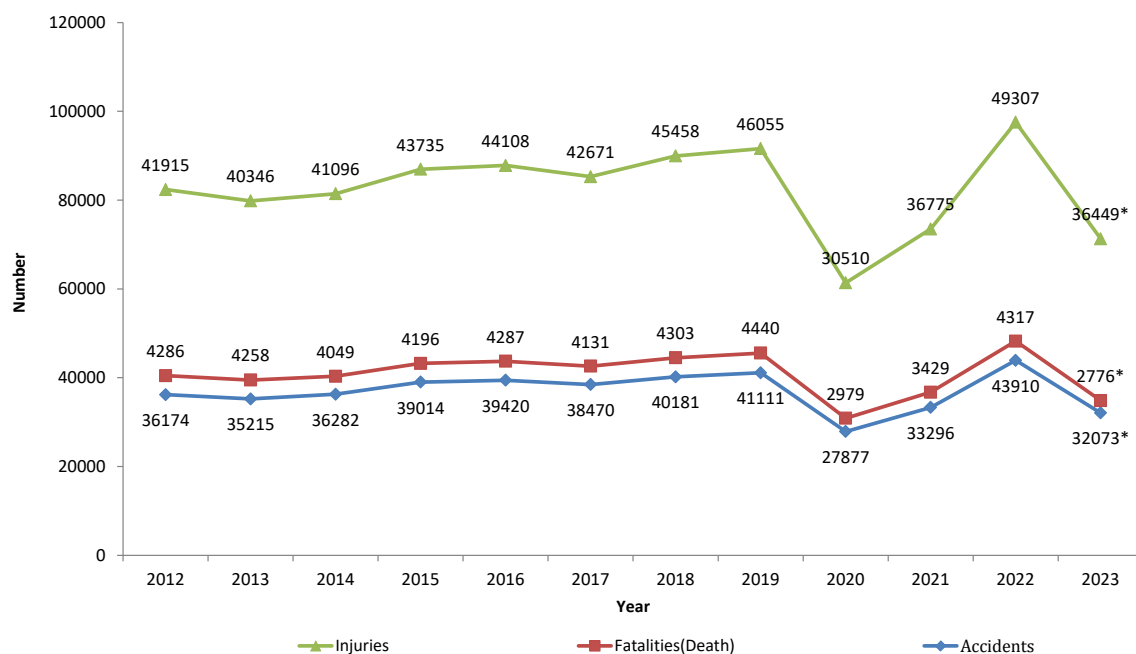
Majority of road accidents are by two wheelers that constitute 40.5 per cent of accidents occurred in the State in from January to August, 2023. The number of traffic accidents involving two wheelers was 17,789 (49 per day) in 2022 and it is 13,001 from January to August, 2023 (about 53 accidents per day). The percentage of vehicle category- wise accidents that occurred between January and August, 2023 in Kerala is shown in **Figure 11.1.4**.

Figure 11.1.4 Details of road accident by vehicle type in Kerala, January to August, 2023, in per cent



Source: State Crime Records Bureau

Figure 11.1.5 Trend in Motor Vehicle Accidents, Fatalities and Number of persons injured in Kerala, 2012 to 2023



*Details as on August, 2023

Source: State Crime Records Bureau (Kerala) & Ministry of Road Transport & Highways (Government of India)

A total of 2,936 bus accidents were registered in the State in 2022. In the calendar year 2022, KSRTC buses involved in 551 accidents and other buses in 2,385 accidents. Trend of motor vehicle accidents, injuries and deaths reported in Kerala over a period from 2012 to August, 2023 is presented in **Figure 11.1.5**.

The trend of motor vehicle accidents in the State from 2012 to August, 2023 reveals that the

number of accidents in the State has remained almost constant up to 2018, there was a surge in 2019 but declined substantially in 2020 and then increased from 2021 onwards. The rate of accident in the State was 196 per lakh vehicles registered in 2020, which increased to 224 in 2021 and 282 in 2022. The motor vehicles department has registered 15,66,629 cases of violation of motor vehicle rules including over speeding and red-light violation from June to September 2023 and an

Box 11.1.1 Fully Automated Traffic Enforcement System using AI Cameras

In an attempt to reduce road accidents and to check traffic rule violations by strengthening enforcement activities, the Motor Vehicles Department under the Safe Kerala Project had implemented the Fully Automated Traffic Enforcement System on June 5, 2023 by installing 726 cameras with modern ANPR (Automatic Number Plate Recognition), AI (Artificial Intelligence) based detection system with deep learning capacities that detects a variety of offences not detected by the conventional speed and red-light jumping cameras. The AI cameras predominantly capture the violations like non-wearing of helmets by the both rider and the pillion in two wheelers, commuting of more than two persons in two wheelers, use of mobile phones by drivers in all vehicles and also non-wearing of seat belts, all of which have been identified as a major cause of accident in the State.

Decrease in the number of fatalities on roads consequent upon the implementation of AI cameras is noteworthy. The number of fatalities due to road accidents from June to August 2022, i.e., prior to the installation of AI cameras was 964. It has decreased to 904 from June to August, 2023 post the installation of cameras. Apart from the fatality rates, the incidents of grievous injuries also have seen a reduction, as per sources from trauma care units functioning in the State. The number of Road Traffic Accident (RTA) cases attended in casualty in June, 2022 was 6,610, which declined to 6,333 in June, 2023 post the installation of AI enabled camera monitoring system.

Source: Motor Vehicles Department (MVD) & State Crime Records Bureau (SCRB)

amount of Rs 14,98,30,750 was collected as penalty for the violation of motor vehicle and road rules in the period. Among districts, Thiruvananthapuram (2,47,558 cases) reported the highest number of incidents of traffic rule violations followed by Malappuram (1,72,076) and Thrissur (1,59,627). Wayanad (41,022) district reported the least number of violation incidents in the period from June to September, 2023. Details of Fully Automated Traffic Enforcement System using AI Cameras implemented by the Motor Vehicle Department is given in **Box.11.1.1**.

As per the records with the police department and crime records bureau, most of the accidents are attributable to the fault of drivers. However, deficiencies in road design also affect motor vehicles, a fact generally overlooked as bad road conditions. Road safety training for various categories of road users, rectification in road design, deficiencies in inclusion of road safety aspects in the planning and operation stages of road construction are the primary facts to be taken up for reducing accidents. National Transportation Planning and Research Centre (NATPAC) under the Kerala State Council for Science Technology and Environment (KSCSTE) had identified 4,592 accident black spots and hazardous locations across the State in the year 2021 based on the accident data for the years 2018-2020 collected from Kerala State Crime Records Bureau. As per the report submitted to the Kerala Road Safety Authority (KRSA), Ernakulam district has highest number (703) of accident black spots, followed by Thiruvananthapuram district (694) and Thrissur (548) districts. Identification, analysis and treatment of black spots are widely regarded as one of the most effective approaches in preventing road crashes. NATPAC at the instance of Kerala Road Safety Authority (KSRA) had also identified a total of 323 vulnerable road corridors on National Highways and State Highways in Kerala, of which, 149 corridors were on the National Highways and 174 corridors on the State Highways in Kerala.

Road Improvements

The State PWD is primarily responsible for policy formulation, planning, design, construction and maintenance of the State Highways, Major District Roads (MDRs) and the National Highways on behalf of the National Highway Authority of India (NHAI). Kerala State Transport Project (KSTP),

Kerala Road Fund Board (KRFB), Roads and Bridges Development Corporation of Kerala Ltd (RBDCK) and Road Infrastructure Company Kerala Limited (RICK) are also involved in the implementation of road projects in the State.

The main source of funding for National Highways maintenance is Government of India assistance. The Central Road and Infrastructure Fund (CRIF) allocate funds based on weightage based on the geographical area of the States/Union Territories. Under CRIF, MoRTH approves the list of projects to be taken up in co-ordination with State Government and thereafter technical and financial approval are to be given by State Government. The State Government usually advances fund for Central Road Fund works and later gets reimbursed from MoRTH.

Road Maintenance wing is carrying out the data collection required for the implementation of Road Maintenance Management System (RMMS) from July, 2019 onwards. The overall objective of RMMS is to establish an enhanced and user-friendly web-based road information system. The main objective of RMMS is to optimise the use of limited resources available for maintenance works, to have a systematic approach and planning of road maintenance work and to reduce the entire transport costs through proper and timely road maintenance. Government of India has declared 7,000 km of road stretches including all State Highways and some MDRs as Core Road Network (CRN) and implementation of RMMS in these roads are completed. The prioritisation of Core Road Network (CRN) had also been done broadly based on economic importance, connectivity to economic growth centres and strategically important corridors, traffic volume, share of commercial vehicle, public transport routes, disaster relief and climatic resilient functionalities.

Coastal Highway: The coastal highway from Thiruvananthapuram to Kasaragod is a prestigious project envisaged by the Kerala Government along the coastal belt of the State. The coastal highway will serve as an alternative to the National Highway 66 and will also act as an evacuation route in the event of any emergency. The 600.25 km long coastal high way will pass through 9 districts with a National Highway overlap of 65.3 km. The Highway will connect Vallarpadam, Kollam and Vizhinjam apart from other small ports and harbours. As of March, 2023, Kerala Infrastructure

Investment Fund Board (KIIFB) has approved an outlay of Rs 2,899.11 crore for the project. Kerala Road Fund Board (KRFB) is the Special Purpose Vehicle for the implementation of the project. Details of Coastal Highway stretches funded by KIIFB is given in **Appendix 11.1.14**.

Hill Highway: Government of Kerala declared State Highway 59 (SH 59) which is the longest State Highway in Kerala as Hill Highway or Malayora Highway connecting all districts in Kerala except Alappuzha and starting from Nandarapadavu in Kasaragod to Parassala in Thiruvananthapuram. The total length of Hill Highway is 1,166.27 km, of which 793.68 km is being funded by KIIFB. The proposed Hill Highway is also called “Kerala Spices Route” as the same connects almost all the cities engaged in trade and cultivation of spices and other high range products in Kerala. The objective of forming such a Highway is to augment the trade, transportation of spices and agricultural products of high ranges as well as to reduce the traffic intensity in the main central road of Kerala. Kerala Road Fund Board (KRFB) is designated as the Special Purpose Vehicle (SPV) for Hill highway. As of March, 2023, work of 45 reaches having a total length of 732.42 km has been approved by KIIFB at an approved outlay of Rs 3,167.89 crore. Works have been completed in 4 stretches and works are in progress in other stretches. Details of Hill Highway stretches approved by KIIFB are given in **Appendix 11.1.15**.

Kerala State Transport Project (KSTP): Kerala State Transport Project handles two main projects funded by World bank and the KfW German Bank - the Kerala State Transport project-II funded by World bank and the project under Rebuild Kerala Initiative jointly funded by the World Bank and the KfW, the German Bank. KSTP- II is a World Bank (IBRD) has approved Rs 2,403 crore (US\$ 445 million) for KSTP-II. The project envisages the upgradation of 363 km of State Highways, road safety management, and the institutional strengthening of Public Works Department (PWD). Rs 1,166 crore (US\$ 216 million) is the loan assistance from the World Bank. The disbursement ratio is 56:44 between World Bank and Government of Kerala for the eligible items (except land acquisition and operation cost). The original loan closure date was 30th April, 2019 but was extended to April, 2021 and closed in April, 2021. The project includes innovative components like development

of a demonstration safe corridor of 80 km, strengthening of Kerala Road Safety Authority (KRSA) and other institutions including PWD Road Safety Cell, Community Participatory Road and Asset Management Programmes, strengthening of Public Information and Grievance Redressal Cell in PWD and the pilot project on road improvement through Public Private Partnership (PPP).

Rebuild Kerala Initiative: As part of the Rebuild Kerala Initiative (RKI), KSTP has undertaken reconstruction and restoration of the roads damaged due to the floods and landslides in 2018 to make them traffic worthy and aims to implement the road reconstruction works for Rs 3,346.09 crore ensuring green and climate resilience by utilising World Bank assistance of Rs 1,200 crore and KfW (German Bank) assistance of Rs 1,800.00 crore. World Bank would provide 100 per cent assistance under its development policy whereas the KfW would provide 70 per cent and the remaining 30 per cent needs to be borne by the State. Out of the 62 roads proposed by the PWD, 59 roads were taken up for reconstruction and improvement. The total length of these 59 roads is 1,609 km. Of this, 16 are hill roads (431.17 km), and the other 43 are non-hilly roads (1,177.83 km).

City Road Improvements: Kerala Road Fund Board (KRFB) is a statutory body under the State Government established in 2002 by the enactment of Kerala Road Fund Act of 2001. The agency plays a pivotal role in the overall infrastructure development of the State. It primarily oversees and manages non-budgetary funds and to organise such funds for developing and maintaining roads and other allied infrastructure.

The City Road Improvement Projects are implemented by KRFB on Public Private Participation (PPP) mode. In Thiruvananthapuram city, 16 stretches of roads for length of 42.07 km have been completed and now the project is in its operation and maintenance stage. KRFB has completed the Kozhikode City Road Improvement Project Phase-I (A), which involved in the development of 22.25 km over six corridors at a total concessionaire's cost of Rs 211.00 crore.

Smart City Projects: Approximately 54 km of roads have been identified to be developed as smart roads under the Thiruvananthapuram Smart

City project. The overall scope of the Smart Road Project is to provide overlay design for the existing road with detailed strip plans, junction designs, cycle track and footpath design. Under this project, road design, road signage and markings have been carried out.

The State Government has formed a Special Purpose Vehicle (SPV), namely Road Infrastructure Company Kerala Limited (RICK) under KRFB to implement State Road Improvement Project (SRIP) aimed at the development of selected State Highways and MDRs. There are two packages under the SRIP-Rehabilitation under PPP annuity mode and the upgradation with funding from multilateral funding agencies. The rehabilitation package is intended to improve 83 km of roads in two packages A and B in Thiruvananthapuram, Kottayam and Kasaragod Districts at a total cost of Rs 209.91 crore on annuity modes. The works undertaken by RICK are Uppala-Kaniyana Road (9.4 km), Vidyanagar-Seethangoli Road (15.6 km), Kanjirappally-Kanjiramkavala Road (36.10 km), Vellanad-Chettachal Road (21.90 km) and land acquisition of Karamana-Vellarada Road (35.5 km). There is also a company incorporated under the State PWD, namely Roads and Bridges Development Corporation of Kerala Ltd (RBDCK) which deals with the properties and assets comprising movables and immovable including land, road projects, Railway Over Bridge (ROB) projects, toll collection rights and engage in activities like Detailed Project Report (DPR) preparation.

Research and Development in Road Sector:

Research and development activities play an anchoring role in developing innovative models and techniques to address the challenges in modernising the road system in general and technology upgradation with cost effective infrastructure measures in particular. Design, Research, Investigations and Quality Control Board (DRIQ Board), Kerala Highway Research Institute (KHRI) and National Transportation Planning and Research Centre (NATPAC) are the research organisation currently engaged in research and development of the road transport sector.

Kerala Highway Research Institute (KHRI), is acknowledged as a Centre of Excellence to act as an advisory body or think tank for transforming the road sector in Kerala by prioritising the thrust areas and providing thought leadership, strategic

advice and problem-solving inputs. KHRI is focusing on innovation in design, construction practices, road asset management, road safety management, quality assurance and contract management, and promoting indigenous research and development.

National Transportation Planning and Research Centre (NATPAC) is the research centre conducting research and development and extension activities in the field of transportation and allied areas under Kerala State Council for Science, Technology and Environment (KSCSTE). Broadly, NATPAC focuses on transportation planning in all spheres of transportation, traffic management and road safety and providing consultancy services to Government at all levels and various user agencies in the domain area. They cover areas like road safety, traffic engineering, environmental issues, policies and programmes, urban transport, public transport issues, tourism and inland water transport. Some of the major services provided by the research centre in recent years are identification and prioritisation of crash black spots in the State, enhancing road safety with adaptive traffic signal system-demonstration and implementation, designing of model road safety corridors, periodic updation of price indices for different public transport and freight operations and investigation of major accident spots, causative analysis and mitigation. The Design Wing of PWD undertakes structural design of bridges, buildings, DPR preparation of roads and bridges, quality control of PWD projects, research and advanced training of PWD officials.

Kerala State Road Transport Corporation (KSRTC)

The Public transports sector of the State includes both State owned transport services (KSRTC, KURTC, and KSRTC-SWIFT Ltd.) and private stage carriages. Kerala is somewhat different from the other South Indian States as the share of private stage carriages is higher in the overall public transport system. Over the years, there has been a gradual decline in the number of public transport buses through State Transport Units (STU) in Kerala especially over the past two decades, which has resulted in the decline of availability. It is to be noted that the Covid-19 pandemic has also wrecked the industry which has depleted the number of registrations of new buses. As of March, 2023, there are 5,164 State Public Transport buses, of which 4,807 buses are

owned by KSRTC and the remaining 357 are under K-SWIFT Ltd.

The road freight services are wholly owned and operated by the private sector. KSRTC is the single largest public sector undertaking, carrying out passenger transport operations in the State. The Corporation is now on the way of transformation. KSRTC aims at the development of infrastructure and modernisation of workshops and total computerisation. As part of fleet renovation, KSRTC has introduced multi-axle buses like Scania on a wet lease basis from its dealers and operating in inter-State routes. The number of buses owned by KSRTC is given in **Appendix 11.1.16**, age-wise details of vehicles owned by KSRTC is given in **Appendix 11.1.17** and major internal indicators of KSRTC are given in **Appendix 11.1.18**.

Kerala Urban Road Transport Corporation (KURTC) is formed to uplift the city public transport system in the State. In 2008, Government of India launched a scheme for funding urban buses under the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) with a concept that urban transport is the key driver to social and economic development and to meet the mobility needs of the people. In the first phase of JnNURM, Thiruvananthapuram and Ernakulam corporations were selected for the implementation of Urban Transport System. 320 buses (80 A/C buses and 240 Non-A/C buses) were allotted to these cities under this scheme. Among these 320, 50 A/C low floor buses and 120 Non-A/C buses are plying in Ernakulam and 30 A/C buses and 120 Non-A/C buses are in Thiruvananthapuram. The funding structure of the project was 80 per cent by Central Government, 10 per cent by State Government and 10 per cent by KSRTC. KURTC has deployed 462 Low floor buses as of August, 2023. The operational efficiency of KURTC is given in **Appendix 11.1.19**.

The performance indicator of KSRTC shows that 55 per cent of buses owned by the Corporation are ten or more year's old (2,833 out of 5,164 buses). Average fleet operated by KSRTC in 2022-23 is 3,645 buses and average age of fleet is 10.91 years. There are 24,910 staffs in KSRTC as per the details furnished for the year 2022-23. The Driver per bus and Conductor per bus ratio is 1.81 and 1.78 respectively. It is 0.26 and 0.58 when the ratio comes to ministerial and mechanical staffs respectively. The average occupancy rate per bus

per month is 40.5 per cent as on August, 2023. The major indicators showing operational efficiency and District-wise operational statistics of KSRTC are given in **Appendix 11.1.20** and **Appendix 11.1.21** respectively.

The gross revenue earning of KSRTC has increased from Rs 1,095.52 crore in 2021-22 to Rs 2,227.10 crore in 2022-23 showing a positive indication that the corporation is improving its collection. In the months from April to August, 2023, the corporation could earn revenue of Rs 875.10 crore. The gross revenue expenditure in 2022-23 is Rs 2,683.43 crore compared to Rs 2,107.66 crore in 2021-22 and operating loss in 2022-23 period is Rs 456.38 crore compared to Rs 1,012.14 crore in 2021-22.

For revitalising the entity, KSRTC introduced new projects such as Logistics, Shop on wheels, Stay on KSRTC bus in Munnar, KSRTC Lube Shop, retail fuel filling stations in association with Indian Oil Corporation and Hindustan Petroleum Corporation called 'Yatra Fuel'. Another initiative by the KSRTC is computerised vehicle tracking and monitoring system, which has been implemented to provide real-time timing of schedules and services using information technology in a manner useful to the public and passengers. Real time of schedules and services are available online to public and passengers using mobile application 'ente KSRTC neo'. Courier and parcel system, PhonPe based ticketing are other initiatives of KSRTC introduced for the benefit of public and passengers. Some of the notable schemes introduced by KSRTC are given below.

New Initiatives

Gramavandi

Gramavandi is the ambitious project rolled out by KSRTC in July, 2022 to address the connectivity issues in rural areas. The project is being implemented in collaboration with the Local Self Government Department. Under the Gramavandi scheme, local bodies can demand for buses from the corporation to operate in the routes of their choice. The bus and crew will be provided by KSRTC and the fuel cost will be borne by the Local body. The Project is conceived as a solution to rural bus service that is financially burdensome. As of March, 2023, 15 Gramavandi services are being operated by KSRTC across 11 Districts. The Gramavandi project had bagged the award

for excellence in urban transport instituted by the Union Ministry of Housing and Urban Affairs (MoHUA).

Samudra

KSRTC in cooperation with the Fisheries Department had started special bus service to ferry women fish vendors from coastal areas to the city. The special bus service has been named as Samudra and the service is free for the women fish vendors. Three buses are being operated in the capital city by KSRTC under the project and these buses have been modified to include racks for fish baskets and other facilities.

Smart Travel Card

KSRTC introduced Smart Travel Card scheme in October, 2022 to promote and digital payment and also to make ticketing more convenient for passengers. The card issued under the scheme will function on RFID technology and can be used while traveling in feeder, circular and city shuttle service buses. Incentive scheme for promoting the travel card system by providing 10 per cent discount on recharge has been introduced by the corporation to promote the use of smart travel card.

The city circular service of KSRTC won the national 'Commendation Award in Urban Transport in the category of city with best public transport instituted by the Union Ministry of Housing and Urban Affairs(MoHUA) Despite these notable achievements, the financial position of KSRTC is grim due to an increase in operating expenditure, hike in pension commitments, increase in interest payments, operation in uneconomic routes and granting of concessional travels leading to an increase in the loss to the corporation. KSRTC is looking forward to a radical change in its operations. It intends to provide better amenities to the passengers and increase financial sustainability of the Corporation.

Challenges

The most important challenge in the road sector involves building all weather roads connecting each and every village. Even though Kerala is comparatively better placed than most other States as regards road length, the condition of many of these roads is very poor. Therefore, the main emphasis under road development in Kerala has been on improvement and up gradation of existing roads rather than construction of new roads. This requires institutional strengthening, adoption of

standards applicable to the Indian Road Congress (IRC)/Ministry of Road Transport and Highways (MORTH) specifications, strict quality control and adoption of self-financing revenue models suited to the State. The investment need in the road sector is of high magnitudes that are beyond the resources available with the Government. Therefore, there is an imperative need to motivate private and other non-governmental agencies/corporate sectors to participate in road construction and up gradation of selected highways.

Most of the roads in the State do not have adequate width to address the existing level of traffic. Only one fourth of the roads have either two lanes or four lane capacity while most of the roads have single lane or intermediate lane capacity. Bulk of the inter-city and inter-State traffic is carried by the National and State Highways which are only 8 per cent of the total road network. Considering the demand supply gap, there is a need for up gradation of existing road network. The existing road network has to undergo a qualitative improvement with the aim to reduce traffic congestion and delay, easy access to destinations and reduction in accident risks. Most of the PWD roads have to undergo upgradation with widening and incorporating road safety features.

Way Forward

An action plan should be made for prioritising the road works in the State. Major emphasis should be given to widening the State Highways and MDRs along with professional design and adequate drainage facilities. The new road development initiatives like the National Highway widening, highways, coastal highways and bypasses needs to be completed in the 14th Five-Year Plan period.

There is a need to undertake futuristic development of State Highways, important MDRs and city roads in the State, through geometrical improvement, junction improvements, covering pedestrian facilities, utility ducts, re-laying the roads incorporating technical corrections and entering into maintenance contracts. Road-side parking is another issue to be addressed to improve the level of service.

Rail Transport

Kerala occupies a significant position on the Indian Railways map with a total track length of 2,106

km including running track. Railway in the State comes under Thiruvananthapuram and Palakkad (Palghat) divisions of the Southern Railways. Palakkad Division has a total route length of 1,075 km and operates 99 mail and express and 60 passenger trains and 64 freight trains. Thiruvananthapuram division has a total route length of 1,031.7 km and operates about 170 mail/express /passenger trains and 8 goods trains per day. All the railway lines passing through the State have been converted into broad gauge. There are 200 railway stations in the State (95 under Palakkad Division and 105 under Thiruvananthapuram Division). Doubling and electrification works are in progress in various parts of the State. Feasibility studies for new lines including the coastal railway line connecting Kodungallur, Nedumangad, Malappuram and Manjeri are underway in the railway sector.

Kerala Rail Development Corporation Limited (KRDCL)

Kerala Rail Development Corporation Limited has been incorporated as a joint venture company with an equity share of 51 per cent and 49 per cent between Government of Kerala and Government of India. This has been formed with the objective of taking up major railway infrastructure development projects in Kerala on a cost sharing mode. The company has an initial paid-up capital of Rs 100 crore which can be enhanced, based on the quantum of projects to be undertaken.

Semi High-Speed Rail Project (Silver Line)

The 529.45 km long semi high-speed rail corridor (Silver line) connecting Kasaragod and Thiruvananthapuram will enable to run its train at an operating speed of 200 kmph. This will have 1,435 mm Standard Gauge and double track. It is proposed to have a rolling stock of 9 cars initially, which will be increased to 12 cars. This will ease the transport between North and South ends of the State and reduce the total travel time to 4 hours against the existing 10 to 12 hours. The project is envisaged as a 100 per cent green project. The corridor will traverse through 11 Districts and have 11 stations. It will connect airports, IT Parks, health facilities, institutions, cultural amenities, and commercial nodes. Silver Line will divert road vehicles and trucks from road, and reduce emissions of carbon dioxide. As per the Environmental Impact Assessment (EIA) report of the Centre for Environment and Development, Thiruvananthapuram, the Silver Line project is

estimated to reduce approximately 3, 51,940 tons of carbon dioxide emission within ten years of operation.

The Kerala Rail Development Corporation Limited (KRDCL) has prepared the DPR for proposed the Silver Line Project through M/s Systoa, Paris and this has been approved by the Government of Kerala. The report estimates the project cost to be Rs 63,941 crore and expects to complete by 2025. The Ministry of Railways, Government of India has accorded In- Principle Approval (IPA) for the Project. The Railway Board however insisted for a detailed study and to submit a project report as per existing norms and practices for railway projects. The State Government has sanctioned the land acquisition process and declared KRDCL as the SPV.

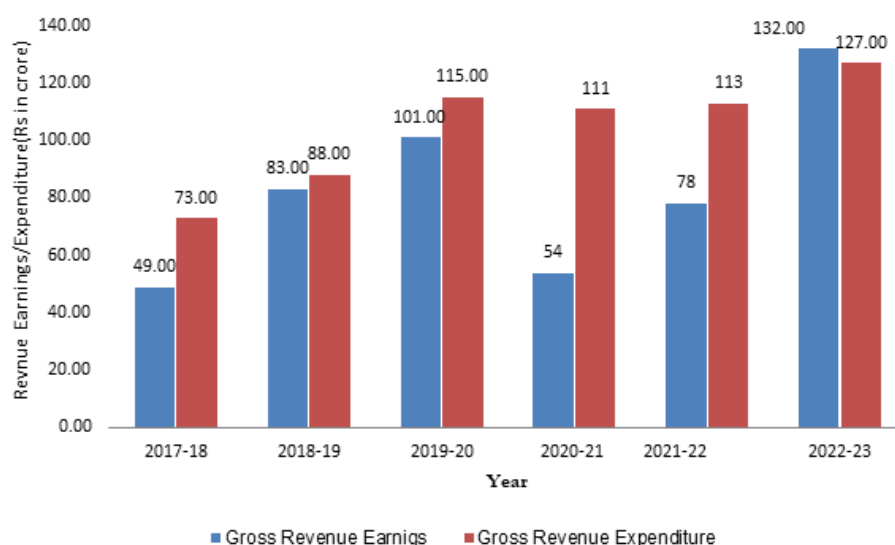
Broad-Gauge Line from Thalassery to Mysore (240 km), km), construction and commissioning of 27 Road Over Bridges are the other projects being planned to execute through KRDCL. The agency has already completed the LiDAR survey works for the Angamali-Sabari rail project.

Kochi Metro Rail Project

Kochi Metro Rail Project is the flagship project of the GoK designed to address the transportation woes of Kochi city. The project is implemented through the Kochi Metro Rail Ltd (KMRL) which is an SPV jointly owned by the GoK and GoI through equity participation. The GoI sanctioned the Phase I (Blue Line) of the project in July 2012 to construct a fully elevated metro on a viaduct with 22 stations for 25.2 km stretch from Aluva-Petta at a total cost of Rs 6,218.14 crore (revised) and this was commissioned on June 19, 2017.

The Extension of Phase I (Petta to Thrippunithura Terminal) consists of two Phases, Phase IA from Petta to SN Junction (1.80 km) and Phase IB from SN Junction to Thrippunithura Terminal (1.2 km). The Phase IA of the project with an approved cost of Rs 7,10.93 crore was commissioned in September, 2022 and the Phase IB having a total project cost of Rs 448.33 crore is expected to be completed by early 2024. Considering the revised DPR, Alternate Analysis Report and Comprehensive Plan submitted to the Ministry of Housing and Urban Affairs (MoUHA) by KMRL, the department of Expenditure, Government of India have accorded 'In principle' approval for the Phase II (Pink Line) of Kochi Metro

Figure 11.1.6 Revenue earnings and expenditure of Kochi Metro Rail Limited, 2017 to 2023, Rs in crore



Source: Kochi Metro Rail Limited (KMRL)

Rail Project from JLN Stadium to Infopark via Kakkanad (11.2) at the cost of Rs 1,957.05 crore and foundation stone for the project was laid on September, 2022.

The Metro had experienced steady growth in ridership since its inception, indicating its increasing popularity among commuters and residents. In July 2021 post-Covid period, the daily number of passengers using the metro was just 12,000. However, this has increased to 75,000 in September 2022 and further to 90,000 in August 2023. The average daily ridership for the financial year 2022-23 is 68,153 and the average daily ridership for the financial year 2023-24 (April, 2023 to August, 2023) is 86,726. Kochi Metro Rail Limited (KMRL) achieved an operational profit of Rs 5.35 crore in the financial year 2022-23. The revenue earnings and expenditure of Kochi Metro Rail Limited for the period from 2017-2023 is depicted in the figure **Figure.11.1.6**.

The gross revenue earnings of Kochi Metro have increased from Rs 78.00 crore in 2021-22 to Rs 132.00 crore in 2022-23. An amount of Rs 67.00 crore was earned in the period from April to August, 2023 by the Kochi Metro Rail Corporation. The gross revenue expenditure of Kochi Metro is Rs 127.00 crore in the financial year 2022-23 as compared to Rs 113 crore in 2021-22. The number of passengers carried also increased to 249 lakh in 2022-23 as compared to 97 in the year 2021-22. Major indicators showing the

operational efficiency of Kochi Metro is given in **Appendix 11.1.22**.

In compliance to the directive of the Ministry of Housing and Urban Affairs (MoHUA), Government of India, that one Special Purpose Vehicle (SPV) is recommended for a State for the development of Metro rail systems in various cities of that State. Accordingly, Government of Kerala had entrusted the Kochi Metro Rail Ltd (KMRL) with the construction of the Light Metro projects in Thiruvananthapuram and Kozhikode cities, and the construction of three flyovers at Sreekaryam, Pattom and Ulloor which were earlier implemented by Kerala Rapid Transit Corporation Ltd (KRTL), an SPV formed for the implementation and subsequent operation and maintenance of the project. The Kochi Metro is also entrusted with the task of preparing a new detailed project report for the Light Metro projects. The Alternative Analysis Report (AAR) and the draft Comprehensive Mobility Plan (CMP) for Thiruvananthapuram prepared by the Urban Mass Transit Company Limited (UMTC) are being considered by the Government. KMRL has enlisted the Delhi Metro Rail Corporation (DMRC) to prepare a Detailed Project Report (DPR) for the Light Metro project in Thiruvananthapuram.

Kochi Water Metro Project

Kochi Water Metro Limited (KWML) is an SPV formed for the operation and maintenance of Water Metro with 74 per cent share by GoK

Box 11.1.2 Kochi Water Metro

The Kochi Water Metro is an innovative and sustainable mode of transportation that connects various parts of the city through its intricate network of waterways. The ambitious and environmentally conscious integrated water transport system which is first of its kind in India started commercial operation on April 25, 2023. The Water Metro Project comprises of fifteen (15) identified routes connecting thirty eight (38) jetties across ten (10) island communities and 2 boat yards. The overall length of the line lengths of these 15 routes is 76.2 line kilo meters. More than 34,000 islanders are expected to benefit from the water metro. There are 78 eco-friendly boats for passenger service, 23 of them are 100 pax and the remaining 55 are meant for 50 passengers. The project is expected to reduce pollution and traffic congestions in the city and also ease access to business areas on the mainland for urban households situated along the Kochi lakeshore. It is envisaged to be a socially inclusive transport system than being just a transport service with focus on improved livelihoods through commercial property development and tourism-based initiatives. Water Metro has won the coveted Gussie Award (France) for the best commercial passenger electric boats in 2022.

Source: Kochi Water Metro Limited (KWML)

and 26 Per cent by KMRL. The total cost of the project (including land acquisition) is 1,136.83 crore of which Rs 908.76 crore is funded by KfW, Germany, and Rs 228.07 crore by GoK. Details about Kochi Water Metro Project is given in **Box 11.1.2**.

Kochi Water Metro has covered a total route length of 52,004 km in 13,745 schedules operated as of August, 2023 and earned gross revenue of Rs 1.82 crore. Water Metro had ferried 7,87,000 passengers with a fleet size of 9 boats in this period. The operational statistics of Water Metro is given in **Appendix 11.1.23**.

Air Transport

India's aviation sector has been among the fastest growing in the world. According to Airports council internationals' long-term forecast, India is expected to grow by 339 per cent over 2022 by 2041, reaching 1.1 billion passengers flown. Further, India is expected to be the third largest aviation market in the world by 2025 as per International Air Transport Association.

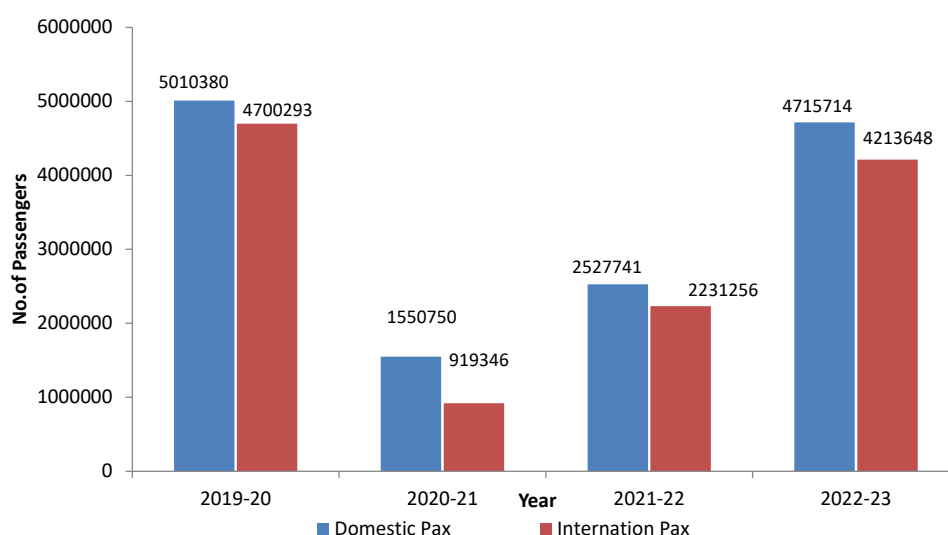
The Civil Aviation Ministry has recently presented a Draft Aircraft Bill, 2023 which acknowledges the need to revamp, streamline and simplify existing regulations for meeting the current needs of the aviation industry. The aim of the new regulation is to provide a simplified approach to regulations and make better provisions for regulation and control of the design, manufacture, possession, use, operation, sale, import and export of aircraft and for connected matters. The rising demand for air travel in India has necessitated the development of a robust ecosystem and supportive Government policies.

With the establishment of Kannur International Airport in 2019, the State has four operational international airports and aviation industry in Kerala has emerged as one of the fastest growing in recent times. Of these four airports, Kochi and Kannur airports are developed on PPP basis, Thiruvananthapuram was transferred to Adani Group for development under PPP mode whereas the airport at Kozhikode is owned by Airport Authority of India (AAI).

Cochin International Airport Ltd. (CIAL)

The first Greenfield airport in India, the CIAL was ranked the third best airport in the 50 to 150 lakh passengers category based on the 2016 Airport Service Quality (ASQ) Survey conducted by Airports Council International (ACI), Montreal, Canada. The airport has 3,400m length with 45 meter wide code E runway. Total area of the renewed domestic terminal is six lakh square feet, apart from the existing one lakh square feet. It has also the State of the art facilities which include 56 check in counters, 11 gates, seven aero bridges with a capacity to handle 2,000 passengers in peak hours. CIAL handled 8.9 million passengers in 2022-23 and became the third largest airport in the country in the international sector. CIAL has accomplished a remarkable record gross income of Rs 770.91 crore in the 2022-23 fiscal year, surpassing the annual revenues of all the previous years. Substantial increase in the revenue can be attributed to the impressive growth of non-aero income, collection of User Development Fee (UDF) and the increase in aeronautical tariffs as per the approved tariff card by the Airports Economic Regulatory Authority (AERA). The details of passenger movement through Cochin International Airport (domestic and

Figure 11.1.7 Passenger Traffic in Cochin International Airport, 2019 to 2023



Source: Annual Report 2022-23, Cochin International Airport Limited (CIAL)

international from 2019 to 2023 is illustrated in the **Figure.11.1.7**.

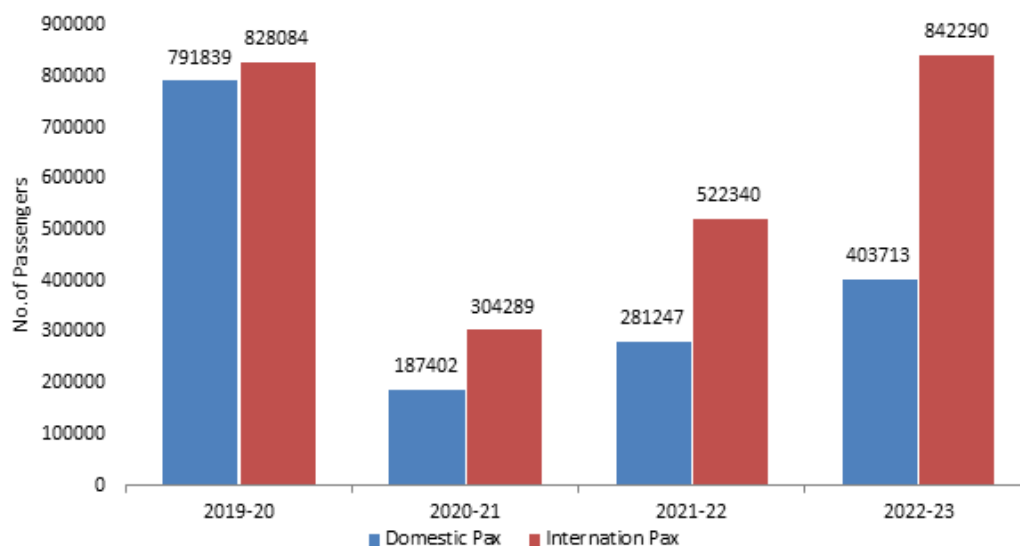
In 2022-23, 25,742 international and 35,490 domestic flights were operated from the airport as compared to the 17,546 international and 25,649 domestic flights in 2021-22. With regard to the passenger movement at the airport, CIAL handled 42,13,648 international and 47,15,714 domestic passengers resulting a 41.76 per cent increase in the passenger movement over 2021-22 which stood at 22,31,256 international and 25,27,401 domestic passenger. By handling a total of 89.29 lakh passengers in 2022-23, the Cochin International Airport became the third airport in the country in

terms of international traffic. The airport witnessed about 22 per cent increase in the cargo movement in 2022-23, it handled 72,818.20 MT cargo in 2022-23 as compared to 59,582 MT in the previous year. CIAL has earned revenue of Rs 75,936.48 lakh from operation in the financial year 2022-23 and it was Rs 40,398.11 lakh the previous financial year. That is, whopping increase of 87.97 per cent in earnings from operation in 2022-23 over 2021-22 financial year.

Kannur International Airport Limited (KIAL)

Kannur International Airport Limited (KIAL) was set up by Government of Kerala to build and operate Kannur International airport. The airport

Figure 11.1.8 Passenger Traffic in Kannur International Airport, 2019 to 2023



Source: Kannur International Airport Limited (KIAL)

project is being developed in two phases by KIAL. The first phase is envisaged to span from 2016-17 to 2025-26 and second phase would be from 2026-27 to 2045-46. The first phase was inaugurated in December 2018. The airport will help the Non- Resident Keralites (NRKs), especially working in the Middle East region and boost tourism and exports which will open up several job opportunities.

The facilities in the airport include a runway length of 3,050m (10,006.56ft.), with a terminal building of 96,000sq.m, 20 parking stands (apron), and 22,000sq.m car/bus parking, 1,200sq.m. ATC/ Technical Building and around 7,750sq.m near the apron area of Ground Service Equipment parking area.

In 2022-23, the number of domestic flights operated from Kannur Airport remained almost unchanged as compared to the previous financial year, it operated 5,727 domestic flights in 2022-23 and it was 5,730 in 2021-22. Unlike the domestic aircraft movement, the airport experienced a spike in the number of international flights from 4,130 in 2021-22 to 6,212 in 2022-23, recording an increase of 50.41 per cent in international flight operation.

In 2022-23, the airport witnessed an increase in the passenger traffic of about 58.75 per cent over the previous year. The total number of passengers handled in 2022-23 is 12,46,003 which includes the domestic passenger traffic of 4,03,713 and international passengers traffic of 8,42,290.

In 2023-24(up to August, 2023) the airport handled a total passenger traffic of 4,83,847 passengers which comprises of 1,65,549 domestic and 3,18,298 international passengers. The passenger traffic (domestic and international) of the Kannur International Airport is illustrated in the **Figure11.1.8.**

In 2022-23, the airport handled 3,865 MT (Export) and 1.61 MT (Import) cargo. The revenue earnings of KIAL in 2022-23 financial year is Rs 115.17 crore and the airport earned an amount of Rs 41.06 crore up to August, 2023 of the fiscal year 2023-24.

Thiruvananthapuram International Airport

Thiruvananthapuram International Airport, established in 1932, is the first airport in Kerala. The Airport operates through two terminals that feature Terminal 1 that manages domestic

flight operations, except for Air India flights and Terminal 2 that manages all international flight operations as well as all domestic flights by Air India. The airport has a single runway that is 11,178 feet (3,407 meter) long. The Thiruvananthapuram International Airport, spread over an area of 700 acres (280 ha), is the second busiest airport in Kerala and the fourteenth busiest in India. International operations of the airport are mostly to Middle Eastern and South Eastern countries.

In 2022-23, 12,229 international and 11,984 domestic flights were operated from the airport. With regard to the passenger movement, the airport handled 17,65,212 international and 17,20,414 domestic passengers. The airport handled 16980 MT cargo in 2022-23.

Sabarimala Greenfield Airport Project

Sabarimala Airport project aims to build a Greenfield airport at Erumely of Kottayam District for the convenience of Sabarimala pilgrims and also to fillip to tourism and local economy of Pathanamthitta, Kottayam, and Idukki Districts. The proposed site spread over 2,263 acres (9.16 Sq.km) of land at Cheruvally estate in Manimala Panchayath of Kanjirappally Taluk which is located on the way to the hill shrine. As per the Master Plan for the project, the airport will have of runway length not less than 3,500 meter on 08/26 alignment. The spatial data pertaining to the Sabarimala Greenfield Airport Project has been integrated to the PM Gati Shakti National Master Plan portal maintained by Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N) and the Ministry of Civil Aviation (MoCA) has granted 'Site Clearance' in April, 2023. Kerala State Industrial Development Corporation (KSIDC) was entrusted with the task of identifying a technically competent agency for conducting the Techno Economic Feasibility Study (TEFS) and Environmental Impact Assessment (EIA) and land acquisition. The Sabarimala Greenfield Airport will become the 5th International Airport in the State once commissioned.

Air Strips & Heliports

The State is devising an extensive air connectivity project with air-strips in selected districts and heliports and helipads in others with the objective of ensuring seamless air travel between the districts in the State. The airstrip are planned to operate airline service connecting the State's major tourist

spots by operating tiny single-engine aircraft having 8 to 10 seats. The plan is to set up air strips at Bekal in Kasaragod, Kalpetta in Wayanad and in Idukki in the initial phase. The State Government has requested the Centre to include the proposed air strips under its Regional Connectivity Scheme-UDAN to operate them as feeder ports of the international airports.

WATER TRANSPORT

Water transport is the cheapest and the oldest mode of public transport. It has low cost of operation and played significant role in bringing different parts of the world closer, and is indispensable to foreign trade. In Kerala, water transport has the potential to become a viable supplement to road and rail transport. Its huge carrying capacity and suitability for carrying bulk goods over long distances makes water transport more attractive. For enhancing the efficiency and sustainability of water transport, a comprehensive framework for the key aspects of navigation has to be established. This section reviews the performance of the sector, effectiveness of various Government plans and policies aimed at the overall development of ports and inland waterways, their facilitation and promotion of coastal shipping, foreign trade, and inland water transport.

Port Sector

Maritime transport is the backbone of globalised trade and the manufacturing supply chain. The

Maritime Sector in India comprises of Ports, Shipping, Shipbuilding and Ship repair and Inland Water Transport Systems. According to the Ministry of Ports, Shipping and Water Ways, India has 12 Government owned major ports and more than 200 minor and intermediate ports. As per the Ministry's Annual Report 2022-23, Indian Shipping Industry has over the years played a crucial role in the transport sector of India's economy. Approximately 95 per cent of the country's trade by volume and 68 per cent by value is moved through maritime transport. Therefore, shipping and ocean resources, ship design and construction, ports and harbours, issues relating to human resource development, finance, ancillaries and new technologies need to be developed in the light of the emerging scenario. Shipping continues to remain unchallenged as the world's most efficient means of transportation. The Government of India has allowed Foreign Direct Investment (FDI) of up to 100 per cent under the automatic route for port and harbour construction and maintenance projects. India's major ports had a capacity of 2604.99 Million Tonnes Per Annum (MTPA) as on December 31, 2022. In 2022-23, major and non-major ports in India handled a total cargo of approximately 1433.39 million metric tonnes.

To harness India's 7,517 km long coastline, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes, the Government of India has embarked on the ambitious Sagarmala Programme to promote port-led development in the country through modernisation and development of

Table 11.1.3. Summary of projects under Sagarmala Programme

Sl No	Project Theme	Total		Completed		Under Implementation	
		No. of Projects	Project Cost(Rs.in Cr)	No. of Projects	Project Cost(Rs.in Cr)	No. of Projects	Project Cost (Rs. In Cr)
1	Port Modernisation	241	249660.00	89	31214.00	63	64063.00
2	Port Connectivity	209	142226.00	69	32005.00	67	76295.00
3	Port Led Industrialisation	33	119846.00	9	45865.00	21	72706.00
4	Coastal Community Development	82	11375.00	20	1482.00	19	2577.00
5	Coastal Shipping and Inland Water Transport	237	17235.00	33	1705.00	61	5255.00
Total		802	540341.00	220	112272.00	231	220896.00

Source: Annual Report 2022-23, Ministry of Ports, Shipping and Waterways

new ports, enhancing connectivity, promoting port linked industrialisation, coastal community development and promotion of Coastal Shipping and Inland Waterways in India. There are 802 projects worth investment of Rs 5.40 Lakh crore for implementation under the Sagarmala Programme. Out of which, 220 projects worth Rs 1.12 Lakh crore have been completed and 231 projects worth Rs 2.21 lakh crore are under implementation. In addition to the above, 351 projects worth Rs 2.07 Lakh crore are under various stages of development. These projects are being implemented by relevant Central Ministries, State Governments, major ports and other agencies primarily through private or PPP mode. A summary of schemes being undertaken under the Sagarmala project is provided in **Table 11.1.3**.

The Government of India also incorporated the Sagarmala Development Company Limited (SDCL). It will raise funds as debt/equity (as long-term capital), as per the project requirement, by leveraging resources provided by the Government of India and from multi-lateral and bilateral funding agencies. As per the approved structure of Sagarmala Programme, the implementation of the projects shall be done by the line ministries, State Governments and State Maritime Boards (SMBs) and SPVs. The SDCL will provide a funding window and implement only those residual projects that cannot be funded by any other means or mode.

Cargo Traffic at Ports in India

Major ports in India

Maritime transport activity is driven by developments in world economy, viz. growth in world output and trade. Thus, volume of seaborne cargo traffic handled by ports is mainly shaped by the levels and changes in both the global and domestic activity. The total traffic handled by the 12 major ports increased by 8.8 per cent in 2022-23, to 783.50 million tonnes.

In 2022-23, Paradip Port recorded highest growth of 16.6 per cent in traffic handled at Major Ports, followed by Syama Prasad Mookerjee Port, Haldia (13.4 per cent), Kamarajar (12.6 per cent), V. O. Chidambaram Port, Tuticorin (11.1 per cent), Jawaharlal Nehru Port Authority (JNPA) (10.4 per cent), Syama Prasad Mookerjee Port, Kolkata (9.6 per cent), Deendayal Port (DPA) (7.7per

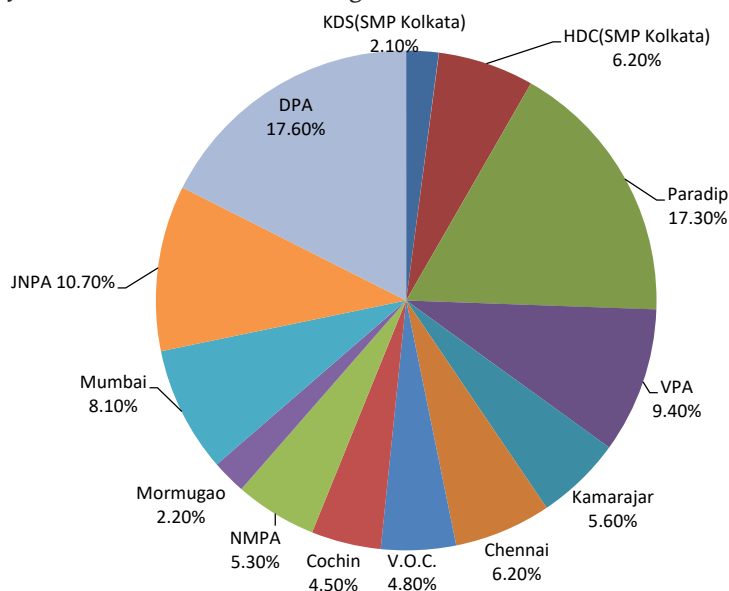
cent), Visakhapatnam Port (VPA) (6.8 per cent), Mumbai Port (6.2 per cent), New Mangalore Port Authority (NMPA) (5.4 per cent), Cochin Port (2.0 per cent) and Chennai Port (0.8 per cent). Major Ports that recorded negative growth in traffic was Mormugao Port (6.2 per cent) in 2022-23.

Amongst the Major ports, Deendayal Port handled the maximum cargo of 137.56 million tonnes followed by Paradip Port (135.36 MT), Jawaharlal Nehru Port Authority (JNPA) (83.87 MT), Visakhapatnam Port (VPA) (73.75 MT), Mumbai Port (63.61 MT), Chennai Port (48.95MT), Syama Prasad Mookerjee Port ,Haldia (48.61 MT), Kamarajar Port (43.51 MT), New Mangalore Port Authority (NMPA) (41.42 MT), V. O. Chidambaram Port (37.92 MT), Cochin Port (35.26 MT), Mormugao Port (17.32 MT) and Syama Prasad Mookerjee Port, Kolkata (16.38 MT) in 2022-23. The share of total traffic handled by major ports is shown in **Figure 11.1.9**.

Amongst the Major Ports, Deendayal Port (DPA) handled the maximum Overseas Cargo of 123.88 million tonnes with a share of 20.6 per cent, followed by Jawaharlal Nehru Port Authority (JNPA) (78.97 MT), Paradip Port (77.28 MT), Visakhapatnam Port (VPA) (54.84 MT), Chennai Port (43.03 MT), Syama Prasad Mookerjee Port, Haldia (43.22 MT), Mumbai Port (41.00 MT), New Mangalore Port Authority (NMPA) (31.96 MT), Kamarajar Port (25.81 MT), V. O. Chidambaram Port, Tuticorin (25.23 MT), Cochin Port (21.15 MT), Syama Prasad Mookerjee Port Kolkata (15.98 MT), and Mormugao Port (15.64 MT) in 2022-23. The share of Overseas Cargo handled by major ports is shown in **Figure 11.1.10**.

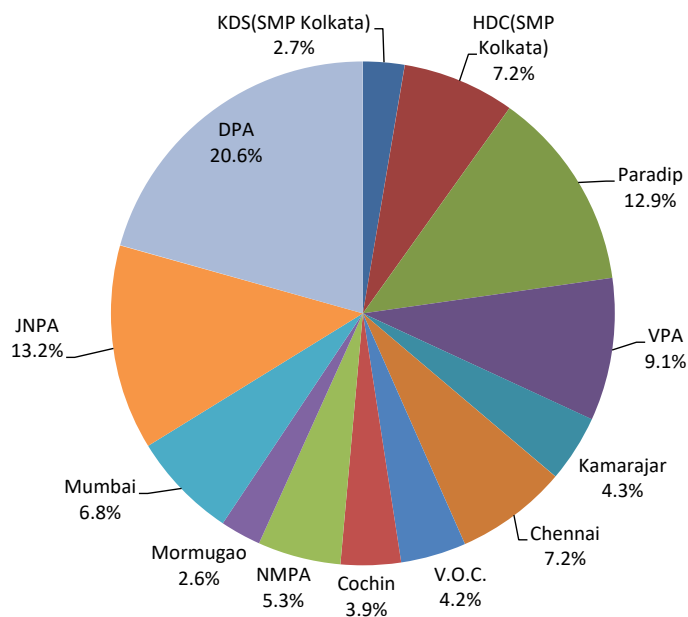
Among the Major Ports, Paradip Port handled the maximum Coastal Cargo of 58.08 million tonnes with a share of 31.6 per cent followed by Mumbai Port (22.61 MT), Visakhapatnam Port (18.91 MT), Kamarajar Port (17.69 MT), Deendayal Port (DPA) (13.68 MT), V.O. Chidambaram Port (12.68 MT), Cochin Port (12.11 MT), New Mangalore Port Authority (NMPA) (9.47 MT), Chennai Port (5.92 MT), Syama Prasad Mookerjee Port, Haldia (5.39 MT), Jawaharlal Nehru Port Authority (JNPA) (4.90 MT), Mormugao Port (1.68 MT) and Syama Prasad Mookerjee Port Kolkata (0.40 MT). The share of Coastal Cargo handled by major ports in 2022-23 is shown in **Figure 11.1.11**.

Figure 11.1.9 Major Port- wise share of total cargo handled in 2022-23



Source: Ministry of Ports, Shipping and Water ways

Figure 11.1.10 Major Port-wise share of Overseas Cargo handled in 2022-23



Source: Ministry of Ports, Shipping and Water ways

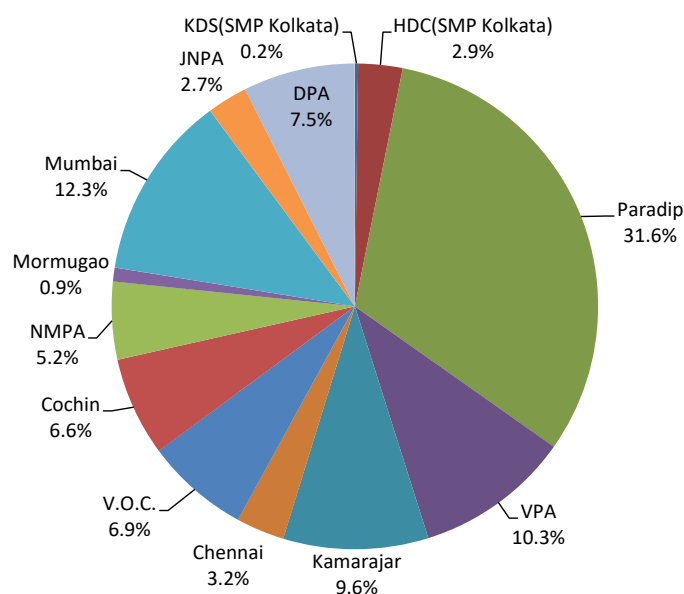
Port-wise traffic at major ports in 2021-22 and 2022-23 is given in **Appendix. 11.1.24**.

Cargo traffic at Non-Major Ports in India

Cargo traffic at Non-Major Ports in 2022-23, increased by 8.5 per cent to 649.89 million tonnes from 599.12 million tonnes handled in 2021-22. Amongst the State Maritime Boards and State Directorate, Gujarat Maritime Board handled

the maximum Cargo of 416.34 million tonnes with a share of 64.1 per cent followed by Andhra Pradesh Maritime Board (101.45 MT), Maharashtra Maritime Board (69.00 MT), Directorate of Ports, Odisha (38.71 MT), Tamil Nadu Maritime Board (11.24 MT), Directorate of Ports, Puducherry (10.12 MT), and Others (2.63 MT) which includes cargo handled by Non –Major Ports of Andaman and Nicobar Islands, Goa, Kerala and Karnataka

Figure 11.1.11 Major Port-wise share of Coastal Cargo handled in 2022-23



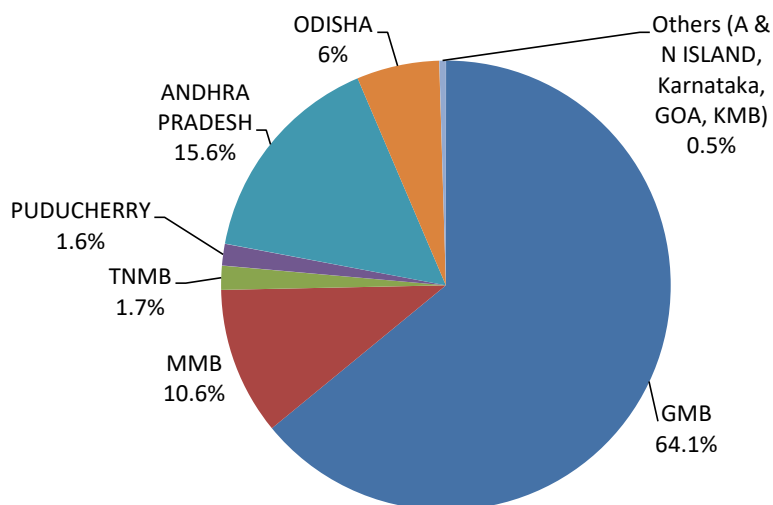
HDC –Haldia Dock Complex, KSD- Kolkata Dock System, NMPA-New Mangalore, VPA-Visakhapatnam
Source: Ministry of Ports, Shipping and Water ways

in 2022-23 (April-March). The share of total traffic handled by Non-Major Ports is shown in **Figure 11.1.12**.

The overseas cargo traffic handled at Non-Major Ports in 2022-23 (April-March) increased by 4.3 per cent to 530.89 million tonnes from 509.05 million tonnes in 2021-22 (April-March). Amongst the Non-Major Ports, Gujarat Maritime Board

handled the maximum Overseas Cargo of 369.95 million tonnes with a share of 69.7 followed by Andhra Pradesh Maritime Board (78.49 MT), Directorate of Ports, Odisha (35.62 MT), Maharashtra Maritime Board (25.10 MT), Tamil Nadu Maritime Board (10.60 MT), Directorate of Ports, Puducherry (10.12 MT) and Others (1.01 MT) which includes cargo handled by Non-Major Ports of Andaman and Nicobar Island and

Figure 11.1.12 Port-Wise cargo traffic Handled at Non-Major Ports in 2022-23 (April-March)



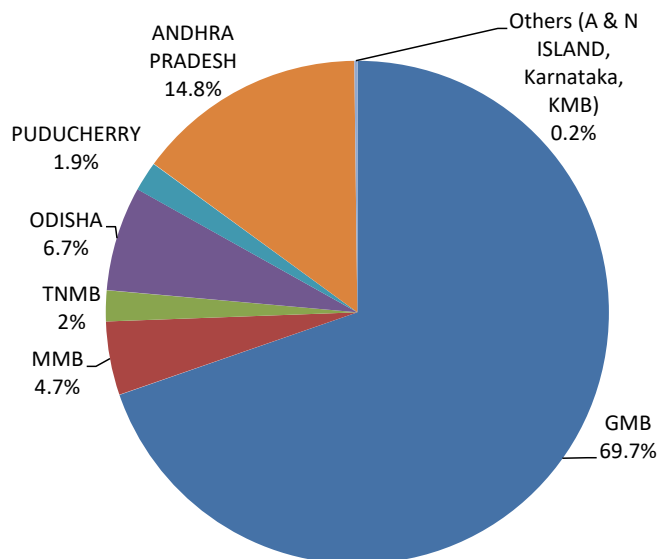
Source: Ministry of Ports, Shipping and Water ways

Karnataka in 2022-23 (April-March). The share of Overseas Cargo handled by non-major ports is shown in **Figure 11.1.13**.

The coastal cargo traffic handled at Non-Major Ports in 2022-23 increased by 32.1 per cent to 119.00 million tonnes from 90.07 million tonnes handled in 2021-22. Amongst the Non-Major Ports, Gujarat Maritime Board handled

the maximum Coastal Cargo of 46.39 million tonnes with a share of 39.0 per cent followed by Maharashtra Maritime Board (43.90 MT), Andhra Pradesh Maritime Board (22.96 MT), Directorate of Ports, Odisha (3.09 MT), Andaman and Nicobar Islands (1.72 MT), Tamil Nadu Maritime Board (0.64 MT) and Others (0.30 MT) which includes cargo handled by Non-Major Ports of GOA, Kerala and Karnataka in

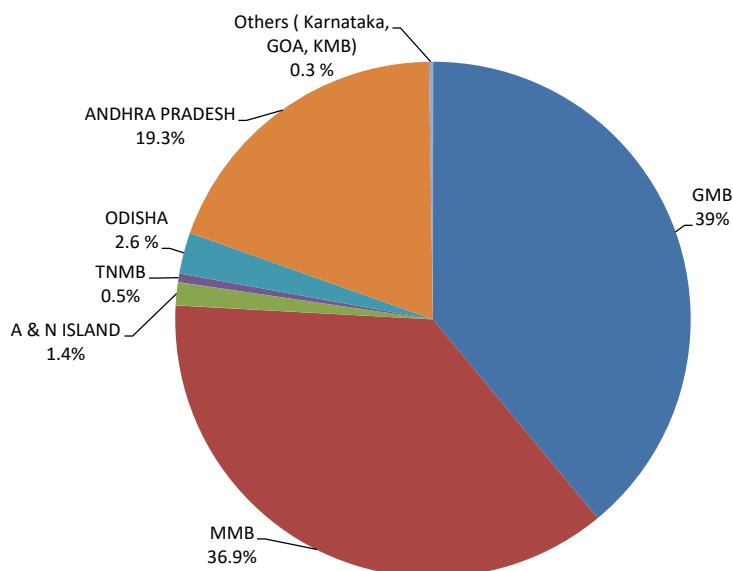
Figure 11.1.13 Port Wise Share of Overseas Cargo in 2022-23 (April-March)



Source: Ministry of Ports, Shipping and Water ways

* Non major ports in Goa and Kerala handled nil overseas cargo traffic during the period.

Figure 11.1.14 Port-Wise Share of Coastal Cargo in 2022-23 (April-March)



Source: Ministry of Ports, Shipping and Water ways

* Non major ports of Puducherry handled nil Coastal Cargo traffic during the period.

2022-23 (April-March). The share of Coastal Cargo handled by non-major ports is shown in **Figure 11.1.14**.

Port-wise traffic at non-major ports in 2021-22 and 2022-23 is given in **Appendix. 11.1.25**.

Infrastructure development and capacity augmentation of Major Ports is a continuous process. It involves construction of new berths and terminals, mechanisation of existing berths and terminals, capital dredging for deepening of drafts for attracting larger vessels, and development of road and rail connectivity. A number of projects have been awarded in the last five years on upgradation and capacity enhancement of the Major Ports.

Ports in Kerala

Kerala has a coastal length of approximately 590 km. There is one Major Port at Cochin and 17 non-major ports and another upcoming transshipment port at Vizhinjam being developed through PPP mode. Out of 17 non-major ports in Kerala, four are considered as intermediate ports based on berthing, cargo handling and storage facilities available in them. They are Vizhinjam, Beypore-Kozhikode, Azhikkal and Kollam Ports. There is also an inland port at Nattakom in Kottayam.

Kerala Maritime Board (KMB)

Kerala Maritime Board came into existence after the approval of Kerala Maritime Board Act on September 2017. As per the act, KMB is constituted for the non-major ports in Kerala and to vest administration, control and management of non-major ports. The Government constituted KMB by merging the establishment of Directorate of Ports, Kerala State Maritime Development Corporation Ltd and Kerala Maritime society. The Board consists of a chairman, a vice chairman, 6 ex-officio members and four nominated members. All non-major port related activities, modernisation

of ports and enhancement of shipping activities are major objectives of Kerala Maritime Board.

Following are the major achievement of Kerala Maritime Board in 2022-23.

- Web portal established in Kerala Maritime Institute.
- Seamless governance in port sector through e-office, training and capacity building, investigation, planning, research and development activities
- Automated cargo handling gears at Kollam, Beypore and Azhikkal Port completed
- Regular services connecting Lakshadweep with Beypore Port.
- Vizhinjam Port serves weekly vessel operations to Maldives
- Commissioned a container handling crane at Azhikkal and Beypore Ports.

Kerala Inland Vessel (KIV) Rules, 2010

On September 15, 2010, KIV Rules came into existence. The Director, Port department was the implementing authority, but now the implementation is vested with KMB. As per the KIV Rules, there are 6 Port of registries including Vizhinjam, Kollam, Alappuzha, Kodungallur, Beypore and Azhikkal. As per the KIV Rules, the registration period of vessels is decided as 5 years and the annual survey certificate is valid for 1 year. These two certificates are essential for operation of the vessel. In addition, the vessels should be surveyed in dry dock once every 3 years. As per the KIV Rules, survey certificates should be provided to house boats only on providing viability certificate for 3 years from pollution control board and third party insurance for one year period.

Registered Vessels

The type of vessels registered includes passenger vessel, speed boat, house boat, cargo vessel, floating resort, motor boat, cutter section dredger, jankar, shikkaras, tug, rescue boat, and cruise boat. In 2022-23, 1120 vessels were inspected of which

Table 11.1.4 Details of inspection conducted for KIV implementation

Sl.no.	Item	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
1	No. of Vessels inspected	852	846	770	580	651	1120
2	No. of Vessels found perfect	573	615	527	435	485	830
3	No. of Vessels found defective	279	231	243	145	166	290
4	No of detention orders issued	42	21	73	16	17	45

Source: Kerala Maritime Board

Table 11.1.5 Number of vessels registered in Kerala (As per KIV Rules)

Sl. no.	Item	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
1	Category A	29	37	23	6	1	5
2	Category B	133	154	169	158	192	224
3	Newly constructed vessel	12	21	43	37	56	80
4	Registration Name changed	49	37	52	73	109	122
Total		223	249	287	274	358	431

Source: Kerala Maritime Board

830 vessels were found to be perfect and 290 were found to be defective. As the port department is implementing the KIV rules, it conducts inspections and facilitates registration of vessels. Details are in **Table 11.1.4** and **11.1.5**.

In 2022-23, the total number of sailing vessels (break-bulk ship, mini container vessel, passenger vessel, mini bulk vessel, urus, research vessels, barges and yachts) arrived at operational ports in the State is 623. Out of this, 348 called at Beypore, 227 at Vizhinjam and 48 at Kollam. Details are shown in **Appendix 11.1.28**.

Cargo Handled in Intermediate ports and minor ports in Kerala

Table 11.1.6 shows the details of cargo handled by non-major ports in Kerala for the last five years. Considering the last five years, drastic fluctuation between years is seen in the quantity of cargo handled by intermediate ports in Kerala. In all these five years, export cargo (coastal and overseas) is higher than import cargo (coastal and overseas). The total cargo export from Kerala was 126147 tonne in 2019 and 233216 tonne in 2022-23.

In Kerala, cargo is handled only in 4 ports. They are, Beypore, Azhikkal, Kollam and Vizhinjam (Details are shown in **Appendix 11.1.26**).

Revenue from Ports in Kerala

Details of revenue collected in the intermediate and minor ports of Kerala from 2019 to 2023 are given in **Table 11.1.7**. The total revenue declined considerably in 2021 due to covid. In 2023, the total revenue collected from all intermediate and minor ports is Rs 46.01 crore. The main activity of a port is considered to be merchandise transport. Unfortunately, the share of export and import dues is less than one per cent of total revenue in these years. Major share of port revenue comes from dredged material. It is around 77 per cent of the total revenue. Actual port activity needs to be enhanced. Category -wise break up of revenue collected at the intermediate and minor ports of Kerala in 2022-23 is given **Appendix 11.1.27**.

Port Activities and Operations (Non-Major ports in Kerala)

Out of the 17 non major ports, four ports were operational for trade in 2022-23. Kollam port

Table 11.1.6 Cargo Handled at the Intermediate and Minor Ports of Kerala 2019 to 2023, in tonne

Year	Import			Export			Total
	Coastal	Foreign	Total	Coastal	Foreign	Total	
2019	92542	4459	97001	122380	3767	126147	223148
2020	37338	908	38246	115968	0	115968	154214
2021	8074	119	8193	41118	69	41187	49380
2022	57253	0	57253	264989	549	265538	322791
2023 March	7648	0	7648	233216	0	233216	240864
Total	202855	5486	208341	777671	4385	782056	990397

Source: Kerala Maritime Board

Table 11.1.7 Category-wise break up of Revenue collected at the intermediate and Minor Ports of Kerala from 2019 to 2023, Rs in crore

Year	Port Dues		Export Import dues		Merchant Overtime Charges		Dredged Material		All Others		Total
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	
2019	0.08	0.17	0.33	0.68	0.33	0.68	43.42	89.7	4.24	8.76	48.41
2020	0.04	0.07	0.05	0.09	0.46	0.79	52.73	90.9	4.73	8.15	58.02
2021	0.04	0.10	0.37	0.90	10.15	24.66	25.78	62.6	4.81	11.69	41.16
2022	0.12	0.23	0.55	1.05	0.74	1.42	39.51	75.7	11.28	21.62	52.17
2023 March	0.06	0.13	0.17	0.37	0.33	0.72	35.58	77.33	9.87	21.45	46.01

Source: Kerala Maritime Board

had outward transport of Scrap and Boulders, Beypore (Kozhikode) had overseas transportation of Petroleum Products (POL) and others, Azhikkal and Vizhinjam ports had no trade activities in 2022-23. Details are given in **Appendix 11.1.26**.

In 2022-23, an amount of Rs 46.01 crore was generated from different activities related to port by intermediate and minor ports in Kerala. The largest amount of revenue was earned from dredged materials (Rs 35.58 crore.). The total import export dues in 2022-23 were Rs 17 lakh. Details of revenue earned by intermediate and minor ports of Kerala are given in **Appendix 11.1.27**.

Beypore (Kozhikode) port is the busiest port among the four operating ports in Kerala in terms of number of vessels and in terms of steamers it is Vizhinjam port. 354 steamers and 269 sailing vessels visited the non-major ports of Kerala in 2022-23. Out of this, 227 steamers visited Vizhinjam port and 269 sailing vessels visited Beypore port. Details are given in **Appendix 11.1.28**.

The Beypore port has the largest facilities among the four operating ports in Kerala. Beypore has 310 m wharf, and 4 godowns. Details of facilities available in non-major ports of Kerala are given in **Appendix 11.1.29**.

Cochin Port

Cochin Port is the only major port in Kerala. It spreads over 827 hectares. It has a water frontage of 7.5 km. The port has connectivity to hinterland through NH 544, NH 66 and NH 185. Rail links to the Konkan and Southern Railway also give key rail access to its hinterland. An inland waterway connecting Kollam and Kottappuram is being developed on either side by the Inland Waterways Authority of India. Cochin with its proximity to the international sea route between Europe and the Far East and Australia can attract a large number of container lines offering immense business opportunities.

Cochin Port has 21 Berths including 1 Single Point Mooring SPM with an effective rated capacity of 73.67 MTPA. From April to March, 2022-23, Cochin port handled 4.50 per cent of the total cargo handled by India's 12 major ports are given in **Table 11.1.8**.

Table 11.1.8 Year Wise Cargo Handled at Cochin Port (In thousand tonnes)

	Financial Year (2021-22)		Financial Year (2022-23)	
	Cargo handled	% share to total Major ports	Cargo handled	% share to total Major ports
Overseas	22704	4.1	23149	3.9
Coastal	11846	7	12106	6.6
Total	34550	4.8	35255	4.50

Source: Port Data Management Portal (PDMP), Ministry of Ports, Shipping and Waterways P-Provisional

Box 11.1.3 A Momentous Milestone in India's Maritime Sector: Maiden Call of Vessel as Prelude to Vizhinjam Port's Operational Commissioning in 2024

The first international cargo ship 'Shenhua 15' docked at Vizhinjam International Port, India's first mother port on 15th October 2023. The maritime industry in India is on the verge of a historic transformation, and this transformation has reached a pivotal moment with the maiden call of a vessel carrying the first lot of equipment at the Vizhinjam International Seaport, Thiruvananthapuram. This momentous event not only marks a significant achievement but also serves as a prelude to the operational commissioning of the port in May 2024, signifying the beginning of a new era for the Indian maritime sector.

The Vizhinjam International Seaport, nestled in Thiruvananthapuram, is more than just a port; it's a symbol of India's maritime aspirations. With its strategic location along the Arabian Sea, this deep-sea water container transshipment hub is poised to revolutionise the nation's maritime landscape. This ambitious project was conceived with the primary objective of accommodating mother vessels in India, which has been a critical challenge for the country for years, and it will enhance the efficient transshipment of cargo as well.

Traditionally, a significant portion of India's container cargo transshipment was routed through neighbouring countries, resulting in additional costs and delays. The Vizhinjam International Seaport aims to change that by becoming a hub capable of handling container vessels of up to 24,000 TEU capacity. This not only positions India as a formidable maritime player but also promises cost-effective and efficient transshipment services, reducing dependence on foreign ports.

The maiden call of the vessel with the first lot of equipment signifies a turning point in India's maritime history. It reflects the culmination of years of planning, investment, and dedication. Beyond its symbolic value, this milestone has tangible implications for India's trade and economy.

As India aims to boost its export-import capabilities and participate actively in global trade, the Vizhinjam International Seaport provides the much-needed infrastructure to support these aspirations. It can serve as a catalyst for economic growth in the region and the nation, creating jobs, fostering trade, and stimulating investment.

Vizhinjam International Seaport Ltd (VISL)

Vizhinjam International Transshipment -Terminal will be the first deep water transshipment terminal in India. The main advantage of Vizhinjam port is natural depth of 18m, 10 nautical miles from the major international shipping route and minimal littoral drift along the coast. Government of Kerala has constituted a special purpose vehicle namely Vizhinjam International Sea port Limited (VISL) to facilitate the implementation of the project. VISL is the implementation agency for all obligations and responsibilities of the Government of Kerala in respect of project and the concession agreement. The Vizhinjam port has many geographical advantages to be developed as an international transshipment terminal. The availability of 20m contour within one nautical mile from the coast and minimal littoral drift along the coast demanding hardly any maintenance dredging, links to national/regional road and rail network, proximity to International shipping route and flexibility to design and develop as a greenfield project are the notable advantages.

Port operation and development is also planned on PPP model for an agreed concession time period. Terminal operator(s) will be required to develop the container yard, terminal buildings, and purchase and operate the cargo handling equipments. As per project funding pattern of VISL, the largest share comes from the State Government which accounts for about 60.46 per cent out of the total funding followed by concessionaire (Adani Vizhinjam Port Private Ltd.) which accounts for 29.89 per cent and the remaining 9.65 per cent is contributed by the Government of India. Over all progress of construction work given in **Appendix 11.1.30**.

Malabar International Port and SEZ Limited (Azhikkal Port)

Malabar International Port and SEZ Limited (MIPS Ltd), a Company wholly owned by the Government of Kerala was incorporated to execute the project for development of Azhikkal Port. Azhikkal Port is envisaged as an international as well as coastal shipping seaport with inter-modal connectivity with SEZs/industrial parks that

can funnel cargo to the port and entrepreneurial resources into potential sectors in the Malabar region.

The development of a new seaport for domestic and international cargo in the open sea at Azhikkal is envisaged in 3 Phases - capable of handling up to Panamax size ships (capacity of 4000 to 4500 containers). A 500-metre berth is planned in Phase I, a 300-metre berth in Phase 2 and another 300-metre berth in Phase 3. Once the port becomes fully operational, Azhikkal port will handle even internationally plying ships of around 4500 TEU Panamax vessels with a dredged depth of around 14.5m in the harbour basin. The port can handle containers, liquid bulk, petroleum products, dry bulk and break-bulk cargos.

The Technical Consultants submitted the Draft DPR of the project to the Government of Kerala in September for approval. An Empowered Committee (EC) has been constituted to scrutinise the draft DPR and to make necessary recommendations on the financial structuring and funding of the project under the Chairmanship of Chief Secretary. The EC has entrusted Centre for Management Development (CMD) to decide the most suitable type of financing model to be implemented. Draft EIA report has also prepared.

Harbour Engineering Department (HED)

HED primarily focuses on the construction and maintenance of fishing harbours and fish landing centres, fishery infrastructures (like hatcheries, ponds, farms) shore-based tourism projects, infrastructures of ports and coastal roads. So far the department has completed the work of 21 fishery harbours and the work of other 4 fishery harbours are in progress. The department has also implemented a lot of other social infrastructure facilities like fish landing centres, fish seed farms and hatcheries, fisheries schools, dispensaries, coastal roads, water supply and sanitation schemes in the coastal belt of Kerala to improve the living standards of the fisherfolk.

Major achievements of HED in 2022-23

- Constructed quality control lab at Ponnani division office.
- E-office Implemented at Chief Engineer's office and three Circle Officers office.
- Implemented Adhaar enabled bio metric punching machine system in all HED offices completed.

- Conducted Special training programme on coastal engineering aspects to engineers of HED.
- Conducted Up skilling programme for electric and mechanical staff of HED.
- Completed documentation of various projects of HED.
- Procurement of Mobile testing labs in three circle offices in HED.

Hydrographic Survey Wing (HSW)

HSW is another agency of the State in the port sector conducts investigations and prepares hydrographic charts both in digital and printed format. Such hydrographic charts give direct information on depth of overall water mass, underwater topography, contours, shore and land features and nature of bottom of water mass. The Wing also collects all hydrographic data and forwards to the National Hydrographic Office for updating navigational charts. As a routine, the Wing conducts about 20 surveys at various places for the Harbour Engineering Department and the Port Department every year and also collects the tide data at various places throughout the Kerala coast. The officers of Hydrographic Survey Wing initiated to establish the Kerala Institute of Hydrography and Advanced Studies (KIHAS) to conduct academic courses and supply qualified manpower for the sector.

44 surveys were carried out by the Hydrographic Survey Wing up to 31st August 2023. Details of the survey are given below **Table 11.1.9**.

Table 11.1.9 Details of Survey conducted by Hydrographic Survey wing

Sl. No.	Department	No. of survey
1	State Water Transport Department(SWTD)	12
2	CSL(Cochin Shipyard Limited)	6
3	HED(Harbour Engineering Department)	17
4	KMB(Kerala Maritime Board)	3
5	Irrigation department	1
6	KMRL(Kochi Metro Rail Limited)	4
7	CPT(Cochin Port Trust)	1
Total		44

Source: Hydrographic Survey Wing

Challenges and Opportunities

The Government has taken several initiatives to increase its investments in port sector by developing new ports, augmenting existing facilities, mechanising ports and improving connectivity and logistics. Despite these initiatives, Kerala's port sector has not been comparable with other ports either nationally or internationally. The challenges in the sector include inadequate road networks within the port area, inadequate cargo-handling equipment and machinery, inefficiency due to poor hinterland connectivity through rail, road, highways, coastal shipping and inland waterways. More focus should be given on expanding capacity and improving operational efficiency. The regulatory framework, comprising of many regulators and multiple legislations, is also complex and needs simplification to enhance integration and better co-ordination. The State should fully and consistently leverage benefits of port-led development of its coastline. In order to promote coastal shipping and to reduce the congestion on the roads, policies have to be formulated to enhance the existing incentive schemes. The development of maritime cluster of different departments may be formed to develop port based industries to utilise the coastal transport facility of the State.

INLAND WATER TRANSPORT

Inland Water Transport is fast emerging as a viable supplementary mode for movement of passengers and goods. It is considered cost-effective and eco-friendly mode of transport. Any disruption in the rail/ road transport not only creates hardships to passengers and movement of goods but also put a hold on the economic growth of the country. Hence, it becomes all the more necessary to develop and promote IWT sector.

India has an extensive network of inland waterways in the form of rivers, canals, backwaters and creeks. Freight transportation by waterways is highly underutilised in the country as compared to developed countries. India's hinterland connectivity is mainly based on road and rail with waterways. Inland Water Transport (IWT) in India has the potential to supplement the over-burdened railways and congested roadways. In addition to cargo movement, IWT sector also provides a convenient function in related activities such as carriage of vehicles on Roll-on-Roll-off (Ro-Ro) mode of cross ferry and tourism.

The National Waterways Act, 2016 has declared 111 inland waterways as 'National Waterways' (NWs) in the country to promote shipping and navigation on them. Inland Waterways Authority of India (IWAI), an autonomous organisation under the Ministry of Shipping Ports and Waterways is primarily responsible for the development, maintenance and regulation of those waterways which have been declared as NWs under National Waterways Act, 2016.

Cargo Traffic in Inland Water Transport in India

In the year 2022-23, cargo movement on National Waterways was 91.60 Metric Tonne (MMT) as compared to 76.65 MMT in 2021-22, showing a growth of 19.5 per cent. As per Maritime India Vision (MIV) 2030 document, cargo movement on National Waterways is targeted as 2000 MMT by 2030.

National Waterways in Kerala

Inland Navigation was the principal mode of passenger and commercial traffic till the middle of the twentieth century. With faster modes of transportation getting more popular, inland water transport, once dominant in the State was relegated to the background. Total length of inland waterways network in the State is estimated to be 1687 km, consisting of the National Waterways maintained by the Inland Waterways Authority of India and the other feeder and link canals maintained by the Coastal shipping and Inland Navigation/Irrigation Department of Kerala State.

As part of a programme for developing waterways by the Central Government, the portion of West Coast Canal (WCC) from Kollam to Kottapuram and Udyogamandal and Champakara Canals were declared as National Waterway 3 in 1993. The NW-3 is now extended up to Kozhikode by the National Waterway Act 2016. After the National waterway Act 2016; three canals were added to National Waterways under class 3 specification of 2.20m draught, 6.0m vertical clearance and 32- 40m width. National Water Ways in Kerala are listed in **Table 11.1.10**.

Total length of WCC is 616 km. There are 1,100 km feeder and link canals connecting WCC and important destinations like commercial centres, ports and tourism spots. WCC can broadly be divided into five sections namely (1) Kovalam-Kollam (74.18 km), (2) Kollam-Kottapuram

Table 11.1.10 National Water Ways in Kerala

Sl. No	Route	Length (in km)	NW No.
1	Kollam – Kottapuram portion of WCC	168	NW-3
	Udyogamandal canal	23	
	Champakara canal	14	
	Kottappuram-Kozhikkode portion of WCC	160	
2	Alappuzha -Changanassery	28	NW-8
3	Alappuzha- Kottayam- Athirampuzha	38	NW-9
4	Kottayam-Vaikkam	42	NW-59
5	Poovar- Erayumanthurai-AVM canal (Major portion in TN)		NW-58
Total Length(excluding AVM canal)		473 KM	

Source: Inland Water Ways Authority, Kochi.

(Kodungallur) (168 km), (3) Kottappuram-Kozhikkode (160 km), (4) Kozhikkode-Neeleswaram (187.82 km) and (5) Neeleswaram-Bekal (26 km) respectively. Out of the total length of 616 km, three portions between Mahe and Valapattanam having total length of 26 km are uncut portions. Further extension for 41 km from Neeleswaram to Kasaragod is also under consideration.

Inland Waterway Transport (IWT) mode is the preferred mode for transportation of Over Dimensional Cargo (ODC) because of multiple advantages vis-à-vis land transport. Rail transport doesn't have significant flexibility to accommodate ODC cargo because of standard wagon sizes. Road transport faces significant challenges such as route

Table 11.1.11 Cargo Movement in NW.3 during last 5 years in metric million tonnes (MMT)

Financial Year	Cargo Movement (in M.MT)
2019-20	0.55
2020-21	0.73
2021-22	1.7
2022-23	2.69
2023-24*	2.38

Source: Inland Water Ways Authority of India, Kochi
*Till June

and time restrictions, the requirement of multiple permissions, and significant effort in carrying out route surveys to carry ODC cargo. IWT mode allows the movement of ODC cargo in a relatively convenient manner. An analysis of cargo movement in NW 3 in the last five years is given in **Table 11.1.11**.

The Financial performance of the department and Agencies

The financial performance of department and Agencies is given in **Table 11.1.12**.

State waterways

Most of the canals in the State was silted up and suffer from many navigation constraints like shallow depth and narrow width, bank erosion, absence of infrastructural facilities like jetties and terminals and navigation aids and need development. Kozhikkode-Vadakara stretch is partially navigable. National waterways-3 between Kollam and Kottappuram and the feeder canals of Champakkara and Udyogmandal were developed in class-3 standard and barge services are operating in these canals. The Present status of reaches of WCC is given in **Appendix 11.1.31**.

Table 11.1.12 Department -wise Plan outlay and Expenditure from 2021-22 to 2022-23 and 2023-24(Rs in lakhs)

Department / Agency	Annual Plan 2021-22		Annual Plan 2022-23		Annual Plan 2023-24*	
	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure
SWTD	2761.00	1265.52	2979.00	1162.93	2979.00	1265.55
CSIND	10982.00	6773.65	10356.00	8153.54	10356.00	6798.14
KSINC	867.00	272.00	831.00	468.00	831.00	0.00

*Expenditure till November

Source: Budget (Volume 1), Finance Department, GoK and Plan Space

Coastal Shipping and Inland Navigation Department (CSIND)

The Coastal Shipping and Inland Navigation Department is involved in the development of waterways and promotion of Inland Navigation in Kerala. The department undertook works along the State waterways and made it navigable. Kallupalam bridge at Kollam, construction of 9 boat jetties and jankar kadavu in Alappuzha Districts and 11 steel foot bridge at Kozhikkode District are completed. The construction of Lock Cum Bridge at Veliyancode (Phase II) in Malappuram District, construction of Karikkakam steel lifting bridge and St. Andrews bridge, construction of steel lattice bridge across Parvathy Puthanar and Construction of sluice downstream of Chettuva bridge in Thrissur District are in progress.

Kerala Shipping and Inland Navigation Corporation. Ltd (KSINC)

Kerala Shipping and Inland Navigation Corporation Ltd. (KSINC) is the pioneer of inland navigation in the Kerala waterways and is a Government of Kerala undertaking. KSINC owns two yards for the construction and maintenance of small vessels. KSINC maintains high standards of excellence in every aspect of building, maintaining and operating vessels catering to a wide range of customer requirements. KSINC's own cruise vessels, the premier Sagararani (1 and 2) and the exclusive luxury cruise, Nefertiti are its highlights.

KSINC started tourism operation in 2005, taking the tourists to the sea on 'Sagararani', that offer trips to the sea on regular basis to the general public and currently two vessels are in operation. It is also the pioneer in mechanised cargo movement in Kerala and still the largest player. KSINC now operates two cargo barges, four petroleum barges, one acid barge, and two jhankars. In addition, launched 300 MT Acid Carrier barge and completed the construction of first solar (hybrid) tourist boat 'Sooryamshu' cost of Rs 4.25 crore in 2022-23 and operation stated. A solar-electric powered vessel is planned to be introduced at Kozhikkode on similar line of Sagararani. Operational statistics of the Inland Water Transport Agencies in Kerala is provided in **Appendix 11.1.32.**

Kerala Waterways and Infrastructures Ltd (KWIL)

For developing the waterways, State has formed a Special Purpose Vehicle named Kerala Waterways

and Infrastructures Ltd (KWIL)) with equal shares by State Government and CIAL Cochin International Airport Ltd(CIAL) in 2017. The main sources of fund are the funds provided by (Kerala Infrastructure Investment Fund Board (KIIFB)). Between 2017 and 2023, KWIL has undertaken preliminary works for land acquisition and canal cleaning works in various portions of WCC as directed by Government from time to time.

State Water Transport Department

The State Water Transport Department (SWTD) is an essential service department under the State Government and is committed to cater to the transportation needs of the public residing in the waterlogged areas of Alappuzha, Kottayam, Kollam, Ernakulam, Kannur and Kasaragod Districts. The department ferried 103.59 lakh passengers in 2022-23 with wooden/steel/solar based fiber glass passenger vessels covering a total route length of 2,245 km in 116 identified routes. SWTD operates around 2,32,000 trips per annum utilising a fleet strength of 63 vessels. The department functions through 14 terminal jetties adjacent to 14 station offices of the department. The operational Statistics of the department is given in **Appendix 11.1.33.**

The State Water Transport department has not confined its operation merely to the transportation of passengers but has also extended its operation to the tourism sector to reap its benefits and augment revenue generation. The department, in a bid to extract the benefits of tourism potential of Kuttanad Inland Water Ways and the connected Inland suburbs, built up a modern tourist cum passenger vessel 'See Kuttanad' with 90 passenger capacity which was inaugurated in September, 2022. The department has realised the importance of tourism in generating stable revenue and therefore, presently SWTD has three vessels (Vega-2, See Kuttanad and See Ashtamudi) operating exclusively for tourists. In 2021-22, the department earned Rs 90.35 lakh from the operation of its tourist vessels and revenue earning by operating tourist vessels has increased to a whopping Rs 203.63 lakh in 2022-23 which is 125.37 per cent higher over the previous year. 'See Ashtamudi' is the recent passenger cum tourist vessel introduced by the department in 2023 and is cruising through the scenic Ashtamudi Lake in Kollam District fetching average monthly revenue of Rs 8.00 lakh.

Unlike in road traffic sector, water taxi in inland service is a scarce venture. The department initiated the service of water taxi in inland service to provide more fruitful service to the public residing in the water logged areas. It has built of four water taxis, two of which-Thejas 1 and Thejas 2, are ferrying in Alappuzha and Payyannur routes respectively.

Water transport is inherently efficient than either rail or road transport and the use of Solar/Electric powered vessels will have positive impact in reducing carbon emission and hence efforts to convert old fuel boats into solar or electric or CNG vessels needs to be focussed. The success story of India's first solar ferry 'Aditya' is first of its kind in India and a model for other states as it is successfully ferrying since 2017 and till date between Viakkom and Thunakadavu averting 420 tons of carbon emission and saving 1.65 lakh liters of fossil fuel.

Challenges and Opportunities

It is necessary to create a comprehensive master plan for the waterways in the State that focuses on development projects as well as the movement of people and goods, operates the Kovalam-Kasaragod stretch of the waterway in accordance with national standards by 2025, offers incentives for the purchase of modern vessels as well as the movement of people and goods, establishes terminal facilities and connectivity between ports and the hinterlands, and develops strategies to promote riverine industrial corridors and tourism, improve water quality in inland waterways and take steps to reduce liquid and solid pollution in waterways and promote waterway based Industrialisation. The Government should prepare a medium-term and long-term vision that will ensure sustainable development of the IWT sub-sector in line with Integrated Multimodal Transport Policy. Modal options for the development of the transport sector should be based on social and environmental advantages.

Inland waterways network should be reclassified according to sustainable navigability and traffic importance. The core waterways should include fairways connecting Thiruvananthapuram and Bakel and other National waterways, connecting all ports including the inland port at Kottayam and connecting local towns. Network development and dredging strategy should be prepared in line with the Waterway Management Plan. The new dredging strategy should coordinate and integrate

programme of CSIND and Kerala Waterways Infrastructure Ltd (KWIL).

Private participation should be ensured in the field of waterway management and operations, development of IWT infrastructure, dredging and maintenance of waterways, mechanisation of cargo handling, development of inland container terminals and container traffic in the waterways. To this end, new guidelines and procedures should be prepared which will include the streamlining of the existing regulatory mechanism of inland ship safety and ship construction, ship design, supervision of ship construction, awarding survey certificates, and determining work force required for each ship. Competency certificates to different categories of crew should be awarded by training institutes after successful completion of service and training modules for each category.

11.2 ENERGY

11.2 Energy

The energy sector plays a key role in the progress of any country. Energy development is crucial in enhancing investments, innovations, new industries, inclusive growth, and shared prosperity for entire economies. Renewable energy sources are vital for green, secure, and affordable energy, and can help countries mitigate climate change, build resilience to volatile prices, and lower energy costs.

The worldwide energy crisis brought on by the Russia-Ukraine conflict has had far-reaching implications for households, businesses and entire economies.

India's power sources range from traditional ones to sustainable unconventional origins. Over 80 per cent of India's energy demands are fulfilled by three fuels: coal, oil, and solid biomass.(Source: International Energy Agency 2021).

The remarkable growth of solar and wind energy capacity of the country has enabled it to maintain its position as a global leader in renewable energy adoption. Today, India stands 4th globally in Renewable Energy Installed Capacity, with 43 per cent (as on September 30, 2023) of its total installed electricity capacity coming from non-fossil energy sources. (Source: Ministry of New and Renewable Energy (MNRE), GoI). India ranks 67th in the World Economic Forum energy transition index, which evaluates 120 economies' energy systems. This index is developed by considering the three energy triangle imperatives - equity, security, and sustainability - while effectively utilizing energy transition enablers. (Source: World Economic Forum).

Power Sector – Indian scenario

The national grid has an installed capacity of 4,24,288 MW as on August 31, 2023. In India, electricity from thermal energy is the dominant source of power. It constitutes nearly 56.19 per

Table 11.2.1 Installed Capacity (MW) in India 2022-23

Fuel	Installed Capacity(MW)			
	As on 31.03.2023	%	As on 31.08.2023	%
1	2	3	4	5
Thermal	2,37,268.91	57.02	2,38,443	56.19
Hydro	46,850.17	11.26	46,850	11.04
Nuclear	6,780.00	1.62	7,480	1.76
RenewableSources	1,25,159.81	30.08	1,31,515	30.99
Total	4,16,058.89		4,24,288	

Source: Central Electricity Authority (CEA)

Table 11.2.2. Installed Capacity (MW) in India 2022-23, Sector wise

Sector	Installed Capacity (MW)			
	As on 31.03.2023	%	As on 31.08.2023	%
Central Sector	1,00,054.93	24.04	1,01,415	23.90
State Sector	1,05,726.43	25.41	1,05,749	24.92
Private Sector	2,10,277.53	50.54	2,17,124	51.17
Total	4,16,058.89		4,24,288	

Source: Central Electricity Authority (CEA)

cent of the total installed capacity in the country. Contribution of electricity generation from different sources to the national grid is given in **Table 11.2.1**. Of late, renewable sources have emerged as the second largest electricity source in the country, relegating hydroelectric power to the third position.

In the sector-wise breakup of total energy

generation as given in **Table 11.2.2**, as on August 31, 2023, the contribution of the State sector is 1,05,749 MW (24.92 per cent), Central sector 1,01,415 MW (23.90 per cent), and private sector, 2,17,124 MW (51.17 per cent).

Power Sector in Kerala

Kerala is among the Front Runner States in the State Energy Efficiency Index published by

Box 11.2.1 Kerala Green Energy Mission

Kerala aims to transition to 100 per cent renewable energy by 2040, and net carbon neutrality by 2050. The State has a favorable atmosphere for the production of Green Hydrogen with high rainfall, solar insolation, wind potential, and abundant water bodies for floating solar and offshore power generation. Green Hydrogen produced using renewable energy can play an important role in eco-friendly development. Using Hydrogen fuel in long haul vehicles and ships will reduce the carbon emission to a great extent.

Kerala has 8,600 MW of RE potential, and the State is already a front runner in adopting Green Hydrogen across the system. Green Hydrogen would play a crucial role in achieving Kerala's mission for Carbon neutrality by 2050. To facilitate investments in the green hydrogen domain and transform Kerala to a Green Hydrogen Hub, the State plans to devise a strategic roadmap, policy, and implementation plans. In order to realize the above goal, the Government has constituted "Kerala Hydrogen Economy Mission (KHEM)" in November 2022 with a high level committee to contribute strategic inputs, facilitate partnerships and collaborations and assistance to the Mission.

Table 11.2.3 Growth of Power Systems in Kerala at a Glance (2018-2023)

Sl. No.	Particulars	Position as on 31.03.2023					
		Unit	2018-19	2019-20	2020-21	2021-22	2022-23
1	Installed Capacity	MW	3000.35	3063.15	3029.65	3145.82	3514.81
2	Annual Sales(within State & Open access)	MU	21750.25	23058.91	22540.30	23983.42	25383.77
3	Per capita consumption	kWh	626	657	619	676	682
4	Export per annum	MU	1030.20	323.84	633.39	2244.73	1832.24
5	Import per annum	MU	17982.15	20827.12	18708.40	19156.36	18249.07
6	Consumers	Nos.(Lakh)	125.52	128.26	131.43	134.22	136.48
7	Street Lights	Nos.	1422764	1447820	1476776	2301556	2351628
8	Revenue from sale of power per annum	Rs(Lakh)	1352121	1431882	1405353	1596204	1770546

Source: KSEBL

Bureau of Energy Efficiency, Ministry of Power, Government of India. Though highly dependent on imported power, the State could provide power for all on demand, without imposing on restrictions such as load shedding or power cut.

Power development activities in the State are carried out mainly through four agencies, namely, Kerala State Electricity Board Limited (KSEBL), Agency for Non-conventional Energy and Rural Technology (ANERT), Electrical Inspectorate, and Energy Management Centre (EMC).

Power Availability

The quantum of power available in the State is met

from Central Stations, private generators, Power Exchanges and also from internal sources including stations owned by KSEBL, Independent Power Producers (IPPs), Captive power plants (CPPs), and prosumers. Details are given in **Table 11.2.4**.

Power Demand

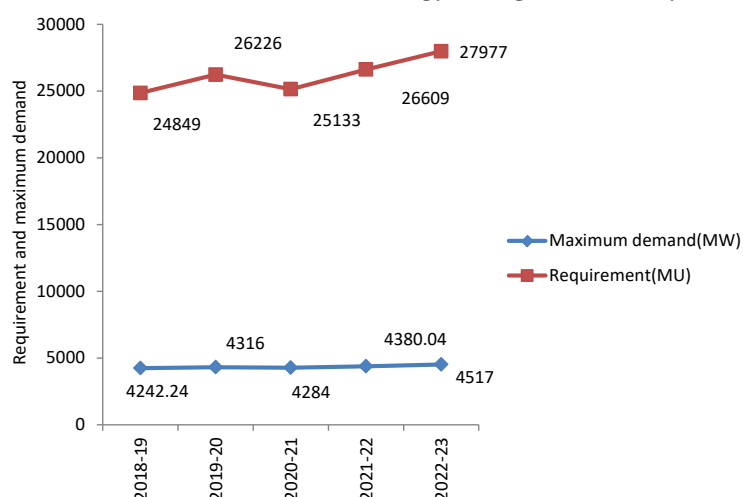
Peak demand of the State during 2022-23 was 4517 MW (on March 28, 2023), indicating 3.12 per cent increase from 4380.04 MW in 2021-22. Morning peak demand was 3611 MW and day peak demand was 4096 MW for 2022-23. **Figure 11.2.1** shows the energy requirement and maximum demand for energy during the last five years.

Table 11.2.4 Energy sources & Quantum procured during 2022-23

Sl.No.	Particulars		Energy (MU)
1	Gross generation KSEBL(excluding auxiliary consumption)	A	8560.33
2	Power purchase from CGS at Kerala periphery	B	10386.03
3	Power purchase through long term/medium term/short term contracts /swap at Kerala periphery	C	9679.25
4	Total Power purchase from IPPs/CPPs inside the State	D	1068.01
5	Total power purchase at Kerala periphery [Row 2+3+4]	E = B + C + D	2113.29
6	Energy injected by Private IPPs at generated end for sale outside the State through open access	F	52.77
7	Energy availed through open access at Kerala Periphery	G	135.32
8	Auxiliary consumption	H	23.18
9	EXPORT-Energy sales by KSEBL , SWAP Return by KSEBL and Energy injected by Private IPP's at KSEB periphery for sale outside the State through open access	I	1881.38
10	Total energy input to Kerala periphery for meeting the consumption of the State including energy wheeled through open access	J = A + E + F + G - H - I	27977.16

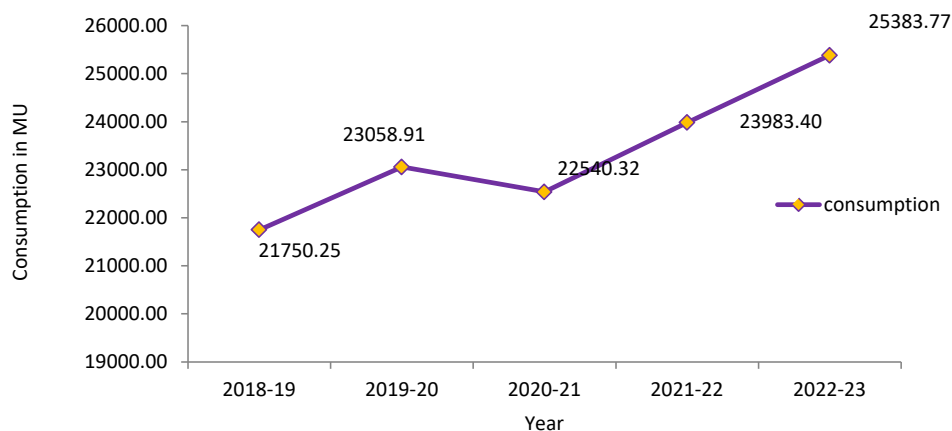
Source: KSEBL

Figure 11.2.1 Requirement and maximum demand for energy during the last five years



Source: KSEBL

Figure 11.2.2 Electrical energy consumption in Kerala from 2018-19 to 2022-23



Source: KSEBL

Pattern of Power Consumption

The electrical energy consumption in the State has increased to 25383.77 MU (includes open access consumption) in 2022-23 from 23,983.40 MU in 2021-22, an increase of 5.83 per cent. Electrical energy consumption in Kerala from 2018-19 to 2022-23 is depicted in **Figure 11.2.2**. The total number of consumers as on March 31, 2023 was 1,36,48,851.

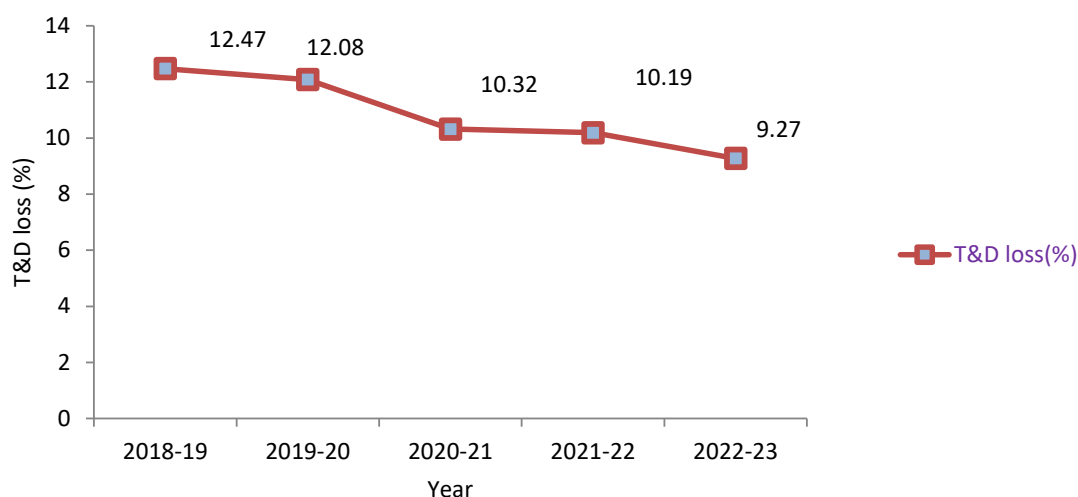
KSEB has sold 26736.62 MU power, which includes own consumers, sales outside state and also sale to other bulk licensees. An amount of Rs 17,705.46 crore was collected as revenue

from the sale of power in 2022-23. The details of the pattern of power consumption and revenue collected in 2022-23 are furnished in **Appendix 11.2.1**.

Impact of Aggregate Technical and Commercial (AT & C) Losses

Kerala has achieved commendable success in reducing Transmission and Distribution (T&D) losses. In 2022-23, The T&D loss stood at a low 9.27 per cent down from 10.19 per cent in the previous year. These losses indicate efficient power management and infrastructure upkeep. The impact of AT&C loss reduction during the

Figure 11.2.3 Transmission and Distribution (T&D) loss (2018-19 - 2022-23), in per cent



Source: KSEBL

last five years is shown in **Appendix 11.2.2**, and **Figure 11.2.3** illustrates the T&D loss from 2018-19 to 2022-23.

Generation

The power generation landscape in the State includes hydroelectric, thermal, wind and solar plants and they collectively contribute the State's electricity generation capacity. Total installed capacity of power in the State as on March 31, 2023 is 3,514.81 MW, of which, hydel power contributed the major share of 2,173.57 MW (61.84 per cent); while 734.42 MW was contributed by solar power (20.90 per cent), 536.54 MW (15.27 per cent) from thermal and 70.28 MW from wind (2 per cent). **Appendix 11.2.3** gives the details of energy source and its installed capacity during the last five years, while sector-wise details are presented in **Appendix 11.2.4**. **Figure 11.2.4** highlights the total installed capacity of Kerala from hydel, thermal, and renewable sources.

Of the total installed capacity of 3,514.81 MW in 2022-23, the contribution of State sector is 2299.89 MW (65.43 per cent), central sector 359.58 MW (10.23 per cent), and private sector 855.34 MW (24.33 per cent). The details of power availability during the last five years are illustrated in **Appendix 11.2.5**.

Kerala State Electricity Board Limited owns 41 hydel stations of capacity 2096.36 MW, two thermal plants of 159.96 MW, solar plants of 47.54 MW, and one wind farm of 2.03 MW with an installed capacity of 2299.89 MW. Due to the high production costs associated with power

Table 11.2.5 KSEB Internal Generation

Sl. No.	Particulars	Capacity as on 31.3.2023 (MW)	Total Internal Generation in 2022-23 (MU)
1	2	3	4
1	Hydel	2090.36	8636.52
2	Thermal	159.96	0.12
3	Solar	47.54	21.55
4	Wind	2.03	1.19
Total		2299.89	8659.38

Source: KSEBL

generation, KSEB does not rely on thermal plants for daily electricity needs. Details are shown in **Table 11.2.5**.

The details of 10 ongoing hydroelectric Generation projects with installed capacity of 209.50 MW executed by KSEB are given in **Appendix 11.2.6**, and the list of existing Small Hydro Projects owned by KSEBL is presented in **Appendix 11.2.7**.

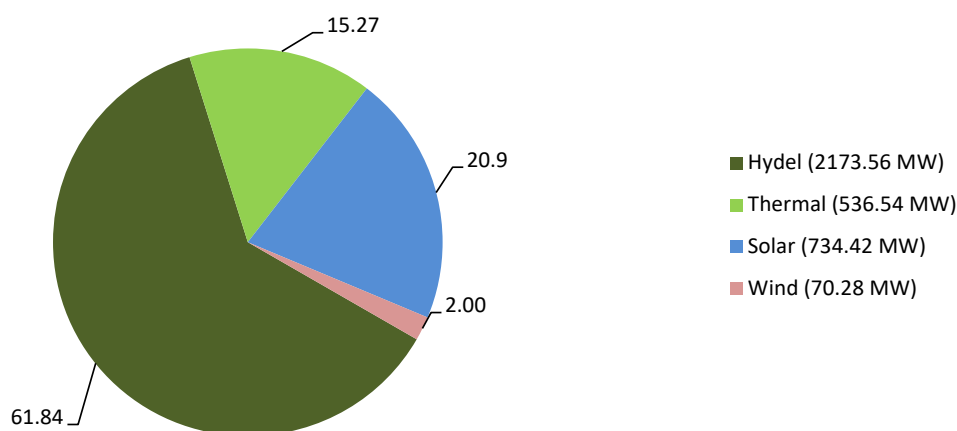
Transmission

Kerala has 432 transmission substations with 14,431.11 circuit km lines having 25555.70 MVA total transformation capacity of which 6 stations (1755.61 Ckm) owned by Power Grid Corporation of India (PGCIL), as on March 31, 2023.

Transgrid 2.0

The ambitious Transgrid 2.0 project aimed at enhancing the transmission capacity for meeting future demand, improving reliability and quality

Figure 11.2.4 Total Installed capacity (MW) in Kerala in 2022-23, in per cent



Source: KSEBL

of power transmitted and to reduce losses. Out of the 12 substations targeted in the first phase of the Transgrid 2.0 project (2017-23), 11 substations and 1490 ckm of EHT lines were completed till March 31, 2023.

In 2022-23, 6 new substations were completed of which, 4 stations were completed as part of Transgrid 2.0 project.

Kerala's transmission infrastructure consisting of substations as on March 31, 2023 and details on substations and lines completed in 2022-23 are given in **Appendix 11.2.8** and **Appendix 11.2.9**.

Distribution

The distribution network as on March 31, 2023 has 67,920 circuit km of 11 kV & 22 kV lines, 3,02,626 circuit km of LT lines, and 87,584 distribution transformers with step down capacity of 10,727 MVA.

Major works completed in the distribution sector during 2022-23 indicates more than 100 per cent achievement above the targets. The target and achievement of the distribution infrastructure during 2022-23 are given in **Appendix 11.2.10**.

Electrical Accidents

In 2022-23, 421 humans/animals affected electrical accidents were reported in the State and the details are shown in **Table 11.2.6**.

Of the total accidents that occurred in 2022-23, about 50 per cent are fatal human, 35 per cent are non-fatal (human, and 15 per cent are fatal animal accidents).

Power Sector Agencies

Power development activities in the State are carried out mainly through four agencies, namely, Kerala State Electricity Board Limited (KSEBL), Agency for Non-conventional Energy and Rural Technology (ANERT), Electrical Inspectorate, and Energy Management Centre (EMC).

Kerala State Electricity Board Limited (KSEBL)

Kerala State Electricity Board Limited is a (power utility) company incorporated under Companies Act 1956 (Central Act 1 of 1956). It is fully owned by Government of Kerala, under the provisions of Section 131 of the Electricity Act 2003 by re-vesting (under sub section (2) of Section 131 and 133 of the Act) the functions, properties, interest, rights, liabilities, proceedings and personnel vested in State Government from erstwhile Kerala State Electricity Board. It is responsible for the generation, transmission and distribution of electricity in the State, with the specific mandate to provide electricity at affordable prices to domestic, agricultural and industrial use.

The implementing and regulating agencies associated with the non-conventional and renewable sources of energy in Kerala are (i)

Table 11.2.6 Electrical Accidents– Human/Animals affected in 2022-23, in Number

Sl. No.	Reasons	Human		Animals		Total
		Fatal	Non-Fatal	Fatal	Non-Fatal	
1	Snapping of conductors	14	5	29	0	48
2	Accidental contact with live electric wire/equipment	92	69	13	0	174
3	Violation /neglect of safety measures/ lack of supervision	29	37	1	0	67
4	Defective appliances/apparatus /tools	28	8	12	0	48
5	Inadequate/lack of maintenance	4	4	4	0	12
6	Unauthorised work	7	3	2	0	12
7	Others*	35	21	4	0	60
Total		209	147	65	0	421

*Temporary extensions, P&T crossings and misuse.
Source: Electrical Inspectorate

Agency for Non-conventional Energy and Rural Technology (ANERT), and (ii) Energy Management Centre (EMC)

Agency for Non-Conventional Energy and Rural Technology (ANERT)

Agency for Non-conventional Energy and Rural Technology (ANERT) is an autonomous body under the Power Department, GoK. ANERT is the nodal agency for the implementation and propagation of non-conventional sources of energy, rural technologies and promoting the idea of Carbon neutral governance for government institutions with renewable energy and electric-mobility in the State. It is also the nodal agency for the Ministry of New and Renewable Energy Sources (MNRE), GoI, to carry out the Central Government programmes in Kerala.

Energy Management Centre (EMC)

Energy Management Centre (EMC) is the State-designated agency of Bureau of Energy Efficiency, MoP, GoI for promoting/ implementing energy conservation activities in order to enhance efficient energy management in the State. EMC also promotes small/mini/micro hydel schemes. The Small Hydro Promotion (SHP) Cell constituted by GoK under Power Department is also attached to EMC, to give impetus for development of SHPs through private participation.

Department of Electrical Inspectorate

Department of Electrical Inspectorate and Meter Testing and Standards Laboratory (MTSL) is functioning under the Department of Power. Safety inspections are carried out and sanction for energisation for all HT/EHT and other medium voltage installation in the State are issued by the Inspectorate. The motto of Meter Testing and Standards Laboratory (MTSL) is to provide

testing and calibration of various types of electrical equipment. The Department also enquires into all electrical accidents occurring in the State.

The outlay and expenditure of these departments in Annual Plan 2022-23 and Annual Plan 2023-24 are shown in **Table 11.2.7**.

Major Physical Achievements of Power sector Agencies

KSEBL

- A total capacity addition (KSEBL owned) of 41.26 MW in Generation capacity (30 MW Hydro & 17.26 MW Solar) was achieved. Addition of 30 MW in Hydro achieved through completion of two Small Hydro Electric Projects; Poringalkuthu (24 MW) and Peruvannamoozhi (6MW). Adding 17.26 MW in Solar was achieved through 2.75 MW from Brahmapuram and 14.51 MW through SOURA project.
- Total transmission capacity addition in 2022-23 was 745.50 MVA and 47.70 ckt.km of EHT line (110 kV) and 3.6 km of 33 kV were also constructed.
- In 2022-23, 3.73 lakh new service connections were effected and 2283 new distribution transformers were installed; 1566 km of 11 kV line and 4036 km of LT lines constructed.
- A total number of 33159 faulty meter replacements were done in 2022-23.
- Effected 18,635 BPL connections utilizing KSEBL fund amounting to Rs 21.40 crore
- A total number of 27 unelectrified Tribal colonies were electrified by KSEBL.
- The total income of KSEB in 2022-23 was Rs 18453.27 crore , indicating a 8.64 per cent increase over 2021-22.

Table 11.2.7 Outlay and expenditure in the Annual Plan 2022-23 and Annual Plan 2023-24, Rs.crore

Sl. No	Department/Agency	Annual Plan 2022-23			Annual Plan 2023-24		
		Outlay	Expenditure	%	Outlay	Expenditure*	%
1	KSEBL	1093.75	966.69	88.38	1094.55	547.72	50.04
2	ANERT	44.44	15.85	35.66	49.00	4.49	9.16
3	EMC	9.14	4.62	50.54	9.14	2.20	24.07
4	Electrical Inspectorate	5.60	2.70	48.21	5.40	0.77	14.25
	Total	1152.93	989.86	85.85	1158.09	555.18	47.93

* up to November 1, 2023

Source: Plan space Kerala

ANERT

- Renewable Energy Service Company (RESCO) mode solar power plants of 350 kW and 500 kW were commissioned.
- 770 numbers of Solar power plants of 2 kW systems, 305 nos. of 3 kW systems and 3 nos. of 20 kW systems for LIFE Mission flats were installed.
- 98 kW Hybrid solar power plants (grid-tie with battery backup) at 20 sites (in 8 Districts) were set up as a model project.
- Installed 16 Solar street lights under solar city programme in Thiruvananthapuram.
- Solar-wind hybrid electrification of 2 tribal hamlets with total 55 houses and 65 kW capacity was completed.
- Solar rooftop installation for the general public under Soura scheme was done in about 1900 houses totalling 6 MW capacity.
- 17 electric vehicle charging stations were installed across the State.
- 37 agriculture pumps were solarised with solar power plants having a total capacity of 188 kWp under PM-KUSUM programme.
- Conducted 2-day training programme in solar photovoltaic systems for electricians and 417 trained electricians were participated in job fairs conducted by the agency.

Energy Management Centre

- Energy Conservation in the State saved 75.06 MU of electricity and 3842.57 ToE of Oil.
- Implemented energy efficiency activities in 2 Government Hospitals namely Government Women and Children Hospital, Palakkad and Regional Institute of Ophthalmology, Thiruvananthapuram as part of 'Chaithanyam', the programme for improvement of energy efficiency in Health Sector.
- Energy Audit: Carried out energy audits of (i) 81 public buildings in Kattakada Assembly Constituency (as part of Carbon Neutral Kattakada) (ii) 143 Government schools (as part of Model Energy Efficient School programme) (iii) 144 Government buildings (as part of Urjayan scheme) (iv) 14 water pumping stations of Kerala Water Authority in Idukki District & energy audit recommendations were implemented carried out in 20 Government buildings and in 22 Government schools.
- Replaced 'Petty and Para' system (3 Nos) used at Kuttanadu for dewatering purposes with Energy Efficient Turbine pumps of Capacities 30 HP & 20 HP for providing energy savings of more

than 35 per cent compared to the 'Petty & Para' System.

- As part of Smart Energy Programme, 81 programmes had been conducted across the state at 39 Educational Districts for curbing energy wastage through active measures and also popularizing the importance of energy conservation energy efficiency measures among students.
- Organized over 500 awareness training programmes and 45 technical workshops.
- The energy Meter calibration lab of EMC has calibrated 2169 nos of different types of energy meters/ net meters.
- EMC had done electro-photometry tests of LED Street lights received from Thiruvananthapuram Corporation and Alappuzha Municipality and other private manufactures.
- launched Clean Energy Technology Innovation and Business Incubation Centre (CEIBIC) for the development of green energy ecosystem in Kerala.

Electrical Inspectorate

- 29 electrical safety awareness programmes were organised by the department.
- Conducted Technical training programmes in 14 districts.
- Launched Online software "SAMRAKSHA" providing all service of Kerala State Electricity Licensing Board online.
- Procured two new testing equipments for testing.
- Revenue from the department for 2022-23 was Rs 77.80 crore.

Kerala State Electricity Regulatory Commission (KSERC)

The Kerala State Electricity Regulatory Commission is a quasi-judicial statutory organisation responsible for maintaining a fair, transparent, and objective regulatory system in the power sector of the State. The major function of the Commission is to determinate the tariffs for generation, supply, transmission, and retail sale of electricity in the State. It is also vested with other functions such as approval of power purchase agreements of distribution licensees in the State, resolving disputes among licensees/ generating companies, issues relating to tariff and determination of compensation as per the provisions of the Electricity Act, 2003. The Commission has conducted 85 hearings and

disposed 50 petitions out of 90 petitions received during 2022-23.

Electricity Ombudsman

Electricity Ombudsman is a statutory authority appointed by the Commission under sub-section (6) of Section 42 of the Electricity Act, 2003, to settle grievances of consumers, aggrieved by non-redressal of their grievances by the Consumer Grievance Redressal Forum. The total number of petitions disposed was 110 and number of sittings conducted were 118 during 2022-23.

Challenges of the Energy sector

- Delay in commissioning of projects
- There is huge shortage of power during high demand period. Hence meeting the high demand during the peak hours is a challenge.
- Hydro generation in the State require more investment and obtaining environmental and forest clearance, a major bottleneck in hydro power generation
- Addressing unelectrified colonies and Anganwadis for ensuring total electrification.
- Increasing financial burden due to arrears receivable to KSEB

Way Forward

Kerala requires more energy in the near future to meet the changing development scenario, and to bring in more industries. Enhancement of internal generation capacity of the State is necessary, and timely execution of Renewable Energy projects is required. The State needs to move to an extensive research and development effort to identify and harness energy sources available in the state with innovative ideas.

11.3 COMMUNICATION

Telecommunication

Telecommunication has been recognised all over the world as a powerful tool of development and poverty reduction through empowerment of the masses. It has several linkages to the Sustainable Development Goals (SDGs) of the United Nations Agenda for Sustainable Development for 2030. The International Telecommunication Union has recognised the importance of this sector in achieving SDG targets. The telecom sector exhibited strong growth over the last few years on the back of strong consumer demand and supportive policies. The telecom industry in India is the second largest in the World with a subscriber base of 1.17 billion as of March, 2023 (Wireless and Wireline subscribers).

Tele-density, which denotes the number of telephones per 100 population, is an important indicator of telecom penetration. India has an overall tele density of 84.51 per cent as of March, 2023, of this, tele density of the rural market which is largely untapped, stands at 57.71 per cent while tele-density of the urban market is 133.81 per cent.

Total telephone connections in Kerala as on March 2023 is 4.38 crore which is 3.73 per cent of the total telephone connections in the country. The number of wireline connections in the State has witnessed a slight increase from 13.19 lakh in March 2022 to 13.81 lakh in March 2023 with an annual growth of 4.70 per cent, while mobile connections (Wireless) has reduced to 4.24 crore from 4.33 crore in the same period. The tele-density of the State is 122.13 per cent as on March 2023, of this rural tele-density stands at 223.06

per cent and urban tele-density at 89.45 per cent. Kerala service area has the highest rural tele-density followed by Himachal Pradesh (86.31) service area.(Source: The Indian Telecom Services Performance Indicators, March 2022 & 2023, Telecom Regulatory Authority of India)

The Government have placed considerable emphasis on growth of internet and broadband in the State. There has also been an accelerated growth in Internet traffic. Internet connections in the Kerala have jumped from 30.42 million in March 2022 to 31.91 million in March 2023, registering a growth of 4.8 per cent. Number of internet subscriber per 100 population in the State has also witnessed increase in the period. The Number of internet subscriber per 100 population in the rural area was 150.78 in March 2022, which rose to 171.98 in March 2023. Similarly, Subscribers in the urban area has also increased from 61.42 to 62.12 in the same period. (Source: The Indian Telecom Services Performance Indicators, March 2022 & 2023, Telecom Regulatory Authority of India)

Telephone Subscriber Base

The Indian telecom sector is the second largest in the world in terms of the number of subscribers. The sector has witnessed exponential growth over the last few years as a result of many factors such as affordable tariffs, wider service availability, rolling out of new facilities and services such as 3G, 4G and 5G, evolving consumption patterns of subscribers and conducive regulatory environment.

Fixed-line phone customers in India increased from 24.84 million in March 2022 to 28.41 million in March 2023. During the same time period, the number of wireless subscribers climbed from 1,142.09 million to 1,143.93 million. The annual growth rates of wireline and wireless telephone subscribers are 14.37 per cent and 0.16 per cent respectively.

The Urban telephone subscription increased to 653.71 million in March, 2023, which was 647.11 million at the end of March, 2022 but the rural subscription base showed a dip from 519.82 million in March 2022 to 518.63 million in March 2023. The annual growth rates of urban and rural telephone subscription base are 1.01 per cent and -0.23 per cent respectively. The overall Tele-density in India has come down to 84.51 per cent at the end of March, 2023 which was 84.88 in March 2022. The Urban tele-density decreased from 134.94 per cent in March 2022 to 133.81 per cent in March 2023. However, Rural tele-density has remained almost stable at 58 per cent during the annum. The share of urban and rural subscribers to the total number of telephone subscribers at the end of March, 2023 was 55.76 per cent and 44.23 per cent respectively.

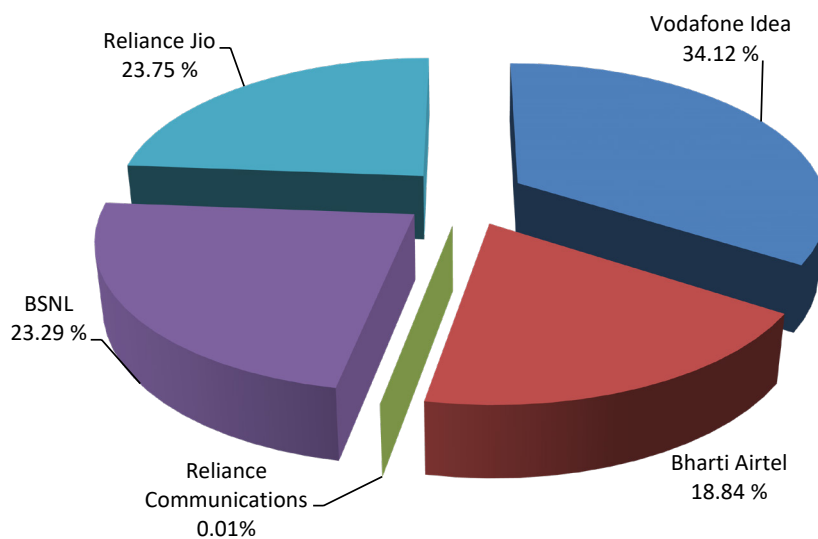
In Kerala, the number of wireline telephone subscribers has increased from 13.21 lakh in March 2022 to 13.81 lakh in March, 2023 thereby showing an annual increase in the number of fixed

line subscribers by 4.5 per cent. Subscriber base of wireless connections in the State during the period has shown a declining trend; the wireless subscriber base has dropped from 4.33 crore in March 2022 to 4.24 crore in March 2023 with a negative annual growth of -2.1 per cent. The Urban telephone subscription in the State has decreased to 24.23 million in March, 2023 from 24.73 million in March, 2022 and the rural subscription has also witnessed a slight fall in the same period from 19.97 to 19.56 million as of March, 2023. The annual growth rates of urban and rural telephone subscription are -2.02 per cent and -2.09 per cent respectively.

Total number of Wireless telephone subscriber in Kerala as on March, 2023 is 4,24,11,116, Of which Vodafone Idea (VI) has the largest number of subscribers with 1,44,70,640 followed by Reliance Jio with 1,00,70,654 subscribers. BSNL has 98,78,402 subscribers and Bharti Airtel (including Tata tele services) has 79,91,307 while Reliance communications has only 113 subscribers. The market share of various wireless telephone service providers is given in **Figure 11.3.1**.

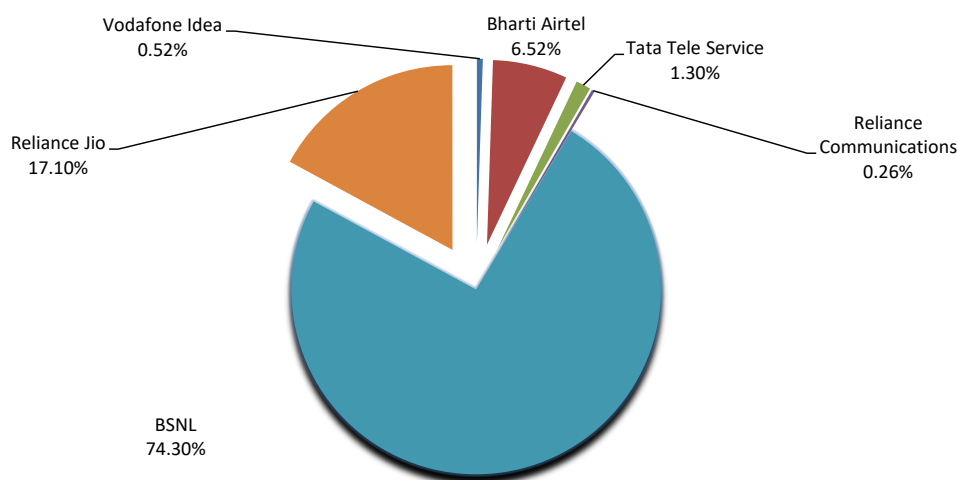
Total number of wireline subscribers in the State as on March, 2023 is 1,381,175. BSNL has largest wireline Subscriber base of 10,26,253 connections, followed by Reliance Jio with 2,36,123 subscribers. Reliance communications is the telecom service provider with least subscriber base of 3,610

Figure 11.3.1 Market share of wireless telephone service providers, as on 31.03.2023



Source: Press Release, March, 2023, TRAI

Figure 11.3.2 Market share of wire-line telephone service providers, as on 31.03.2023



Source: Press Release, March, 2023, TRAI

connections. The wireline telephone market share of service providers is given in **Figure 11.3.2**.

Digital Inclusion

According to United Nations, Digital Inclusion means the 'equitable, meaningful, and safe access to use, lead, and design of digital technologies, services, and associated opportunities for everyone, everywhere'. Being connected is a means to providing enhanced personal and societal well-being and digital livelihoods. Online connectivity enables the right and the ability to access basic human services such as health care, economic and personal development opportunities, skills development, and education for all. It also acts as a catalyst for individuals to exercise their right to freedom of opinion and expression, facilitating the realisation of a range of other human rights.

Internet Infrastructure

In the modern era, internet connectivity is as important as transport and energy infrastructure for industrial growth. In this age of the fourth industrial revolution, it is essential to ensure that quality data is being transferred quickly, as the State strives to become a knowledge economy and an innovation society. It was with this in view that Kerala announced the internet as a basic human right of its citizens, becoming the first State in India to do so. Kerala State Wide Area Network (KSWAN), Kerala Fiber Optic Network (K-FON) etc are notable initiatives of the Government towards the creation of a modern, high-tech infrastructure for uninterrupted access to internet.

Core infrastructure for e-governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network, State Data Centre, State Service Delivery Gateway and public Wi-Fi project. KSWAN is the backbone of the State Information Infrastructure (SII), connecting Thiruvananthapuram, Kochi and Kozhikode and extending to 14 districts and 152 block Panchayats of the State. The network will also connect 3,500 offices of Government departments through wireless and a large number through leased lines and Local Area Network. KSWAN is seamlessly integrated with the State Data Centres which enable the network to provide large number of Government to Government, Government to citizens' services hosted in State Data Centres to the Government institutions through a secure intranet.

K-FON-The People's Internet

Kerala Fibre Optic Network (K-FON) is the flagship project of the State Government aiming to obviate the digital divide. The project is a complementary infrastructure to the existing telecom ecosystem in the State and is based on the principles of non-discriminatory treatment, as per the recommendations of TRAI. It essentially acts as an information super-highway through the creation of a robust core and middle-mile infrastructure. In due course, this model can lead the market forces to act and increase competition in providing better connectivity services to the citizens and will function as a strong foundation for all G2G, G2C, and B2C interactions. The

project was approved by KIIFB in 2017-18 with a total outlay of Rs 1061.73 crore. The phase I of the project envisages to provide internet connection to 30,000 Government institutions with a total fiber route length of 30,000 km and 375 point-of-presence (POP). The phase I of the project is nearing completion and 25,000 connections have so far been provided. A total of 3,345 BPL families were successfully received free internet connectivity through K-FON. K-FON has already secured Infrastructure Provider (IP-1) registration and Internet Service Provider (ISP-B) licence for initiating the service part, from the Department of Telecommunications, Government of India.

Internet subscriber data

The total number of internet subscribers in India stood at 881.21 million at the end of March 2023. The number of subscribers accessing Wireless internet connection constitutes the major chunk with over 847.31 million subscribers contributing to 96.15 per cent of the total number of internet subscribers. While the wireline subscriber base is at 33.94 million which forms 3.85 per cent of the total number of internet subscribers. Kerala has

31,713 telephone towers. Reliance Jio has largest number of telephone towers with 10,101 towers, followed by Vodafone Idea 8,593 towers. BSNL has only 6,023 towers.

Kerala Telecom circle serves the whole of Kerala State and the Union Territory of Lakshadweep and part of Puducherry (Mahe). The circle has 11 major Secondary Switching Areas (SSAs) and one minor SSA of Lakshadweep. 1,188 telephone exchanges are working under the Circle with an equipped capacity of 14,72,636 numbers. Number of working connection under the circle is 1,06,66,129 (97,48,949 Mobile and 9,17,180 landline connections). The District-wise details of telephone network of BSNL Kerala as of August, 2023 are given in **Appendix 11.3.1**

Postal Network

Kerala Postal Circle includes the entire State of Kerala, the Union Territory of Lakshadweep Islands, and Mahe under the Union Territory of Puducherry. In Kerala, every village has at least one post office. As of August, 2023, there are 5,062 Post offices in the Circle, of which 1,508 are

Table 11.3.1 District/UT wise distribution of post offices in Kerala Circle, as of August, 2023

Sl. no.	Name of District/Union Territory	Number of Post Offices
1	Kasaragod	231
2	Kannur	382
3	Wayanad	163
4	Kozhikode	406
5	Malappuram	438
6	Palakkad	455
7	Thrissur	484
8	Ernakulam	391
9	Idukki	296
10	Kottayam	406
11	Alappuzha	300
12	Pathanamthitta	317
13	Kollam	365
14	Thiruvananthapuram	414
15	UT of Lakshadweep	10
16	UT of Puducherry (Mahe only)	4
Total		5,062

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

Departmental Post offices and the remaining 3,554 are Extra Departmental Post offices (Branch Post Offices). On an average, each post office in the State serves an area of 7.7 sq.km and a population of 6,613 as against the national average of 21.21 sq.km and a population of 7,175 people. 82.2 per cent of these Post offices are in the rural areas. The District-wise distribution of the post offices in Kerala as of August, 2023 is given in **Table 11.3.1**.

Given the vast reach of the network in the State, continuous efforts are being made to increase access to postal facilities in the newly developed

urban/rural areas by opening new post offices or by upgrading existing Extra Departmental Post Offices (EDBOs) to full time post offices. Details of growth of Post offices in the State over years and rural-urban divide, division/category-wise post office under the circle etc. are given in **Appendix 11.3.2, 11.3.3, 11.3.4 and 11.3.5**.

Mail network in the State has been revamped with 14 speed post processing centres under 5 national hubs to facilitate technology induction for the purpose of monitoring and to provide track and trace facilities from the point of booking to

Table 11.3.2 e-based and value added services of Kerala Postal Circle

Sl. No.	Type of Service	Functions
1	'e post'	Service to send a communication speedily to the destination avoiding physical transmission but retaining the last mile reach through the Postman. As on March 31, 2020, 1334 post offices have been provided with this facility.
2	Many to One	This facilitates sending of same ePost message from many senders to one recipient on recipient's email box
3	One to Many	It facilitates sending of same ePost message from a sender to multiple recipients on recipient's email inbox
4	eMO	This service was introduced in 2008 for remitting money to and from addressees within the country. Today, 98 per cent of the entire money order traffic is handled electronically. Today the number of post offices offering this service in Kerala is 1508.
5	e-payment	The service enables collection of bills including utility bills on behalf of various service providers from all the computerised post offices and payment centrally to the client organisation as per the periodicity desired by them. This service is available in all 1508 (Head Post Offices and Sub Post Offices) Post offices in Kerala Postal Circle.
6	International Speed Post or EMS	This is a facility that is available from India to 99 countries.
7	Direct Post	Direct Post is a product which allows establishments/firms to reach their present or prospective clients through targeted marketing. Any pamphlet, brochure, or hand bills can be sent as unaddressed mail to them under Direct Post and they will be delivered in areas where the target customers reside, based on a selection of locations by the post offices in consultation with the customer.
8	Pack Post Service	PACK Post is the way to send items up to 30 kg anywhere in the world. Parcel Packaging facility is made available to the customers in major Post Offices.
9	Parcel and Logistic services	(i) Parcel Service: The facility is for parcels up to 5 kg to be delivered by Postmen to customers at their door step. For parcels weighing more than 5 Kg, a delivery fee of Rs 5/- is collected for any weight up to 20 Kg. Parcel can be booked from any departmental post office and approved extra departmental post office, located even in the remote areas. (ii) Business Parcel: "Business Parcel" is a very popular parcel product which offers surface transport; launched w.e.f 02.12.2013 in Kerala Postal Circle. (iii) Logistics Post: Logistics Post provides transshipment of parcels of any capacity within the State and to selected locations in other States. In Kerala, the services are regularly provided through centres located at Thiruvananthapuram, Kollam, Alappuzha, Ernakulam, Aluva, Thrissur and Kozhikode.

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

delivery thereby increasing the quality of service. In the category of registered mails too, track and trace facility is now offered to customers. As part of a national policy, the Circle has also revamped the network for processing ordinary mails to ensure better quality of service in this sector. The e-based and value added services offered by Kerala postal Circle is give in **Table 11.3.2**.

Philately

As part of the efforts to promote philately as a hobby, various measures are being adopted by the Kerala Postal Circle. The Circle is having 4 Philatelic bureau, 47 Philatelic counters, and 45 My Stamp counters for promotion of Philately. Four philatelic bureaus have been set up for this purpose at Thiruvananthapuram GPO, Ernakulam H.O, Thrissur H. O, and Kozhikode H. O.

My Stamp

‘My Stamp’ is the brand name for personalised stamp sheet. It is the combination of a set of stamps, one with a Commemorative Postage Stamp of India Post and the other is the space for printing the photograph of the customer. Under this scheme, any individual can get their personalised stamps with their photograph on it. The Department has recently begun customising ‘My Stamp’ for private institutions/organisations which is called as ‘Corporate My Stamp’. It is a personalised service wherein corporate firms and institutions can get completely customised sheets of stamps.

Postal Exhibition – Thrissurpex

Postal Department organises Philatelic exhibitions at all levels viz. State and District-level as a part of its Philately Promotion Program. The objective is to organise exhibitions on a regular basis in all the States and Districts of the Country. The exhibitions are organised in cooperation with the philatelic organisations active in the local area.

India Post Payment Bank (IPPB)

India Post Payment Bank (IPPB) is the first payments bank in India to be added in Schedule 2 of RBI Act 1934, thus obtaining the status of Scheduled Bank. This government-owned payments bank will be able to accept deposits of up to Rs 1 lakh from customers. But they do not have the rights to use these funds to advance risky loans at higher interest rates. With the launch of Aadhaar Enabled Payment System (AEPS) services, IPPB has become the single largest

platform in the country for providing interoperable banking services to the customers of any bank by leveraging the last mile unprecedented reach of the Postal network.

Life Insurance

India Post provides insurance coverage to the citizen through Postal Life Insurance (PLI) and Rural Postal Life Insurance (RPLI). Postal Life Insurance is an insurance scheme offered to employees of the Central and State Governments, Defence Personnel, Local bodies State PSUs and scheduled/commercial banks. Now, this has been extended to the teaching/non-teaching staff in all private educational institutions and Professionals. Kerala Postal Circle has initiated a special campaign to empower the women, by way of insuring their lives with Rural Life Insurance. As per the latest policy summary report, the number of women policy holders are more than the number of male policy holders (Total number of male policyholders in Kerala Circle is 4,54,334 and that of female policy holders is 5,00,161).

11.4 DRINKING WATER

The provision of safe drinking water to all is a crucial task of development. As per Food and Agriculture organisation's report titled 'Progress on change in Water-Use Efficiency 2021', water-use efficiency has risen by 9 per cent, but water stress and water scarcity remain a concern in many parts of the world. Improving water-use efficiency is one key to reducing water stress. Improving water use efficiency will require more efficient irrigation, better agricultural management, tackling leakages in distribution networks and optimising industrial and energy cooling processes.

The National Institution for Transforming India (NITI) Aayog has developed the Composite Water Management Index (CWMI) to enable effective water management in Indian States. A report by NITI Aayog, CWMI- 2019, says that India's urban population is expected to reach 600 million by 2030, and fulfilling its water needs will be a great challenge. According to the report, India is the home to 17 per cent of world's population but has only 4 per cent of the world's fresh water resources.

Kerala is perceived to have a higher water demand than the national average because of established social norms and a demand for better hygiene and sanitation. According to Census 2011, 62 per cent of the population uses wells as their main drinking water source, while 29 per cent of the population has access to piped water-supply. In terms of accessibility, 78 per cent households have a water source within the premises and 14 per cent households use water sources near the premises. State sanitation coverage, based on Census 2011, showed that 67 per cent households had toilets and 95 per cent had a toilet facility within the premises. As on August 31,

2023, 66.89 per cent population of Kerala had been covered with piped water supply of Kerala Water Authority (KWA).

Drinking water sector is given much importance in Kerala as water remains pivotal for sustainable development. The 14th Five Year Plan Working Group on Drinking Water and Sewerage aims to outline a clear roadmap for the development of water and sanitation sector in the State as well as to improve its position with respect to the Composite Water Management Index (CWMI) ranking. Specific targets are identified under drinking water supply, sewerage, water conservation and revenue improvement during the 14th Five Year Plan Period.

The Kerala Water Authority (KWA) and Kerala Rural Water Supply and Sanitation Agency (KRWSA) are the major implementing agencies in drinking water and sanitation sector. Local governments also play an important role.

Kerala Water Authority (KWA)

KWA was established in 1984 for the development and regulation of water supply and waste water collection and disposal in Kerala. Its major functional units are operation and maintenance, projects, project planning and development, quality control, consultancy and sewerage verticals.

The KWA has an elaborate water quality control setup with a State Referral Institute at Kochi and has 14 District labs and 70 sub divisional labs. 83 labs under KWA have obtained NABL (National Accreditation Board for Laboratories) accreditation conforming ISO/IEC/17025:2017 standards.

Sewerage

KWA has the mandate for collection and disposal of waste water. The same has been carried out only in Thiruvananthapuram and in Kochi Corporations to some extent. Presently, the main activities taken up under this head include enhancement of undersized lines to the desired size, to repair damaged manholes so as to avoid overflow of sewage, to provide sewerage facility to areas by minor extensions where no other source of sewerage disposal system exist. In order to overcome the threat of environmental damages, adequate attention is essential for strengthening the existing sewerage system. The need for more focused attention in sewerage sector is essential. However, issues related to funds, public protest against sewage plants and pump houses, delay in getting land and sanctions for road cutting have to be addressed before taking up sewerage projects. KWA envisages new small-scale projects sufficient for 2 to 3 ward clusters. Latest technologies incorporating the reuse of treated effluent as specified by National Green Tribunal (NGT) is proposed to be used in these projects. Maintenance and up gradation of the existing plant and sewerage network is also a necessity. For small schemes, land is to be made available and awareness is to be created among the public regarding the necessity by the local bodies for sewerage/septage work to be taken up.

In Guruvayoor, the sewerage scheme was commissioned on September 30, 2021. In 2022-23, 63 works and 10 works in 2023-24 (as on August 31, 2023) which include replacing the old sewer lines, extension of sewerage network, rehabilitation of old manholes and construction of new manholes were completed.

Water Supply Coverage

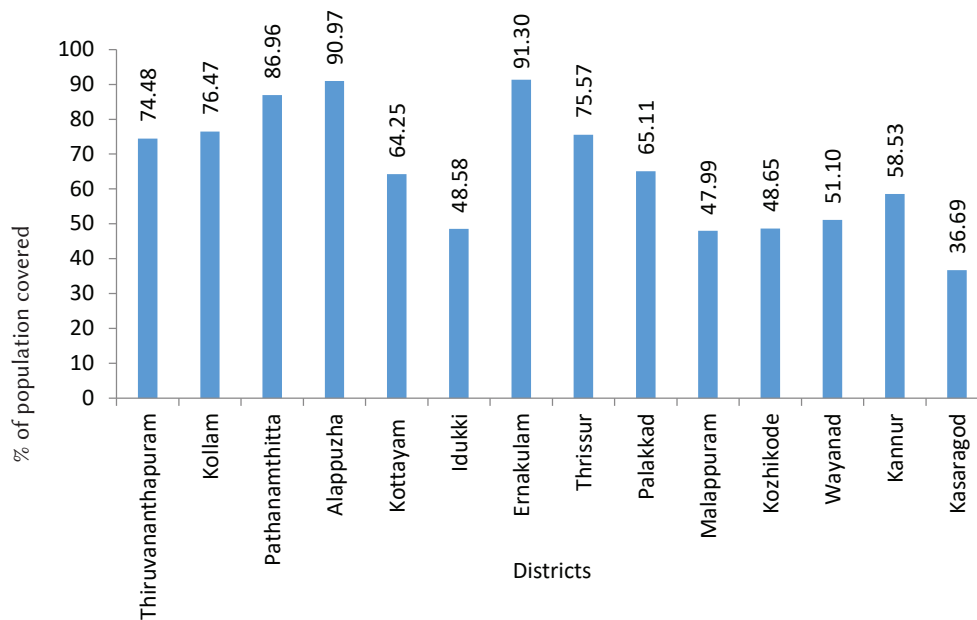
KWA, operates and maintains 914 Water Supply Schemes. KWA, through its 41.9 lakh connections and 1.53 lakh public taps provides water supply to nearly 2.49 crore people in Kerala. The average per capita availability of piped water is 97 litres per day (the lpcd is varying in different habitations in all the districts). It has made remarkable progress in the rural and urban water supply sectors, commissioning various Water Supply Schemes implemented with the help of Central/ State Government grants and Schemes (JJM, NABARD, State Plan, National Rural Drinking Water Programme (NRDWP), KIIFB, AMRUT). Projects worth more than Rs 19,700 crore are in

various stages of implementation. On completion of these projects 1,400 MLD (million litres per day) of water will be additionally available for distribution in the next three years. In 2022-23, five new works under RKI amounting to Rs 101.43 crore have been sanctioned. In 2022-23 and 2023-24 (upto August 31, 2023), four new works under AMRUT 1.0 amounting to Rs 24.98 crore have been sanctioned. Above all, AMRUT II projects have been started in 2022-23. 6 schemes under State Plan, 2 projects under NABARD, 1 project under RKI and 6 water supply projects and 10 replacement works under KIIFB were completed in 2022-23. As on August 31, 2023, 66.89 per cent population of Kerala has been covered with piped water supply from the existing KWA schemes (63.03 per cent in rural and 79.97 per cent in urban).

District-wise percentage of population covered by water supply schemes as on August 31, 2023 is shown in **Figure 11.4.1**. Ernakulam District with coverage of 91.30 per cent population shows highest coverage among 14 districts of Kerala, followed by Alappuzha District (90.97 per cent). In Kasaragod, the coverage is the least (36.69 per cent). Details are given in (**Appendix 11.4.1**). District-wise and category-wise analysis shows that Ernakulam has the highest number of water supply schemes (93) and Wayanad has the least (23). Kozhikode has the highest number of urban water supply schemes (16) while Palakkad has the lowest number (1) as on August 31, 2023 (**Appendix 11.4.2**).

KWA distributes water through house service connections (HSC) and street taps. The total number of domestic, non-domestic (including special connections), and industrial connections is 39,99,105; 1,88,825 and 2,083 respectively. Out of the total 1,53,677 street tap connections, 1,12,014 are in Panchayats, 26,533 in Municipalities, and 15,130 in Corporations (**Appendix 11.4.3**) as on August 31, 2023. The total number of rural water supply schemes of KWA transferred to local bodies as on August 31, 2023 is 700 and the total population coverage in all the 14 Districts is 11,04,360. District-wise details of water supply schemes transferred to Local Governments are given in (**Appendix 11.4.4**). As per District-wise water availability data as on August 31, 2023 shown in **Figure 11.4.2**, Ernakulam District has the highest availability (192 lpcd) and Kasaragod has the lowest availability (22 lpcd) (**Appendix 11.4.5**).

Figure 11.4.1 District wise Proportion of population covered by Water Supply Schemes as on August 31, 2023



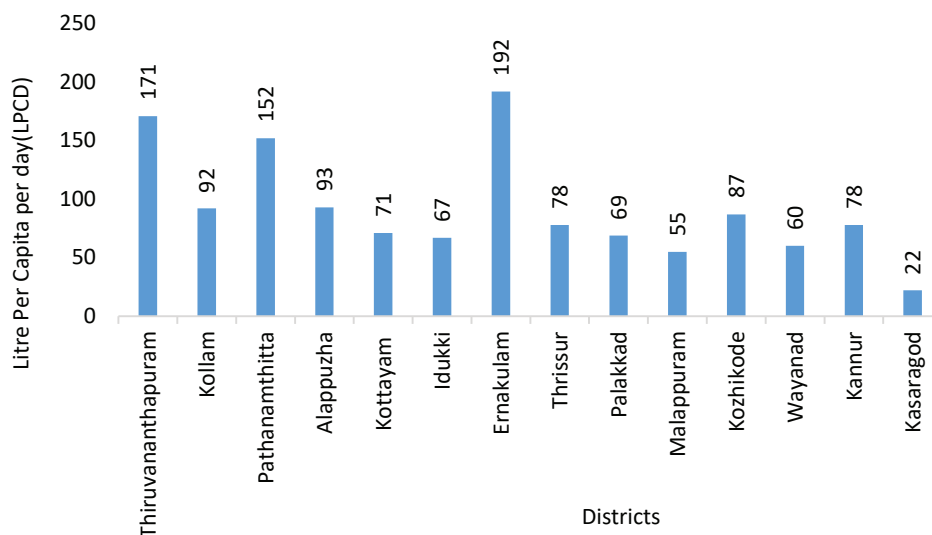
Source: KWA

Revenue

The major income for KWA is from the sale of water and Kerala is the only State in the country with 100 per cent metered water connections. The water tariff is uniform across the State with block tariff structure (increasing rate with increasing consumption). In 2022-23, GoK has increased water tariff by one paisa per liter. The additional annual income expected from the tariff revision is Rs 401.61 crore. The total revenue collected in

2021-22 was Rs 583.24 crore against the demand including fine of Rs 1112.33 crore and that in 2022-23 was Rs 806.21 crore against the demand including fine of Rs 1035.41 crore. Minimum Rate for Domestic connections is Rs 14.41/KL upto 5000 liters, for Non Domestic connections is Rs 26.54/KL upto 10,000 liters, for Industrial connections is Rs 54.10/KL and for Bulk supply Rs 16.62/KL.

Figure 11.4.2 District wise per capita water availability as on August 31, 2023



Source: KWA

Out of 43.43 lakh consumers (including street taps), 39.99 lakh connections come under domestic category (92.06%) and 1.90 lakh consumers belongs to non-domestic/industrial/special categories. Moreover KWA is providing water through 1.53 lakh street taps. KWA is supplying 15,000 liters of drinking water per month free of cost to about 5.91 lakh BPL families in the State which cost Rs 18.47 crore.

In 2022-23 and 2023-24 (upto August 31, 2023) revenue from water charges of domestic, non-domestic and industrial schemes was Rs 68,324 lakh and Rs 39,836 lakh respectively and that from street taps was Rs 12,297 lakh and Rs 5,572 lakh (**Appendix 11.4.6**).

State Plan Schemes

Survey and investigation

The aim of KWA is to supply water to all parts of Kerala. For this, detailed surveys are to be conducted for preparing a shelf of projects. In 2022-23, fifteen works were completed and a total expenditure of Rs 71.44 lakh has been booked.

NABARD Assisted Rural Water Supply Schemes (Rural Infrastructure Development Fund)

With the loan assistance from NABARD, KWA implements water supply schemes in the rural areas of Kerala. Out of the total 20 projects sanctioned, 8 projects have been completed as on March 31, 2023. One project has been completed in 2023-24 (as on August 31, 2023). It is expected that eight projects will be commissioned in this financial year 2023-24.

Some important works such as Comprehensive Water Supply Scheme (CWSS) to Agali and adjoining Panchayats in Palakkad and WSS to Seethathode Panchayat, Nilakkal Plappally area in Perunad Panchayat, WSS to Poovar Panchayat, WSS to Kulakada and Vithura, Tholicode were sanctioned under NABARD. WSS to Muttam, Karimkunnam and Kudayathoor Panchayats and WSS to Melila Panchayats were the two major sanctioned schemes in 2020-2021 under Tranche XXVI. WSS to Kunnathur Poruvazhi and Sooranadu North Panchayats of Kunnathur Taluk and Thazhava Thodiyyur and Kulasekharapuram Panchayats of Karunagappalli Taluk in Kollam District and WSS to Mangattidam Zone III in Mangattidam Panchayat of Thalassery Taluk of Kannur District are the two major schemes sanctioned in 2021-2022. The scheme WSS

to Mangattidam Zone III in Mangattidam Panchayath of Thalassery Taluk of Kannur District was completed during 2023-24.

Manufacturing units for bottled water

The aim of this project is to set up a bottled water plant at Thiruvananthapuram for providing good quality packaged or bottled water through KWA at a reasonable price to public. The civil and mechanical works are completed. The bottled water plant has been handed over to Kerala Irrigation Infrastructure Development Corporation Limited (KIIDC). Now the plant is operated and maintained by KIIDC.

Renovation of Existing Civil Structures owned by KWA

The major aim of this scheme is to renovate the structures which are in damaged condition because of lack of timely repair, protection and renovation. Annual maintenance of various civil structures such as office buildings, treatment plants, intake, water tanks, pump houses and staff quarters are to be done throughout the State and the maintenance of the civil structures is proposed to be done in a phased manner for protecting the assets created and to improve the quality of service. Construction of compound walls around the WTPs, KWA offices and vacant plots is also taken up under this scheme. This will help to clearly demarcate the lands owned by KWA so as to prevent encroachment and ingress of anti-social elements.

With the Budget allocation of Rs 500 lakh in 2022-23, 28 works including maintenance of office buildings, guest houses, tanks and pump houses located in various districts have been completed.

Innovative technologies and modern management practices

The major aim of this scheme is to improve service delivery and quality by adoption of new technologies and modern management practices. Some issues which cannot be solved or optimised can be resolved or improved by practicing innovative ideas. By installation of automated networks, flow meters and smart meters, measures to reduce Non-Revenue Water (NRW) loss could be taken up. The project envisages procurement of bulk meters in all major schemes and to integrate these with Supervisory Control and Data Acquisition (SCADA). This scheme also aims at procurement of leak detection equipment, automation of pump houses, use of dual media for augmentation of Water Treatment Plants (WTPs) and efficiency study of pumps for improving

energy efficiency in pumping for ensuring increase in efficiency of the water supply schemes, reduction in wastage of treated water and increase in revenue. 14 works were completed in 2022-23. The works included the installation of solar panels in the roof top of KWA building, automation of pump houses, installation of surveillance camera and flow meters, automatic meter reading system.

Human Resource Development, Research & Development and Quality Control

The engineers and other staff need to be equipped with modern project management practices and tools for the timely execution of large projects and maintenance of new high-tech systems. In 2022-23, 5730 officials were trained. Plumbing license exam was also conducted.

Rehabilitation and Improvement Works of Urban Water Supply Scheme

The objective of the scheme is to achieve 100 per cent coverage in urban areas, taking up of new schemes in uncovered Urban Local Bodies (ULBs) and laying distribution systems in schemes where production components are completed. In 2022-23, five works were completed and the total expenditure in 2022-23 was Rs 325.8 lakh.

Rural Water Supply Schemes

This scheme aims at improving the water supply to rural households where many do not have access to safe drinking water through piped water supply. As on April 1, 2020, only about 34 per cent of rural households have piped water supply. More emphasis has been given to improve the water supply coverage in rural areas with the launch of Jal Jeevan Mission which aims to provide piped water supply to all households within two years. New rural schemes, completion of ongoing rural schemes, revamping of existing schemes are proposed under this head. In 2022-23, 9 projects were completed.

Water Supply Scheme to Specified institutions/ locations

This scheme is intended for providing uninterrupted water supply to some specified institutions and locations such as Medical Colleges, Taluk hospitals, District hospitals, rural schools and other educational institutions, water supply to Government institutions such as Civil Station compound, prisons and correction homes and also to provide sufficient quantity of drinking water to pilgrims to visiting centres such as Sabarimala.

In 2022-23, four works were completed viz. providing a dedicated water supply line to EK Nayanar Memorial Government Women and Children Hospital at Mangattuparamba along the sides of Dharmasala- Parassinikadavu PWD road, Water supply to Agricultural University in Vellayani in Kalliyoor village, providing water supply connection to Civil Station, Kadakkal and Augmentation of water supply connection to PHC Nilamel in Nilamel Grama Panchayath.

Modernisation of Aruvikkara pumping station

Modernisation of Aruvikkara is a prime project of KWA to meet the increasing demand of water supply to Thiruvananthapuram city. The major works under this scheme include replacement of old and damaged pumps, motors, civil, electrical and mechanical installations in the Water Treatment plants, pump houses and substations at 86 MLD campus, Chithirakkunnu, Aruvikkara.

Optimisation of Production and Transmission

The main objective of the works taken up under this scheme is to optimise the output in the existing schemes. It is intended to ensure uninterrupted water supply, reduction of water loss from leakage and breakage and energy conservation. In 2022-23, 114 works were completed, which include renovation of old water treatment plants, pipe replacement of existing WSS, pipe line extensions and replacement of obsolete pumps and motors. The total expenditure in 2022-23 was Rs 1928.62 lakh.

Source improvement and water conservation

The objective of works undertaken in this scheme is to ensure that sufficient water is available at the source in summer and drought season and enhance storage capacity of water sources. This will help for improving scheme efficiency and bridge the seasonal variations in water level. In 2022-23, several works for strengthening the source and increasing the storage capacity were undertaken. These works mainly included construction of check dams and regulators. The improvement works of tube wells, open wells, infiltration gallery and leading channel are to be carried out. Protection works to reservoirs, side protection of weirs and check dams are to be provided and repair works of the existing structures need to be done. By this activity, the water stress in summer could be mitigated to a large extent. Seven works were completed in 2022-23 and for that an expenditure of Rs 18.4 lakh has been made.

Drinking water - Drought mitigation

Drought relief activities and unforeseen emergency interventions are undertaken under this scheme. Besides natural calamities, emergency situations of calamitous proportions such as damages to properties in case of large diameter pipe bursts, damages to water supply installations and water supply to emergency relief camps during natural calamities are also taken up under this scheme. Pipeline extensions to drought-hit areas, additional pumping and capacity enhancement during drought period are also included. In 2022-23, 286 works were given administrative sanction and 85 number of works have been completed. An expenditure of Rs 627.15 lakh was made out of the budgeted amount of Rs 1000.00 lakh in 2022-23.

ADB Assisted Kerala Urban Water Supply Improvement Project (KUWSIP)

ADB- assisted KUWSIP aims at improving the water supply in Kochi and Thiruvananthapuram Corporations by rehabilitating the old production components and the supply networks. The project envisages achieving 24 x 7 water supply in the above areas by considerable reduction of Non-Revenue Water (NRW) and overall improvement of efficiency. The existing production facilities are age old and need rehabilitation. Similarly, the network is leaky and results in a high NRW. The Management Information System (MIS) is also to be strengthened.

Enterprise Resource Planning (ERP), E-governance, GIS and Information Management

This scheme aims to develop a well-equipped web-based management system in KWA. In 2022-23, KWA stepped into major milestones in the IT roadmap of the organisation. The remarkable achievements are: -

PASK: In this application Administrative sanction details, Technical sanction details, Scheme Details, Component Details, Tender details, Risk Details and Physical and Financial (Bills) progress details for each work, package of concerned division etc are included. All the Jal Jeevan Mission (JJM) projects which are being executed by KWA, Ground water and Jananidhi can be tracked from Administrative sanction to completion through this application. This application is used for the weekly review of the projects at scheme level. This application helps the management in monitoring the flagship project JJM which is being executed in a mission mode.

e- Abacus: Through JJM project, around 5.3 lakh

new connections from rural area are added to e- Abacus software. To achieve this, JJM mobile application is being used by KWA field staffs to provide connections and to do data entry of new connection for billing software at connection site itself.

Ease of doing business: Implementation of Central government initiative “Ease of doing business” has been successfully completed and all items in the business reform action plan has been incorporated in Kerala Water Authority. Making the department entrepreneur friendly, application for water supply for industrial and non domestic purpose has been integrated with kswift- State portal of KSIDC.

Infrastructure development and surveillance activities under Quality Control Wing of KWA

Surveillance and monitoring of the quality of water supplied through various water supply schemes is being carried out by the Quality Control Wing of KWA by conducting analysis of water samples taken at stipulated frequency through an effective three- tier inspection system up to the level of Executive Engineers. The quality of water in river sources, wells, private samples etc are also been tested in the labs under the Quality Control Wing. The State Lab, State Referral Institute for Water Quality (SRI), Nettoor, Ernakulam, which was set up in 2009 is the apex body for water quality monitoring and surveillance activities. The State lab has got NABL (National Accreditation Board for Laboratories) accreditation in 2017. All the 14 districts have district level laboratories and have obtained NABL accreditation.

KIIFB Projects

Government of Kerala (GoK) had accorded sanction for 77 drinking water projects of KWA under KIIFB. Approval has been given for funding of 75 projects for an amount of Rs 5113.61 crore. This includes 64 water supply projects amounting to Rs 4683.373 crore and replacement of transmission mains in 11 circles (Thiruvananthapuram, Kollam, Pathanamthitta, Kottayam, Muvattupuzha, Kochi, Thrissur, Palakkad, Malappuram, Kozhikode and Kannur) for an amount of Rs 430.233 crore. Of this, 21 water supply projects amounting to Rs 684.5 crore and 47 replacement works amounting to Rs 150.93 crore have so far been completed. In addition to the above, phase 2 of 2 projects for which administrative sanction was received is under appraisal in KIIFB for funding sanction.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

Kerala Water Authority is entrusted to execute projects under Atal Mission for Rejuvenation and Urban Transformation (AMRUT) in Water supply and Sewerage for 9 cities in Kerala. The KWA – Water Supply projects are spread across 6 Corporations namely, Thiruvananthapuram, Kollam, Kochi, Thrissur, Kozhikode and Kannur and 3 Municipalities, namely, Alappuzha, Guruvayoor and Palakkad. The Water Supply works under AMRUT include construction of WTPs, Over Head Storage Reservoirs(OHSRs), laying new pipelines, replacing damaged pipe lines, installation of smart meters, flow meters, providing new house connections etc.

KWA is executing sewerage works under AMRUT in Thiruvananthapuram, Kollam and Kochi Corporations. Sewerage works executed by KWA under AMRUT in Thiruvananthapuram include rehabilitation of existing networks and damaged pumps, providing new network in the missing areas, construction of new pump houses, laying pumping mains, transmission mains, sludge drying unit at STP Muttathara, decentralised 5 MLD STP at Medical College, Thiruvananthapuram in addition to 12 MLD STP at Kureepuzha in Kollam Corporation and 5 MLD STP at Elamkulam in Kochi Corporation. The project period initially was five years from 2015-16 to 2019-20. It has been now extended upto March 31, 2024.

AMRUT 1.0

Under AMRUT 1.0, works to the tune of Rs 1239.93 crores (166 works) in Water Supply and Rs 315.13 crores (119 works) in Sewerage sector have been sanctioned, out of which 150 Water Supply projects amounting to Rs 794.09 crores and 97 Sewerage projects amounting to Rs 78.89 crore have been completed. Balance works are in progress.

75 MLD WTP at Aruvikkara, 5 MLD Sewage Treatment Plant at Thiruvananthapuram Medical college, 20 MLD WTP at Peechi, 45 MLD WTP at Malampuzha in Palakkad district, 5 MLD WTP at Elamkulam in Kochi, etc are the major works completed under AMRUT 1.0. 100 MLD WTP at Vasoorchira and 12 MLD Sewerage Treatment Plant at Kureepuzha in Kollam district are nearing completion. All works are proposed to be completed in March 2024.

AMRUT 2.0

Government of India (GoI) have launched AMRUT 2.0 for providing universal piped water supply with household water tap connection. AMRUT 2.0 target is to provide universal coverage of Water Supply in all 4800 statutory towns and 100 per cent Sewerage/Septage management in 500 AMRUT cities. In Kerala, 93 ULBs are to be provided with universal coverage of water supply and nine AMRUT cities sewerage/septage management with total outlay of around Rs 3500.00 crore. Out of which Rs 2449.56 crore is for water supply and Rs 902.16 crore for sewerage/septage management and the balance amount is assigned for rejuvenation of water bodies and developing green spaces and park projects. Administrative Sanction (AS) has been received as first and second tranche for an amount of Rs 1468.92 crore for 162 water supply projects under various ULBs. Also under sewerage sector, for improving Sewerage facilities in Thiruvananthapuram Corporation, AS has been received for Rs 109.865 crore, in Kollam Corporation, AS has been received for Rs 45.436 crore, for rehabilitation of existing sewerage system and extension of system to Zone Thamarakulam and also for the construction of 5 MLD STP, network and allied components at Elamkulam in Kochi Corporation for an amount of Rs 193.319 crore. The project period is 5 years from 2021-22 to 2025-26. *(For more details see chapter on Local Governments and Decentralised Planning)*

Rebuild Kerala Initiative (RKI)

Under Rebuild Kerala Initiative (RKI), 17 water supply projects have been sanctioned for an amount of Rs 303.75 crore. They include construction of new reservoirs, distribution system, new water connections and rehabilitation of existing distribution system under water supply sector. Preparation of Detailed Project Report (DPR) for rehabilitation of existing system and providing sewerage/septage management system for Thiruvannthapuram Corporation, energy optimisation and replacing the in efficient pumping system, Topographical Survey in 28 Selected ULBs and 7 new ULBs for DER Preparation, Automation of Rural Pump houses, Networking in Kochi -Elamkulam STP etc. are also included under RKI works.

Among the above RKI works, Water Supply Scheme(WSS) to TV Puram Panchayath in Kottayam district , WSS to Erumeli Panchayth in

Kottayam District, WSS to Cheranalloor Panchayat in Kochi, construction of dilution tank for septage treatment at Chakkamkandam and study on energy optimization and replacing the inefficient pumping system have been completed. All other works are in different stages of execution.

Japan International Cooperation Agency (JICA) Assisted Kerala Water Supply Project.

JICA assisted Kerala water supply project envisages the implementation of five water supply schemes in Thiruvananthapuram, Meenad, Cherthala, Kozhikode and Pattuvam.

All the five projects have been commissioned and water supply is ensured to the beneficiaries. The distribution networks envisaged for Thiruvananthapuram, Cherthala and Pattuvam have been completely laid. The rehabilitation works of two WTPs at Thiruvananthapuram are also completed. For Kozhikode and Meenad Schemes, all components except a part of distribution system have been completed and schemes partially commissioned. The project will benefit a population of about 41 lakh in 5 districts viz, Thiruvananthapuram, Kollam, Alappuzha, Kozhikode and Kannur.

Jal Jeevan Mission (JJM)

Jal Jeevan Mission (JJM) is a project of Government of India envisioned to provide safe and adequate drinking water through individual Functional Household Tap Connections (FHTC) within two years to all households in rural India. The mission aims to ensure that every rural household has drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities. This Mission will focus on integrated demand and supply side management of water at the local level, including creation of local infrastructure for source sustainability such as rainwater harvesting, groundwater recharge and management of household wastewater for reuse in agriculture. The Mission will converge with other Central and State Government Schemes to achieve its objectives of sustainable water supply management across the country. In Kerala, the share of Central and State Governments is 50:50. Out of the 50 per cent State share, 15 per cent is to be borne by the Panchayat and 10 per cent should be ensured as beneficiary contribution.

From 2020-21 to 2022-23, Administrative Sanction was issued for 53,34,736 Functional Household

Tap Connections (FHTCs) for an amount of Rs 40,694.19 crore including water quality and the support activities. In 2022-23, the State received Rs 2,206.54 crore from the Government of India as central share. Out of the total, Rs 1,740.74 crore has been utilised from central share including the opening balance. The total fund utilized under JJM including the State matching share in 2022-23 was Rs 3,483.61 crore. Kerala provided 5,28,566 rural household connection under JJM in 2022-23. 1,79,47,721 FHTCs were provided till date (October 12, 2023) under JJM.

Jalanidhi

Kerala Rural Water Supply and Sanitation Agency (KRWSA) was constituted as a special purpose vehicle to implement Jalanidhi, a World Bank Aided project. KRWSA has successfully implemented two phases of Jalanidhi project, ie, Jalanidhi Phase-1 during 2000-2008 and Phase-2 during 2012-2019. The Gram Panchayats have a key role in implementing community based water supply projects under Jalanidhi. KRWSA has also established a wide network of NGOs in mobilising communities towards implementing the participatory, community driven water supply and sanitation facilities owned and managed by them. This model of scheme implementation under Jalanidhi has demonstrated successfully an equitable, inclusive and decentralised delivery system mainly benefiting the SC, ST and BPL category of rural households in Kerala.

KRWSA is also the nodal agency of the State Government for the implementation of rain water harvesting programme in the State. Rain Centre functioning as part of KRWSA was constituted in 2004 to promote rain water harvesting (RWH) and ground water recharge (GWR) activities in the State. The programme is well accepted by the people in the State, especially those who are living in hilly, coastal and remote areas with limited access to potable water. As on August 31, 2023, KRWSA completed 11,312 rain water harvesting structures of 10,000 ltr capacity and 2,778 open well recharge structures. Presently KRWSA is also an implementing Agency for the central flagship programme "Jal Jeevan Mission". The concept and implementation procedures followed in Jal Jeevan Mission are very much similar to the Jalanidhi model implemented in Kerala.

District wise details of water supply connections of Jalanidhi as on August 31, 2023 are given in **Table 11.4.1.**

Box No.11.4.1 Achievements and Major Digital Initiatives of Kerala Water Authority (KWA)

- Kerala Water Authority has been selected for Kerala State Energy Conservation Commendation Certificate 2021 in the category of institutions and organisations. The recognition was based on the efforts taken up by the department for energy conservation activities such as pump automation, energy audits and its implementations.
- Kerala Water Authority got the best performer recognition in the Startup Procurement for the year 2022.
- 1021 pump houses under various water supply schemes have been automated to reduce human intervention, optimise operating costs, and improve the functioning of KWA pumping stations.
- A 24-hour complaint redressal unit has been established at the Head Office at Jalabhavan to resolve consumer and public issues.
- AQUALOOM: Software for tracking and monitoring the progress of registered consumer complaints has been installed.
- E-TAPP: Online platform for new water, sewerage connections & connection related consumer services portal rolled out across the State.
- Project status Alert System of KWA (PASK): An Online Project Monitoring Portal of KWA for monitoring the physical and financial progress of all the projects in a day to day basis has been introduced.
- “Ease of doing business” has been implemented.
- FFAS (Flow Failure Alert System): An alert system called FFAS (Flow Failure Alert System), which provides an immediate notification anytime a pumping main breakage occurs has been designed. The system has been implemented in seven wastewater treatment plants in the northern region and has proven to be very successful. Steps are being taken to gradually roll it out to other major WTPs in the southern and northern regions.
- Mechanised Manhole Cleaning: The Bandicoot robot developed by Gen Robotics Innovation Pvt Ltd under the KWA Innovation zone is a promising technology to eradicate manual scavenging by providing a safer workplace for sanitation workers. Currently, it is being used to clean manholes under the Sewerage Division, Thiruvananthapuram and Cochin.
- Energy Management and Energy Audit: The full energy audit of twenty two High Tension (HT) connections has already been performed by EMC and final findings have been submitted to KWA.

Source:KWA

Project Achievements

Jalanidhi has made remarkable achievements in the fields of project preparation, design, quality of entry, implementation arrangements, monitoring and evaluation, compliance with environmental and social safeguards, fiduciary management and procurement. KRWSA had implemented 5884 schemes in Phase-1&2 projects covering 227 GPs benefiting 4.52 lakh households- 1.04 lakh individual latrines, 24,194 latrine conversion, 96,703 environment management plan units (soak pit, compost pit, vermin compost etc) and 1,916 bio gas units. The schemes in Phase 1 have been operational for more than 20 years. The performance assessment conducted by CAG found that nearly 65-70% of the schemes are sustainable even now. KRWSA also popularized rain water harvesting programme in the state by constructing more than 38,000 rain water harvesting structures.

Considering the district-wise rural population covered by the water supply schemes of Jalanidhi, Thrissur has the highest (26.16 per cent) coverage. Kozhikode has the highest number of schemes (1,052) while Alappuzha has no scheme. A total of

Table 11.4.1 District-wise details of Water Supply Connections of Jalanidhi as on August 31, 2023

Sl. No.	District	Domestic Connections
1	Thiruvananthapuram	4,572
2	Kollam	22,447
3	Pathanamthitta	5,977
4	Alappuzha	0
5	Kottayam	54,129
6	Idukki	40,727
7	Ernakulam	2,173
8	Thrissur	66,540
9	Palakkad	50,661
10	Malappuram	95,336
11	Kozhikode	51,110
12	Wayanad	40,061
13	Kannur	24,416
14	Kasaragod	22,449
TOTAL		4,80,598

Source: KRWSA

23,32,356 rural population are covered by 5,884 schemes of Jalanidhi (as on August 31, 2023). Out of the total 4,80,598 water supply domestic connections as on August 31, 2023 Malappuram has the highest number 95,336 followed by Thrissur with 66,540 connections. As per Jalanidhi project guidelines, after commissioning of schemes, entire operation & maintenance management has to be done by beneficiary groups. Hence, water rates vary from scheme to scheme, as decided by the respective scheme management committee. The average cost per household per month charged for 10,000 litres is Rs 100 in most of the schemes. The lpcd water availability of water supply schemes of Jalanidhi in all the Districts is 70 lpcd.

In order to ensure sustainability of investments made, Government of Kerala has introduced a project named “Sustainability support to community managed water supply schemes” to reinstate all partially or fully defunct community driven schemes to functional schemes and allocated budget provision from 2018 onwards. KRWSA could reinstate 1,244 schemes as on August 31, 2023 under this project. Restoration works are ongoing in another 115 schemes.

Conversion of domestic wells into protected and sustainable drinking water sources is highly important to protect the traditional sources maximum to ensure future water security. The dug wells are excellent means of ground water recharge and if properly protected and recharged wells can serve as reliable source of drinking water and at the same time replenish the decreasing ground water table. 273 domestic wells have been protected and converted into sustainable drinking water sources with rain water recharge system as on August 31, 2023.

One of the major issues facing the community managed small water supply schemes is the absence of a mechanism to regularly test and monitor water quality. Being a public water supply, though small in capacity, needs regular monitoring and timely mitigation in case of Water Quality issues. Absence of waste water collection, treatment and disposal is emerging as a major threat to public health in the State. The grey water collected from the households can be treated and reused for gardening and other non – domestic purposes. The reuse of grey water in the region of implementation will solve many problems related to water scarcity and will lead to

the saving of financial resources which in turn helps to support the water economy. 48 water quality mitigation units out of 74 taken up and 1 grey water management system out of 4 units taken up have been commissioned as on August 31, 2023. In 2022-2023, KRWSA has implemented institutional grey water in two tribal hostels and it is under commissioning stage.

Water literacy promotion programmes are the only way to promote water conservation & water quality improvement in our state. The state government as well as Local-Self Governments have given high priority for water conservation. Since children are the citizens of tomorrow, water literacy campaign should start from school. The Jalasree Club focuses on the development of life skills and mobilisation of parents, communities, governments and institutions to work together to improve ground water level by water conservation techniques and also to improve hygiene and environmental sanitation by promoting best practices. Presently KRWSA with the help of Jal Jeevan Mission and Implementation Support Agencies (ISAs) formed 445 Jalasree clubs in schools.

District-wise achievements of sanitation activities of Phase 1 and 2 show that Malappuram District has 26,385 meters drainage coverage which is the highest among 14 districts and Kottayam has the highest number of biogas plants(557) as on August 31, 2023(**Appendix 11.4.7**). Total number of Ground Water Recharge (GWR) structures as on August 31, 2023 is 2,912. Most numbers of GWR structures are in Kottayam (988). Similarly, total number of rain water harvesting (RWH) tanks installed by KRWSA in the State is 34,702 as on August 31, 2023. The highest number is in Idukki(10,547) and the lowest is in Wayanad(251) (**Appendix 11.4.8**). As per KRWSA data, as on August 31, 2023, out of 5,884 schemes, 5,187 small water supply schemes and 42 large/bulk water supply schemes are functional and the schemes cover 4,80,598 households (**Appendix 11.4.9**)

Way Forward

With the rapid urbanisation, fragmented land holdings and falling water table, demand for piped water supply and organised sewerage is ever increasing. The impact of climate change is already visible and it necessitates meticulous planning as the freshwater availability is limited and unpredictable. In order to ensure the management from both supply-demand sides, focus should be given to plan conjunctive use of surface and

Box No.11.4.2 Investments of Kerala Water Authority (KWA) and Jalanidhi through State plan fund
(in Rs Crore)

Agency	2017-18		13 th Five Year Plan						2021-22		14 th Five Year Plan	
	BO	Exp.	2018-19		2019-20		2020-21		BO	Exp.	2022-23	
			BO	Exp.	BO	Exp.	BO	Exp.			BO	Exp.
KWA	678.55	454.6	786.43	326.70	700.51	173.73	625.25	745.43	715.80	1239.53	856.75	1831.84
Jalanidhi	379.69	105	236	137.72	192.20	95.35	50	32.35	41.25	24.73	48.96	29.33
Total	1058.24	559.6	1022.43	464.42	892.71	269.08	675.25	777.78	757.05	1264.26	905.71	1861.17

Source: Budget documents

groundwater sources, identify alternative sources like brackish water/sea water, develop recycling and re-use programmes, focus on reduction in non-revenue water, and adaptation of emerging technologies.

11.5 HOUSING

Kerala has achieved remarkable milestones in human development due to the concerted and focused intervention during the preceding years. Housing is a core human need, and the state of housing conditions significantly reflects the economic well-being of the people of a society.

In the past five years, the Government of Kerala has placed particular emphasis on enhancing housing opportunities for the homeless in the State, ensuring quality and high standards of housing. Kerala has initiated an extensive housing program known as LIFE Mission, aimed at providing improved housing to the poor.

Livelihood, Inclusion and Financial Empowerment (LIFE) Mission

The LIFE project stands out in several notable aspects. It was conceived as a comprehensive housing initiative with the ambitious goal of alleviating the housing crisis, starting from 2016. Beyond merely addressing housing needs, this project was envisioned as a multifaceted endeavour to provide its beneficiaries with opportunities to access various welfare and social security programmes intended for the socially and economically disadvantaged. Essentially, it is aimed as a holistic rehabilitation programme for the landless and the houseless, by leveraging various programmes to ensure their social and financial stability and skill enhancement for improved livelihood.

LIFE's primary goals encompassed two key elements: (a) facilitating the construction of secure and respectable homes for all families without land or housing within the State; and (b) achieving this target through the pooling of resources from diverse channels, including corporate social responsibility (CSR) funds, philanthropic financial support, and all other potential funding sources.

The activities of the LIFE Mission are structured in three phases. In the first phase, the Mission concentrated on completing houses that were only partially built or left incomplete under various previous schemes. In this segment, the Mission has made the remarkable achievement of completing 52,680 houses out of the 54,116 incomplete houses identified in the State (97.34 per cent). Out of the total houses completed, 42,850 houses have been constructed in rural areas and 9,830 houses in urban areas. During the first phase 19,153 SC beneficiaries and 17,400 ST beneficiaries had completed house construction.

The second phase of the Mission provides financial assistance for house construction to those who have their own land. In this segment, a total of 1,02,542 beneficiaries were found eligible, and 97,108 houses were completed (94.70 per cent). Those who have signed the agreement are provided with financial assistance of Rs 4.00 lakh, devolved in four instalments based on the progress of construction of their houses. ST beneficiaries who are living in remote ST hamlets are provided Rs 6 lakh in five instalments.

The third phase of LIFE Mission focuses on the rehabilitation of landless, homeless beneficiaries of the State. As per the survey conducted by the LIFE Mission to identify beneficiaries, around 3.37 lakh beneficiaries have been found to be landless homeless. A thorough verification of these beneficiaries was conducted and 1,28,351 beneficiaries were found eligible. Out of this, 34,487 beneficiaries have been provided land, and 22,928 houses have been constructed.

The Mission also plans to rehabilitate the landless homeless beneficiaries in housing complexes. So far, 886 units have been constructed under LIFE Towers for the rehabilitation of landless homeless beneficiaries, and 643 units have been occupied. Two housing complexes were completed under partnership mode, three by local government, one by sponsorship mode, and five by LIFE Mission directly.

Under the LIFE Mission, a total of 3,54,712

houses have been completed in the State, as of 30 September, 2023. Out of the total houses constructed, 92,411 were for SC beneficiaries and 39,320 for ST beneficiaries. District-wise details of houses constructed till the end of September 30, 2023, including in association with other schemes such as PMAY (U), PMAY (G), SC Development Department, ST Development Department, Fisheries etc., are given in **Table 11.5.1**.

As envisioned earlier, the LIFE Mission in Kerala has successfully integrated its efforts with employment generation programmes implemented in the State. While constructing homes under the LIFE Mission, beneficiaries are able to access 90 person-days of labour through programs like the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in rural areas and the Ayyankali Urban Employment Guarantee Scheme (AUEGS) in urban areas. Additionally, Kudumbashree has taken a significant step by establishing women's construction units to assist

Table 11.5.1 Details of houses constructed by the LIFE Mission as on 30.09.2023

District	Phase I	Phase II	Phase III	PMAY (U)	PMAY (R)	SC Dept.	ST Dept.	Fisheries Dept.	Minority Dept.	Additional List SC/ST/Fisheries) Homeless with land	Additional List SC/ST/Fisheries) Acquired land	Rehabilitated by flat	LIFE 2020	EPEP	Total
Thiruvananthapuram	6050	15528	1417	11049	5033	2399	351	2007	152	1238	0	31	104	15	45374
Kollam	3618	8530	3995	6512	2822	1986	152	824	107	1722	12	44	289	4	30617
Pathanamthitta	1176	2042	836	1684	1331	1195	42	25	75	1016	50		167	7	9646
Alappuzha	2728	9367	1198	4905	1682	1324	89	822	193	1856	0		463	32	24659
Kottayam	1102	4292	2021	2444	900	959	61	104	81	603	84	44	733	12	13440
Idukki	3138	10160	1257	1784	1637	855	940	71	97	1218	52	256	125	32	21622
Ernakulam	1059	5716	2219	10970	1252	1965	107	420	79	1958	0	24	509	35	26313
Thrissur	2997	5100	2278	7959	2612	2264	50	180	118	1051	119		467	47	25242
Palakkad	7628	14492	2602	6235	4458	2812	526	53	127	1856	15		86	12	40902
Malappuram	2735	6644	2164	10394	3707	2158	3497	509	678	4360	106	200	1252	58	38462
Kozhikode	6484	5143	598	6477	2167	1340	330	398	124	1634	149		251	68	25163
Wayanad	8440	3999	771	2919	1931	948	2533	0	218	1645	0		36	18	23458
Kannur	2645	2525	652	4911	1076	558	917	372	176	1078	46	44	739	73	15812
Kasaragod	2880	3570	920	1617	1214	623	1097	224	138	1573	51		93	2	14002
Total	52680	97108	22928	79860	31822	21386	10692	6009	2363	22808	684	643	5314	415	354712

Source: LIFE Mission

the Mission in completing housing at a reduced cost.

A major challenge faced by LIFE beneficiaries is the high cost of construction materials. To address this issue, the LIFE Mission has engaged in discussions with various vendors and arranged for the distribution of materials at rates that are 20-60 per cent lower than the maximum retail price (MRP). This initiative encompasses materials such as electrical fittings, wiring materials, paint, ceramic materials, tap fittings, water tanks, and cement, resulting in substantial savings for LIFE beneficiaries, ranging from Rs 50,000 to Rs 1,00,000.

Legal restrictions on land use in various locations pose a significant obstacle to implementation. For instance, some beneficiaries own land located in Coastal Regulation Zone (CRZ) or wetland areas, where construction is prohibited. The Mission is actively working on facilitating legal amendments to address this issue. Given the high population density and the growing demand for land, finding suitable land for the third category of beneficiaries has become increasingly challenging. In response to this, the State has initiated the “Manasodithiri Mannu” campaign, encouraging the philanthropic donation of land parcels to construct homes for the landless and homeless poor. Through the campaign Manassodithiri Mannu 2455.72 cents of land have been offered and 1371.47 cents of land have been registered to Local governments concerned.

The LIFE Mission has achieved substantial progress in providing safe and secure housing along with sustainable livelihood options for Kerala’s homeless and landless population. In pursuit of this goal, the Mission has developed a distinctive and pioneering model for providing housing to the underprivileged by harmonizing and integrating various institutional mechanisms and programs. This innovative approach has garnered national and global recognition as an effective strategy and mechanism for achieving universal housing for the homeless, marking a significant step toward realizing sustainable development goals in this sector.

Housing for the poor and low-income groups, which is a major concern of the Government is addressed through multiple interventions.

While housing for the homeless and landless is addressed through LIFE Mission, housing for the low-income group, employees, women, and transgenders are addressed through various departments and agencies. The Housing department implements several housing schemes in the State through exclusive agencies in the sector viz. i) Kerala State Housing Board, ii) Housing (Technical Cell) Department (Housing Commissionerate), and iii) Kerala State Nirmithi Kendra. Furthermore, the SC Development Department, Kudumbashree, the Rural Development Commissionerate, and the Local Self Government Institutions are also involved in the housing sector.

Kerala State Housing Board

Kerala State Housing Board (KSHB), one of the major implementing agencies in the housing sector under the Government of Kerala, has been providing residential facilities to prospective beneficiaries through its public housing schemes. In 2022-23, a total of 362 houses were constructed under Grihasree housing scheme. In 2022-23, Kerala State Housing Board implemented the schemes such as Grihasree housing scheme, Working Women’s Hostel, EWS/LIG housing scheme and Aswas rental housing scheme near Medical Colleges. Under the Grihasree housing scheme, a total of 1,433 houses were constructed since 2017-18. KSHB had also constructed 13 Working Women’s Hostels upto March 31, 2023. Working Women’s Hostels have been completed in Mananthavady, Wayanad district (3 storey, 169 beds) and Madhur, Kasaragod district (3 storey, 109 beds). Under the scheme Aswas rental housing scheme for providing accommodation to the patients and by-standers of medical colleges at an affordable rate, construction of rental houses near Alappuzha, Thrissur and Kannur Medical Colleges has been started. Construction of buildings at Alappuzha and Kannur is progressing whereas the work at Thrissur has been completed.

KSHB has started building 36 apartments in Pattuvam, Kannur; 36 apartments in Mukkam, Kozhikode; and 18 independent cottages in Thrikkaipetta, Wayanad district, in order to provide accommodation for economically weaker groups. As of now, construction of 11 houses has been completed at Thrikkaipetta. KSHB is earnestly trying to address the housing needs of economically weaker sections who are not eligible for houses under LIFE Mission. One such

Box 11.5.1 Thanteyidam Project

'Thanteyidam' (My own space) is an innovative scheme implemented by Government of Kerala through the Kerala State Housing Board (KSHB). The scheme aims at providing housing to homeless youngsters who lived in welfare homes run by the Government, or by non-government organizations, but are required to vacate when they turn eighteen. This scheme is implemented by the KSHB in collaboration with the Department of Women and Child Development. The scheme caters to the housing needs of beneficiaries who are not listed in any of the housing schemes of Central or State Governments. The most striking feature of this scheme is that while identifying beneficiaries, priority is given to women, especially the survivors of POCSO. From 2022-23 onwards, this scheme follows a unique mode of implementation. Beneficiaries identified by the Women and Child Development Department are given houses/flats constructed by KSHB under its scheme for economically weaker section (EWS)/low-income group (LIG). In the Budget 2022-23 and 2023-24, Rs 100.00 lakh and Rs 200.00 lakh respectively were earmarked for 'Thanteyidam' project

Source: Kerala State Housing Board (KSHB)

innovative scheme is 'Thanteyidam'. The details of the project are given in **Box 11.5.1**.

Housing (Technical Cell) Department (Housing Commissionerate)

Housing (Technical cell) Department acts as the State-level technical cell and nodal department for the coordination and support for the housing activities of the State of Kerala. This department was formed in 1980 for proper planning and coordination of the activities in the housing sector and achieve technical excellence in housing solutions.

This Department is primarily engaged in providing data support and technical guidance, review of policies and programme, setting housing targets, facilitating decision-making in the housing sector and extending technical and other support related to housing to all agencies working in this area. The department has made some pioneering attempts in creating spatially oriented information system in the housing sector. In 2022-23 under the plan scheme viz. 'GIS-based Housing Status Information System for Kerala', surveys were conducted in Poovar, Anjuthengu and Edava in Thiruvananthapuram district as part of the pilot study to integrate spatial data and household details to develop a state wide spatial database on housing. The details of Poovar and Anjuthengu have been uploaded in a GIS platform. Surveys are progressing in Pattambi, Alathur and Akathethara grama panchayaths in Palakkad district, Vengapally and Padinjarethara in Wayanad district and Karthikapally and Kadakarapally in Alappuzha district. The assets and schemes of Kerala State Housing Board are also mapped on the GIS platform. Housing (Technical Cell) Department has started formulation of cost effective modules

for housing schemes in Kerala and the module for coastal regions has been completed.

Kerala State Nirmithi Kendra

Kerala State Nirmithi Kendra (KESNIK), established in 1989, is an accredited agency under the Housing Department, Government of Kerala. It is involved in a variety of activities in the housing sector such as undertaking construction projects; imparting training for skill development in construction technologies and related trades to unemployed youths, general public and technocrats; production of cost effective and environment friendly building materials; sale of building materials at subsidized rates; R and D activities in housing and allied fields; and providing facilities for building material testing for quality assurance in construction works, through its testing labs. KESNIK is constructing a model sustainable village at Kattakkada comprising of 30 dwelling units with livelihood options. KESNIK completed 16 dwelling units in the first phase during 2021-22 and 12 dwelling units in 2022-23. A total of 28 units were handed over to the Kattakkada Grama Panchayat.

In 2022-23, KESNIK organized 20 vocational training programmes for imparting skill development in the construction sector, benefitting 270 beneficiaries. KESNIK Kalavaras sell building materials for BPL beneficiaries and LIFE Mission beneficiaries at a subsidized rate of 15 per cent for construction and repair of houses under Government schemes. KESNIK also conducted certificate course of 4 months duration for 40 students at Thiruvananthapuram and Kozhikode under the programme viz. 'Finishing school for skill improvement for Civil and Architecture engineering graduates' to make

them expert professionals in the construction field. To extend the service of testing labs to common people, KESNIK has started a Mobile Testing Lab at Thiruvananthapuram. This may help people from different sections of society to understand and analyze the quality of various building materials. As part of switching over to energy-efficient solutions, two solar powered units were set-up at the two Regional Centers viz. Kottarakkara and Kozhikkode. To discover and disseminate innovative technologies in the field of construction, KESNIK has completed the construction of the State's first 3D Printing house at KESNIK campus using fully indigenously developed 3D Printing technology by TVASTA, an incubation company formed by Chennai IIT, in collaboration with the Union Ministry of Urban Affairs. Several technical workshops were conducted in KESNIK campus to give awareness on this new technology to the public. The Laurie Baker International School of Habitat Studies (LaBISHaS) was established by the Government of Kerala in KESNIK as an academic initiative. College of Architecture Thiruvananthapuram (CAT) is one of the largest architecture and design schools in Thiruvananthapuram. CAT- LaBISHaS Design Lab (CLDL) was setup as a joint venture with LaBISHaS and College of Architecture Thiruvananthapuram to develop detailed architectural designs and to provide guidance for building constructions. In 2022-23, CLDL has designed projects worth Rs 50 crore.

Kerala State Co-operative Housing Federation

Kerala State Co-operative Housing Federation Ltd is the apex body for financing primary co-operative housing societies in the State to construct houses at the minimum possible cost on easy repayment terms for its members. The main sources of funds of the federation are (i) share capital contribution from member societies and the Government of Kerala and (ii) borrowings from LIC, National Housing Bank and other Commercial Banks. Kerala State Co-operative Housing Federation provide home loans to economically weaker section (EWS), middle income group (MIG) and for repair/maintenance. From 2018-19 to 2023-24 (up to August 31, 2023), Kerala State Co-operative Housing Federation sanctioned housing loans to 7,330 beneficiaries and Rs 36,218.29 lakhs was disbursed as loan. Details are given in **Appendix 11.5.1.**

Housing Finance

Finance is a crucial instrument in providing affordable housing for a long period. Finance for housing includes loans from banks, subsidies and grants from Centrally Sponsored Schemes, State Schemes, shares of local governments, and loans. All the major scheduled banks under the RBI rules provide housing loans through various bank schemes. Banks offer loans through various government housing schemes to economically weaker sections, lower income groups, middle income groups and high-income groups. The financial institutions which provide loans for house construction along with the government agencies in the state are nationalized banks, Kerala Gramin Bank, private sector commercial banks, Kerala State Co-operative Bank, Kerala State Co-operative Agriculture and Rural Development Bank Limited (KSCARD), small finance banks like HOUSEFED, HUDCO and HDFC. The interest rates of housing loans change according to the announcements by the Govt and the Reserve Bank of India.

Way forward

Housing should be combined with adequate amenities for a dignified life. This would include community amenities like open space and recreational areas as well as personal necessities like drinking water, drainage systems, and environmental cleanliness. It is imperative that housing designs provide provisions that guarantee the well-being and contentment of residents' social and personal lives. The supply of housing to the poor should be complemented with basic services, infrastructure, and chances for employment, income-generation, and livelihood security, given the significance of housing for one's well-being and upward social and economic mobility. With these goals in view, the department proposes to set up state of the art information support and technical assistance to various agencies in the sector and help people make intelligent decisions on housing related requirements.

11.6 REBUILD KERALA DEVELOPMENT PROGRAMME

Rebuild Kerala Development Programme

During the years 2018 and 2019, Kerala confronted the worst floods ever since 1924. Vast majority of the population were drastically affected by the aftermath of floods and landslides. In order to tackle these natural calamities, the Government of Kerala decided to introduce the Rebuild Kerala Development Programme to facelift the State damaged by flood. In order to implement this development programme the Government established the Rebuild Kerala initiative (RKI) to bring about a perceptible change in the lives and livelihoods of its citizens by adopting higher standards of infrastructure for recovery and re-construction and to build ecological and technical safeguards so that the restructured assets could better withstand floods in the future". Rebuild Kerala Initiative is guided by the Kerala Government's vision for recovery and move towards Nava Keralam. RKI envisions a green and resilient Kerala where higher and ecologically safe standards of infrastructure, improved conditions of living and new major development projects ensure that people and assets can withstand the onslaught of future disasters.

The core of the Rebuild Kerala Initiative aims to develop, coordinate, facilitate and monitor the RKDP through a participatory and inclusive process. RKDP comprises of the State's strategic method to achieve a green and resilient Kerala. It focuses on catalysing the aspects of rebuilding

Kerala in a way that addresses all the key drivers of the floods and other natural disasters, including climate change risks. It strengthens and prepares the State against any future disasters. With the RKDP, the Government of Kerala aims to build a Kerala through resilient recovery and to pave the development pathway to Nava Keralam. The objective of the RKDP is to enable Kerala's resilient recovery and catalyse a transformational shift towards risk-informed socio-economic development through supporting sustainable communities, institutions, livelihoods and putting in place major infrastructure.

Goals of the RKDP

The Rebuild Kerala Development Programme works towards the following set of goals:

- It aims to rebuild Kerala in a way that ensures higher standards of infrastructure, assets and livelihoods for resilience against any future disasters.
- To build individual, community and institutional resilience towards natural hazards while fostering equitable, inclusive and participatory reconstruction that builds itself back better.

The RKDP also focuses on the necessity to improve sectoral mainstreaming of disaster risk reduction measures and to strengthen disaster-risk management capabilities across Kerala. The aim

Table 11.6.1 Total Outlay and Expenditure under RKI, Rs in Lakh

Name of scheme	2019-20		2020-21		2021-22		2022-23		2023-24		Total
	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure as on 11 December, 2023	Total Expenditure up to 11 December, 2023
Roads of Local Self Government (RKI)	12500	24.04	15000	1757.09	22500	4460.15	9200	8574.91	18076	15925.65	30741.8
Livelihood Support (RKI)	20000	709.62	32500	27271.98	15000	4289.19	3400	1691.44	1501	871.13	34833.4
PWD roads and bridges (RKI)	12500	0	15000	9000	63000	50001.47	82200	81535.29	36501	34940.56	175477
Public buildings-Major repairs and reconstruction (RKI)	12500	0	0	0	15000	4335.93	10000	5416.23	13001	6843.59	16595.8
Water Supply (RKI)	12500	0	10000	3773.03	30000	9244.67	7700	5454.52	3501	1768.75	20241
Disaster Preparedness (RKI)	5000	0	15000	9263.39	15000	8840.2	18800	14871.68	11001	7766.78	40742.1
Sanitation (RKI)	12500	0	2500	95	10000	392.58	700	411.74	901	656.6	1555.92
Transport (RKI)	12500	0	0	0	0	0	0	0	0.01	0	0
Roads And Bridges (RKI)	0	0	0	0	12500	12500	28000	28000	31000	31000	71500
P-V-Revenue head	0	0	100	80.1	270	239.28	350	304.05	350	102.07	725.5
Total	100000	733.65	90100	51240.6	183270	94303.5	160350	146260	115832	99875.1	392413

Source: RKI Department, 2023

is to rebuild a much more resilient State, wherein state institutions, infrastructure, citizens and their livelihoods are safe and protected during extreme weather conditions. The key sector priorities of the Rebuild Kerala Development Programme are Integrated Water Resource Management, Water Supply, Sanitation, Urban focus, Roads and Bridges, Transportation, Forestry, Agriculture, Animal Husbandry and Dairy Development, Fisheries, Livelihoods, Land and Health. In addition to these key sectors, there are four cross-cutting sectors viz., disaster risk management and resilience, environment and climate change, strengthening institutional efficiency and resilience and open data.

Financing of Rebuild Kerala Development Programme (RKDP)

The Rebuild Kerala Development Programmes (RKDP) estimated a total requirement of Rs 36,500 crore for the development period from 2019 to 2027. Initially, the State earmarked Plan fund of Rs 1,000.00 crore each in 2019-20 and Rs 901.00 crore 2020-21, Rs 1833 crore in 2021-22 and Rs 1603 crore in 2022-23 and 1158 crore in 2023-24 to facilitate the smooth and timely implementation of the projects under RKI. Funds are being released based on the requirement specified by various Departments and/or their implementing agencies. The total amount received by RKI and

its corresponding expenditure are given in the **Table 11.6.1**.

The table shows outlay and expenditure of components under RKI in the state budget during the period from 2019-20 to 2023-24, and expenditure up to December, 2023. In 2019-20, the total expenditure incurred was Rs.7.33 crore (0.73%) as against the outlay of Rs.1000 crore. During the period 2019-20 to 2023-24, the total budget outlay was Rs.6495.52 crore and the total expenditure incurred on various projects were Rs 3924.13 crore (up to December, 2023). In total, more than 60 percent of outlay has been used on various projects.

The following are a few initiatives by the Government of Kerala in order to finance the Rebuild Kerala Development Programme.

- The State Budget comprises of various plan and non-plan allocations. This includes assistance from multilateral agencies such as the World Bank, AIIB and ADB, and other bilateral agencies such as the KfW, AFD and JICA.
- Centrally Sponsored Schemes and various allocations.
- Deployment of Flexi-Fund under the Central Government Schemes
- Crowd funding
- Mobilisation of fund through Chief Minister's Distress Relief Fund (CMDRF)
- NABARD Funding through the (NABARD Infrastructure Development Assistance (NIDA).
- HUDCO and other means of loans
- Private and non-traditional sources of institutional and retail financing including Masala bonds, Diaspora bonds and various other private sector financial sources.

Partnership with the World Bank

The Government of Kerala, along with the support of the Government of India, signed a loan agreement of USD 250 Million with the World Bank for the First Resilient Kerala Program. This program represents the first-ever State Partnership of the World Bank in India. The Resilient Kerala Program focuses on strengthening the State's institutional and financial capacity in order to protect the livelihoods and assets of the poor and vulnerable groups through a much inclusive approach. This new programme is part of the

Central Government's support to the Rebuild Kerala Development Programme that is aimed at building a green and resilient Kerala.

The First Resilient Kerala Programme aims to support the State with the following:

- To improve river basin planning and water infrastructural operations and management, including water supply and sanitation services.
- To promote resilient and sustainable agriculture that is enhanced with risk insurance.
- To improve the resilience of the main road networks.
- To unify and maintain land records in high-risk areas
- To promote risk-based urban planning and strengthen expenditure planning by local municipal bodies.
- To strengthen Kerala's fiscal and public financial management capacity.

The World Bank has been continuously supporting the State of Kerala through various other engagements like the Dam Improvement Project and Rehabilitation (DRIP), National Cyclone Risk Mitigation Project Phase 2, National Hydrology Project and the Kerala Local Government and Service Delivery Project. Additionally, the Bank has been working with the Government of India and the Kerala State Government since the floods struck. The World Bank has played a vital role in assessing the impact of the floods and offering assistance in terms of recovery and reconstruction. The Bank also supported the State to identify policies, institutions and systems for the State's resilience to risks associated with disaster and climate change.

Progress of schemes under RKI

At present under the Rebuild Kerala Initiative there are around 34 fully/partially completed RKI projects in various sectors. The sectors included under RKI projects include Animal Husbandry and Dairy Development, Disaster Management cross cutting, Agriculture, Livelihood, Roads & Bridges, Sanitation, cross cutting environment, Integrated Water Resource Management (IWRM), Water Supply, Sanitation, Fisheries etc. As on October 15, 2023, an amount of Rs.5813.51 crore was given Administrative Sanction and the total expenditure incurred was Rs.2688.93 crore for 34 fully/partially

completed projects during the period from 2019-23. The details of completed projects under RKI (2023-24) are given in **Appendix.11.6.2**.

Key Policies

RKI has facilitated the policy formulation and policy development for Key departments and the following policies have been framed and approved:

- The State Government entrusted the Rebuild Kerala Initiative (RKI) with the task of planning and implementing a rebuilding strategy for the State and issued Comprehensive guidelines for Operational Strategy and Institutional Framework for the RKI.
- To strengthen fiscal sustainability, the GoK has: (a) issued a Government Order increasing the valuation of land as per the Kerala Stamp Act by a hundred percent (100%); (b) issued a Government Order whereby valuation of buildings will be enhanced; and (c) issued a Government Order designating KIIFB to act as the nodal agency for mobilizing private retail finance for resilient recovery efforts through a Diaspora Bond.
- The GoK has issued a Government Order delegating the Department of Agriculture to develop, plan and budget the schemes of the Agriculture Department based on Agro Ecological Zones and Agro Ecological Units - in accordance with the State's fourth year Program (2020-21) of the 13th Five Year Plan (2017-2022).
- The GoK has (a) adopted performance-based management contract model for managing the core road network, incorporating design and performance standards and disaster-related emergency response module; and (b) initiated institutional streamlining in the roads sector through the liquidation of certain non-essential road sector agencies and the transfer of their mandate and assets to the Public Works Department and developing a new Center of Excellence in the road sector through restructuring of Kerala Highway Research Institute.
- The GoK has adopted a State Sanitation and Waste Management Strategy, incorporating cost-effective septage and waste management models. The GoK has (a) issued Government Orders banning the manufacture, storage, transport, and usage of single-use plastic items to reduce plastic waste; and (b) approved an integrated solid waste management strategy for sustainable management of solid waste by LSGs.
- (c) A draft Liquid Waste Management Policy for the state of Kerala has been prepared and submitted to Government for approval after stakeholder consultation.
- The GoK has instituted sustainable risk-informed urban planning and multiyear municipal infrastructure planning through (i) approval of the draft amended Town and Country Planning (TCP) Act by the Council of Ministers and (ii) issuance of a Government Order on revision of annual planning guidelines to finance priority multiyear municipal infrastructure projects.
- As part of the Resilient Kerala Programme For Results (PForR), for which RKI is the Project Management Unit (PMU), the GoK has taken up the below initiatives.
 - **Adoption of a Debt Management Plan:** To strengthen the GoK's ability to deal with contingent liabilities due to natural disasters and disease outbreaks, the Department of finance has commenced working on formulating a debt management plan and establishment of a debt management unit to scale down the State's debt-to-GSDP ratio to a sustainable path.
 - **Unified database:** As part of developing a comprehensive Disaster Risk Financing (DRF) framework that strengthens the financial resilience of the Government and the communities, GoK is developing a unified database of vulnerable households and a payments platform which triggers post-disaster safety net payments to the bank account of eligible beneficiaries on time.
 - **Forward Works Program:** The GoK aims to implement a Forward Works Programme (FWP) for the maintenance of around 6000 kms of road (Core Road Network) in the Pamba Basin using data, like the condition and evaluation of the road surveyed, which is fed into the Road Maintenance Management System (RMMS). Accordingly, the GoK plans to allocate a budget for the maintenance of the roads as per the Forward Works Programme (FWP).
 - **One Health Approach:** An integrated One Health Approach to diagnose, track, and respond to disease outbreaks is being implemented statewide to reduce adverse population and animal health impacts of zoonotic diseases.
 - **Disaster Risk Financing and Insurance:** To improve the Disaster risk financing and

insurance capacity of GoK and vulnerable households in Kerala, the GoK aims to mobilize market-based resources as a disaster risk financing instrument to complement the State Disaster Response Fund (SDRF)/Chief Minister's Distress Relief Fund (CMDRF). Additionally, approximately 33,922 farmers from the Pamba basin districts have also been registered under the state crop insurance scheme

- **Risk-informed Urban Master Plans:** The Department of Country and Town Planning (LSGD-CTP) and Kerala Institute for Local Administration (KILA) in coordination with Kerala State Disaster Management Authority (KSDMA) has down scaled the climatic models and provided the information to all Urban Local Bodies (ULB) of the State. Further, the GoK has developed and notified the guidelines for RIMPs for developing effective Risk Informed Master Plans (RIMPs) and Disaster Climate Action Tracker (DCAT) tool for incentivizing the ULBs in the form of performance grants. Currently training modules have been prepared for the ULBs and trainings are expected to be conducted soon
- **Flood forecasting and integrated reservoir operation systems:** The Water Resources Department has developed a Flood Forecasting & Integrated Reservoir Operation Systems for the Pampa basin for giving early flood warnings to the public through KSDMA.

11.7 KERALA INFRASTRUCTURE INVESTMENT FUND BOARD (KIIFB)

Kerala Infrastructure Investment Fund Board (KIIFB) was set up in 1999 as an agency to mobilise funds for capital expenditure on behalf of Kerala Government. The formation of KIIFB marked a significant milestone in Kerala's infrastructure development journey. The Board was conceptualised under the Kerala Infrastructure Investment Fund (KIIF) Act with the primary objective of mobilising funds and facilitating investments in critical infrastructure projects across the State. The enacted KIIF Act was amended in 2016 to revamp the structure, as well as the quality and timeline of the projects. With its formation, Kerala gained a dedicated institution with focus on catalysing infrastructure development by bridging the funding gap and leveraging public and private resources.

KIIFB facilitates planned, hassle-free and sustainable development of physical and social infrastructure including major land acquisitions that are integral to development, using financial instruments approved by Securities & Exchange Board of India (SEBI) and Reserve Bank of India (RBI). It joins hands with State/Central public sector agencies to have them on board as Special Purpose Vehicles (SPVs) to support the administrative departments in developing infrastructure.

Spectrum of Projects

The Kerala Infrastructure Investment Fund was established with the main objective of providing investment for projects in the State of Kerala in

sectors including Transport, Water Sanitation, Energy, Social & Commercial Infrastructure, IT and Telecommunication. The major projects in the State funded by KIIFB include Kerala Fibre Optic Network, Petrochemical and Pharma Park – Kochi (Land Acquisition-LA), West Coast Canal, Coastal and Hill Highway, Wayanad Twin-tube Tunnel, Transgrid 2.0, Life Science Park (Phase II-LA) - Thiruvananthapuram, Hi Tech School Programme, Integrated Urban Regeneration and Water Transport System (IURWTS) for Kochi.

By investing in infrastructure, KIIFB aims to stimulate economic growth in the State. Well-developed infrastructure can attract investments, create job opportunities, and improve the overall quality of life for the residents of Kerala. KIIFB places a strong emphasis on sustainable development by supporting projects that promote environmental conservation and social inclusivity. This is reflected in its initiatives in renewable energy, water management, and urban development.

KIIFB undertook various infrastructure development projects as well as projects exclusively for land acquisition. As of March, 2023, it approved 1,050 infrastructure projects and 7 land acquisition projects to the tune of Rs 81,027.02 crore in sectors including healthcare, education, roads and transportation, irrigation and water supply, power, ports, inland navigation, drainage and solid waste management. Under the land acquisition pool,

Table 11.7.1 Consolidated details of KIIFB Approved Projects, as on March 31, 2023, Rs in crore

Sl.No.	Type of Project	2021-22		2022-23		Total (2016-23)	
		Number	Outlay	Number	Outlay	Number	Outlay
1	Infrastructure Projects	58	7249.92	94	8392.75	1050	61,027.02
2	Projects under Land Acquisition Pool	1	840.00	0	0.00	7	20,000.00
Total		59	8089.92	94	8392.75	1057	81,027.02

Source: KIIFB

7 massive land acquisition projects worth Rs 20,000 crore has been approved so far. In 2022-23, KIIFB had approved 94 infrastructure projects worth Rs 8,392.75 crore. Consolidated details of project approved by KIIFB are shown in **Table 11.7.1** and the status of projects approved by KIIFB (department-wise) are given in **Appendix 11.7.1**.

The projects funded through KIIFB are at various stages of development in 140 constituencies of the State. In this respect, 485 projects worth Rs 30,014 crore falls under to the Public Works Department (PWD). The major projects under the Public Works Department includes the Hill Highway, Coastal Highway projects and the Anakkampoyil - Kalladi-Meppadi (AM) Tunnel Road which is an 8.735 km long four-lane tunnel including approach roads on both sides for providing connectivity between Anakkampoyil in the Kozhikode District and Meppadi in Wayanad District of the State. The tunnel would provide a reliable, safe, all-weather road connectivity alternative to the Thamaraserry Ghat road. KIIFB has approved Rs 2,134.5 crore for the Project.

The new industrial policy released by Industries Department include measures to bring a meaningful change in the industrial climate of the State. As part of the development of Kochi - Bangalore Industrial Corridor (KBIC), Kerala Industrial Infrastructure Development Corporation (KINFRA) has initiated land acquisition for the Industrial Manufacturing Cluster (IMC) in 1,351 acres at Palakkad at a cost of Rs 1,038 crore. As part of the project, a non-manufacturing cluster called 'Global Industrial Finance Trade (GIFT) City' is proposed to be developed as a business centre in Angamally in the Ernakulam District. KIIFB has accorded sanction for an amount of Rs 850 crore for acquiring 144.9759 hectares of land at Ayyampuzha village in Ernakulam.

Major share of KIIFB fund has been set aside for the roads and road transport sector, which is Rs 37,512.43 crore as of March, 2023. The Board has accorded sanction for Rs 30,014.23 crore for various road/bridge projects including the Anakkampoyil – Kalladi - Meppadi Tunnel Road Project. It has also sanctioned projects for the construction of Alappuzha Mobility Hub Phase I and KSRTC Bus Terminal Complex in Alappuzha. The details of funding for the Road and Road Transport Sector is shown in **Table 11.7.2**.

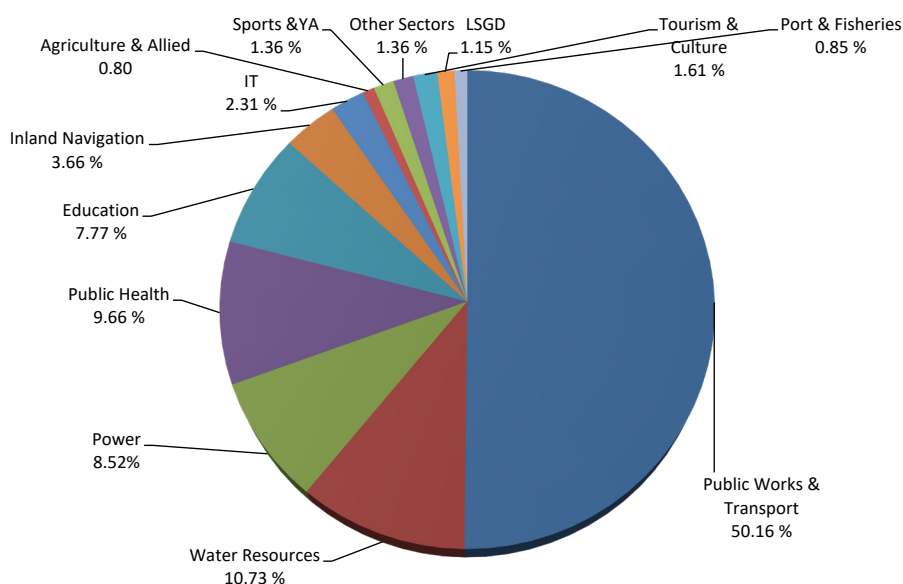
Table 11.7.2 Funding in Road and Road Transport Sector, as on March 31, 2023, Rs in crore

Sl.No	Name of Project	Amount
1	Coastal Highway	2,899.11
2	Hill Highway	3,167.89
3	Anakkampoyil Kalladi- Meppadi(AM) Tunnel Road	2,134.5
4	Other Road/Bridges Projects	22,009.46
5	Road Transport Projects	504.47
6	Land Acquisition for NH Development	6,797.00
Total		37,512.43

Source: KIIFB

KIIFB spearheads National Highway (NH) development in the State by funding 25 per cent of the total Land Acquisition (LA) cost. Huge land acquisition costs posed major hurdle to the highway development in the State and this has been resolved to a great extent with State Government bearing a part of the land acquisition cost through KIIFB. Out of the total approved outlay of Rs 6,769 crore, an amount of Rs 5,580.74 crore has been transferred to the National Highway Authority of India (NHAI) for land acquisition as on March 31, 2023. KIIFB has approved a total of Rs 3,167.89 crore for the Hill Highway project and some stretches of Hill highway in Thiruvananthapuram, Kollam, Idukki and

Figure 11.7.1 Sector-wise KIIFB funding, as on March 31, 2023, in per cent



Source: KIIFB

Kasaragode Districts have already been completed by Kerala Road Fund Board (KRFB).

Water resources (Rs 6,548.92 crore) and Health & Family Welfare (Rs 5,712.57 crore) sectors follow the Road and Road Transport sector in terms of the share of allocation of KIIFB funds. Reconstruction of damaged sunken sea wall and construction of groyne field project at Chellanam is one of the important projects undertaken in water resources sector, costing Rs 344.2 crore. In addition to that, five Sea Pier works, two canal improvement works, construction of ten check dams and drinking water projects have been taken up under KIIFB. The board has sanctioned Urban Regeneration and Integrated Water Transport System in Kochi at a cost of Rs 556.51 crore and Rs 915.84 crore has been allotted for the development of West Coast Canal. Details of sector-wise KIIFB funding is illustrated in **Figure 11.7.1**.

Kerala State Electricity Board Limited (KSEBL) initiated the plan for Transgrid 2.0 with a mission to enhance the reliability and security of electricity transmission system and to reduce system transmission losses with minimum disturbance to the environment and the public and a green vision for better energy management with KIIFB funding. KIIFB allocated Rs 5,200 crore for the Transgrid 2.0 plan. It is expected that the

implementation of the projects will bring about a reduction in peak load system loss of about 107.8 MW and corresponding annual energy savings of 522.21 Million Unit (MU). Construction of Substations at Kothamangalam, Kaloor, Chalakkudy and Thalassery had already been completed.

KIIFB has approved Rs 5,895.63 crore for health and family welfare, including projects in Ayush. This is 9.7 per cent of the total projects approved by the KIIFB. It includes projects for development of 55 Hospitals across the State, including Taluk Hospitals, General Hospitals, District Hospitals, Medical Colleges and Speciality hospitals like Cochin Cancer Centre and Speciality Hospital at Matannur. The setting up of 10 Critical Care Unit (CCU), 9 Cathlab and 43 Dialysis units were also completed. In addition to this, construction of 10 bedded isolation wards in 140 Legislative Assembly Constituencies is also approved for Rs 236.30 crore and the project to upgrade Government Medical Collages as Centres of excellence was approved at a total outlay of 1,137.5 crore.

KIIFB approved an amount of Rs 4,747 crore to the education sector, of which Rs 2,995 crore is earmarked for the General Education sector and Rs 1,752 crore has been set aside for projects in Higher Education sector. In the General Education

sector, an amount of Rs 702.29 crore has been earmarked for the up gradation of one school in each constituency under the Protection of Public Education (PPE) Mission. As part of this, works of 19 schools out of 39 have been completed as of March, 2023. The list of works done in the education sector also includes the completion of 425 school buildings, setting up of 44,705 High-tech class rooms in Secondary and Higher Secondary schools and 11,257 High-tech labs in LP and UP schools in the State. An amount of Rs 785.5 crore has been spent for the completion of these Hi-Tech Projects in the education sector.

In the Higher Education Sector, the project for the renovation of 55 Arts and Science Colleges has been approved by KIIFB. Out of these, 5 colleges will be developed as part of the development of heritage colleges scheme. Projects to the tune of Rs 560.43 crore has been earmarked for the development of 4 engineering colleges, 8 polytechnic colleges, and 5 universities have been approved by the board. Among the 5 universities taken up for development, Cochin University of Science and Technology (CUSAT) receives the major share of Rs 241.72 crore for upgrading it as the Centre of Excellence in Academics and Research.

The K-FON (Kerala Fiber Optic Network) project, approved by the KIIFB in 2017-18 with a total outlay of Rs 1061.73 crore, is progressing at a fast pace. The first phase of the project has been completed. The project is conceived to provide better network connectivity to rural area and will setup a State-wide core optical fibre network capable of efficient service delivery, assured Quality of Service (QoS), reliability, redundancy and security for meeting future bandwidth demands. It provides access to all service providers and will connect more than 30,000 Government institutions and provide free internet to 20,000

economically backward families and subsidised internet service for others. KIIFB is also funding in the IT sector for the development of two IT Parks at Kalamassery and Kazhakoottam at a total outlay of Rs 351.13 crore.

KIIFB has been funding 39 projects worth Rs 834.66 crore in the Sports sector, including the construction of an aquatic sports complex, 54 stadiums and development of two sport schools. As of March, 2023, KIIFB has approved tourism projects worth Rs 506.11 crore which includes rejuvenation of Akkulam Lake and its Watershed at a cost of Rs 117.51 crore. It also funds projects in the Cultural sector including construction of 9 theatre complexes and 8 cultural complexes and development and the expansion of Chitranjali studio into a film city. The Alappuzha heritage project at an approved cost of Rs 81.07 crore is being implemented in five phases. an amount of Rs 78.16 crore had been approved by KIIFB for the Thalassery heritage Project spanning across Wayanad, Kozhikkode and Kannur Districts.

KIIFB has approved an amount of Rs 298.38 crore for the Nilaavu project which aims to replace 10.5 lakh conventional streetlights with energy efficient LED lights. KSEB is the nodal agency for the project and has chosen Energy Efficiency Services Ltd., a joint venture of PSUs under the Ministry of Power, as the project management consultant. The project has already become a milestone in State's energy conservation efforts and is aiming towards a filament-free Kerala. The project expects to save 185 million units of electricity per year.

Performance of Project Implementation

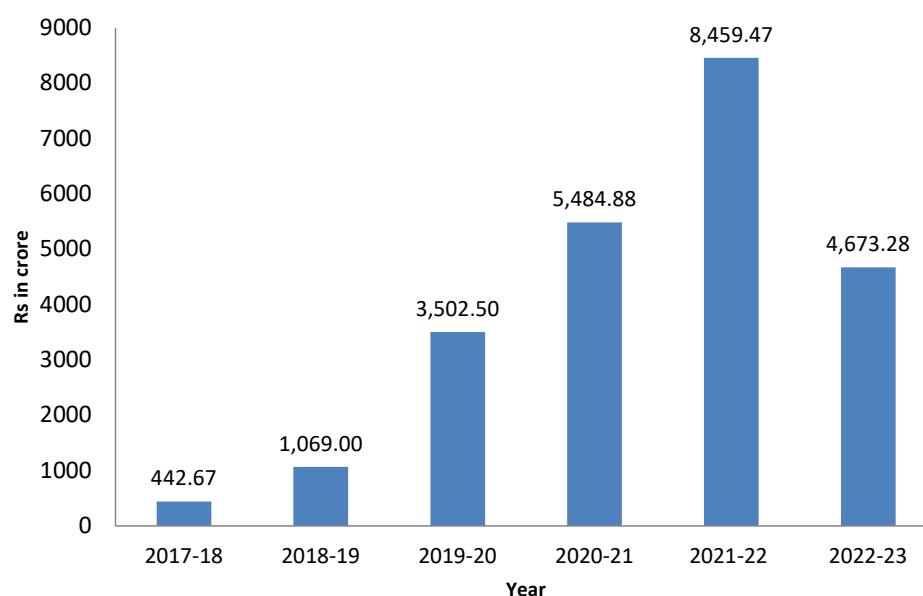
KIIFB has completed projects worth Rs 13,389.89 crore as on March 31, 2023. Out of the 1,050 approved projects, 604 projects have been tendered and 553 projects have been awarded or started. In 2022-23, KIIFB

Table 11.7.3 Disbursement of KIIFB Approved Projects under Infrastructure Projects and Land Acquisition pool, Rs in crore

Sl. No	Projects	No. of projects	Outlay	Amount disbursed*
1	Infrastructure Projects	1050	61,027.00	14,123.97
2	Projects under Land Acquisition Pool	7	20,000.00	9,507.78
	Total	1057	81,027.00	23,631.8*

*Details as on 31.03.2023
Source: KIIFB

Figure 11.7.2 Financial Performance of KIIFB, as on March, 31, 2023, Rs in crore



Source: KIIFB

has released Rs 4,673.28 crore for funding infrastructure projects and land acquisition. It was Rs 8,459.47 crore in 2021-22. The total disbursements towards various KIIFB approved projects including land acquisition have reached Rs 23,631.8 crore as on March 31, 2023. Fund disbursement details are provided in **Table 11.7.3**.

KIIFB has disbursed an amount of Rs 9,507.78 crore till March, 2023 exclusively on land acquisition projects which constitutes 40.23 per cent of the total disbursement. Of which, Rs 5,580.74 crore was for National Highways. Apart from the Rs 828.85 crore for the Kochi - Bangalore Industrial Corridor & Gift City, KIIFB also funds an amount of Rs 2,952.58 crore for the development Petro Chemical & Pharma industrial park in Ernakulum and Life Science Park in Thiruvananthapuram and Rs 145.60 crore for taking over of land from Hindusthan Newsprint Ltd. Of the total fund of 8,459.47 crore disbursed by KIIFB in 2021-22, Rs 2,747 crore constitutes the fund transferred to NHAI towards the cost of land acquisition for NH development in the State. Financial performance of KIIFB as on March, 2023 is given in **Figure 11.1.2**.

The American credit rating agency Fitch in September, 2023 has affirmed BB-/B' ratings on Kerala Infrastructure Investment Fund Board

(KIIFB), saying the outlook is stable. KIIFB was felicitated by Housing and Urban Development Corporation Limited (HUDCO) recognising it as the 'Best Performing Agency in Urban Infrastructure' in April, 2023.

11.8 KASARAGOD DEVELOPMENT PACKAGE

11.8 Kasaragod Development Package

Dr. P. Prabhakaran Commission was appointed by the Government of Kerala to prepare an integrated developmental plan for Kasaragod District. The Commission identified various backward sectors and areas and put forth a package for the comprehensive development of the District. The Package envisages a total outlay of Rs 11,123.07 crore covering various sectors of which Rs 2,524.56 crore is proposed as share of Government of Kerala, Rs 756.19 crore as share

of Government of India, Rs 543.00 crore as share of external agencies, Rs 7264.16 crore as share of central PSUs and Rs 35.16 crore as share from other sources.

The projects mentioned in the Kasaragod Development Package commenced in 2013-14. An amount of Rs 85,195.00 lakh was allocated in the State budget for the implementation of Kasaragod Development Package up to 2023-24. From 2013-14 to September 2023, a total number of 608

Table 11.8.1 Kasaragod Development Package Financial Progress (as on 30.09.2023)

Financial Year	Budgeted Outlay (in lakh)	A.S Amount	Expenditure
2013-14	2,500.00	2,790.67	2,390.81
2014-15	7,500.00	9,332.94	6,210.80
2015-16	8,500.00	9,751.49	5,711.93
2016-17	8,798.00	14,299.84	8,243.30
2017-18	9,000.00	7,629.72	3,307.33
2018-19	9,500.00	7,882.22	275.27
2019-20	9,065.00	9,048.73	2,102.91
2020-21	7,500.00	7,500.00	4,932.17
2021-22	7,832.00	7,892.57	6,480.64
2022-23	7,500.00	7,500.64	5,782.36
2023-24	7,500.00	133.26	1,616.99
Total	85,195.00	83,762.08	4,7054.51

Table 11.8.2 Kasaragod Development Package Financial Progress (Physical progress (as on 30.09.2023))

Financial Year	Projects Sanctioned	Projects Completed	On-going Projects
2013-14	28	28	0
2014-15	24	23	1
2015-16	76	75	1
2016-17	81	80	1
2017-18	62	58	4
2018-19	80	67	13
2019-20	55	42	13
2020-21	73	45	28
2021-22	62	22	40
2022-23	61	3	58
2023-24	6	0	6
Total	608	443	165

projects with an outlay of Rs 83,762.08 lakh were sanctioned under the package. Out of 608 projects, 443 projects have been completed and 165 projects are in the various stages of completion.

financial status of implementation of Kasaragod Development Package is given in the **Table 11.8.1 and 11.8.2.**

In the health sector, the projects for the upgradation of the Government hospitals include provision of modern facilities such as new building facilities, equipments, sewage treatment plants and electrification. The major health projects completed during this period include construction of PHCs/FHCs/CHCs in Thaikadappuram, Pilicode, Chengala, Chattanchal, Thuruthi, Pallikkara, Vorkady and Moukkode. This provides better health care especially in rural areas. In educational sector, projects proposed for sufficient number of classrooms, toilet etc. was implemented in the District. The projects for the construction of regulators, rubber check dams, VCBs, check dams and rejuvenation of rivers were also undertaken during the period for ensuring ground water level in the district.

The Government constituted a District Level Committee of 16 members under the chairmanship of District Collector for granting administrative sanction for projects below Rs 5.00 crore under Kasaragod Development Package. At the State-level, the State Level Empowered Committee (SLEC) under the chairmanship of Chief Secretary and State Planning Board reviews the implementation progress under Kasaragod Development Package regularly. The physical and

CHAPTER

12

LOCAL GOVERNMENTS
AND DECENTRALISED
PLANNING

LOCAL GOVERNMENTS AND DECENTRALISED PLANNING

In an era of globalisation, decentralisation is the principal countervailing trend which can ensure that the growth process is pro-poor, pro-women, pro-nature and pro-jobs. As market integration and technological innovation render the national frontiers more permeable, it is crucial to put in place and strengthen systems of negotiation, regulation and decentralised governance (UNDP Discussion Paper)

The 14th Five Year Plan aims to move Kerala's economy to a higher growth trajectory by applying state-of-the-art science and technology to the productive sectors, imparting modern skill sets to youngsters, improving higher education, and fostering innovation and entrepreneurship. This is envisaged as a broad strategy to help the state evolve into a knowledge society and knowledge economy. Given the magnitude of transformation required to create a new Kerala, it is very important to energise grassroot level institutions, particularly local governments. Local governments, being the primary interface of citizen's interaction with the government, have a crucial role to play in the economic transformation of the State.

Apart from facilitating employment generation in the secondary and service sectors, Local Self Governments (LSGs) need to promote scientific natural resource management and inclusive development as well. Other major interventions include poverty eradication, enhancing the quality

of service delivery, and ensuring social security of all marginalised sections of the society.

The Government of Kerala has unified the four Missions Haritha Keralam (Green Kerala), Livelihood Inclusion Financial Empowerment (LIFE), Aardram (dealing with health), and Pothu Vidyabhyasa Samrakshana Yajnam (dealing with school education, now renamed Vidya Kiranam) into a single Nava Kerala Karma Paddhathi (New Kerala Action Plan, or NKKP) to harness the efforts of different development agencies and the LSGs to accomplish the above objectives.

This chapter deals with the objectives and priority areas for the Local Governments in the 14th Five Year Plan, major initiatives undertaken by the Government in first years of the Five Year Plan to attain the said objectives, Plan performance of the LSGs in 2022-23, challenges, and the way forward.

Priorities in the 14th Five Year Plan: As stated earlier, the main objective of the State in the 14th Five Year Plan is to accelerate the growth of productive forces of the economy based on science, technology, modern skills and innovation, as well as improve the strengths in social investment, social welfare, social and gender justice. This would ensure inclusive and sustainable growth, guaranteeing better standards of living for the people.

The following are the key priorities with respect to Local Governments in the Fourteenth Five Year Plan:

1. Local economic development: In view of the need to revive economic growth in the State, LSGs will foster entrepreneurship development by providing support to individuals and groups to establish enterprises hassle free. The LSGs would also provide financial, technical and skilling assistance to entrepreneurs. Apart from this, they can establish community-level facilitation centres, incubation centres, etc to promote entrepreneurship. In this process, LSGs would harness the resources from various sectors, particularly the co-operative sector for establishing infrastructure facilities and different supply and value chain management systems.

2. Employment generation: As the Government has declared generation of employment as one of its prime objectives, LSGs would formulate innovative programmes to create employment opportunities on a large scale. Along with this, the educated unemployed segments of the society will be equipped with necessary skills to tap the potential of employment opportunities within and outside the country through massive skilling and placement programmes.

3. Doorstep delivery: LSGs will strengthen and diversify citizen service delivery during the 14th Plan. In this regard, a host of vital services will be provided at the door steps of people whose mobility is constrained or reduced due to aging, illness, disability, or other limiting factors. This will be done by harnessing the efforts of various development agencies and voluntary action.

4. Local Action Plan for Climate Change Adaptation: The natural disasters that ravaged the State perceptibly due to climate change must be scientifically studied to evolve mechanisms to efficiently mitigate them. LSGs will formulate exclusive long-term and short-term action plans to build resilience to climate change.

5. Sustainable Development Goals: In the 14th Plan, LSGs will focus on developing projects that would also align with the goals and outcomes of the Sustainable Development Goals declared by the UN. In this process, LSGs will translate the SDGs to local action programmes and monitor the progress of accomplishment of these objectives at the micro level.

6. Urbanisation and waste management:

Issues related to growing urbanisation will be squarely addressed by LSGs in the 14th Plan. In this regard, LSGs will encourage adoption of efficient techniques of solid waste management by households and establish adequate infrastructure facilities for recycling and reuse. More importantly, the issues of liquid waste management will be addressed by soliciting the cooperation of communities and employing state-of-the-art technologies.

7. Extreme Poverty Eradication and Micro Plan preparation:

During the 14th Plan period, the Government aims to wipe out extreme poverty in the State. Eradication of extreme poverty was an important assurance of the Government, for which the Extreme Poverty Sub-Plan has been devised.

In addition to the above, social justice, gender equality, ensuring quality of health and education services are the other key focus areas for the LSGs in the 14th Plan.

Major initiatives of the 14th plan:

In line with the priorities of the 14th FYP, the Government has initiated the following programmes to equip the LSGs to formulate and implement projects in key focus areas. Detailed guidelines were issued to facilitate this process at the local level by suggesting probable integration of resources and issuing specific guidelines to attain the desired targets.

1. Local Economic Development-LED plan:

Regarding local economic development, LSGs hitherto had concentrated mainly on providing subsidy assistance to employment generating enterprises, providing training, helping construct basic infrastructure, providing revolving fund to the enterprises etc. However, realising that the attempts to build a conducive entrepreneurship-promoting ecosystem at the State-level essentially requires related attempts at the grass roots level as well, LSGs have also initiated projects to foster entrepreneurship development and generate employment. Accordingly, LSGs are now able to provide financial assistance and advisory support to entrepreneurs. Provisions for assistance such as interest subsidy for loans, transfer of technology fund, technology upgradation fund, innovation fund, incubation fund and crisis management fund, and seed support scheme have been devised to support the development of enterprises

in LSGs. LSGs can also provide support to establish connectivity and access to enterprises that generate adequate direct employment. New institutional arrangements like entrepreneurship and employment development council, technical committees, and help desks are being set up at the local level for clearing the hassles in establishing enterprises by innovators and entrepreneurs. It is anticipated that the LSGs would now transform into a single-window clearance mechanism and facilitation centre for entrepreneurship development. All the functional components of entrepreneurship development, skilling, self-employment, employment generation would be integrated at the local level. This is a breakthrough in local governance in Kerala, as LSGs are geared to enter new domains of development, with these new systems in place.

The Government of Kerala had also declared the year 2022-23 as the year of entrepreneurship to start one lakh micro small and medium enterprises (MSME) in the State. This campaign had attracted great attention that just within 250 days, the target was achieved. As of 31st March, 2023 1,39,840 new MSMEs have been established in the state with an employment generated for 3,00,051. For this, 1,153 professionally qualified interns were recruited through Centre for Management Development. Every Grama Panchayat and every 20 wards in the Municipality or Corporation has one intern assigned to them. The interns are trained on all aspects of industrial facilitation to enable them to give orientation to entrepreneurs on the various entrepreneurship support services available. The interns would assist the entrepreneurs in applying for licences, subsidies and loans, preparation of bankable projects, procuring technologies etc with the help of various agencies and departments. The interns are assigned specific targets for identifying and registering new enterprises in the LSGs served by them. These interns' activities will be coordinated by the Industrial Extension Officers in the respective District Industries Centres/ Taluk Industries Centres. Help desks to provide solutions to the public and entrepreneurs have been established in all LSGs across the State. The public can avail the services of the interns posted at the LSGs on every Monday and Wednesday, through these help desks. The Industries Department have formed MSME clinics, assisted by 168 empanelled subject matter experts to provide advisory services to entrepreneurs on marketing, finance, GST, export/import, banking,

licences and approvals, legal, technical aspects of the business, etc.

To take this further down, the 59 Taluk Industries Centres have been converted into Enterprise Facilitation Centres for which professionally qualified resource persons have been appointed. In line with the broader strategy adopted for the One Lakh Enterprises Scheme, the Department of Industries and Department of Local Self Government have jointly undertaken a scheme called One Local Body One Product (OLOP) scheme. As part of the scheme, a detailed list of products based on the availability of resources at each LSG level has been prepared through a feasibility study conducted by the District Industries Centres at each District.

Since Kerala is endowed with rich natural resources, structured production and marketing of products identified under the OLOP scheme would aid in identifying global markets for local products and ensuring fair prices for them. It is expected that farmers and entrepreneurs who are engaged in the value addition of these products would get significantly high returns.

All these initiatives would be complemented and strengthened by the new institutional mechanisms at the LSGs to support entrepreneurship.

2. Malinya Muktam campaign for waste management:

In 2017, the Haritha Keralam mission was launched as one of the developmental missions under the Nava Keralam Karma Padathi. Sustainable and scientific waste management was one of the major goals of the mission. In 2022, the *Navakeralam Vriithiyulla Keralam* State Action Plan was rolled out with the bold ambition of declaring the State as garbage and litter-free by 2025. It integrated the annual pre-monsoon cleaning drive and similar then existing initiatives. The Brahmapuram incident and the subsequent High Court intervention lent significant momentum to the Government's waste management endeavours.

The Malinyamuktham Navakeralam campaign was launched to further intensify the efforts, with an accelerated deadline of March 2024. Phase I of the campaign focused on ensuring 100 per cent segregation of all waste at source, complete door-to-door collection of non-biodegradable waste,

scientific processing of all biodegradable waste, cleanliness and hygiene of all public spaces and removal of garbage heaps, and the cleaning up of all water bodies and restoration of their ecological flow.

Phase II of the campaign primarily aimed at ensuring the essential infrastructure and systems to handle the increased incoming waste resulting from Phase I activities and at institutionalizing the improvements. Phase III will lay emphasis on sustaining the progress attained thus far, while also establishing a robust system for processing domestic hazardous waste, sanitary waste, construction and demolition waste, etc. Efforts will also be directed towards activities like dumpsite bioremediation, scientific disposal of inerts and rejects arising from the processing facilities etc.

As part of streamlining the waste collection and segregation system, 16,096 mini-Material Collection Facilities (mini-MCFs), 1,236 Material Collection Facilities (MCFs), and 166 Resource Recovery Facilities (RRFs) have been established across the State. Projects for further expanding the above infrastructure have been taken up by the LSGs and are currently in the implementation phase. State and district-level technical committees have been formed to expedite the technical sanctioning process for waste management projects.

Haritha Karma Senas (HKS), Kudumbashree's micro-enterprises, spearhead the doorstep collection of non-biodegradable plastic from households and establishments. Waste collected by the HKS is sorted by them at the MCFs and further separated and processed at the RRFs. The plastic waste that is sorted and separated at these facilities are recycled, sent to cement kilns or waste to energy plants, or used in road works. Instructions have been issued to all local self-governments regarding the use of shredded plastic in local road works.

Today the HKS are a force of 35,302 members across 14 districts, with an impressive coverage State-wide. Of the HKS members, 16,032 members earn a monthly revenue of Rs 5,000-9,999, 10,784 members earn Rs. 10,000-24,999, and 872 members earn more than Rs. 25,000. The Haritha Mithram app has been introduced to achieve complete digitalisation of the waste management processes.

With the Government issuing an order making user fee payment mandatory, LSGs have significantly expanded the coverage of households and commercial establishments. As many as 422 LSGs have achieved over 90 per cent coverage of households and institutions, while 298 LSGs have achieved 75-90 per cent coverage of households and institutions in their area. Since the campaign's inception, there has been a substantial increase in the waste reaching the MCFs and RRFs, and the Clean Kerala Company and 41 private agencies have been entrusted with the task of collecting waste from the MCFs/RRFs in a timely manner for onward linkage.

To achieve 100 per cent scientific processing of biodegradable waste at source, the campaign has facilitated the setting up of individual and community-level composting solutions. At the individual level, more than 70 per cent of the households across the State use one or the other composting method to manage organic waste. At the community level, 634 biogas plants, 488 vermi-compost plants, 144 windrow compost plants and 1,412 thumburmuzhi plants, including 3,949 thumburmuzhi bins, have been set up. Around 43 poultry waste rendering plants have become functional across the State under Public-Private-Partnership model. Effective management of poultry waste has helped address a range of issues, including water pollution and the rise in stray dog population in the State.

In order to ensure clean and hygienic public spaces, Garbage Vulnerable Points (GVPs) have been identified, geo-tagged, and cleared, and are being constantly monitored to curb further dumping. A total of 2,928 garbage dumps on land, 485 garbage dumps in water bodies and 2,736 roadside garbage dumps were identified in the state. 96.04 per cent progress in clearing of GVPs has been reported so far. Citizen involvement is actively encouraged through rewards for reporting littering or dumping in public spaces and water bodies. Enforcement squads have been formed in all districts to ensure ground-level compliance with waste management rules.

LSGs have been directed to conduct periodic social audits of their campaign-related projects, emphasizing transparency and accountability. Haritha Sabhas serve as platforms for citizens to take stock of and critically evaluate the progress

of the activities carried out during the campaign. On Children's Day, November 14, Children's Haritha Sabhas were held in all LSGs to nurture the participation of students in waste management. Children were encouraged to assess the existing facilities and raise questions to LSG officials and peoples' representatives.

The Suchitwa Mission has deployed the services of young professionals to support and strengthen the waste management projects of LSGs. The National Service Scheme is proactive in bringing in student participation. The NSS is transforming 3,000 GVPs into beautiful green spaces named 'sneharamams', with a commitment to keep them clean and well-maintained.

The Government has introduced a policy for the effective management of Construction & Demolition waste in line with the Construction & Demolition Waste Rules of 2016. Based on it, LSGs have started setting up C&D waste collection centres. Kerala Solid Waste Management Project (KSWMP) has identified potential locations throughout the State for setting up C&D storage facilities.

Model Plastic Waste Management Byelaw for LSGs have been issued, based on which all Grama Panchayats and urban LSGs have formulated their plastic waste management byelaws. These byelaws aim at, among other things, prevention of contamination of water bodies and channels from the accumulation of plastic waste, maintaining Government offices and other public institutions plastic-free, etc.

The Kerala Panchayat Raj (Amendment) Ordinance, 2023 and the Kerala Municipality (Amendment) Ordinance, 2023 have been passed which aim to further empower the LSGs to effectively carry out their waste management functions. The ordinances introduce substantial fines for violations of waste management rules. They place responsibility on organizers of events with 100 or more attendees to segregate waste at the source, and deliver it to the designated Municipal agency for proper disposal. Additionally, they include tax exemptions and welfare programs for residents in proximity to centralized waste treatment centres.

The Government is actively formulating pivotal policy interventions, including a scrap policy aimed

at engaging with the informal sector of scrap collectors and dealers and a policy on Private-Public Partnerships to facilitate and accelerate collaboration with private sector partners in waste management. The Green Enterprises initiative aims to enhance the business environment in the State, fostering entrepreneurship in the waste management sector. A collaborative framework, involving various stakeholder departments, institutions, and agencies, is being established to support and guide promising initiatives in this field.

Efforts are underway to establish guidelines for the management of hair waste and e-waste. The operationalization of Extended Producer Responsibility (EPR) is also in progress. Moreover, the Government is working on developing a protocol for the efficient management of material collection and sorting infrastructure. The policy governing the licensing of pig farmers is also being reviewed, as pig farmers have become crucial endpoints for institutional food waste.

The tourism sector being a top revenue earner for the State, special focus is given on preserving the aesthetic beauty and cleanliness of tourist destinations. A comprehensive mapping of all major tourist destinations in the State has been conducted, assessing their existing waste management facilities. Identified gaps in these facilities will be addressed to transform these destinations into zero-waste zones in the near future.

The slogan 'My Waste is My Responsibility' is being widely propagated through direct personal and public contact, mass media and social media to attain the goal of Garbage-free Kerala.

3. Extreme Poverty Eradication Programme:

As part of the Government's strong resolve to eradicate extreme poverty in the State, the task of identifying the extreme poor in the State was completed with people's participation. Out of the 64,006 families identified as extremely poor in the State, 47.89 per cent have been lifted out of extreme poverty through the concerted efforts of the various development departments and LSGs. Specific micro-plans to provide food, shelter, livelihood, entitlement, and medical assistance, were formulated based on status of impoverishment and other key information collected from each identified household. The micro-plans are being zealously implemented by

development departments under the leadership of LSGs. Details are given in the section 1.3.1 Indicators of Poverty

4. Urbanisation

In the wake of increasing urbanisation in the State, development issues related to urbanisation have been given special emphasis in the 14th Five Year Plan. The National Commission on Population has estimated that Kerala's urban population will cross 96 per cent in 2036. In this context, the Government is in the process of drafting an urban policy and set up an Urban Commission to give a perspective for better development of urban areas. The geographical, historical and social peculiarity of each city must be considered in the planning process. The guidelines for the preparation of Annual Plans of urban local governments also clearly outline the key areas to focus while preparing local plans. They include preparation of parking ground, road safety, modernisation and beautification of urban centres and junctions, setting up of parks, playgrounds and other grounds for exhibitions and fairs, slum development, rejuvenation of ponds and other water bodies, public toilets, space for street vendors etc. LSGs are actively taking up many such activities to ensure ease of living and better standard of living for the citizens in urban areas.

The 15th Union Finance Commission has recommended that 60 per cent of the grants to rural local governments and urban local governments in non-Million-Plus cities should be tied to supporting and strengthening the delivery of two categories of basic services: (a) sanitation, maintenance of ODF status (for rural local governments), solid waste management and attainment of star ratings as developed by MoHUA (for non-million plus cities/Category-II Cities/Towns; (b) drinking water, rain water harvesting and water recycling (both for rural and urban local governments). The FC has recommended that for cities with million plus population (Million-Plus cities), 100 per cent of the grants are performance-linked through the Million-Plus Cities Challenge Fund (MCF). Local governments must now make use of these provisions by integrating them with various Missions for development.

5. Disaster Management Plans

Over the last few years, frequent natural disasters such as floods, coastal erosion, droughts, landslides have been affecting the State, posing serious challenges to livelihood security and

overall economic development. To mitigate the impact of such disasters and to improve disaster preparedness, all Grama Panchayats and urban local governments in the State prepared local disaster management plans in 2019-20, the first such initiative in the country. The disaster management plan of the LSGs includes: a) profile of LSG, b) hazard and vulnerability profile, c) capacity and resources of the LSG, d) response plan, and e) preparedness, mitigation and community resilience plan. LSGs are required to include projects for disaster management and mitigation in their Annual Plans considering the level of susceptibility to natural disasters, as well as existing capacity to tackle it. In view of the intensity, frequency, and uncertainty of natural disasters ravaging the State, the Disaster Management Plan of LSGs is a novel and appropriate measure taken by the Government. This would not only disseminate the importance of building resilience but also sensitise the community to plausible pathways to achieve it. Kerala has been successful in creating general awareness on the need to address climate-related issues comprehensively, to a considerable extent. The details of disaster management projects in 2022-23 are shown in **Table 12.1.1**.

Table 12.1. 1 LSG wise Disaster Management projects 2022-23, (Rs in lakhs)

Sl No	LSG Type	No of Projects
1	Grama Panchayat	1198
2	Block Panchayat	54
3	District Panchayat	17
4	Municipality	259
5	Corporation	9
Total		1537

Source: IKM 2023

6. Tourism

The 14th FYP has placed a strong emphasis on tourism to revive the economy from the effects of the pandemic. In view of this, programmes viz. Destination Challenge, Responsible Tourism and Sustainable Tangible Responsible Experiential Ethnic Tourism Hubs (STREET) are being implemented by LSGs in collaboration with the Department of Tourism. By encouraging civic administrations to locate and develop at least one travel destination within their boundary, Destination Challenge strives to explore locations

that have tourism potential but have remained unnoticed or ignored. Maintaining such locations by implementing income-generating activities would lead to better local economic development.

The initiatives to insist responsible tourism would reduce the environmental impact of the influx of tourists and activities thereof. One of the components is to introduce travellers to rustic spots in Kerala to ensure income for the residents of such locations. For this, the Department of Tourism will bear the 60 per cent (subject to a maximum Rs 50 lakh – of the total project cost, while the LSGs will have to find the rest of the amount either from their funds or through sponsorship. Besides identifying at least one destination under each LSG, the initiative envisions linking tourism activities with various projects of LSGs and thereby giving an impetus to domestic tourism, which has gained popularity after the pandemic. Kanthalloor village Panchayat in Idukki District bagged the prestigious ‘Gold’ award of the Government of India for the best rural tourism project.

Meanwhile, Responsible Tourism Mission (RT) aspires to foster better economic benefits and the well-being of local communities as part of tourism, besides minimising its negative economic, environmental and social impact. Conservation of natural and cultural heritage and preservation of the diversity are its key aspects.

The STREET project intends to bring in tourism initiatives that suit the culture and geography of the region. These include green streets, cultural streets, ethnic cuisine/food streets, village life experience/experiential tourism streets, agri-tourism streets, water streets, and arts streets.

7. Local Action plans on Climate Change

Preparation of Local Action Plans for Climate Change (LAPCC) has been completed by 217 LSGs in Pathanamthitta, Alappuzha, Kottayam, and Idukki. These Districts in the Pampa river basin had experienced substantial adversities during the floods of 2018, 2019, and 2021. The initiative is part of the Rebuild Kerala Development Programme (RKDP) which is the State’s flagship initiative for rebuilding Kerala into a resilient, green, vibrant and inclusive region. LAPCC is primarily an action plan prepared by LSGs to address locally relevant impacts of climate change. They also outline pathways to reduce the carbon

footprint of the LSG and pursue sustainable development goals (SDGs).

DCAT Project

As part of the Rebuild Kerala Initiative, the Government of Kerala has signed an agreement with the World Bank for the period 2021-2026. Based on this, the Program for Results (PforR) funding programme supported by the World Bank in coordination with various international agencies focuses on LSGs of Kerala. Kerala Institute of Local Administration (KILA) is given the responsibility of Disbursement Linked Indicators four and five (DLI 4 and 5). DLI 5 of the Rebuild Kerala Initiative (RKI), requires LSGs to integrate climate and risk information into their planning process and Annual Plans. Following this, KILA had constituted a DCAT Core Team for leading the PforR Program and deployed project staff to work at LSG-level in Pathanamthitta, Alappuzha, Kottayam, and Idukki to assist LSGs to achieve these goals. KILA also developed the DCAT (Disaster risk reduction and Climate Action Tracker) tool for steering and building LSG capacities towards achieving the goals and targets of DLI 5 and to monitor the progress. The initial phase of training was conducted for all the LSGs in the project region. Further, thematic and region-specific training and assistance will be provided by KILA to support the LSGs to excel in climate action and disaster risk reduction.

8. Thozhil Sabha

Thozhil Sabhas have been launched as part of the Kerala’s initiative to provide the youth with opportunities for employment and entrepreneurship. Thozhil Sabhas are micro-level platforms to identify job seekers on Ward-basis, organise them in a Gram Sabha model, and enable job planning on LSG basis. Thozhil Sabha will be the platform to bring employment and entrepreneurship schemes, and programs of Departments and government agencies directly to the job seekers and a new generation of entrepreneurs. The objective of the Thozhil Sabha is to guide educated job seekers of Kerala to find jobs inside and outside Kerala, and India, by imparting training as part of the Knowledge Economy Mission under K-DISC. Kudumbashree’s new entrepreneurial movement called She-Starts would also be projected in Thozhil Sabhas to enable entrepreneurship activities in collaboration with LSGs.

Box 12.1.1 Four LSGs from Kerala bagged honours at this year's National Panchayat Awards.

Cheruthana Grama panchayat in Alappuzha was honoured as the best child-friendly Village Panchayat in the country. Veeyapuram Grama Panchayat, also in Alappuzha, secured the top spot for its self-sufficient infrastructure. Perumbadappu Grama Panchayat in Malappuram bagged the second position for its commendable efforts in achieving water sufficiency. Alagappa Nagar Grama Panchayat in Thrissur claimed the third position in the good governance category. Additionally, Meenangadi Grama Panchayat was awarded a special accolade for its outstanding carbon-neutral initiatives.

9. Health Sector

The Government has made earnest efforts to strengthen the health care system and taking it to the grass root levels by starting public health and wellness centres apart from upgrading the existing public health facilities like the Primary Health centres, Taluk Hospitals and District Hospitals. In addition, prevention of lifestyle diseases, setting up of screening clinics, care for the elderly, palliative care, etc, are given prime importance. Medical camps were started across LSGs to contain the spread of communicable diseases.

10. Women Component Plan

Women Component Plan, (WCP) of Local Governments is one of the salient features in Kerala's decentralisation. Of the total Plan outlay excluding CFC grant, 10 per cent is to be earmarked as the Women Component Plan, (WCP), for women-specific projects that ensure basic needs of women get addressed. This is a conscious effort to mainstream gender concerns in local planning process, with special focus on activities that could empower by improving their income and socio-economic status. To address the issues faced by women, as well as to initiate development specifically for women and to raise gender equity, Women Component Plans have been implemented by the LSGs. As part of this, Gender Resource Centres have been set up to coordinate activities at the Local Government level. Gender desk , jagratha samiti, etc, have been established.

To ensure the comprehensive development of children, various initiatives have been taken up. District Early Intervention Centres have been initiated to detect any sort of disability among children at an early stage. In addition, the disabled and transgender individuals were also given special emphasis in the 14th FYP.

Plan Performance of Local Governments – 2022-23

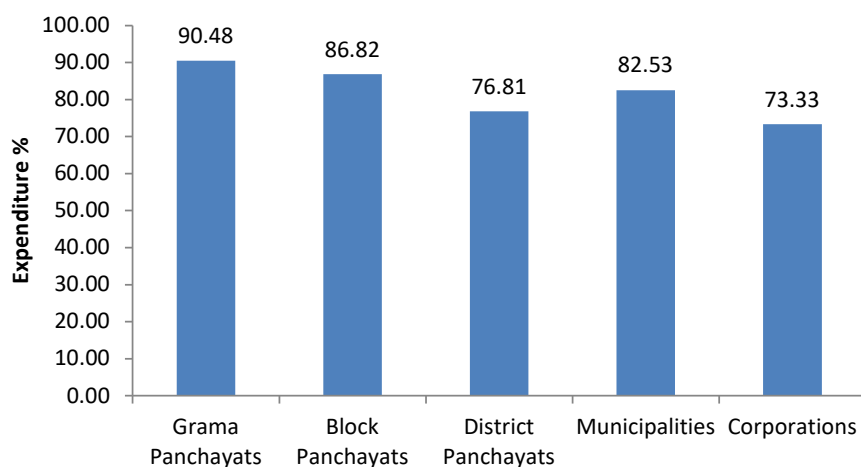
Development Funds are allocated to LSGs in three categories - General Sector, Scheduled Caste Sub Plan (SCSP) and Tribal Sub Plan (TSP). Formula-based devolution has ensured that funds reach every corner of the State, giving more to backward areas thereby enhancing local area development and improving the lives of people.

In 2022-23, the total budgeted outlay under Development Fund for LSGs was Rs 7488.64 crore excluding Health Grant. The expenditure was Rs. 6390.46 crore, which was 85.34 per cent of the budgeted outlay. The overall expenditure performance of Grama Panchayats has been 90.48 per cent, 86.82 per cent for Block Panchayats, and 76.81 per cent in District Panchayats. Municipalities have achieved 82.53 per cent while for Municipal Corporations, it was 72.33 per cent. The tier-wise expenditure details are given in **Figure 12.1.1**.

Category-wise expenditure

The allocation of Development Funds to LSGs falls in three categories – General Sector, Scheduled Caste Sub Plan (SCSP, and Tribal Sub Plan (TSP). Of the total expenditure of Rs 6390.46 crore, Rs 5089.15 crore was in General Sector, Rs.1127.66 crore was in SCSP, and Rs. 173.64 crore was under TSP. Grama Panchayats had performed well in utilising all the three types of funds, by spending around 90 per cent. While Block Panchayats had spent between 80 and 90 percent, District Panchayaths spent between 70 and 80 per cent. Municipalities have recorded expenditure above 80 per cent in General and TSP fund utilisation, but low utilisation of SCSP funds. Corporations showed relatively low performance in both General and SCSP funds (just above 70 per cent), and dismal performance in spending TSP funds (56.2 per cent). The details are given in **Figure 12.1.2** and **Appendix 12.1.1**.

Figure 12.1.1 Development Fund: Tier-wise expenditure against budget amount in 2022-23 (per cent)



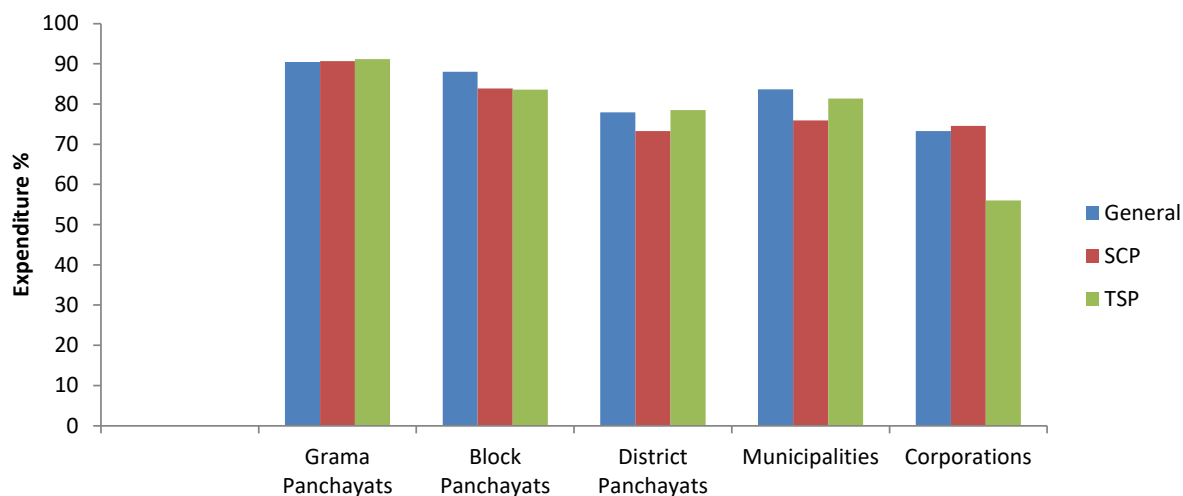
Source: Information Kerala Mission 2023

Sectoral Analysis

The Annual Plan guidelines for LSGs mandate that funds be allocated in three sectors- production, service, and infrastructure, based on specific sectoral norms. Accordingly, Grama Panchayats, Block Panchayats, and District Panchayats must allocate at least 30 per cent of normal share under General Sector Fund to the production sector. However, urban LSGs need allocate only 10 per cent for the production sector. All LSGs should earmark at least 10 per cent of the total Development Funds (other than Fifteenth Finance

Commission Grant) for the Women Component Plan, 5 per cent for the welfare and development of children, differently-abled, and transgender, and at least 5 per cent for the welfare of the elderly and palliative care. Gram Panchayats should not allocate more than 30 per cent of the normal share in the general sector Funds to the infrastructure sector. Allocation ceiling in the infrastructure sector is 25 per cent and 45 per cent for Block and District Panchayats, respectively. In urban LSGs, it is 50 per cent.

Figure 12.1.2 Category-wise expenditure of Local Governments in 2022-23 (in per cent)



Source: Information Kerala Mission 2023

The sector-wise performance is given in **Figure 12.1.3**. Of the total expenditure of Rs 6390.46 crore, Rs 898.76 crore was in the production sector (14.06 per cent), Rs 4644.61 crore in the service sector (72.68 per cent) and Rs 847.09 crore in infrastructure sector (13.26 per cent. Details are given in **Appendix 12.1.2**.

Production Sector

Figure 12.1.4 shows the subsector-wise expenditure of LSGs in the production sector. Out of the total expenditure incurred in production, the largest share was for agriculture (38.61 per cent), followed by animal husbandry (20.03 per cent), and dairy development (15.46 per cent). It is to be noted that for other productive sectors like industry, small scale industries and fisheries, the expenditure was less than 6 percent hinting that more attention has to be given to utilise the resources allocated for these sectors. Details are given in **Appendix 12.1.3**.

Service Sector

The service sectors consists of housing, education, social welfare, sanitation and waste processing, health etc. Out of the total expenditure in the service sector, 38.78 per cent of expenditure was incurred in housing and house electrification. 7.65 per cent on waste processing (3.03 per cent for liquid waste management, 4.62 for solid waste management), 8.96 percent in education, and 8.90 in drinking water sector. The mandatory allocation towards housing for all LSGs explains the high expenditure in housing. LSGs have to mandatorily

earmark 20 per cent of the sum total of funds under Normal share of general sector, SCP, and TSP towards housing. In addition to this, housing includes expenses incurred for enhancing the unit cost of houses constructed under Pradhan Mantri Awas Yojana (PMAY). Expenditure figures show that LSGs are giving more importance to providing nutrition, housing and house electrification, health and education. Expenditure in drinking water and sanitation is reflective of the mandatory expenditure in these sectors as insisted in Union Finance Commission. Details are given in **Figure 12.1.5** and **Appendix 12.1.4**.

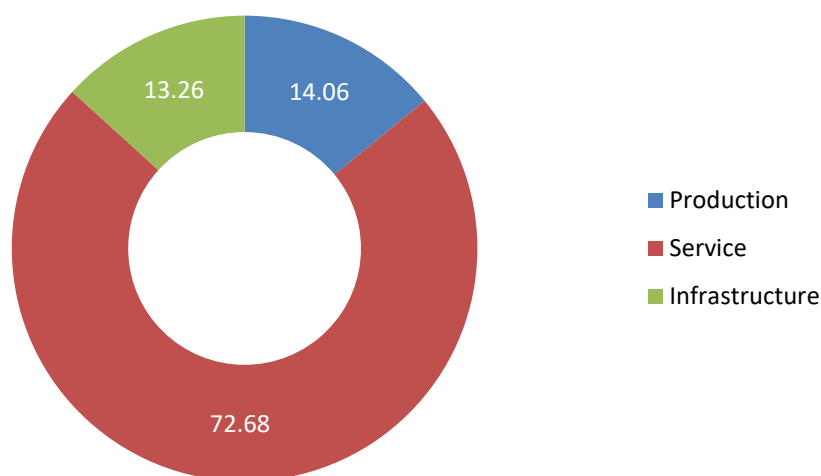
Infrastructure

The infrastructure sector consists of transport, public buildings, street lights etc. In 2022-23, of the total expenditure in the infrastructure sector, a major portion (63.04per cent) has been utilised for transport which includes roads and bridges. Public buildings with 18.37 per cent, and street lights and electrification with 14.11 per cent are the next highest. Sub sector-wise expenditure details under infrastructure sector in 2022-23 are given in **Figure 12.1.6** and **Appendix 12.1.5**.

Performance under Special Sector Plans

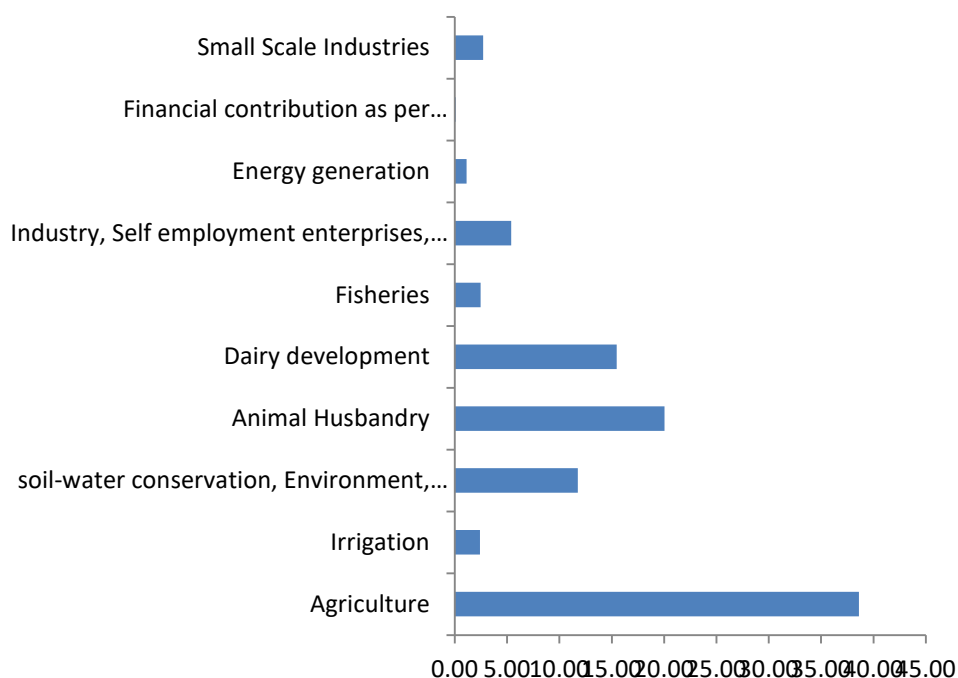
The Women Component Plan (WCP) and Plans for disadvantaged groups (aged, children, differently abled, palliative care, and transgender) by LSGs are noteworthy features of Kerala's decentralised planning. LSGs have to earmark 10 per cent of the total Normal share of General sector funds, SCP, and TSP towards Women

Figure 12.1.3 Development Fund: Share of various sectors in total expenditure of Local Governments in 2022-23 (per cent)



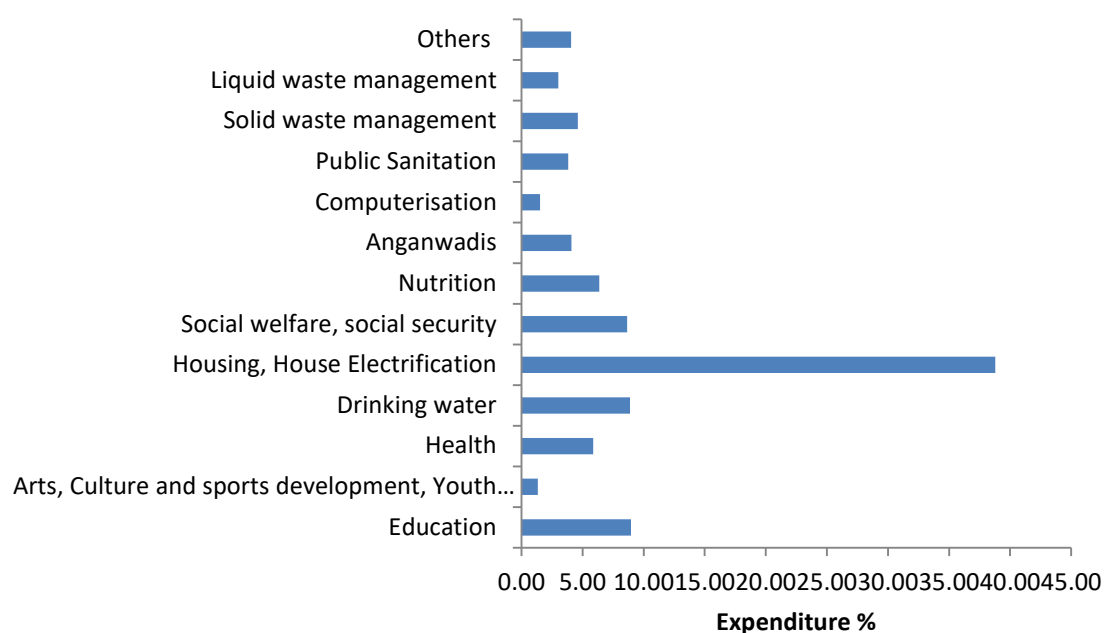
Source: Information Kerala Mission 2023

Figure 12.1.4 Sub sector-wise productive sector expenditure incurred by the Local Governments in 2022-23 (in per cent)



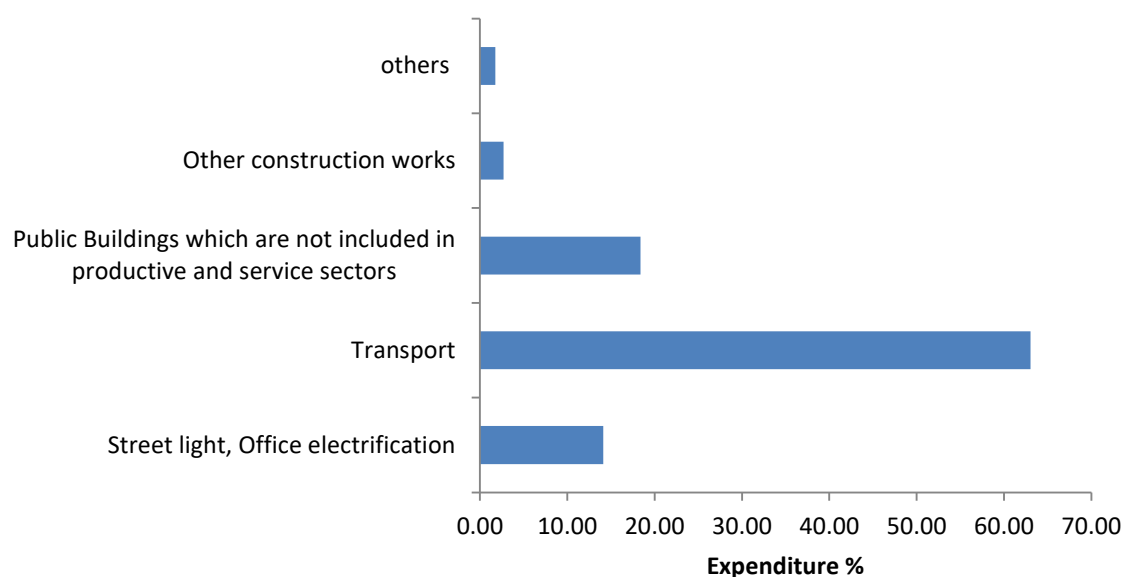
Source: Information Kerala Mission 2023

Figure 12.1.5 Sub sector-wise expenditure incurred by Local Governments in 2022-23, (in per cent)



Source: Information Kerala Mission 2023

Figure 12.1.6 Sub sector-wise expenditure share of infrastructure sector in 2022-23



Source: Information Kerala Mission 2023

Component Plan (WCP), and 5 per cent for children, persons with disabilities and transgender, and another 5 per cent for the development of elderly and palliative care projects. The expenditure on WCP in 2022-23 was Rs 320.72 crore. For the special programme for children and for persons with disabilities, Rs 202.20 crore and Rs 97.78 crore respectively, was spent. Expenditure on projects for the elderly was Rs 120.43 crore, and Rs 88.36 crore for palliative care. On projects for transgenders, the expenditure was Rs 0.27 crore. Details of expenditure for special sector Plans in 2022-23 are given in **Table 12.1.2** and **Appendix 12.1.6**.

Table: 12.1.2 Expenditure for Special Sector Plan 2022-23 (Rs in lakhs)

Sl No	Special Sectors	Expenditure
1	Women Component Plan	32,072.53
2	Special Plan for children	20,220.83
3	Special Plan for the aged	12,043.02
4	Special Plan for the differently abled	9,778.56
5	Palliative care projects	8,836.97
6	Special Plan for the Transgender	27.63

Source: Information Kerala Mission 2023

Award of 15th Central Finance Commission Grants to LSGs: Possibilities and Constraints

The 15th Union Finance Commission (UFC) has made a significant departure from the previous CFCs in its recommendations, particularly in urban areas. For rural areas, the Commission has recommended grants to all tiers of Panchayats, including Block and District Panchayats; whereas 14th Finance Commission had provided grants to Village Panchayats only. In a major departure from previous practice, 15th FC recommended grants to urban LSGs under two categories, (a) Million-plus urban agglomerations/cities, and

(b) all other cities and towns with less than one million populations. The guidelines issued by the Government of Kerala for the utilisation of 15th Finance Commission award stipulated that each LSG should prepare a Union Finance Commission sub-plan, as per the direction given by the Finance Commission.

However, as per the stipulations of the 15th FC, flexibility in spending has been reduced considerably. The 14th Finance Commission had given bulk of the funds as 'Basic Grant', and

allowed all expenses related to basic civic services including maintenance of community assets and roads- both rural and urban. The 15th Finance Commission, on the other hand, has made all grants to million-plus cities and 60 per cent of grants to other cities and rural local governments highly conditional. In addition, these tied grants must be equally divided between water and sanitation.

Health Grant

The 15th Union Finance Commission, in its final report, has recommended a total grant of Rs. 4,27,911 crores for LSGs, for the award period 2021-22 to 2025-26. Of this, the Commission has *inter-alia* decided to provide grants amounting to Rs.70,051 crore to strengthen and plug critical gaps in the health care system at the primary health care level. The CFC has also identified interventions that will directly lead to strengthening the primary health infrastructure and facilities in both rural and urban areas.

In the Eleventh Schedule of the Constitution, health and sanitation including hospitals, primary health centres & dispensaries, and family welfare are listed as functions of Panchayats. In the Twelfth Schedule, public health, sanitation, conservancy, and solid waste management are listed as functions of Municipalities. To achieve the objective of universal health, rural and urban LSGs can play a key role in the delivery of primary health care service, especially at the ‘cutting edge’ level. Kerala has already demonstrated the efficacy of its grassroots level health service systems which

is bolstered by LSGs. Kerala has made significant strides in building infrastructure facilities for better public health services. Strengthening LSGs in terms of resources, health infrastructure, and capacity building would further enable them to play a catalytic role in health care delivery. The health grant by the 15th Finance Commission, therefore, is expected to complement the efforts of Kerala to improve its public health system to global standards.

The components identified for upgradation of primary health care infrastructure in rural and urban areas in Kerala are listed in **Table 12.1.3**.

Special window for innovative programmes

One of the prominent features of the 13th Plan was the introduction of ‘Special Window of Innovative Programmes’ for designing schemes that are relevant and innovative in nature, but cannot otherwise be taken up by the LSGs. A key objective of decentralised planning is to analyse specific problems in an area and formulate appropriate solutions based on the resource potential of that area. However, it would be difficult to implement many of the projects thus conceptualized in accordance with the existing norms. It is in this context that this exclusive mechanism to examine the feasibility of innovative projects proposed by LSGs has been established. A District-level Expert Committee chaired by the District Collector was constituted to examine and approve innovative projects of the LSGs. These committees also facilitate consultation with domain

Table 12.1.3 Details of 15th Finance Commission Health Sector Grants (Rs in crore)

Activities	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Total FC-XV grants	559	559	587	616	647	2968
Rural components						
Building-less Sub Health Centres, PHCs, CHCs	0.5	0.5	0.52	0.55	0.58	2.65
Block Public Health Units	30.59	30.59	32.12	33.72	35.41	162.43
Support for diagnostic infrastructure to the primary healthcare facilities	89.19	89.19	93.66	98.28	103.25	473.57
Conversion of rural Sub Health Centres and PHCs to HWCs	105.43	105.43	110.7	116.23	122.04	559.83
Urban components						
Support for diagnostic infrastructure to the primary healthcare facilities	11.05	11.05	11.61	12.19	12.8	58.7
Urban health and wellness centres (HWCS)	322.22	322.22	338.34	355.25	373.01	1711.04

Source: Department of Expenditure, Ministry of Finance, GOI

experts and agencies to find out new technical and managerial solutions to resolve development issues.

Conclusion

Kerala has been a leader in participatory and decentralised development, and the model is highly appreciated both nationally and internationally. The 14th FYP has been very keen on strengthening the systems and processes of local governance to suit the emerging requirements of the people and development concerns of communities. The major objectives, as stated earlier, are enhancing economic growth, improving service delivery and better social security of the marginalised sections of the society.

Keeping this in view, several innovative mechanisms have been formulated during this Plan period. Major steps taken include formulation of District Plans with long-term perspectives, periodic social audits, formation of District Resource Centres, revitalising of grama sabha/ward sabha, attempts to promote local economic development etc.

It is to be noted that the model of democratic decentralisation in Kerala is being emulated across the country, though limitedly. The Ministry of Panchayati Raj, GoI has now asked all States to prepare annual Grama Panchayat Development Plan (GPDP), which is based on Kerala's experience in decentralised planning. This limited model insisted by the GoI does not address the basic issues of devolution of resources, authority and personnel to the LSGs, which were the key features of the people's plan movement in Kerala.

With the implementation of the 14th FYP, there will be major changes in local economic growth and employment generation at the grassroots level. Significant improvement is anticipated in the field of skill development. Other major initiatives such as extreme poverty eradication, local action for climate change, disaster management initiatives, effective waste management methods, focusing urbanization, etc are also being zealously pursued by LSGs. Kerala's local governments are expected to develop into far more effective systems that can take advantage of new opportunities and meet new development challenges.

Review of Central and State Programmes Implemented by Local Governments

The Government of Kerala is eager to sustain its

accomplishments in various development sectors and raise the standard of living for its people through increased economic growth, equitable distribution of resources, efficient social security networks, and robust systems of service delivery. To achieve this, the State is not only revitalising its productive capacities and attracting investments in diverse development areas but also building up systems for better management of various institutions. In this endeavour, the emphasis is on establishing a knowledge-based economy by enabling academic, research, and development institutions to foster innovations. This has necessitated effective mobilisation of resources from different sources, including development schemes envisaged by State and Central Governments, and private investment.

In Kerala, Local Self Governments (LSGs) play a pivotal role in implementing most of the State and Central Government-sponsored programmes. The paradigm of decentralised planning followed in Kerala gives immense scope for integrating the projects formulated by LSGs with the State-sponsored and Centrally-sponsored schemes. The LSGs have been oriented to find means of integrating local plans with the major schemes and programmes of State and Central Governments to enhance the effectiveness of development interventions in various sectors. The guidelines to the LSGs specify that wherever possible, similar provisions of the schemes and projects must be integrated, to harness the financial and human resources and create synergy.

The major centrally sponsored programmes implemented through LSGs are: establishing urban amenities, enhancing rural connectivity, creating sanitation and waste management infrastructure, constructing homes in rural and urban areas, and generating employment and livelihood opportunities. State government and LSGs also formulate schemes and projects every year in view of the specific requirements of the State and the LSG, respectively. It is to be noted that the outlay of Centrally Sponsored Schemes invariably contains a mandatory contribution from the State. Of late, Centrally Sponsored Scheme funds are allotted in pre-determined tranches only on the precondition that the due State share is earmarked beforehand. Due to the above cited reasons, coordination of activities among implementing agencies is indispensable. The specific details of Centrally-sponsored and State-

sponsored programs executed by LSGs across various development sectors are discussed below.

Infrastructure Development

The decentralised planning approach adopted by the State has enhanced public investment in rural and urban infrastructure, citizen services, social security, and the service sector. LSGs have achieved significant progress in key areas such as housing, road connectivity, access to clean drinking water, sanitation, and drainage systems, all of which are crucial in enhancing the quality of life and promoting decent living standards. This has surely been a significant contributing factor in the State's ability to have numerous human development indicators comparable to those of developed countries.

Housing

The Government of Kerala has been consistently pursuing the issue of homelessness of the poor through the LIFE Mission. This programme envisages the integration of various housing schemes by State and Central Governments, with the aid of Local Self-Governments. The Mission tries to consolidate available financial resources from the housing schemes of both the State and Central Governments. The gaps would be filled by the State Government with the help of LSGs. This step became necessary because the support from Central Government housing programs was grossly inadequate to meet the housing requirements of the economically disadvantaged population in Kerala. It was also felt that those who are homeless should receive support in maintaining their means of livelihood and overcoming the obstacles that lead to their poverty. It was based on this conviction, that the State Government formulated a comprehensive effort to ensure Livelihoods, Inclusion, and Financial Empowerment (LIFE) of the houseless poor in Kerala.

Pradhan Mantri Awaas Yojana (PMAY)-Gramin: The Ministry of Rural Development has been implementing Pradhan Mantri Awaas Yojana- Gramin (PMAY-G) since 1st April 2016 to aid eligible rural households to build pucca houses with basic amenities, with an overall target to construct 2.95 crore houses in the country by March 2024. The identification of beneficiaries under PMAY-G is based on the housing deprivation parameters and exclusion criteria prescribed under the Socio-Economic Caste Census (SECC)-2011, followed by due verification

by the respective Gram Sabhas and completion of an appellate process.

The housing programme for rural area is exclusively known as PMAY-Gramin. The minimum size of the house prescribed by this scheme is only 25 sq. mt. However, considering the preferences of the people and cost of construction in Kerala, the area of the house has been fixed at 36 sq.m, with all required facilities. The construction of the house should be completed within 12 months from the date of sanction. The unit assistance of a house under PMAY- Gramin fixed by MoRD is only Rs 1.20 lakh, which is shared between Central and State Governments in the ratio 60:40 (Rs 72, 000 + Rs 48,000). As the State Government has decided to integrate this programme with LIFE Mission, the assistance per unit has been enhanced to Rs 4.00 lakh. The balance amount of Rs 2.8 lakhs is shared among Grama, Block, and District Panchayats in the ratio 25:40:35. The cost of construction will be disbursed to beneficiaries in three instalments directly to the Aadhar-linked bank accounts/post office accounts registered in AwaasSoft MIS.

As part of this scheme, a willing beneficiary will be facilitated to avail institutional finance of up to Rs 70,000 from financial institutions. A PMAY-G beneficiary is also entitled to get wages for 90 days of unskilled work from Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in rural areas for house construction. For the construction of toilets, an amount of Rs 12,000 is provided by Swachh Bharat Mission (Gramin) scheme. In 2022-23, an amount of Rs 42.50 crore had been allocated for PMAY-Gramin, with Central and State shares Rs 25.50 crore and Rs 17 crore, respectively.

The target (as on 30/09/2023) fixed under the Socio-Economic Caste Census list of 2011 was 22,066, which has been fully sanctioned. Out of the 21,612 houses completed, 5,743 houses have been built for minority communities, 5,599 houses for SC beneficiaries and 1,355 houses for ST beneficiaries.

The Government conducted an Awaas Plus survey from January 2018 to March 2019 to identify those beneficiaries who claimed to have been left out from the 2011 SECC list. The data of beneficiaries captured through Awaas Plus is utilized to fill the

gaps between the overall target of the Government for the scheme and the eligible beneficiaries made available from SECC permanent waitlist. In the State, 13,101 houses were sanctioned from the Awaas plus list, of which 9,958 houses have been completed. Out of this, 1,458 houses were for Minorities, 4,434 for SC beneficiaries, and 900 for ST beneficiaries.

Altogether, 35,167 houses were sanctioned under PMAY-G, out of which 31,822 houses have been completed. The scheme ends in March 2024. In 2022-23, an amount of Rs 25.50 crore has been allocated as Central share and Rs 17.00 crore as State share. An amount of Rs 102.89 crore (including state release, central release and balance amount from previous year) has been spent on the scheme during the period. There was no change in allocation during the financial year 2023-24. Target for the construction of houses under PMAY-G in 2016-17, 2017-18 & 2021-22 are to be completed by Financial Year 2023-24. No additional targets have been allotted by MoRD, GoI from 2018 to 2023. The financial and physical progress of PMAY – G in 2022-23 and 2023-24 (up to September 30, 2023-24) is given in **Appendix 12.1.7** and **12.1.8** respectively.

Pradhan Mantri Awas Yojana (Urban)

The Pradhan Mantri Awas Yojana (Urban), PMAY (U), being implemented since June 2015, is a housing programme aimed at providing all-weather pucca houses to all eligible beneficiaries in urban areas by 2022. The Mission has been extended up to December 31, 2024. This programme operates through four distinct components:

1. Slum rehabilitation of slum dwellers with the participation of private developers using land as a resource.
2. Promotion of affordable housing for weaker sections through credit-linked subsidy.
3. Affordable housing in partnership with public and private sectors.
4. Subsidy for beneficiary-led individual house construction.

In Kerala, the scheme has been effectively integrated with the LIFE Mission. Kudumbashree, the State Poverty Eradication Mission, serves as the nodal agency at the State-level for implementing this programme. As per the norms of the Government of India, the cost of a unit under the Beneficiary Led Construction (BLC) component is Rs 2.5 lakh. Of this, Rs 1.5 lakh is

contributed by the Government of India, with the fund released in three instalments (40 per cent, 40 per cent, 20 per cent). The remaining cost is to be met by the State and Local Government.

Under the Affordable Housing Project (AHP), the average cost per dwelling unit is Rs 10.50 lakh, and the Central share of the component is Rs 1.5 lakh, Rs. 6.50 lakh is the State share and Rs 2.50 lakh is the share of the urban Local Government.

In 2022-23, the scheme was allocated Rs 416.00 crore, of which Rs 312.00 crore was the Central share and Rs 104.00 crore was the State's. The allocation during 2023-24 remained the same. From the financial year 2022-23 till 30th September 2023, an amount of Rs 303.12 crore was released as a Central share and Rs 35.40 crore was released as State share for all the components under the scheme. The financial progress of PMAY (Urban) as on 30th September 2023 is given in **Appendix 12.1.9**.

Under the major component viz. Beneficiary-led Construction, the Ministry of Housing and Urban Affairs (MoHUA), Government of India, has provided approval for a total of 1,30,562 houses. Among these, the construction of 3,668 dwelling units falls within the jurisdiction of three Development Authorities: namely, the Greater Cochin Development Authority, Goshree Islands Development Authority, and Thiruvananthapuram Development Authority.

Under the 'Affordable housing in partnership' component, 11 detailed project reports (DPRs) for the construction of housing complexes comprising a total of 970 dwelling units have received approval with a project cost amounting to Rs 14.55 crore. This programme operates within the framework of the LIFE Mission and benefits from the increased financial support from the State Government to develop housing complexes equipped with all essential amenities. In this specific category, the construction of 936 houses has commenced, and among them, 490 houses have been successfully completed.

Under the 'credit linked subsidy scheme' (CLSS) component, interest subvention was provided to eligible urban poor to acquire or construct a house. As of September 30, 2023, loans have been sanctioned to 33,293 beneficiaries and 28,748 houses have been completed. The houses

completed till September 30, 2023 were those sanctioned before March 31, 2021. The Central Government discontinued this component, which had aimed to expand the institutional credit flow to the housing needs of the urban poor, as of March 31, 2021.

Urban Local Government-wise progress of beneficiary-led construction component and Affordable housing component of PMAY (Urban) up to 30th September 2023 are given in **Appendix 12.1.10, 12.1.11** respectively.

The State Government has integrated various programmes in a way that the beneficiaries of housing programmes are provided with means of livelihood, as well. For instance, livelihood support is provided to beneficiaries of housing programmes through convergence with the National Urban Livelihood Mission (NULM) and Ayyankali Urban Employment Guarantee Scheme (AUEGS). Provisions of NULM could be used to enhance the quality of life of urban homeless by skill upgradation and setting up self-employment ventures. Through convergence with the Ayyankali Urban Employment Guarantee Scheme (AUEGS) of the State Government, employment of 90 person days was provided to PMAY (Urban) beneficiaries, enabling an additional financial assistance of Rs 27,990 per beneficiary. Labour cards for employment are given to PMAY (U) beneficiary families and 33,05,763 man-days were provided, equating to a total assistance of Rs 73.00 crores, as of 30th September 2023. The State has been felicitated with two national awards for the best model of convergence of the PMAY (Urban) scheme with other livelihood projects, and for the best community-oriented projects implemented under the Scheme.

The assistance under LIFE Mission for houseless having land was enhanced to Rs 6 lakhs for ST beneficiaries in remote ST hamlets and Rs 4.00 lakhs for all other beneficiaries. The details are discussed in Chapter 11.5 (Housing) of this Economic Review.

Sanitation and Waste Management

Sanitation and waste management have become pressing challenges for the State, particularly in the context of expanding urbanisation. The absence of effective mechanisms for processing, recycling, or disposing of waste, would severely pollute the

environment and raise the risk of exposure to various diseases. Recognising the profound impact of waste management on the State's development prospects, the Government of Kerala has firmly resolved to address waste management issues in the State on a war footing. The Government has devised multiple strategies at both the State and local levels to tackle this problem.

Apart from State-wide campaigns and initiatives, waste management has been integrated into the Plans of LSGs. Central and State-sponsored programmes and schemes concerning waste management are executed through LSGs. The nodal agency of this endeavour is the Suchitwa Mission, which plays a crucial role in developing implementation strategies and providing technical support to the State Government and local authorities for the formulation and execution of solid and liquid waste management policies and projects.

In Kerala, a majority of the bio degradable waste is treated at households, institutions and at community-level centres. With the proposed projects during the current year for setting up source-level waste management at households and institutions, waste treatment capacity has been further increased. Non-biodegradable waste is collected from the doorsteps by Haritha Karma Sena units and other partner collection agencies. This non-biodegradable waste collected from households and other sources is temporarily stored in Material Collection Facilities (MCF) and Mini MCFs operated across the state. (Additional information in the section on Haritha Keralam Mission, in Chapter 3.7).

An average of 3500 tonnes of non-biodegradable waste are collected every month and sorted and forwarded for processing through Clean Kerala Company. Private agencies handle an average of 2500 tonnes every month. The plastic waste stored in MCFs is sub-segregated and sold to partner companies for recycling or processing (shredding and bailing) in Resource Recovery Facilities (RRF). This is sold to Clean Kerala Company (CKCL) to be reused, particularly for road tarring. As per CKCL data, from 2016-17 up to 30 September 2023-24, the State Public Works Department utilised 3183.59 tonnes of plastic waste to construct roads of 5669.71 km length. The details are shown in **Table 12.1.4**.

Table:12.1.4 Details of usage of plastic waste in the construction of roads in Urban local governments during 2016-2023

Year	Quantity of plastic waste used (tonnes)	Length of road constructed (Km)
2016-17	23.82	51.89
2017-18	174.78	358.35
2018-19	279.95	495.74
2019-20	614.87	1073.75
2020-21	915.75	1710.45
2021-22	734.77	1277.13
2022-23	366.03	518.34
2023-24 (as of Sept 30, 2023)	73.63	184.07
Total	3183.59	5669.71

Source: Clean Kerala Company Ltd.

There are 1,236 operational MCFs, 166 RRFs, and 16,096 mini MCFs across the State. Haritha Karma Senas are functional in 1,034 LSGIs. District-wise details of Haritha Karma Sena, MCF centres, Mini MCFs, and RRFs as of 31st October 2023 are given in **Appendix 12.1.12** and **12.1.13** respectively. Though a significant waste stream, there are no precise estimates on the amount of e-waste generated in the State. Government of Kerala has permitted Clean Kerala Company Limited to collect e-waste generated in Government offices, institutions, public sector undertakings, etc. and dispose them of by handing over to authorised e-waste collectors/recyclers. CAG report (2022) pointed out that only 60 LSGs in the State had handed over e-waste (tube light, CFL, etc.) to CKCL during the period from 2016-17 to 2021-22 (up to December 2021). The quantity of e-waste collected in the state from 2019-20 to 2022-23 as

per the annual reports of Kerala State Pollution Control Board is shown in the **Table 12.1.5**.

Suchitwa Keralam (Rural and Urban)

Waste Management in urban and rural areas is through schemes funded by the State Government and implemented by Suchitwa Mission, the technical arm of the Department of LSG, which is responsible for evolving implementation strategies and policies in the sectors of sanitation and management of various solid and liquid waste. Through this, partial funding is provided for waste management initiatives and pre-monsoon cleaning activities to control the spread of infectious diseases, led by LSGs and implemented in collaboration with the Directorate of Health Services, National Health Mission, and Haritha Keralam Mission.

Suchitwa Keralam also involves awareness campaigns to promote scientific waste management practices by the public with the aid of audio-visual and print media. This scheme also includes installation of mini, medium and major bio-waste treatment systems at the household, institutional and community levels respectively to serve the waste management needs of households and institutions in the State.

Under the Suchitwa Keralam (Urban) scheme, 448 portable biogas plants were installed in Sultan Bathery and six Take a Break Projects were completed in Panoor, Kattapana, Cherplassery, Neyyattinkara, Chavakkad, and Erattupetta Urban Local Bodies during the year 2022-23. Furthermore, pre-monsoon cleaning initiatives were carried out in five corporations and 82 Urban Local Bodies (ULBs).

Swachh Bharat Mission (Gramin)

This Mission endeavours to ensure that every rural household has access to safe toilets. The

Table 12.1.5 Quantity of e-waste collected in the State

Year	Category wise quantity of e-waste collected			Total quantity of e-waste collected (tonne)
	Information Technology and Telecommunication equipment (tonne)	Consumer Electrical and Electronic items (tonne)	Other items (tonne)	
2019-20	108.356	82.244	1098.61	1289.21
2020-21	27.66	88.33	1378.06	1494.05
2021-22	55.629	18.028	1175.951	1249.608
2022-23		1465.27		1465.27

Source: Annual Report, Kerala State Pollution Control Board

State achieved the status of Open Defecation Free (ODF) in rural areas on November 1, 2016, by building 1,74,720 individual household latrines (IHHLs) in villages. As part of the Swachh Bharat Mission (Gramin) or SBM (G), the state has constructed a total of 2,47,173 IHHLs till November 23, 2023 (Source: SBM Gramin dashboard). The State now focuses on sustaining the ODF status and enhancing sanitation services, known as 'ODF Plus' activities.

Under the SBM (G), financial incentives are provided to Below Poverty Line (BPL) and identified Above Poverty Line (APL) households, amounting to a maximum of Rs 12,000 for the construction of a single IHHL unit. This incentive also covers provisions for water availability, including storage for hand-washing and toilet cleaning. The Central share of this incentive for IHHLs from SBM (G) is Rs 7,200 (60 per cent), and the State share is Rs 4,800 (40 per cent).

ODF Plus

Grama Panchayats are now endeavouring to achieve ODF Plus status by meeting all the criteria set by the Department of Drinking Water and Sanitation, GoI. The conditions for ODF Plus include the following: all residents should have access to toilets, proper usage of toilets, scientific management of solid and liquid waste, and public sanitation facilities, etc. Grama Panchayats will be able to achieve ODF Plus status only if liquid waste is managed effectively. Black water discharge from constructed toilets should not be allowed to enter open spaces, water sources or other water bodies, or contaminate surface water. Septic tanks and twin pits are the suggested solution for managing black water. Grey water should be treated through soak-pits or leach pits. As on October 15, 2023, among the total of 1,509 villages, all the villages are in ODF plus status and 1,382 comes under the model category. Details of the ODF Plus status in the State is depicted in the **Table 12.1.6**.

Solid and Liquid Waste management

A total sum of Rs 4.19 crore has been spent on various Grama Panchayats in the State for establishing solid and liquid waste management projects, as of 30, September 2023. A total of 70 sanitary complexes/public toilets have been constructed, for which Rs 2.90 crore have been

Table 12.1.6 Status of ODF Plus Achievement in the State

Category	Number
Total Villages	1509
Total ODF Plus villages	1509
Model category villages	1382
Rising category villages	10
Aspiring category villages	118
Villages having arrangements of Liquid Waste Management	1447

Source: SBM Gramin Dashboard

spent till 30 September 2023 as part of community sanitary complexes/public toilet components. Various IEC/capacity-building activities for ODF sustainability have also been undertaken in 2022-23.

In the first phase of SBM (G) the total assistance for solid and liquid waste management projects was worked out based on the total number of households in each Grama Panchayat (GP), subject to a maximum of Rs 20.00 lakh for GPs with more than 500 households. Funding for solid and liquid waste management projects under SBM (G) is provided by the Central and State Governments in the ratio 60:40. The first phase of SBM (G) has concluded and the projects are nearing completion. Now, GPs have started projects under the second phase.

Swachh Bharath Mission (Gramin) Phase II, launched during 2020-21, aims at sustaining the ODF status and improving the solid and liquid waste management facilities in rural areas. Under Swachh Bharat Mission (Gramin) Phase-II, solid and liquid waste treatment is a major component, which would lead to setting up systems for scientific waste disposal. The community/ Grama Panchayat must be motivated to come forward, demand such a system, and subsequently operate and maintain it. States must decide the technologies suitable to their areas. Collection, segregation and safe disposal of household garbage, decentralised systems like household composting and biogas plants shall be permitted. Activities related to maximum reuse of organic solid waste as manure should also be adopted.

GOBAR DHAN (Galvanizing Organic Bio-Agro Resources DHAN) Scheme

GOBARdhan, an integral component of SBM (G) launched on April 2018, is intended to manage bio-waste including animal waste, kitchen left overs, crop residue and market waste into biogas. Until September 30, 2023, 40 large-scale community-level bio-methanation facilities under SBM (Gramin) have been completed and have started functioning. The other 13 are in various phases of implementation.

Swachh Bharat Mission (Urban)

Swachh Bharat Mission (Urban), is intended to ensure hygiene, waste management and sanitation. It has five components – individual household latrines, public toilets, solid waste management, capacity building, and information, education, and communication activities.

Under SBM (U) Phase I, 30,928 household toilets, 210 seats of community toilets, 959 public toilet seats were completed in urban areas till September 30th 2023. The State achieved ODF status in the year 2016, and Kalpetta municipality obtained ODF++ status in 2022. Under the Indian Swachhata League IEC campaign conducted by MoHUA, two Urban Local Bodies from the State, Guruvayoor and Alappuzha, received awards for their performance. Details of SBM-U allocation/expenditure across components for 2022-23 and 2023-24 up to September 2023 are provided in **Appendix 12.1.14**.

Solid Waste Management (SWM) under SBM (U)

Under SBM Phase 1, 82 ULBs in the State prepared DPRs for solid waste management, and submitted to the State Level Empowered Committee (SLEC). The committee has approved proposals for a total project cost of Rs 295.09 crore, with Central share of Rs 103.28 crore, State share of Rs 68.75 crore, and ULB share of Rs 123.05 crore. The Ministry of Housing and Urban Affairs (MoHUA), Government of India has approved all 82 DPRs. During the scheme period, a total of Rs 147.43 crore (Rs 97.19 crore as the Central share and Rs 50.24 crore as matching State share) have been released to 82 ULBs for project implementation, and Rs 117.43 crore has been spent.

Swachh Bharat Mission (Urban) 2.0 was launched on October 01, 2021 with the objective of ensuring 100 percent source-level segregation, door-to-door collection, scientific waste management, legacy dumpsite remediation, and disposal of used water management. In the second phase, the action plans of IEC, capacity building and solid waste management of all urban local governments have been approved by State Level Technical Committee and have been submitted for approval to the Ministry of Housing and Urban Affairs. During 2022-23, 170 projects were completed under SBM (U) under solid waste management and toilet components. In 2023-24, upto September 30th, 10 projects were completed under solid waste management and toilet components. Status of implementation of (SBM)- U during 2022-23 and in 2023-24 up to September 2023 is provided in **Appendix 12.1.15**.

Take a Break initiative

'Take a Break' (TAB) is an innovative programme envisioned by the State Government to establish refreshment facilities and toilet complexes to address the long-standing issue of shortage of good quality public toilets in the State. The facility would be set up alongside national and state highways, transport stations, shopping complexes, etc. Safety, good upkeep, and cleanliness standards would be of high priority in TABs. Napkin vending-machines, napkin-destroyers, waste bins, cleaning agents and implements, coffee shops, and rest-area are included in some TABs. It is targeted to build 2,365 rest room centres in 14 Districts at the rate of two rest rooms in a village Panchayat, five in a Municipality and eight in a Corporation. Thus, the target is 1,842 TAB facilities in 941 grama panchayaths, 435 in 87 municipalities and 48 in six corporations. This programme has made significant achievements, with 1,113 TABs completed so far and 371 TABs fast nearing completion. Through the project, the State is also expecting to solve the long pending demand for public sanitation facilities by tourists. This would greatly contribute to the development of the tourism industry in the State.

Kerala Solid Waste Management Project (KSWMP)

KSWMP, jointly funded by the World Bank (IBRD), Asian Infrastructure Investment Bank and Government of Kerala commenced operation in January 2022 and is in the initial phase of activities.

The project cost of USD 300 million (Rs 2,400 crore approximately) is intended to improve the entire solid waste management (SWM) value chain activities in Kerala through appropriate technical assistance (TA) and capacity-building interventions at urban Local Governments and regional levels, by adopting an integrated service delivery value chain approach. Draft city-wide comprehensive SWM plans for 31 urban Local Governments have been completed, and have been approved by the respective LSG councils.

Urban Infrastructure

As the State undergoes rapid urbanisation, its economic development would rely mostly on its ability to enhance urban infrastructure. Better urban infrastructure could be built only by harnessing diverse sources and partners, who can enter new partnership models. This may include LSGs, and various stakeholders in the public, private, social, and community sectors.

Urban infrastructure encompasses a wide range of initiatives which can make the city space more liveable and attractive. It should address the growing requirements of the urban population for better livelihoods and better citizen services. Any initiative to improve urban infrastructure would include improving water supply systems, waste management systems and city sanitation planning; establishment and improvement of

public amenities; establishing and maintaining sewerage and stormwater drainage systems; adoption of effective parking policies along with modern mechanised parking solutions; city beautification; creation of environmental friendly urban spaces, and the promotion of non-motorized urban transportation.

Keeping this in view, the State Government has launched and executed several programs through urban Local Governments, by utilising LSG development funds, State schemes and Central government programmes. These initiatives are strategically integrated to combine complementary activities, both horizontally and vertically. The following section discusses the key infrastructure development programmes underway in the State.

Atal Mission for Rejuvenation and Urban Transformation 1.0 (AMRUT 1.0)

AMRUT aims to address the basic challenges of urban physical and institutional infrastructure development covering the components of water supply and sewerage, septage, storm water drainage, urban transport, green spaces and parks, and capacity building. The fund sharing pattern among the Centre, State, and the Urban Local Body is in the ratio of 50:30:20.

Six Municipal Corporations and three Municipalities (Alappuzha, Palakkad, and

Box 12.1.2 Haritha Mithram App: Digital solutions to waste management

The Haritha Keralam Mission, in collaboration with the Suchitwa Mission, has introduced the Haritha Mithram Smart Garbage Monitoring System App to enhance the efficiency of waste management processes. This application is designed to streamline the operations of the Haritha Karma Sena and its waste management initiatives by providing real-time monitoring of various critical aspects. These include tracking the volume of waste generated from different sources, its collection, transportation, and the various intricate processes involved thereof.

Under the Nava Keralam Karma Padhathi, almost all LSGs have been seamlessly integrated into a comprehensive system that encompasses door-to-door waste collection by the Harithakarma Sena, management of networks of mini material collection centres, material collection facility (MCF), resource recovery facilities (RRF), domestic and institutional bio-waste management, material disposal, as well as the implementation and operation of organic waste management systems at both household and institutional levels. The activities within this network are methodically monitored from the ward level to the state level through this unified online platform.

In the first phase, the project was implemented in 376 LSGs including four corporations, 59 municipalities, and 313-gram panchayats. In the second phase of implementation, 216 more LSGs initiated the programme. In the third phase, another 304 LSGs started implementing the project. Enrolment of almost 80 percent of waste generation sources has been completed.

Source: Suchitwa Mission.

Guruvayoor) in the State have been selected under AMRUT. Though the duration of the mission was five years (2015-2020), it has been extended up to March 31st 2024. Under AMRUT 1.0, 1,022 projects costing Rs 2,298.16 crore were approved and 900 projects were completed, for which Rs. 1632.35 crores were expended. Currently 122 projects are in progress under the mission.

Water supply projects aim to ensure that every household has access to a tap with assured supply of water. The project comprises of work such as rejuvenation of water sources, construction of water treatment plants, water tanks, laying new pipe lines, and replacing old pipes. Under this component, administrative sanction was accorded for 179 projects costing Rs 1319.58 crores. So far, 152 projects have been completed, and Rs 999.16 crores has been spent as of 30 September, 2023.

Septage and sewerage management component is intended to manage liquid waste scientifically and to ensure that every household in the AMRUT cities has access to a sewerage connection. Administrative sanction worth Rs 408.06 crores has been accorded for 132 projects under septage and sewerage. The Kerala Water Authority (KWA), the implementing agency has completed 98 projects. Rs 200.15 has been spent as on 30 September, 2023.

Storm water drainage projects aim to eliminate flooding in cities by constructing and improving drains and stormwater drains. It comprises 508 projects costing Rs 335.54 crore, out of which, 484 projects have been completed, and the expenditure as on 30 September 2023 is Rs 278.80 crores.

The urban transport sector is intended to facilitate non-motorised transport in cities. It includes construction of skywalks, footpaths/walkways, sidewalks, foot over-bridges and multi-level parking facilities. There are 126 projects costing Rs 187.39 crores, of which, 100 projects have been completed, and an amount of Rs 117.88 crores has been spent as of 30 September, 2023.

Under green space and parks sector, 77 projects costing Rs 47.58 crores have been sanctioned for the development of green spaces and parks with special provision for child-friendly components. Of this, 66 projects have been completed and the expenditure is Rs 36.36 crores. The financial progress of AMRUT.1.0 projects up to September

30, 2023 is given in **Appendix 12.1.16**. The progress of AMRUT 1.0 project in nine cities is shown in **Appendix 12.1.17** and sector-wise status of AMRUT 1.0 is shown in **Appendix 12.1.18**.

AMRUT 2.0

AMRUT 2.0 was launched on 1st October 2021 as an extension of AMRUT 1.0, with the aim to reduce water scarcity and thereby augment water distribution in ULBs and sustainably increase consumption of clean water. The project will be implemented in all the 93 ULBs in the State. Also, the Mission aims to complete the projects on sewerage/septage management in AMRUT cities (six Corporations and Alappuzha, Guruvayoor, Palakkad Municipalities). The project period of AMRUT-2.0 is five years; i.e from 2021-22 to 2025-26. Projects under AMRUT 2.0 include household water tap connection, sewerage/septage management in AMRUT cities, and rejuvenation of water bodies and construction of green spaces.

The funding under AMRUT 2.0 is population-based, and the central assistance for AMRUT 2.0 is such that 50 per cent of the project cost would be borne by the Central Government for cities with less than one lakh population. For cities with a population of one lakh to ten lakh, central share is fixed at 33.3 per cent of the project cost, and for cities with a population of more than 10 lakh, 25 per cent of the project cost would be met by the Centre.

All 93 ULBs in the State have submitted the City Water Balance Plan (CWBP), including details of water bodies, water treatment, and distribution in their respective areas. Subsequently, City Water Action Plan (CWAP) which consists of the projects which are to be taken up in the Mission are submitted. The CWAP of all the ULBs would be consolidated to form the State Water Action Plan (SWAP). The State has submitted the SWAP-I projects amounting to Rs 1,938.52 crores (including 199 water supply projects and 23 sewerage projects) and obtained sanction, out of this Rs 743.69 crores is central assistance. The Centre has released Rs 148.7381 crore, which is 20 per cent of the central share. SWAP-II, with projects amounting to Rs 683.08 crore have also been submitted, and got approved. Of this, Rs 184.502 crore is for 10 water supply projects, Rs 416.22 crore for 3 sewerage projects and Rs 82.36 crore for 255 water body rejuvenation projects.

State Urban Digital Mission project, is a sub scheme of AMRUT 2.0 which is being executed in various States under the guidance of the National Urban Digital Mission. This programme is currently underway in three locations across the country and is being implemented with 100 per cent central assistance, with a total allocation of Rs 22.5 crores. As an initial disbursement for the 2023-24 financial year, the State has already received Rs 7.5 crores.

Smart Cities Mission

Smart Cities Mission is a major infrastructure development programme launched by the Ministry of Housing and Urban Affairs (MoHUA) in 2015 to promote cities to provide core infrastructure facilities and decent quality of life to its citizens, build a clean and sustainable environment, and encourage application of smart solutions to accomplish better quality standards in urban governance. Kochi city was selected under the Mission in the first phase, and Thiruvananthapuram in the third phase. The project period is extended up to June 2024.

Smart City, Kochi

The Smart City project of Kochi aims at planned and integrated development of the Kochi Corporation area by improving civic infrastructure. Smart City Kochi envisages 77 projects, of which 28 projects have been completed, 27 projects are under implementation, and for one project, the tender process has been initiated. Also, funds for implementing 21 projects worth Rs 144.25 crore have been transferred to other agencies.

The completed projects include Integrated Command Control and Communication Centre, smart roads in Ernakulam, implementation of Integrated Traffic Management System, construction of walkways on hospital road, installation of solar panels in Government buildings, distribution of household bins and street bins, upgradation of Dutch Palace entry area, establishment of open air theatre at Fort Kochi, beach front upgradation at Vasco square, e-health solution at General Hospital, Health ATM, police kiosks, and open space corridor linking Durbar Hall ground to Mangalavanam. For monitoring and controlling city operations and to enable data-based decision making for the city administrators, Cochin Smart Mission Limited (CSML) has established the state-of-the-art City Command Centre (Integrated command control and communication centre-IC4), which

has been operational since December 2020. It serves as highly effective means to monitor diverse operations within city administration and harness the advanced analytical capabilities for strategic planning in anticipation of future challenges. The key outcomes of IC4 encompass real-time situational monitoring, continuous 24x7 engagement, swift responses to emergencies, monitoring of key performance indicators (KPIs), identification of anomalies and inefficiencies, promotion of transparency and accountability, monitoring of city functions, establishment as a foundation for further innovation, control and monitoring of city field assets, and the enhancement of citizen and government engagement. IC4 was extensively used as a District COVID Cell for patient transfers, oxygen cylinder monitoring, telemedicine etc. The projects transferred to other agencies include multi-storeyed housing project at Thuruthy tower, rejuvenation of Mullassery canal, renovation of Kaloor market, establishment of smart water metres, renovation of various parks, etc.

Smart City, Thiruvananthapuram

Smart City Thiruvananthapuram envisages 74 projects, of which 47 projects have been completed and 27 projects are under implementation. Major project components include construction of multi-level car parking at Palayam and Thampanoor, rain water harvesting, development of Integrated Command and Control Centre, integrated social housing complex project at Rajaji Nagar, upgradation of public health centre at Rajaji Nagar, rehabilitation block for Thiruvananthapuram Development Authority, construction of open air theatre and park at Putharikandam, solar rooftop at five locations, construction of children's park at Kerala Water Authority, upgradation of anganwadis, construction of interactive information kiosks, and installation of drinking water kiosks. The completed projects include installation of drinking water kiosks at 25 locations, procurement of 15 electric autos and 15 electric rickshaws and smart EV chargers, upgradation of anganwadis at three locations, open gym and child play equipment, smart bus shelter, interactive information kiosks and display boards, renovation and redevelopment of public toilets, implementation of solar photo voltaic power plant by ANERT, redevelopment and landscaping of Ponnara Sreedhar park, smart mosquito density system at 12 locations, and biomining of waste at Palayam and Chalai.

Funds have been transferred to KSRTC-SWIFT for procuring electric buses, aimed at enhancing smart mobility, reducing traffic congestion, minimising pollution, and promoting energy efficiency. The total project cost is Rs. 103.74 crore. In three phases, a total of 113 electric buses will be procured. Out of 113 electric buses being procured, 60 buses have been delivered and put into operation for city service, the remaining 53 will be operational by December 2023.

Rural Connectivity

Rural road connectivity is a key component of rural development as it would enhance access to economic and social services, thereby generating increased agricultural incomes and productive employment opportunities. Rural roads facilitate better goods distribution, promote the development of market centres, and provide incentives to farmers to generate more marketable surplus. An integrated road network also facilitates farm mechanisation, better mobilisation of labour, effective utilisation of resources, and increase in use of rural infrastructure facilities. The major programmes that ensure road connectivity in Kerala are as follows.

Chief Ministers Local Road Rebuild Project (CMLRRP)

The roads that were destroyed during the floods of 2018 and 2019 which come under the jurisdiction of LSGs were to be restored as part of the Chief Ministers Local Road Rebuild Project (CMLRRP). Out of the 5,050 works that were sanctioned, 4,793 have been completed, with a total road length of 1,27,788.73 km (CMLRRP).

Pradhan Mantri Gram Sadak Yojana (PMGSY):

In Kerala, Pradhan Mantri Gram Sadak Yojana (PMGSY) has been a key programme to provide rural connectivity. The primary objective of the PMGSY is to provide connectivity by way of an all-weather road (with necessary culverts and cross-drainage structures, that are operable throughout the year), to the eligible, unconnected habitations in rural areas with a population of 500 persons and above in plain areas. In hills, desert, and tribal areas, the objective would be to connect eligible unconnected habitations with a population of 250 persons and above. Roads constructed under PMGSY must be long lasting, with high quality and durability, which would be ensured through a three-tier quality management system at the District, State, and National levels.

The nodal department for the implementation of this programme is the Local Self Government (Rural) Department. Kerala State Rural Roads Development Agency (KSRRDA) is the State nodal agency for implementation of the scheme. The funds provided by GoI under PMGSY must be used only for meeting the actual estimated cost of the works. The scheme does not have provisions to meet funds for tender excess, shifting of utilities, and for maintenance of completed roads. To meet these additional expenses which are necessary for the successful implementation of such projects, the State Government sets aside adequate funds over and above the stipulated share of 40 per cent through the 'State support scheme for PMGSY'. PMGSY roads are being built in three phases.

PMGSY I: The objective of the PMGSY-I scheme is to provide good, all-weather access to eligible unconnected habitations. It included all the works sanctioned from 2000 to 2013. Under PMGSY I, 3308.373 kms of road was sanctioned and construction of 3236.484 kms has been completed.

PMGSY-II envisions the consolidation of the existing rural road network to improve its overall efficiency as a provider of transportation services for people, goods and services. District Rural Roads Plan (DRRP) is the basis for selecting roads, duly taking into consideration the Census data of 2011. Under PMGSY-II, 582.89 kms of road works were sanctioned and 559.93 km completed. Three bridge works sanctioned with a span of 30m, 20m and 60.7m respectively and first two were completed.

PMGSY-III envisages consolidation of the existing rural road network by the upgradation of existing through routes and major rural links that connect habitations to Gramin Agricultural Markets, Higher Secondary schools and hospitals. Under PMGSY-III, 1280.984 km of road has been sanctioned so far and 190.292 km completed. The Physical progress of PMGSY in 2022-23 and 2023-24 (up to 30.09.2023) is given in the **Table. 12.1.7.**

The District-wise details of laying of roads under PMGSY scheme in 2022-23 and 2023-24 (upto 30.09.2023) are given in **Appendix 12.1.19.**

The implementation of the scheme has faced constraints in complying with the construction

Table. 12.1.7 Physical Progress of PMGSY

Year	PMGSY I		PMGSY II		PMGSY III	
	No	Road	Number		Length	No.
		Length (Kms)			(Kms)	Road Length (Kms)
2022-23	9	18.744	5 Roads		6.825	9
2023-24(30.09.2023)	1	3.747	1 Road+ 1LongSpanBridge (20m)		7.258	19
Grand Total	10	22.491	6 Roads+ 1LongSpanBridge (20m)		14.083	28

Source: Principal Directorate, LSGD

norms stipulated by GoI, due to the specific circumstances in the State. Stipulations such as maintaining a gradient of 1 in 10, and limiting the length of candidate road to 5 km apart from others, etc., were difficult to comply with given the undulating topography and population density of the State. Moreover, the dense built-up area close to the road boundary also makes compliance difficult. This calls for a relook at the stipulations by GoI to allow flexibility to customise the norms as per local geographical features and State priorities. The difficulty in executing surface dressing technology due to lack of proper availability of machinery in India, delay in completion of Jal Jeevan Mission (JJM) works, etc., hinder the timely completion of ongoing PMGSY works. Also, while sanctioning the estimate, the provisions for retaining walls and drains in the DPR are condensed to limit the cost per km. New technology such as full depth reclamation (FDR), coir technology for subgrade improvement, cold mix technology, the disposal of plastic waste in road construction, etc., would be used in roads sanctioned under PMGSY -III having a length of 594.752 kms, amounting Rs. 554.45 crores. The PMGSY roads are designed for a life period of 10 years and have an inbuilt 5-year maintenance defect liability period after construction. The funds required for maintenance, which is about 9 per cent of the construction cost, is to be met by the State Government. The post five-year maintenance of the PMGSY roads is carried out by the concerned District Panchayat.

Natural Resource Management

The emphasis on natural resource management has significantly increased, as evident from the number of schemes in this sector. Government of India has merged the erstwhile Integrated Watershed

Management Programme (IWMP) with Pradhan Mantri Krishi Sinchai Yojana (PMKSY) in 2015-16. It is implemented as Watershed Development Component (WDC) of PMKSY.

Watershed Development Component of Pradhan Mantri Krishi Sinchayee Yojana (WDC-PMKSY)

Funding pattern of the scheme between Central and State Governments is in a 60:40 ratio. Rural Development Department is the nodal department for implementing the Watershed Development Component of PMKSY. Project implementation is managed at the State level by the State Level Nodal Agency (SLNA), at the District level by Watershed Cell cum Data Centre (WCDC) constituted at the Poverty Alleviation Unit, at the Block level by Project Implementing Agency (PIA) of Block Panchayats, and at the Grama Panchayat level or watershed level by Watershed Committees (WC) specially constituted for the purpose.

The activities of the programme include prevention of soil erosion, regeneration of natural vegetation, rain water harvesting, recharging of ground water, afforestation and reclamation of cultivable wasteland. The nature of activities under the scheme includes construction of check dams, percolation tanks, farm ponds and drainage line treatment activities. These interventions are expected to enable multi-cropping and introduction of diverse agro-based activities, which would in turn help provide sustainable livelihoods to the people residing in the watershed area. The project area had a cluster of 5-10 micro watersheds with area ranging from 4,000 to 6,000 ha. This project was implemented in Block Panchayats. The project cost varied from Rs 22,000 per ha

for plain areas, to Rs 28,000 per ha for hilly areas. The project period is 3 to 5 years. Even though the programme was sanctioned in 2009-10 in Kerala, the projects were started only in 2010-11. Up to 2014-15, 69 projects were sanctioned and Rs 249.98 crore was expended. Around 99,676 person days of employment were generated, benefitting 33,897 farmers. In all these activities, primary thrust was given to natural resource conservation. The project has substantially reduced soil erosion and enriched the ground water in the project area. In place of engineering structures, agronomic measures were used for natural resource management as much as possible. Among different activities, rejuvenation of springs and horticultural plantations were encouraged to ensure regular additional income to farmers.

In 2021-22, PMKSY 2.0 was re-launched as a new generation watershed development programme. As part of this, 37 micro watersheds with a project area of 26,163 ha were sanctioned at a project cost of Rs. 73.26 lakhs. The work components of the scheme are grouped under three major categories: a) natural resource management, b) production system improvement, and c) livelihood support and micro enterprises. During 2022-23, the project outlay for the scheme was Rs 25 crore, of which Rs. 17.50 crores has been released. Out of this Rs. 7.93 crores was expended. As the outcome of the project, 137 water harvesting structures were constructed and 42 water harvesting structures were renovated. Also, 256.51 ha of area was brought under irrigation and 11,537 farmers were benefited from the scheme. The project also generated 16,703 man days and 158.99 ha were brought under plantation including horticulture.

During the current financial year, up to September 2023, 356 water harvesting structures were constructed and 113 old water harvesting structures were renovated. The project has also brought 461.55 ha of area under irrigation, benefitting 2,504 farmers and creating 12,140 person-days. Moreover, 258.04 ha were brought under plantation including horticulture. PMKSY is mainly implemented in Idukki, Kozhikode, Malappuram, Palakkad, Thiruvananthapuram and Wayanad districts.

Employment Generation and Livelihood Support

Implementation of demand-driven employment guarantee programme in the country has made

tremendous impact on the livelihood security of the rural masses. Given below are the details of the implementation of employment guarantee programme and other livelihood support programmes implemented in the state.

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), the most prestigious employment generation programme of GOI plays a significant role in providing rural employment and ensuring livelihood security of millions of rural poor. It proposes to enhance the livelihood security of the households in rural areas of the country by providing at least 100 days of guaranteed wage employment to the adult members of every household who volunteer to do unskilled manual work, every financial year.

At the national level, 295.67 crore person days were generated in FY 2022-23. Out of the total person days generated, the percentage of person days for women, SC and ST were 57.46, 19.23, and 18 respectively. A total of 6.18 crores households were provided with employment. The average days of employment provided per household was estimated to be 47.83. A total of 35.98 lakh households completed 100 days of employment. 473.12 lakh women and 50,028 disabled persons got employment. It is also reported that 32.42 per cent of the expenditure was on developing rural infrastructure and the major portion of expenditure was on activities related to natural resource management (43.74 percent).

Kerala has always regarded MGNREGS as an effective programme to revive the rural economy and ensure livelihood security to the rural poor. Hence Kerala has been very keen on implementing the scheme meticulously. In 2022-23, the State generated a total of 9.66 crore person days of employment, of which 18.18 per cent was generated by Scheduled Castes and 6.89 per cent by Scheduled Tribes. Unlike the national scenario, the majority of the beneficiaries in Kerala were women. The number of women person days constituted 89.81 per cent of the total person days, compared to the national figure of 57.46. Average days of employment provided per household were 62.26, and 4.5 lakh households completed 100 days of employment. Employment was provided to 2675 differently abled persons.

During 2022-23, Rs 3992.01 crore was expended,

of which, Rs 2987.94 crore (74.85 per cent) was spent as unskilled wages and Rs 851.82 crore (21.34 per cent) as material component, semi-skilled and skilled wages. The financial and physical progress of MGNREGS in 2022-23 and 2023-24 (up to September 30 2023) is given in **Appendix 12.1.20, 12.1.21, 12.1.22, 12.1.23** respectively.

Table 12.1.8 shows the employment generation and performance of MGNREGS in Kerala during the previous four years.

A review of the performance of the scheme in the last four years shows that the number of SC households securing employment under this scheme has marginally decreased and the number of ST households securing employment has marginally increased. **Table 12.1.9** shows Financial achievement of Mahatma Gandhi NREGA in Kerala in 2022-23 and 2023-24.

The scheme has been of great help to the State as it has been instrumental in creating assets in rural areas, particularly in the productive sector.

The expenditure of material components as a percentage of the total expenditure shows an increasing trend in recent years highlighting the special focus that the State has given on generating assets. The scheme has provided the much-needed social safety net, especially in the times of COVID pandemic and the resultant lockdown.

The effectiveness of all the Centrally Sponsored Schemes has been enhanced by converging similar components and adding new dimensions to address specific issues of the State. The provisions of Mahatma Gandhi NREGS have also been duly integrated with other State sponsored programmes. From 2017-18 onwards, MGNREGS activities in the State have been converged with the activities of the 'Haritha Keralam Mission', which is the flagship programme of the State Government for natural resource management. In the backdrop of Covid-19 the State Government had launched a programme viz. 'Subhiksha Keralam' to increase production in agriculture and allied sectors. This programme has also been integrated with Mahatma Gandhi NREGS.

Table 12.1.8 Review of employment generation and performance

Indicator	2022-23	2021-22	2020-21	2019-20
Approved person days in Labour Budget (in lakh)	950	1000	1000	700
% of Achievement against Total Labour Budget	101.66	105.9661	102.3	114.61
% of women person days generated	89.81	89.42	90.49	89.8
% of person days generated by SC families	18.18	18.31	18.41	15.52
% of person days generated by ST families	6.89	6.34	6.54	6.7
Average Person days/House Hold	62.26	64.28	63.25	55.75
Families provided 100 days	449638	5,12,823	470410	2,51,150

Source: MGNREGS website

Table: 12.1.9 Financial achievement of Mahatma Gandhi NREGA in Kerala in 2022-23, and 2023-24 as of 30 September, 2023 (Rs .in Crore)

Financial Year	Outlay			Opening Balance	Release			Total Available fund	Exp.	Percent
	Centre	State	Total		Centre	State	Total			
1	2	3	4	5	6	7	8	9 5+8	10	11 (10/9)*100
2022-23	3827.69	230.1	4057.79	17.69	3866.86	170.21	4037.07	4054.76	3992.01	98.45
2023-24 (30.09.2023)	4039.69	230.1	4269.79	73.82	1886.28	95.31	1981.59	2055.41	1977.93	96.23

Source: LSGD

To augment production in the primary sector, thrust has been given to generate individual as well as public assets. As part of the programme, livelihood assets were created in rural areas which would help the rural population to generate a steady income for meeting their day-to-day expenses. In 2022-23, 8,486 cattle sheds, 6,676 goat sheds, 6,928 poultry sheds, 1,574 azola tanks, 2,215 farm ponds, 207 SHG work sheds were constructed. The programme also brought 521.93 ha of land under fodder cultivation.

Construction works to generate public assets such as compound walls and playgrounds for schools, and buildings for Anganwadis have also been taken up. The scheme is undertaking construction of 720 Anganwadis in convergence with funds received from the Women and Child Development Department. Under this programme, the construction of 466 Anganwadis has been completed. In 2019, the Government of Kerala issued orders to take up MGNREGS works in Geographic Information System (GIS) based integrated planning at Grama Panchayat level, incorporating all permissible works. In this regard, all Grama Panchayats have prepared GIS based integrated plans under Mahatma Gandhi NREGS.

A Project named “UNNATI” using the fund of MGNREGS (100% Central Share) intends to upgrade the skill-base of the Mahatma Gandhi NREGS workers, and thereby improve their livelihoods, so that they can move from the current partial employment to full employment and thereby reduce their dependence on Mahatma Gandhi NREGS. This project improves the livelihoods of most needy MGNREGS workers by providing a skill either for self-employment or wage employment. This project is meant for providing training for one adult member (of age 18-45year) of a household who has completed 100 days of work under Mahatma Gandhi NREGS.

In association with Suchitwa Keralam Mission, 5369 composite pits, 17,405 soak pits and 1,717 mini material collection centres were constructed by using the MGNREGS fund. The use of coir geotextiles in the works of MGNREGS has helped to boost the coir sector in the state significantly. Approximately 146.61 lakh sq.m coir geo textiles have been used as part of natural resource management activities under Mahatma Gandhi NREGS during the period 2020-21 to 2023-24. The State Government also initiated a unique

programme named MIKAVU in association with Mahatma Gandhi NREGS and KILA to provide training to unskilled manual workers who were interested to upgrade as semi or skilled workers. Presently, the unskilled wage under the scheme is only Rs 333/-, while that of the semi/skilled worker ranges from Rs 700- Rs 1200/day.

A comparison of the performance of South Indian States in the implementation of MGNREGS (Fig 12.1.7) shows that Kerala generated the highest percentage (89.81) of women person days. As MGNREGA is a well-targeted programme benefitting the poorest, especially Scheduled Caste and Scheduled Tribe families, it is important to explore whether Kerala could improve in terms of providing more jobs to the people of these categories.

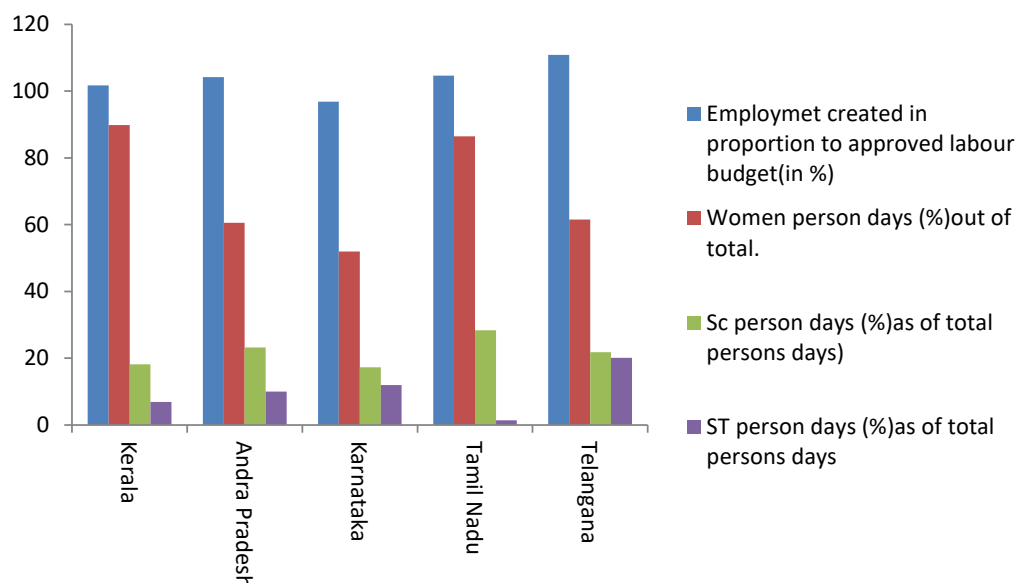
The efficiency of implementation of MGNREGS in Kerala is also evident from the fact that the State provided 62.26 days of employment per household on an average, the second highest in India. Around 4.5 lakh households in Kerala were provided 100 days of employment and the State ranks third behind Rajasthan and Uttar Pradesh.

As per guidelines, the list of works under MGNREGS are grouped under the following categories : **Category A** : Public Works Relating to Natural Resources Management; **Category B**: Individual Assets for Vulnerable Sections (Only for households that are SC, ST, families below poverty line, women-headed households, physically handicapped headed households, beneficiaries of land reforms etc); **Category C**: Common Infrastructure for NRLM-compliant Self Help Groups; and **Category D**: Rural Infrastructure. Kerala had the highest percentage of works under natural resource management and agriculture and allied sectors. In 2022-23, 22.57 per cent of the expenditure was on developing rural infrastructure and 60.32 per cent was on natural resource management related activities. However, the work completion rate of 2022-23 is only 65.79 per cent and the State must improve its performance in this regard.

Kerala Tribal Plus

The Government of Kerala has been keen on bridging the gaps in the implementation of Centrally Sponsored Schemes by incorporating new complementary components, and new schemes. The interventions in the SC/ST sectors have been strengthened considerably by

Figure 12.1.7 Performance of MGNREGS-Comparison of States in South India (2022-23)



Source: MGNREGS website

introducing the Tribal Plus Scheme to provide additional employment to tribal workers. In addition to the 100 days guaranteed by the MGNREGS, Government of Kerala started 'Kerala Tribal Plus' scheme in 2017-18 to provide an additional 100 person days (unskilled manual work) for all Scheduled Tribe families in Kerala. The cost for this scheme is borne by Kerala State Tribal Development Department. In 2022-23, employment was given to 77,562 ST households and the number of person days of employment increased from 55.27 lakhs in 2019-20 to 66.58 lakh in 2022-23. The number of families who completed 100 days of employment in 2022-23 was 30,429. The details are discussed in Chapter 8.2 (Addressing Social Economic Vulnerabilities) of this Review.

Following the continued demands from the Kerala Government, the Union Ministry of Rural Development raised the cap on the number of simultaneous works that can be taken up in a Gram Panchayat from 20 to 50. Also, sanction has been given to include mates in the semi-skilled wage force.

Skilling of labourers and their upgradation to fetch higher wages, linking of the MGNREGS

programmes with the annual plans of LSGs, etc are also to be addressed. As MGNREGS is a demand-driven scheme and the fund released to the State is a continuous process, if the wages due to the workers pile up, the work allocation would go down.

Ayyankali Urban Employment Guarantee Scheme (AUEGS)

Following the spirit and principles of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Kerala has pioneered an exclusive programme to provide employment to the urban poor. The Ayyankali Urban Employment Guarantee Scheme (AUEGS) is a State-funded programme to enhance livelihood security in urban areas by guaranteeing at least 100 days of wage employment to every household whose adult members are willing to engage in unskilled manual labour. The State Government launched the AUEGS in the pattern of MGNREGS in 2009-10. The funds are utilised to create durable assets in urban LSGs.

In 2021-22, an amount of Rs 100.00 crore was earmarked for AUEGS. The entire amount was spent, and the programme created 46,33,552 person days in various Municipalities and

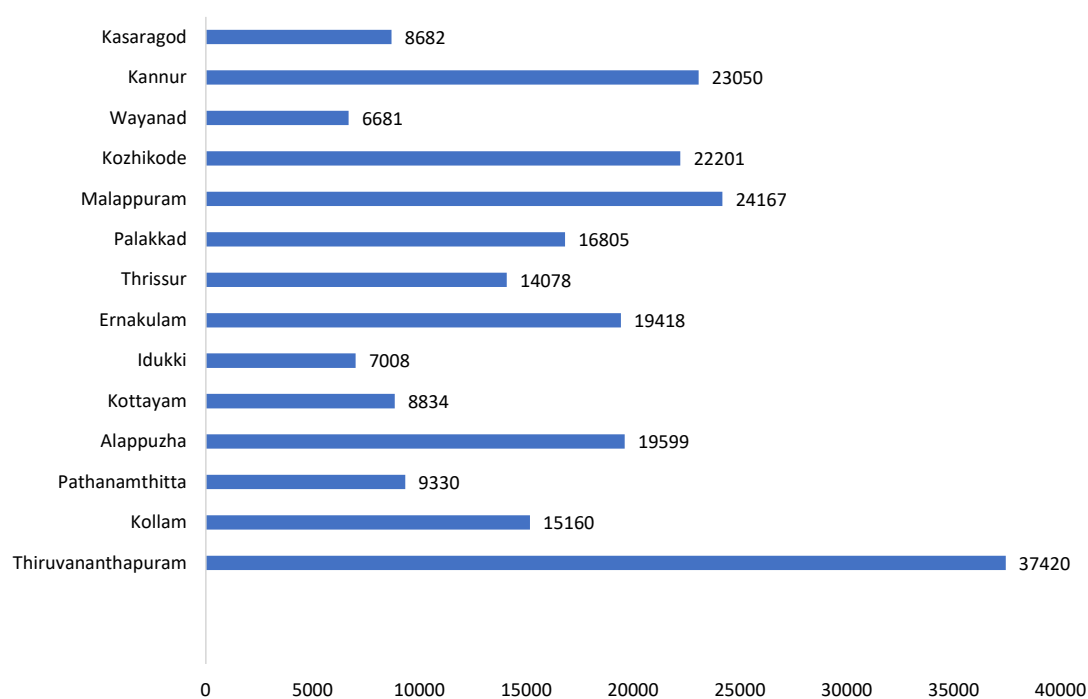
Corporations. In 2021-22, job cards were issued to 1,89,911 workers in the general category, 51,425 workers among Scheduled Castes, and 3,995 among Scheduled Tribes. The beneficiaries included 49,060 men and 19,6271 women. During this period, 96,990 households and 96,456 women were provided with employment, and 9,333 families had completed 100 days of employment. In 2022-23, the outlay provided was Rs 125.00 crore, out of which Rs 88.99 crore was expended and the programme created 41,11,897.5 person days in various Municipalities and Corporations. In the same year, 85,310 households and 79,766 women were provided employment and 12,024 families completed 100 days of employment. Of the total women provided employment, 15,531 workers were from Scheduled Castes and 1,714 were from Scheduled Tribes. During this year 3,187 SC families and 158 ST families completed 100 days of employment. The largest numbers of beneficiaries, 25,680, were in age group of 51-60. In 2023-24, the scheme created 9,95,867 person days in various Municipalities and Corporations and 49,823 households and 48,789 women were provided employment, as of 30 September 2023. Of the total women provided employment, 10,570 workers were from Scheduled Castes and 788 were from Scheduled Tribes.

The major activities taken under AUEGS include waste management activities, pre-monsoon cleaning, water conservation, afforestation, and house construction under PMAY. The budget provision for the AUEGS for the first year 2010-11 was Rs 20.00 crore but only 17 percent was utilised. In the subsequent five years, the budget allocation for the scheme fluctuated and total expenditure slowly increased. However, the fund utilisation was below 50 percent. However, with the change of government in 2016-17, there has been a steady increase in the budget allocations and utilisation and creation of employment. Since the financial year 2016-17, there has been remarkable progress in implementation of the Ayyankali Urban Employment Guarantee Scheme. In 2023-24, the Budget allocation has been increased to Rs 150.00 crore, and the expenditure of the scheme up to November 2023 was Rs 49.40 crore.

In the district wise analysis of registration of women in AUEGS, it was found that the highest registration of women under AUEGS was in Thiruvananthapuram and the lowest was in Wayanad district.

However, from the **Table 12.1.10** it is evident that the registration of Scheduled Tribes under AUEGS has been very low. It has been observed

Figure 12.1.8 District wise women registration in AUEGS scheme upto September 30, 2023



Source: AUEGS

Table 12.1.10 District wise SC/ST households registered in AUEGS scheme upto 30th September 2023

Sl. No.	Districts	SC- Total number registered	ST- Total number registered
1	Thiruvananthapuram	9015	3
2	Kollam	4292	23
3	Pathanamthitta	3062	3
4	Alappuzha	2482	42
5	Kottayam	1080	3
6	Idukki	813	37
7	Ernakulam	4029	87
8	Thrissur	6005	0
9	Palakkad	6800	5
10	Malappuram	10160	3098
11	Kozhikode	2013	37
12	Wayanad	917	1874
13	Kannur	1487	149
14	Kasaragod	290	153
TOTAL		52445	5514

Source: AUEGS

that the highest registration among Scheduled Tribes (STs) is in Malappuram, while Thrissur has no ST families registered in the AUEGS scheme. Other districts with the lowest registration are Thiruvananthapuram, Pathanamthitta, and Kottayam. Similarly, the highest registration among Scheduled Castes (SCs) is also in Malappuram, while the lowest is in Kasaragod.

From the financial year 2019-20, dairy farmers have also been included as beneficiaries of AUEGS. Dairy farmers, who have more than two cattle and supplying no less than 10 litres of milk per day to a dairy cooperative society, are eligible to get one day wage under the scheme. House construction materials for PMAY beneficiaries are provided under the AUEGS. Local Government-wise distribution of funds under AUEGS in 2022-23 and 2023-24, up to 30th September, 2023, is given in **Appendix 12.1.24**. Details of physical achievements of the scheme are given in **Appendix 12.1.25**.

Development of livelihoods of the poor

As seen earlier, the State has given due emphasis to livelihood development schemes such as MGNREGS and AUEGS guarantee wage employment. The major initiatives through Centre-State partnership to provide livelihood options are the Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM) for rural areas, and Deendayal Antyodaya Yojana–National Urban Livelihoods Mission (DAY-NULM) for urban areas, with a funding pattern of 60:40 between Centre and State, respectively.

Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM)

DAY-NRLM is a demand-driven programme for encouraging self-employment among rural poor. The sub components of DAY-NRLM include Deen Dayal Upadhyaya Gramin Kausalya Yojana (DDU GKY), Start-up Village Entrepreneurship Programme (SVEP), and Mahila Kisan Sashaktikaran Pariyojana (MKSP).

DDU GKY is the skill and placement initiative under DAY-NRLM. This scheme was earlier known as Aajeevika skills. DDU-GKY is an initiative to transform our young population into the largest pool of technically trained human power in the country/world, by investing adequately in their skilling and employability. The programme aims at skilling poor rural youth and providing them with jobs in the organised sector. The State Government has assigned Kudumbashree as the Nodal Agency for implementing the scheme in the state. As part of this programme, 72,238 students have completed training, 51,477 students have been hired, and 40,550 students have completed three months placement.

SVEP provides support to start rural enterprises to stimulate economic growth and reduce poverty and unemployment in the villages. SVEP provides enterprises with business skills, exposure, loans for starting the enterprises, and business support during the critical first six months of the enterprises using the Community-Based Organisation (CBO) network. As on August 2023, a total of 27,735 enterprises are supported by them and an amount of Rs 74.55 crore released as Community Enterprises Fund (CEF) to 19,368 enterprises.

MKSP focuses on reducing the gender gap in agriculture, by promoting drudgery reduction

systems and sustainable agricultural practices to be followed by women farmers. In Kerala, MKSP is implemented through the network of Kudumbashree Joint Liability Groups (JLGs).

Deendayal Antyodaya Yojana–National Urban Livelihoods Mission (DAY-NULM)

DAY-NULM aims to reduce poverty and vulnerability of the urban poor. The scheme is being implemented by all the urban local governments in the State. Kerala has efficiently implemented this programme over several years. Based on the accomplishments in this regard, the State has received the national award for the best performing State for the past six consecutive years, and has received an additional financial assistance of Rs 85.00 crore above the normal allocation.

Under the Social Mobilisation and Institution Development (SM&ID) component of the DAY-NULM, opportunities are given to set up neighbourhood groups. Through this component, in 2022-23 alone, 2,036 new Neighbourhood Groups (NHGs) were formed, and 3,578 NHGs were assisted with a revolving fund amounting to Rs 10,000 each. In 2023-24, as of September 30, 2023, an additional 431 new Neighbourhood Groups were created, and 1,153 NHGs received support through the revolving fund. Under the component Employment through Skill Training and Placement (EST&P), 3,636 candidates have been enrolled, 4,908 candidates were certified and 2,444 candidates got placement in 2022-23 and 2023-24 (up to September 30). Under the Self-Employment Programme of DAY-NULM, 1,236 individual micro-enterprises and 318 group enterprises were established in 2022-23 and 2023-24 (up to September 30).

Financial and physical achievements of the DAY-NULM scheme during 2022-23 and 2023-24, up to 30th September 2023, are given in Appendix 12.1.26 and 12.1.27 respectively. List of District-wise Micro Enterprises and details of bank linkage loans of NHGs are given in Appendix 12.1.28 and 12.1.29 respectively.

Kudumbashree

Kudumbashree, the State Poverty Eradication Mission, was formed with the objective of eradicating poverty through the empowerment of women. It is an innovative, women-based, participatory poverty alleviation programme launched by GoK in 1998 which has the participation of 45 lakh women. The model, set

up by Kudumbashree is known nationally, as well as internationally. Over the years, the profile of Kudumbashree has improved spectacularly, with diverse and innovative activities in a wide range of sectors. Kudumbashree is essentially a community network that covers the entire State of Kerala. It consists of a three-tier structure with Neighbourhood Groups (NHGs) as primary level units, Area Development Societies (ADS) at the ward level, and Community Development Societies (CDS) at the LSG level. It is arguably one of the largest women's networks in the world.

Kudumbashree is the nodal agency for implementing various Centrally Sponsored Schemes such as DAY-NRLM, DAY-NULM, and Pradhan Mantri Awas Yojana (Urban). In addition to this, Kudumbashree Mission joins hands with various development activities in the State. The following are the major activities of Kudumbashree with respect to components allocated in the State Budget.

For the rehabilitation of the poorest of the poor, 'Ashraya' was scaled up and renamed as 'Agathirahitha Keralam' (Destitute Free Kerala -DFK). Destitute Free Kerala Project envisages total rehabilitation of all identified destitute in Kerala. The needs of the destitute are assessed in a convergent mode at local bodies and based on it, detailed project reports are formed. Forty per cent of the total project cost, subject to a maximum of Rs 40.00 lakh in the general category and Rs 50.00 lakh in ST category are met through the Kudumbashree Challenge Fund. So far, Kudumbashree has released the Challenge Fund to all the 1,034 approved General projects and 170 tribal projects to meet the basic care services of beneficiaries, such as food, medicine and education. The LSGs that spent 80 per cent of the total challenge fund received, are eligible for a second installment. In 2022-23, Kudumbashree distributed an amount of Rs 85.23 crore as second installment of the challenge fund to the general projects and Rs 4.23 crore as second instalment to scheduled tribe projects. Monthly meeting is done by the District mission team to monitor the progress of the project.

BUDS institutions for children with disabilities:

BUDS institutions for children with disabilities, functioning under LSGs, are monitored through Kudumbashree machinery. The State Government

has taken several measures to accomplish the vision of universalisation of education and rehabilitation of persons with intellectual disabilities. Kudumbashree provides Rs 12.5 lakhs to 200 BUDS institutions for infrastructure development. Out of this, 144 BUDS institutions were started. At present 359 BUDS institutions (167 BUDS Schools and 192 BUDS Rehabilitation Centres) are functioning throughout the State. Kudumbashree started special livelihood programmes in 162 BUDS institutions across the State. Agri-therapy programme named 'Sanjeevani' is a new intervention, which envisages the mental and physical development of the individuals. As part of this, vegetable cultivation was started in 315 BUDS/BRC institutions in an area of 2,135.5 cents. Kudumbashree provided financial assistance to purchase vehicles for 25 BUDS schools till date, of which six schools are located in areas that are considered to be affected by endosulfan.

Niramaya Health Insurance Scheme was initiated as a huge help for the persons with autism, cerebral palsy, intellectual disabilities, and multiple disabilities, under the purview of National Trust Act, 1999. Through this scheme, the beneficiaries can avail an insurance coverage up to Rs 1.00 lakh. Under this scheme an amount Rs 35,000 was provided for preparing documents for the Niramaya insurance scheme for the differently abled and all the BUDS students enrolled under this scheme.

Balasabha is a platform for children to voice their opinions, which ensures their involvement in decision-making, nurtures their evolving capacities, and reinforces the relevance of children's participation. As of now there are 31,612 Balasabhas with 4,59,151 children. Pencil Camp, an initiative put forward by Haritha Kerala Mission, in connection with the Kudumbashree Balasabha program, encourages a healthy lifestyle in children to build a healthy family and society.

Agricultural activities: Kudumbashree conducted various activities to promote agriculture in 2022-23. Joint Liability Groups consisting of 4-5 members are formed and are supported by means of training, financial assistance, convergence opportunities etc. facilitated by District Missions. They are given exposure to a vast arena of livelihood ventures for income enhancement. Currently, 90,242 Joint Liability Groups (JLGs) are active with 4,14,423 women farmers, and

these groups farm 33,172.06 ha. During 2022-23, Rs 4.43 crore was provided as area incentive to 7,347 JLGs. It was found that the production-demand cycle of vegetables was on a weekly basis creating a chance for conducting weekly markets. Nattuchantha' was identified as one of the best methods of marketing the agricultural products of women farmers. For marketing agricultural products, 16,814 Nattuchandas were conducted and could make an income of Rs 14.58 crores. National Conclave on Millets was organized at Attappady for imparting awareness on millets as part of International Year of Millets. Floriculture is done by 1,819 Kudumbashree groups in different parts of the State. Marigold, jasmine and lotus were cultivated in 780 acres of land for flowers during the Onam season. In convergence with Animal Husbandry Department, livelihoods initiatives were undertaken by 7,667 Kudumbashree members in 2022-2023. Major projects involved are poultry, goat rearing and cow rearing and members are supported by back-end subsidy schemes and low interest loan schemes.

Training

Kudumbashree provides training to the members of Haritha Karma Sena in LSGs for undertaking waste management activities. As of now, 35,302 Haritha Karma Sena members are working across 1,034 LSGs. To grab opportunities in the construction sector, Kudumbashree members who are interested in construction activities are identified, trained, and registered in their respective LSGs, which would entrust them for various construction programmes. There are 292 women construction groups functioning across the State which has become a means of livelihood for 3,215 members. They are now recognized as women masons. They have constructed more than 1,000 houses/buildings, minor road constructions, wall constructions etc.

Gender activities: Established help desks function around the clock in 14 Districts across the State. A programme named Bodhana was started for the dependants of alcohol addicted persons at the Gender Resource Centres. Karate training was started in 14 Districts. District-level transgender forum was initiated in the year 2022-23 with the State support.

Marketing activities: Kudumbashree uses four types of marketing activities viz. trade fairs, monthly markets, festival fairs, and SARAS

fair. Kudumbashree conducted 173 trade fairs, 2,098 monthly markets, 2,451 festival fairs and has generated sales turnover of Rs 34.64 crores. Kudumbashree conducted one SARAS fair at Kottayam District and generated a sales turnover of Rs 8.51 crore. Nano markets, Kudumbashree bazaar, marketing kiosks, marketing outlets and pink cafes are the other permanent marketing activities started by the mission. Kudumbashree products were added in the popular online sales platform such as Amazon, Flipkart, and Open Network Digital Commerce Platform.

Microfinance Activities: Bank linkage scheme, revolving fund, and vulnerability reduction schemes are the schemes subsequently implemented by the Mission over the years. On completing 6 months, NHGs are given linkage loans without any collateral security. One NHG is eligible to avail loan up to Rs 20 lakh. As part of this programme 93,080 NHGs have availed bank loans in the FY 2022-23 and total linkage amount is Rs 6550.8 crore. The mission also provided interest subsidy of 4 per cent for all the linkage loans up to Rs 3 lakh taken by NHGs. An amount of Rs 14 crore was earmarked under interest subsidy and Rs 11.94 crore has been disbursed. A maximum amount of Rs 15,000 is given to neighborhood groups in rural areas as revolving fund to meet the members' credit needs directly and as catalytic capital for leveraging repeat bank finance. During the financial year 2022-23, Rs 14.65 crore was disbursed as revolving fund to 9,766 NHGs. A maximum amount of Rs 1,00,000 is given to Area Development Society as vulnerability reduction fund to address vulnerabilities like food insecurity, health risk, sudden sickness/hospitalization, natural calamity, etc., faced by the household(s) or community. During the year 2022-23 an amount of Rs 14.72 crore was disbursed as vulnerability reduction fund.

Chief Minister's Helping Hand Loan Scheme (CMHLS): Government of Kerala had launched a NHG Bank credit scheme to help the women cope with pandemic attack and lock down induced job loss. CMHLS was intended to disburse credit worth of Rs 2,000 crore to Neighbourhood Groups and so far, an amount of Rs 1,917.55 crore has been disbursed to 2.30 lakhs NHGs. The programme has benefitted 25.17 lakhs members and an amount of Rs 45.98 crore was sanctioned as

second installment (partial) interest subsidy during the financial year 2022-23.

Micro Enterprises Activities: Kudumbashree ensures financial sustainability of Kudumbashree members by providing overall support, namely counseling, training, skill development, financial support, and marketing support to set up enterprises. In the year 2022-23, with the handholding support of Kudumbashree, 11,245 new enterprises and 2,899 new micro enterprises were established.

Prathyasha : The scheme 'Prathyasha' mainly aims at the formation of microenterprises among vulnerable women who are mothers of children with intellectual disabilities, persons with disabilities, elderly, victims, widows, and dependents of severely ill/bedridden patients. There are 966 micro-enterprises initiated through this scheme during 2022-23. To make the Kudumbashree women and their families self-reliant in the coastal area, 464 micro-enterprises were started to create employment opportunities.

Common Facility Centre: CFC envisioned forming a consortium of enterprises by clustering them based on the kinds of products they make. The CFC can act as a working area for entrepreneurs.

Janakeeya Hotels: Janakeeya Hotels are a network set up by Kudumbashree in convergence with LSGIs to provide meals at Rs 20 during the pandemic period. The Mission had started 1,197 Janakeeya Hotels to achieve the Government's goal of making Kerala hunger free. On an average, these networks sell 2 lakh meals per day. To avoid financial burden on entrepreneurs, the price of a meal has been increased from Rs 30 to Rs 40 as suggested by District Planning Committees. Through this project 5,043 women are getting better income and employment.

Amrutham Nutrimix: Nutrimix fortification is a collaborative project jointly conceived and implemented by the Social Justice Department, Kudumbashree, and the United Nations World Food Programme, which aims to supply fortified Amrutham Nutrimix as Take Home Rations (THR) to children between 6 months to 3 years of age through the ICDS in Kerala.

SHE Starts: The Kudumbashree launched exclusive start-ups for women as part of its silver jubilee celebrations. The start-up called She-Starts would help bring young women to initiate enterprises. The women who are not part of the Kudumbashree at present will benefit from She-Starts. At present, 310 She-Starts have been started and they are functioning satisfactorily.

Kudumbashree Auxiliary Groups: Auxiliary Groups, a new generation system of Kudumbashree was formed in 2021 with the aim of creating new spaces for young women for social and cultural engagement and livelihood upliftment. The plan was then to form 20,000 Auxiliary Groups in the State, to include more young women in the Kudumbashree fold, to bring them to the mainstream of society and give them awareness on various social, financial, and women empowerment related issues. The programme intends to create an avenue to introduce the activities of various agencies that function for the welfare and development of the youth such as Youth Commission, Youth Welfare Board, etc. It also aims at creating awareness about various livelihood projects implemented by Central and State governments and the co operative sector, thereby creating opportunities for sustainable livelihoods. Every CDS would form Women Auxiliary Groups in all the wards in their operational area. Women between 18 and 40 years of age are eligible for membership in the groups. More than one member (between the age of 18 and 40) from a family can take membership in the group. The maximum number of members that can be included in a single group is 50. If more than 50 women come forward in a ward, more groups could be formed. The groups could be registered at the District Missions with the recommendation of the respective CDSs. As of now, 19,555 auxiliary groups have been formed and 3,02,595 members have joined.

Theerasree programme for coastal communities: Kudumbashree initiated Theerasree to improve the socio economic conditions of the coastal population through the development of coastal communities. For this, the services of 91 Coastal Community Volunteers were utilized. As of now, 13,151 NHGs and 1,83,431 NHG members have been included in this Special Project. As many as 1,265 coastal NHGs were bank linked, by which they availed a loan of Rs 112 crores. Two sub programmes- Prathibha theeram

and Kaayika theeram- were initiated as part of this. Prathibha theeram aims to provide special tuition and life skill education to the students in the evenings. As part of this programme, 62 centres were started. Kaayika Theeram formulated programmes to create opportunities for the coastal youth to take part in sports and games. As part of this programme, 635 auxiliary groups have been formed.

Activities in tribal areas : To scale up and strengthen the activities among the tribal communities, Kudumbashree included 96.8 percent of tribal families to its NHG folder. The main objective of tribal intervention schemes undertaken by Kudumbashree is to set a stable platform for implementing development activities among the tribes. Bridge course is another major intervention in the education sector. During 2022-23, 822 self-reliant NHGs were identified, and revolving funds were given to 119 NHGs. These NHGs started 631 goat rearing units and 287 backyard poultry units. A total of 325 new tribal joint liability groups were formed for farming activities. Similarly, 59 group micro enterprises and 65 individual micro enterprise units were started afresh by the tribal families and the tribal products are marketed through Kudumbashree bazaar. Also, 217 tribal JLGs are supported through fund distribution of Rs 4,000 per JLG. In the year 2022-23 102 NHGs were supported for their start-up activities and 73 Tribal Youth clubs were started.

Kerala Chicken: Kerala Chicken Integration project was started in 2019 and utilises the fund received from NRLM, Plan fund, RKI and the Special Livelihood fund of the State Government. Kudumbashree Kerala Chicken was initiated to ensure the availability of good quality broiler chicken meat at reasonable price to consumers throughout Kerala. Now the project is operational at Thiruvananthapuram, Kollam, Alappuzha, Kottayam, Ernakulam, Thrissur, Palakkad, Malappuram and Kozhikode districts. This year the project was started in Kannur district also. The project now has 121 outlets and 360 farms. As part of this programme Rs 22.68 crore is provided as integration fees to poultry farmers and Rs 30.20 crore to outlet beneficiaries. As of now, the total sales turnover is Rs 223.25 crore. The poultry farmers earn an average amount of Rs .50,000 after one integration cycle(once in 60 days), and the outlet beneficiaries earn 87,000 per month by selling the birds through Kerala Chicken

outlets. An average of 25,000 kg of poultry meat is supplied every day. Across the state, 500 women have found their livelihood through farming and setting up a network of outlets under this project.

Back to School campaign

Kudumbashree organised a Back to School campaign to strengthen the three-tier structure of Kudumbashree and for equipping the NHG women to take up novel ventures in tune with the changing times. This campaign is organised by utilising Government schools in association with the education department. Till October 2023, a total of 6,16,813 NHG members from 72,254 NHGs have attended the 'Back to School' Campaign.

Rebuild Kerala Initiative - Entrepreneurship Development Programme (RKI-EDP)

The Kerala Government had approved the SVEP model project called "Rebuild Kerala Initiative-Entrepreneurship Development Programme" submitted by Kudumbashree as part of Rebuild Kerala Development programme. The design of the programme would help develop and sustain farm, off farm and nonfarm livelihood options for the poor. RKI-EDP is being implemented in 14 flood affected blocks in 8 districts. Under this project, it has been planned to establish more than 16,800 new enterprises in both farm and nonfarm sectors. Government sanctioned Rs 75 crore under RKDP for this project.

GLOSSARY

Basic Price

Basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, by the producer as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.

Casual Labour

A person who casually engages in others farm or non-farm enterprises (both household and non-household) and, in return, receives wages according to the terms of the daily or periodic work contract, is considered as a casual labour.

CDS

The current daily activity status for a person is determined on the basis of his/ her activity status on each day of the reference week using a priority-cum-major time criterion.

Consumer Price Index (CPI)

CPI is designed to measure the changes overtime in the level of retail prices of a fixed set of goods and services (consumption basket) consumed by an average family of a defined population group at a particular place.

CWS

The current weekly activity status of a person is the activity status obtained for a person during a reference period of 7 days preceding the date of survey. It is decided on the basis of a certain priority cum major time criterion. According to the priority criterion, the status of 'working' gets priority over the status of 'not working but seeking or available for work', which in turn gets priority over the status of 'neither working nor available for work'.

Density of Population

Density of population is one of the important indices of population concentrations. It is defined as the number of persons per sq. kilometre. The geographical unit is ward, town, district and state.

Gross National Income (GNI)

It is GDP less net taxes on production and imports, less compensation of employees less property income payable to the rest of the world plus the corresponding items receivable from the rest of the world (in other words, GDP less primary incomes payable to non-resident units plus primary incomes receivable from

non-resident units); an alternative approach to measuring GNI at market prices is as the aggregate value of the balances of gross primary incomes for all sectors; (note that gross national income is identical to gross national product (GNP) as previously used in national accounts generally).

Infant Mortality

The infant mortality rate is an estimate of the number of infant deaths (death before the first birthday of an infant) for every 1,000 live births.

Old Age Dependency Ratio

The number of persons in age group 60 years and more divided by the number of persons in age group 15-59 years.

Parity Index

Parity Index is a relative measure of the gains or loss to farmers as a consequence of the price fluctuations in the economy. The index is a function of cost of farm cultivation, domestic expenditure, and market rate of farm products.

Protection of Children from Sexual Offences Act, 2012

An Act to protect children from offences of sexual assault, sexual harassment and pornography and provide for establishment of Special Courts for trial of such offences and for matters connected therewith or incidental thereto.

Labour Force

Persons who were either 'working' (or employed) or 'seeking or available for work' (or unemployed) constituted the labour force.

Labour Force Participation Rate (LFPR)

Labour force participation rate is the ratio between the labour force and the overall size of population

Literacy Rate

Literacy rate is defined as the percentage of population aged 6 years and over who can both read and write with understanding a short simple statement on his/ her every-day life.

Retail Price

Retail Price of a commodity is defined as the price which the ultimate consumer pays for relatively small transactions of the commodity.

Wholesale Price Index (WPI)

Wholesale Price Index measures the average changes in the prices of commodities for bulk sale at the level of early stage of transaction.

Worker Population Ratio (WPR)

WPR is defined as the percentage of employed persons in the population

ABBREVIATIONS

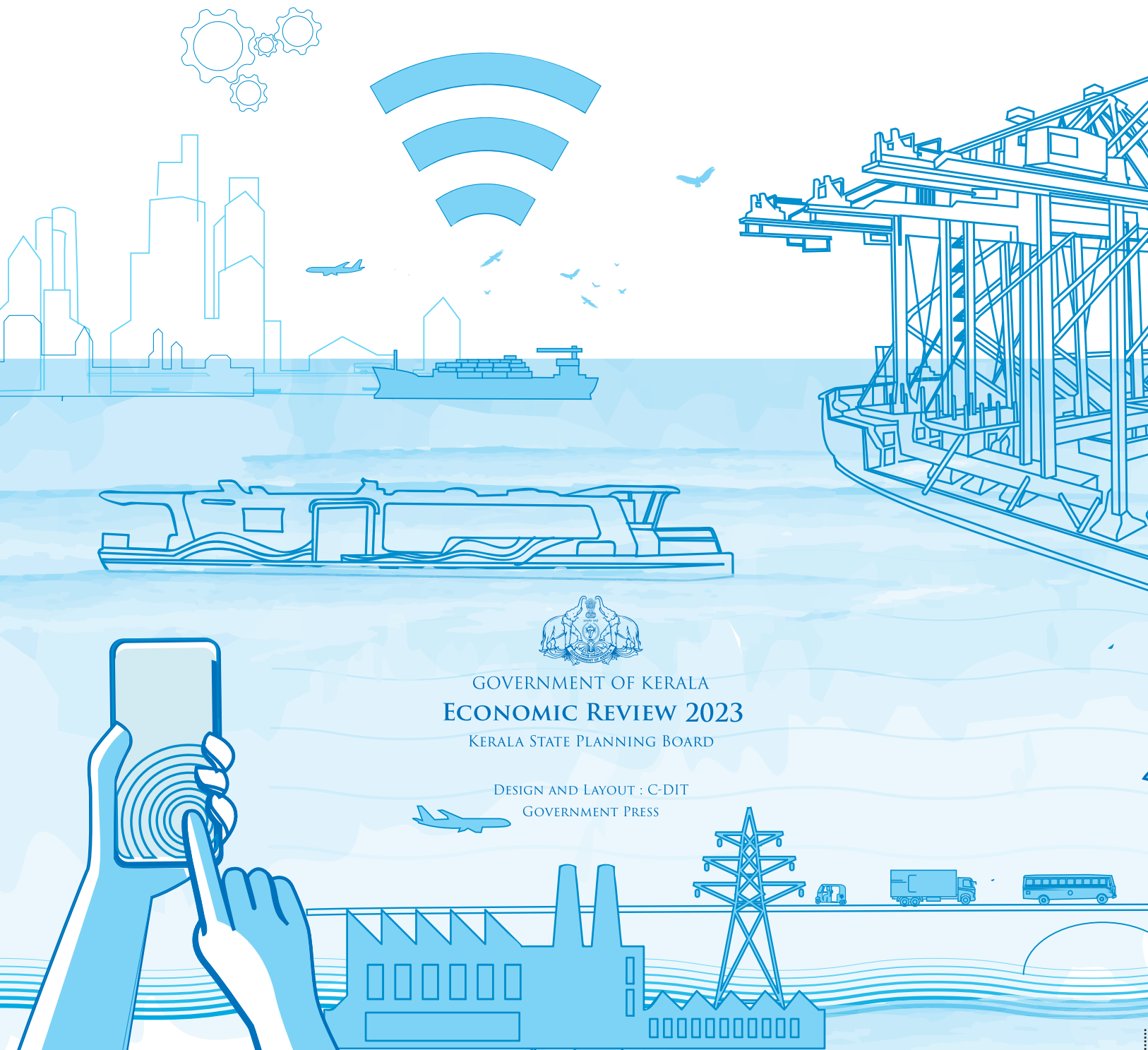
AAV	Anthyodaya Anna Yojana	CHC	Custom Hiring Centre
ADB	Asian Development Bank	CHIS	Comprehensive Health Insurance Scheme
AHIDF	Animal Husbandry Infrastructure Development Fund	COTPA	Cigarettes and Other Tobacco Products Act
AI	Artificial Insemination	CPC	Centralized Processing Centre
AIIB	Asian Infrastructure Investment Bank	CPC	Coconut Producer Company
AKC	Agricultural Knowledge Centres	CPF	Coconut Producers Federations
AMUL	Anand Milk Union Limited	CPI	Consumer Price Index
ANERT	Agency for Non-conventional Energy and Rural Technology	CPS	Coconut Producer Societies
ANP	Annapoorna Scheme	CSO	Central Statistics Office
APCOS	Anand Pattern Co-operative Societies	CWRDM	Centre for Water Resources Development and Management
APEDA	Agricultural and Processed Food Products Export Development Authority	CZMP	Coastal Zone Management Plan
APL	Above Poverty Line	DCS	Dairy Co-operative Society
ARD	Authorised Retail Distributors	DES	Directorate of Economics and Statistics
ARMS	Animal Resource Management System	DoECC	Directorate of Environment and Climate Change
ASC	Agro Service Centres	DPL	Development Policy Loan
ASCAD	Assistance to States for Control of Animal Diseases	DRFI	Disaster Risk Financing and Insurance
ASEAN	Association of South East Asian Nations	EDC	Eco Development Committees
BMC	Biodiversity Management Committees	EEA	European Environment Agency
BMW	Biomedical Waste	EEZ	Exclusive Economic Zone
BOD	Biochemical Oxygen Demand	EPI	Environmental Performance Index
BOQCL	Biofertilizer and Organic Manure Quality Control Laboratory	ePoS	Electronic Point of Sale
BPL	Below Poverty Line	ERSS	Emergency Response Support System
CAAQMS	Continuous Ambient Air Quality Monitoring Stations	ETS	Electronic Total Station
CAGR	Compound Annual Growth Rate	FAO	Food and Agriculture Organization
CAMPA	Compensatory Afforestation Fund Management and Planning Authority	FCI	Food Corporation of India
CAPE	Co-operative Academy of Professional Education	FDA	Forest Development Agency
CAPEX	Kerala State Cashew Workers Apex Co-operative Society	FFWS	Flood Forecasting and Early Warning System
CBD	Convention on Biological Diversity	FPMS	Forest Fire Prevention and Management System
CBWTFD	Common Biomedical Waste Treatment and Disposal Facility	FPO	Farmer Producer Organization
C-DAC	Centre for Development of Advanced Computing	FSI	Forest Survey of India
CHC	Community Health Centre	FSS	Farmers Service Societies
		FTA	Free Trade Agreement
		GDI	Gender Development Index
		GDP	Gross Domestic Product
		GHG	Green House Gases

GIM	Green India Mission	KFWFB	Kerala Fishermen's Welfare Fund Board
GIS	Geographic Information System	KIIFB	Kerala Infrastructure Investment Fund Board
GLC	Ground Level Credit	KINFRA	Kerala Industrial Infrastructure Development Corporation
GNI	Gross National Income	KITTS	Kerala Institute of Tourism and Travel Studies
GPS	Global Positioning System	KITE	Kerala Infrastructure and Technology for Education
GSDP	Gross State Domestic Product	KKS	Karshika Karma Sena
GSVA	Gross State Value Added	KLDB	Kerala Livestock Development Board
GVA	Gross Value Added	KMML	Kerala Minerals and Metals Ltd
GoI	Government of India	KFON	Kerala Fibre Optic Network
HACCP	Hazard Analysis and Critical Control Point	KRDCL	Kerala Rail Development Corporation
HDCK	Handicrafts Development Corporation of Kerala	KRFB	Kerala Road Fund Board
HUDCO	Housing and Urban Development Corporation Limited	KSAMM	Kerala State Agricultural Mechanisation Mission
HWA	Human Wildlife Conflict	KSBB	Kerala State Biodiversity Board
IITM-K	Indian Institute of Information Technology and Management Kerala	KSCADC	Kerala State Coastal Area Development Corporation
IPCC	Intergovernmental Panel on Climate Change	KSEBL	Kerala State Electricity Board Limited
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services	KSERC	Kerala State Electricity Regulatory Commission
IWRM	Integrated Water Resources Management	KSIDC	Kerala State Industrial Development Corporation
JICA	Japan International Cooperation Agency	KSIE	Kerala State Industrial Enterprises Ltd
JJ	Juvenile Justice	KSINC	Kerala Shipping and Inland Navigation Corporation Limited
JJS	Jana Jagratha Samithi	KSITIL	Kerala State Information Technology Infrastructure Ltd
JNTBGRI	Jawaharlal Nehru Tropical Botanical Research Institute	KSITM	Kerala State Information Technology Mission
KAICO	Kerala Agro Industries Corporation Ltd	KSLMA	Kerala State Literacy Mission Authority
KALNET	Kerala Academic Library Network	KSoM	Kerala School of Mathematics
KAMCO	Kerala Agro Machinery Corporation	KSPCB	Kerala State Pollution Control Board
KARSAP	Kerala Antimicrobial Resistance Strategic Action Plan	KSPDC	Kerala State Poultry Development Corporation
KASP	Karunya Arogya Suraksha Padhathi	KSWIFT	Kerala Single Window Interface for Fast and Transparent Clearance
KAVIL	Kerala Aqua Ventures International Limited	KUFOS	Kerala University of Fisheries and Ocean Studies
KCC	Kissan Credit Card	KVASU	Kerala Veterinary & Animal Science University
KCEMS	Kerala Captive Elephant Management System	LBHS	Local Biodiversity Heritage Sites
KCMMF	Kerala Co-operative Milk Marketing Federation	LFPR	Labour Force Participation Rate
KCZMA	Kerala Coastal Zone Management Authority	LGs	Local Governments
KESRU	Kerala Self-Employment Scheme for the Registered Unemployed	LIFE	Livelihood, Inclusion and Financial Empowerment
KFL	Kerala Feeds Limited		
KFRI	Kerala Forest Research Institute		

LPG	Liquefied Petroleum Gas
LSGD	Local Self Government Department
LTRCF	Long Term Rural Credit Fund
MBGIPS	Malabar Botanical Garden and Institute for Plant Science
MDDT	Multi-Disciplinary Diagnostic Team
MFP	Minor Forest Produce
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MPC	Monetary Policy Committee
MPI	Meat Products of India
MMR	Maternal Mortality Ratio
MSME	Micro Small Medium enterprises
MT	Metric Tonne
NABARD	National Bank for Agriculture and Rural Development
NABL	National Accreditation Board for Testing and Calibration Laboratories
NAFED	National Agricultural Cooperative Marketing Federation of India Ltd
NAMP	National Ambient Air Quality Monitoring Programme
NAPCC	National Action Plan for Climate Change
NAS	National Accounts Statistics
NATPAC	National Transportation Planning and Research Centre
NCDC	National Cooperative Development Corporation
NDDB	National Dairy Development Board
NDP	Net Domestic Product
NDPREM	Norka Department Project for Return Emigrants
NDPS	Narcotic Drugs and Psychotropic Substance
NETFISH	Network for Fish Quality Management and Sustainable Fishing
NFHS	National Family Health Survey
NFSA	National Food Security Act
NHAI	National Highways Authority of India
NHM	National Health Mission
NNI	Net National Income
NORKA	Non Resident Keralite Affairs
NPCA	National Plan for Conservation of Aquatic Ecosystems
NPS	Non Priority Subsidy

NRCB	National Research Centre for Banana
NSO	National Statistical Office
NSS	National Sample Survey
NSSO	National Sample Survey Organisation
NTFP	Non Timber Forest Produce
NUALS	National University of Advanced Legal Studies
NULM	National Urban Livelihood Mission
NWMP	National Water Quality Monitoring Programme
OFP	Operation Flood Programme
PACS	Primary Agriculture Credit Societies
PBR	People's Biodiversity Register
PDS	Public Distribution System
PFMS	Public Financial Management System
PfR	Program for Result
PHH	Priority Household
PLFS	Periodic Labour Force Survey
PMFBY	Pradhan Mantri Fasal Bima Yojana
PPC	Primary Processing Centers
PROUD	Programme for Removal of Unused Drugs
PRT	Primary Response Teams
PSA	Priority Sector Advance
PSUs	Public Sector Undertakings
RBCMA	River Basin Construction and Management Authority
RBDCK	Roads and Bridges Development Corporation of Kerala
RCC	Regional Cancer Centre
RCEP	Regional Comprehensive Economic Partnership
RCS	Registrar of Co-operative Societies
RKDP	Rebuild Kerala Development Programme
RKI	Rebuild Kerala Initiative
RRT	Rapid Response Teams
RT	Responsible Tourism
RUSA	Rashtriya Uchathaar Shiksha Abhiyan
RWBCIS	Restructured Weather Based Crop Insurance Scheme
SACC	Student Affairs and Counseling Centre
SAF	Society for Assistance to Fisherwomen
SAMP	State Ambient Air Quality Monitoring Programme

SAPCC	State Action Plan on Climate Change
SDG	Sustainable Development Goal
SFAC	Small Farmers Agribusiness Consortium
SFC	State Finance Commission
SHE	Scheme for Her Empowerment in Engineering education
SHGs	Self Help Groups
SHM	State Horticulture Mission
SI-MET	State Institute of Medical Education and Technology
SJD	Social Justice Department
SLBC	State Level Bankers Committee
SLBP	Special Livestock Breeding Programme
SLEC	State Level Empowered Committee
SMP	Skimmed Milk Powder
SONTR	State's Own Non Tax Revenue
SOTR	State's Own Tax Revenue
SPB	State Planning Board
SRIBS	Srinivasa Ramanujan Institute for Basic Sciences
Supplyco	Kerala State Civil Supplies Corporation Limited.
SWMP	State Water Quality Monitoring Programme
SWTD	State Water Transport Department
TDS	Targeted Distribution System
TSG	Technical Support Groups
TTDI	Travel and Tourism Development Index
UN DESA	United Nations Department of Economics and Social Affairs
UNEP	United Nations Environment Programme
UPASI	United Planters Association of Southern India
VAT	Value Added Tax
VDVK	Van Dhan Viaks Kendra
VFPC	Vegetable and Fruit Promotion Council, Kerala
VSS	Vana Samrakhana Samithis
WHO	World Health Organisation
WMO	World Meteorological Organisation
WPI	Wholesale Price Index
WPR	Worker Population Ratio
WWF	World Wildlife Fund
ZSI	Zoological Survey of India



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