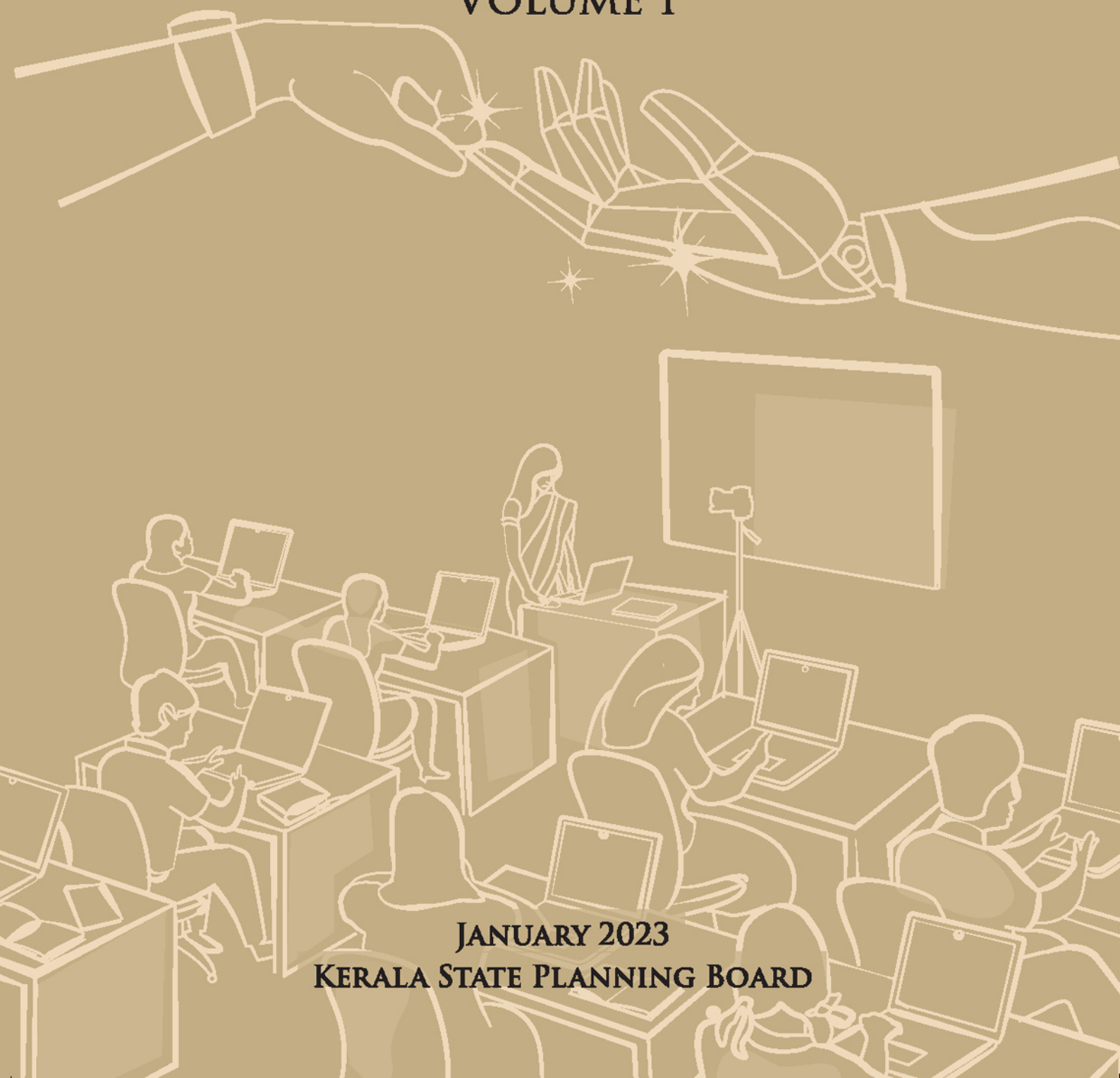




GOVERNMENT OF KERALA

ECONOMIC REVIEW 2022

VOLUME 1



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KERALA STATE PLANNING BOARD



GOVERNMENT OF KERALA

ECONOMIC REVIEW 2022

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FOREWORD

The Kerala economy posted a strong recovery in 2021-22. According to quick estimates, Gross State Domestic Product (GSDP) at constant prices recorded a robust growth of 12.01 per cent, compared to (-)8.43 per cent in 2020-21. This is the highest growth recorded since 2012-13. The stimulus packages, along with other policy interventions of the State Government, augmented growth, particularly at a time when economic activities were severely constrained.

By the end of the Thirteenth Five-Year Plan, the State witnessed sweeping changes in public schooling, great changes in health facilities with regard to public access and quality, a transformation in major physical infrastructure, a new policy direction in industry and information technology, a deepening of participatory local government, a renewed thrust to livelihoods and job creation, an enhancement of social protection, and new gender empowerment measures.

Kerala has been, and remains, the most important example in independent India of the power of public action to improve the well-being of the people and to transform social, political, and cultural conditions. Kerala topped the States of India in most human development indicators. Kerala has been the frontrunner in the SDG India Index for three years (2018, 2019, and 2020) consecutively. NITI Aayog's Multidimensional Poverty Index put the headcount ratio for Kerala at 0.71 per cent, the lowest among States in India. The India Skills Report 2022 ranks Kerala third among States in terms of the employability of its youth. 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.

2022-23 is the first year of the Fourteenth Five-Year Plan. Economic planning is central to the State's economic achievements. Through planning, the Government reiterates its commitment to build a modern, developed Kerala, one that is marked by scientific and technological progress, by the progress of the scientific temper, and by new levels of production and decent employment, particularly for the young women and men who are entering our labour force.

In 2021-22, the sectoral composition of Gross State Domestic Product reveals positive developments across sectors. Agriculture and allied activities, industry and tertiary sectors grew 4.6 per cent, 3.8 per cent and 17.3 per cent respectively in 2021-22 over 2020-21. This was a very creditable record, particularly in the light of the fact that preceding year the sectors recorded negative growth. The State government achieved this robust growth despite the fiscal constraints set by the Government of India. Several factors contributed to the growth. State

interventions in the form of counter-cyclical fiscal policies, including two economic packages of ₹20,000 crore announced in March 2020 and June 2021 respectively and a supplementary package of ₹5,650 crore announced to support small industries, played an important role in recovery.

The theme chapter of *Economic Review 2022* is entitled “Higher Education for Growth and Development: An Overview.” Improvements in higher education are a pre-requisite for the development of the State into a knowledge society as envisioned by the Government. The Government of Kerala has taken multiple initiatives to enhance academic standards, increase the enrolment ratio, and provide young people with state-of-the-art facilities in sphere of higher education.

Kerala’s colleges and universities achieved new level of success in ranking by The National Assessment and Accreditation Council in 2022-23. There were two further major developments this year. First, there was a sharp increase in budgetary allocations to higher education. Secondly, Government, appointed and received reports from three specialist Commissions. The Commissions were the Commission for Reforms in Examination in the Universities and Higher Education Institutions of Kerala, Commission for Reforms in Higher Education, and University Law Reforms Commission.

Economic Review 2022 includes information on policies and programmes of Government departments. It discusses the performance of various departments and issues to be addressed in the coming years.

As in previous years, the *Economic Review* is presented in two volumes. Volume-I covers the policies, programmes, and achievements of the Government departments and Volume-II provides the corresponding datasets. *Economic Review 2022* is published in English and Malayalam. A digital version will be uploaded at the State Planning Board website www.spb.kerala.gov.in.



V K Ramachandran

Vice Chairperson
January, 2023

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KERALA AT A GLANCE

In 2021-22, the State posted a strong recovery as GSDP in real terms grew by 12.01 per cent (QE) compared to (-)8.43 per cent in 2020-21. The Gross State Value Added (GSVA) at constant 2011-12 prices increased from (-)10.0 per cent in 2020-21 to 12.1 per cent in 2021-22. According to Quick Estimates (QE), the per capita GSDP at constant price in Kerala was ₹1,62,992 in 2021-22, and the corresponding national average was ₹1,07,670. In other words, average income per person in Kerala was more than the Indian average in 2021-22

The State managed to achieve recovery primarily through a counter-cyclical fiscal policy implemented through various stimulus packages. The Government stepped in to offer relief particularly to the most vulnerable sections of the society by providing essential services, goods, and cash. The State has been taking prudent measures to keep the fiscal indicators stable.

Revenue Deficit as a per cent of GSDP decreased to 2.29 per cent in 2021-22 as against 2.51 per cent in 2020-21. Fiscal deficit as a per cent to GSDP, which was 4.57 per cent in 2020-21 has decreased to 4.11 per cent in 2021-22, and is estimated to be 3.91 per cent in 2022-23. In 2021-22, the revenue receipts of the State in proportion to GSDP have increased marginally to 12.86 per cent from 12.66 per cent in 2020-21. According to 2022-23 BE, State's Own Tax Revenue and State's Own Non-Tax Revenue increased to 27.01 per cent and 12.49 per cent respectively, so that the total receipts of the State increased by 19.94 per cent. However, in 2021-22, the share of Central Taxes and Grants recorded a decrease of 0.82 percent from the previous year. According to 2022-23 BE, Capital outlay increased by 4.93 percent whereas capital expenditure decreased by 3.08 per cent. According to National Statistical Office (NSO), India CPI-Combined inflation stood at 7.41 per cent in September 2022, and 6.45 per cent in Kerala.

Sectoral composition of growth reveals an increase in growth of agriculture and allied activities to 4.64 per cent in 2021-22 (QE), compared to 0.24 per cent in 2020-21. In the corresponding periods, crop sector recorded an increase of 3.63 per cent compared to 0.46 per cent. A positive growth registered across sectors compared to the preceding year. The share of Agriculture and Allied sectors in total GSVA decreased from 10.00 in 2020-21 to 9.33 per cent in 2021-22 (constant prices).

As per the land use data of 2021-22, out of the total geographical area of 38.86 lakh ha, the total cultivated area was 25.23 lakh ha (64.92 per cent), and the net area sown was 20.29 lakh ha (52.22 per cent). The land put to non-agricultural use was 14.7 per cent and forest area was 27.8 per cent.

Food crops consisting of rice, pulses, tapioca, ragi, small millets, sweet potatoes and other tubers constitute 10.51 per cent of the gross cropped area in 2021-22, while cash crops including cashew, rubber, pepper, coconut, cardamom, tea, and coffee comprise 65.8 per cent. Rubber, coffee, tea, and cardamom account for 28.2 percent of the gross cropped area. Coconut occupies a significant percentage of the gross cropped area (30 per cent), followed by rubber (21.8 per cent). Rice constituted 7.69

per cent of the total cultivated area. The production of ginger and cardamom recorded an increase of 6.5 per cent and 3.4 per cent, respectively. Among the plantation crops, production of coffee, rubber and cardamom increased by 1.97 per cent, 7.14 per cent, and 3.4 per cent, respectively, while that of tea declined by 9.7 per cent in 2021-22 compared to 2020-21. Coconut production and productivity increased by 15.6 per cent and 16 per cent, respectively.

During 2021-22, State produced 2.25 lakh tonnes of inland fish and 6.01 lakh tonnes of marine fish. Inland fish production has been on the rise in the last four years. It has increased from 1.89 lakh tonnes in 2017-18 to 2.25 lakh tones in 2021-22. A major constraint in inland fisheries is the non-availability of good quality fish seed.

The net and gross irrigated area in the State has increased in 2021-22, compared to the preceding year. The net area irrigated increased from 3.89 lakh ha in 2020-21 to 4.03 lakh ha in 2021-22, whereas the gross area irrigated increased from 5.21 lakh ha to 5.61 lakh ha. The gross irrigated area to gross cropped area has increased to 22.25 per cent in 2021-22 from 20.3 per cent in 2020-21.

Cooperatives play a prominent role in Kerala's socio-economic development process. Youth co- operatives have been started, which is a first of its kind in the country. Under the second 100 days programme of the Government, the Department had created 759 permanent jobs and 34,942 temporary job opportunities through the primary co-operative societies, apex federations, and all other co-operatives. A total of 14 Coopmart outlets have been established, and are marketing 360 products manufactured by 75 cooperative societies.

Over the years, Kerala has achieved substantial progress in modernizing and diversifying its industrial sector. The Industry sector accounted for about 26.82 per cent of GSVA at constant basic prices in 2021-22 (QE). Industry sector registered a growth of 3.9 per cent as per the QE of 2021-22. Manufacturing (3.63 per cent) and construction (2.4 per cent), which are predominant subsectors of industry, recorded a positive growth in 2021-22. Increase in growth in construction sector is primarily due to the relaxation of COVID-19 restrictions. The manufacturing sector in Kerala accounted for 12.12 per cent of GSVA (at constant 2011-12 prices) in 2021-22 (QE). The share of manufacturing in Kerala's GSVA (at Constant Prices) increased from 9.78 per cent in 2014-15 to 12.12 per cent in 2021-22.

In the MSME sector, Government of Kerala had declared the Financial Year 2022-23 as the "Year of Enterprises". The objective of the initiative was to encourage and promote Micro, Small, and Medium level entrepreneurs in the State by creating one lakh new enterprises in Kerala during the FY 2022-23. The Government has achieved this ambitious target within a remarkable period of 250 days, from 1st of April to 7th of December, 2022. As part of this achievement, an investment of ₹ 6,274 crore and 2,20,285 new employment opportunities were created in the State. The State is implementing the second reorganization of coir sector, with modernisation and mechanization at its core. Around 130 new defibering units (DF) have been established across the State. Production of yarn has jumped from 7,880 tonnes in 2016 to 18,662 in 2022, primarily due to the introduction of over 26,000 good quality electronic ratts, and 1,493 Automated Spinning Mills (ASM) in over 140 Societies.

A standout feature of the State economy is that it has the highest share of services in the GSVA, 63.85 per cent in 2021-22(QE). The services sector posted a robust growth of 17.3 per cent as per the QE of 2021-22, corresponding growth for the preceding year was (-)14.44 percent. A positive growth registered across subsectors, compared to the preceding year. Information Technology, tourism, and trade are among the top sectors of service sector.

Proactive policy intervention of Government of Kerala made Information Technology a growing sector in the State. Technopark 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 and 9.7 million square feet built-up area. The number of tech start-ups in 2021-22 is 3650, as compared to 3143 in 2020-21. Infopark, Kochi has 5 campuses which is spread over 322.98 acres under various phases of development. The total employee strength increased to 63,600, from 51,000 in 2020-21. The number of IT companies increased to 546, from 420 in 2020. KFON project is a major initiative, a state-wide optical fiber network capable of providing high-speed internet connectivity to about 30,000 Government and educational institutions, offer free internet to 20 lakh economically backward families, and internet services at a lower rate for others.

Kerala's e-Service portal, eSEVANAM, 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 addition to the consolidation of around 711 services of more than 70 departments in a single platform, all mobile-friendly services (about 546 services) are offered through a uniform mobile application called m-SEVANAM.

Skill Delivery Project, Kerala (SDPK) is a prestigious project aimed to bridge the gap between students and industry. SDPK consists of a virtual platform with teleconferencing system being installed in all the 150 engineering colleges and 3 studios, which are being set up as part of the project.

In 2022, out of 12.5 lakh persons employed in the organised sector in Kerala, 5.6 lakh (44.8 per cent) are in the public sector and 6.9 lakh (55.2 per cent) are 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, 2022 was 28.4 lakh.

The number of ration cardholders as on August 2022 is 92.51 lakh. Out of this, 40.83 lakh cards come under NFSA, 51.68 lakh come under non-NFSA. The NFSA section includes 5.9 lakh AAY cards and 34.93 lakh priority cards. The non-NFSA section includes 23.47 lakh on non-priority subsidy group and 28.21 lakh on non-priority non subsidy group. An amount of ₹ 232.3 crore was spent on various card holders as subsidy in 2021-22. Out of this, 59.2 per cent of subsidy was spent on priority card holders and 40.8 per cent on non-priority card holders.

The Government has approved a flagship programme to re-survey 1,550 villages in Kerala within a four-year period, under the Rebuild Kerala Initiative. The State has already established CORS (Continuously Operating Reference Stations) at various favourable locations. In order to conduct the re-survey, the Government will use a Continuously Operating Reference Station (CORS), real-time kinematics (RTK),

drones, lidar, and Electronic Total Stations (ETS).

The Government of Kerala has given prime importance to infrastructure development. One of the major projects approved by KIIFB in 2021-22 is the Anakkampoyil-Kalladi-Meppadi (AM) Tunnel Road between Kozhikode and Wayanad Districts in Kerala.

The Public Works Department carried out development and improvement of roads for a total length of 14,724 km including 14,181 km of Bitumen Macadam (BM) and Bitumen Concrete (BC) (under various Plan schemes). To revitalize KSRTC, new projects such as Logistics, Shop one wheel, Stay on KSRTC bus in Munnar, KSRTC Lube Shop, and retail fuel filling stations in association with Indian Oil Corporation and Hindustan Petroleum Corporation called 'Yatra Fuel', were introduced. However, the financial situation of KSRTC has been 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 increasing losses to the Corporation. KSRTC has launched 'Grama Vandi' services with the cooperation of Local Government Institutions in July, 2022 at Kollayil Grama panchayat of Parassala in Thiruvananthapuram District. KSRTC rolled out the 'City Circular' (CC) Service which provides convenient and economical transportation facilities to the general public. The Water Metro Project envisaged to create modern water transport infrastructure in the Greater Kochi region at an outlay of ₹ 1,064.83 crore is nearing completion.

Energy is key to economic development. Total installed capacity of power in the State as on March 2022 is 3,145.82 MW, of which hydel power contributed the major share of 2,136.91 MW (67.92 per cent), while 529.54 MW was contributed by thermal projects (16.83 per cent), 409.09 MW (13 per cent) from solar and 70.28 MW from wind (2.23 per cent). KSEB has sold 23,499.59 MU power to 1,34,22,642 consumers, including 11 bulk licensees. The total revenue from sale of power, including sales to other utilities outside the State, is ₹15,766.34 crore.

Under LIFE (Livelihood, Inclusion and Financial Empowerment) Mission scheme, a total of 3, 13,455 houses were completed in the State, as on 31.10.2022. Under Janakeeya Hotels (Hotel network set up by Kudumbashree in convergence with Local Government, to provide meals at ₹20), around 1,196 hotels have been started to achieve the Government's mission to make Kerala Hunger Free. On an average, these hotels sell 1.65 lakhs meals per day.

In 2021-22, under Ayyankali Urban Employment Guarantee Scheme, a total of 46,33,552 persons days were created. During this period, 96,990 households and 96,456 women were given employment, and 9,333 families completed 100 days employment. In 2022-23, up to 31.10.2022, 20,62,951 person days were created and 48,495 households and 48,228 women were provided employment and 4,667 families completed 100 days employment.

Kerala has achieved significant progress in ensuring social protection. Over the last five years, welfare pensions have increased from ₹600 per beneficiary in 2016, to ₹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. Of this, 32.67 lakh (62 per cent) are women. Category-wise, 56 per cent of beneficiaries fall under old

age pension, 27 per cent widow category, and around 7 per cent each for disabled and agriculture worker pension. Pension for unmarried women is given to 87,983 beneficiaries.

The State Government is committed to its effort to enhance human development and incomes of vulnerable sections of the population. The constructions of 6,611 study rooms were completed for high school and higher secondary students of families with annual incomes less than one lakh. Out of this, 139 study rooms were for children who belong to the vulnerable communities among SCs. Under the 'Skill Training and Employment scheme, 171 beneficiaries received self-employment subsidy, 599 SC youths received skilling through various skill development programs, and 673 persons availed assistance for seeking job abroad. Under the Valsalyanidhi' scheme for girl children belonging to Scheduled Castes, 1,691 girls were insured. Under the Land Bank, 6.17 acres of land were distributed to 53 landless tribes and 406.66 acres to 362 tribes under Forest Rights Act. Of the 94 colonies selected under the Ambedkar Settlement Development Scheme, infrastructure work in 49 colonies has been completed.

Education and health are two areas where Kerala has a proud legacy. Kerala has taken progressive steps for the development of inclusive education. The total number of new students that sought admission in Government and aided schools for the last five years is 8,16,929. To promote inclusive education, free uniforms, mid-day meals, financial assistance to meet travel expenses, hostel facilities, and excursions for students, etc, 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.

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.TE. 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.

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 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 in Family Health Centres (FHC) include 'ASWASAM' depression management clinics in primary care started in 241 FHCs, Chronic Obstructive Pulmonary Disease (COPD) control programme

called 'SWAAS', conversion of 4261 rural sub centres into health and wellness centres, OP 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. e-Health Project is implemented in the State. Kerala is the only State in the country where a database of 2,59,55,975 people has been collected and stored as electronic records.

To conclude, the State government continues its policy of promoting growth and development of the economy, and ensures social protection and welfare despite the constraints imposed by COVID-19 pandemic, natural calamities, and global slowdown. Kerala will build on its strength to move ahead by developing high quality physical and social infrastructure for achieving higher economic growth, and a better quality of life for its people.

KERALA'S ECONOMIC AND SOCIAL INDICATORS: A QUICK LOOK

Sl. No	Item	Units	1970-71	1980-81	1990-91	2000-01	2010-11	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
1	Geographical Area	Sq.Km.	38864	38863	38863	38863	38863	38863	38863	38863	38863	38863	38863
Administrative Setup													
2	Revenue Divisions	No.					21	21	26	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	75	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	2016-17	2017-18	2018-19	2019-20	2020-21(P)	2021-22(Q)
18	GSDP	₹crore	1255	3823	12195	63715	180812	485301.54	516189.76	554228.31	559194.18	512076.08	573591.46
19	Primary Sector (GSVA)	₹crore	653	1682	4756	14017	15966	45936.94	47619.23	46114.01	44306.26	44657.68	46515.96
20	Secondary Sector (GSVA)	₹crore	163	841	3171	14017	38249	123289.49	129866.26	130450.39	132480.25	128749.03	133735.84
21	Tertiary Sector (GSVA)	₹crore	439	1300	4268	35680	126597	266144.63	283268.51	303661.64	317187.72	271393.14	318336.73
22	Per capita Income	₹	594	1508	4207	19951	47360	141398	149650	159878	160506	146246	162992
Agriculture			1970-71	1980-81	1990-91	2000-01	2009-10	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
23	Net Area Sown	000 ha.	2171	2180	2247	2206	2079	2015	2040	2033	2026	2035	2029
24	Gross Cropped Area	'000 ha.	2933	2885	3020	3022	2669	2584	2579	2571	2586	2568	2523
25	Gross Irrigated Area	'000 ha.		381	385	460.3	458	497	539.87	515.39	517.64	521.48	561.31
26	Gross Irrigated Area to Gross Cropped Area	Percent-age		13	13	15	18	19	21	20	20.01	20.3	22.25
Gross area under principal crops			1970-71	1980-81	1990-91	2000-01	2012-13	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
27	Paddy (wetland)	000 ha.	875	802	559	347	197	166	189	198	191.05	201.87	193.95
28	All Pulses	'000 ha.	40	34	23		3	1.74	1.9	2.5	2.06	2.006	1.44
29	Sugarcane Harvested Area	'000 ha.	8	8	8	3	2		1.05	1.01	0.95	0.92	0.92
30	Rubber	'000 ha.	188	238	384	474	545	551.05	551	551.2	551.03	550.65	550
31	Tea	'000 ha.	37	36	35	37	30	30.2	30	36.47	35.87	35.87	35.87

32	Coconut	'000 ha.	719	651	870	926	798	781.5	760.4	760.94	760.77	768.8	765.4
33	Arecanut	'000 ha.	86	61	65		102	97.7	94.6	95.73	96.9	96.57	93.97
34	Groundnut	'000 ha.	15	9	13		0.7		0.27	0.18	0.12	0.11	0.12
35	Pepper	'000 ha.	12	108	169	202	85	85.2	85.1	82.76	83.76	82.12	76.35
36	Cardamom	'000 ha.	47	56	67	41	42	39	39.1	38.88	39.69	39.14	39.14
37	Ginger	'000 ha.	12	13	14	12	5	5.15	4.37	3.27	2.82	2.7	2.92
Production of Principal Crops			1970-71	1980-81	1990-91	2000-01	2012-13	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
38	Rice	'000 tonnes	1298	1272	1087	751	509	436	521.3	578.25	587.1	626.90	559.30
39	All Pulses	'000 tonnes	13	22	17		3	1.7	2.04	2.3	2.18	1.92	1.47
40	Sugarcane	'000 tonnes	38	48	52	28	17		11.5	10.63	12.08	10.70	10.40
41	Rubber	'000 tonnes	88	140	308	560	800	540.4	540.7	492.5	533.5	519.50	556.60
42	Tea	'000 tonnes	43	48	63	69	63	61.5	62.23	60.76	59.26	66.85	60.36
43	Coconut	In million nuts	3981	3008	4232	5536	5799	5384	5230	5299	481.4	4788.00	5535.00
44	Arecanut	'000 tonnes	13	11	13		118	116.8	108.5	99.92	92.75	103.20	103.50
45	Groundnut	'000 tonnes	16	8	10	10	9		0.38	0.24	0.15	0.14	0.16
46	Pepper	'000 tonnes	25	29	47	61	46	34.06	37.9	36.77	34.54	33.59	32.52
47	Cardamom	'000 tonnes	1	3	3		10	17.14	18.3	11.53	10.07	20.57	21.27
48	Ginger	'000 tonnes	20	32	46	42	22	20.47	18.9	15.12	11.92	12.09	12.87
Livestock Census			1982	1987	1996	2003	2007	2012			2019		
49	Total Livestock	in lakh	56	55	56	35	36	38.88			29.09		
50	Total Poultry	in lakh	152	185	308	139	127	238.45			297.71		
Forest			1970-71	1980-81	1990-91	2000-01	2011-12	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
51	Forest Area	000 ha.	1056	1123	1122	1115	1131	1131	1152	1152	1152	1152	1152
Factories			1981	1991	2001	2011	2012	2017	2018	2019	2020	2021	2022
52	Working Factories	No.	9106	13255	18554	19676	20473	22998	23335	24254	24468	24453	24271
53	Employees	No.	300515	368738	436410	644606	644802	678058	698679	726195	702901	652875	678586
54	Employees per lakh population	No.	1181	1267	1370	1930	1930	2030	2091	2174	2104	1954	2031
Electricity			1980-81	1990-91	2000-01	2009-10	2011-12	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
55	Total Generation	Mu	5242	5491	7656	6495	8351	4380	5505.73	7626.37	5781.23	7109.09	9858.27
56	Total Consumption	Mu	2869	5282	10319	12878	16182	20038	21159.19	22361.45	22948.82	22151.6	23499.54
57	Industrial Consumption	Mu	2025	2697	3784	4002	4926	5260	5648.31	5820.49	5683.3	3826.99	4481.02
58	Agricultural Consumption	Mu	125	288	350	225	286	322	346	337.65	348.48	412.22	382.73
59	Domestic Consumption	Mu	409	1621	4688	5931	7706	10281	10574.8	10864.34	11898.13	12716.47	12679.39
Education			1980-81	1990-91	2000-01	2009-10	2012-13	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22*
60	Primary Schools	No.	9605	9682	9714	9828	9737	9861	9852	9841	9833	9858	9847
61	Enrolment in primary school	'000s	4284	4402	3637	3015	2545	2377	2384	2428	2450	2593.6	2559.1
62	High Schools	No.	1971	2451	2596	2814	2890	3021	3119	3120	3118	3128	3125
63	Enrolment in high school	'000s	1310	1498	1611	1443	1426	1325	1297	1276	1267	1274.51	1273.29
Health			1980-81	1990-91	2000-01	2009-10	2011-12	2016-17*	2017-18*	2018-19*	2019-20*	2020-21*	2021-22*
64	Hospitals	No.	746	1199	1319	1254	1255	1463	1470	1470	1471***	1473***	1477***
65	No. of Beds	No.	32447	38726	38242	37021	37388	56257	56596	56596	57713	58021	58828
Vital statistics (Demographic Status)			1980-81	1990-91	2001	2009	2010	2011	2017**	2018**	2019**		2020**

66	Birth Rate	per 1000 population	26	20	16	15	15	15	14.2	13.9	13.5	13.2	
67	Death Rate	per 1000 population	6	6	7	7	7	7	6.8	6.9	7.1	7	
68	Infant Mortality Rate	per 1000 population	37	21	11	12	14	13	10	7	6	6	
Transport			1980-81	1990-91	2000-01	2010-11	2011-12	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
69	Railway Route Length	Kms.	921	988	1148	1257	1257	1257	1257	1257	1257	1745***	1745***
70	Total Road Length**	Kms.	94145	128403	125835	151652	244373	218942	229349.2	273113.3	331904.11	238773.02	230934.18
71	Motor Vehicles	No.	195000	648000	2111885	6072019	8048673	11030037	12042691	13334984	14184184	14847163	15565149
Local Governments			2000-01	2006-07	2007-08	2008-09	2010-11	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
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
1	Area (sq Km)	2192	2491	2637	1414	2208	4358	3068
2	Forest Cover (sq. Km)*	1317	1334	1949	80	1099	3155	1383
3	Population 2011 (in Lakh)	33.01	26.35	11.97	21.28	19.75	11.09	32.82
	Rural	15.3	14.48	10.66	9.8	14.09	10.57	10.48
	Male	7.25	6.81	5	4.65	6.93	5.27	5.18
	Female	8.05	7.68	5.66	5.15	7.16	5.3	5.3
	Percentage Decadal Growth (2001-2011)	-28.6	-31.7	-4	-34.2	-14.8	-1.4	-35.7
	Urban	17.72	11.87	1.32	11.48	5.65	0.52	22.34
	Male	8.57	5.66	0.62	5.48	2.76	0.26	11.01
	Female	9.15	6.21	0.7	6	2.9	0.26	11.33
	Percentage Decadal Growth (2001-2011)	62.3	154.8	6.3	84.8	88.6	-9.6	51.3
	Density	1508	1061	452	1504	895	255	1072
	Fishermen Population, in number	164883	123100	2073	167794	24420	691	133387
	SC population as % of Total Population	11.3	12.5	13.7	9.5	7.8	13.1	8.2
	ST population as % of Total Population	0.8	0.4	0.7	0.3	1.1	5	0.5
4	Literacy Rate (2011)							
	Male	95.06	96.09	97.36	97.36	97.97	94.56	97.36
	Female	91.17	92.31	95.83	94.24	96.48	89.45	94.46
5	Percentage of Dropouts 2021-22 (latest)							
	Lower Primary	0.04	0.01	0	0.01	0.09	0.11	0.17
	Upper Primary	0.01	0	0	0.01	0.1	0.06	0.09
	High School	0.01	0.01	0.01	0.01	0.05	0.23	0.07
6	GDVA 2021-22 (Quick) (Constant Price)							
	GDVA at Basic Prices (₹ in lakh)	4812638	4599803	1344119	3984385	3255427	1578916	6674178
	Share in Percentage							
	Primary	7.24	8.91	21.58	4.53	11.18	30.47	6.80
	Secondary	18.38	27.88	14.65	39.66	24.63	19.75	28.69
	Tertiary	74.38	63.21	63.77	55.81	64.19	49.78	64.51
7	Production of Rice in Kerala (2021-22) in Tonnes	4437	4178.5	8554	93174	48656.5	916	10462
8	Net Area Irrigated (2021-22) in ha	6340	3912	6112	36023	18350	53622	20640
9	Number of Commercial Banks (March 2022)	742	404	380	385	520	190	1008

10	CD ratio	68.84	61.28	24.32	44.78	50.17	111.47	81.93
11	No. of Registered SSI/MSME 2021-22	1420	1412	641	1112	1205	515	1308
12	Length of PWD Roads (km)	2377.04	1924.09	1993.27	1405.42	3310.44	2661.28	2964.49
13	No. of Motor Vehicles	1934013	1162526	653313	1078234	945185	333491	2216348
14	Tourist Arrivals 2022							
	Foreign (in no.)	8262	77	72	777	365	591	46821
	Domestic (in no.)	1235570	209102	95840	353921	158922	949574	1587882

Sl. No.	Items	TSR	PLK	MLP	KKD	WYD	KNR	KSD	TOTAL
1	Area (sq Km)	3032	4480	3550	2344	2131	2966	1992	38863
2	Forest Cover (sq. Km)*	1166	2104	1984	1448	1581	1669	984	21253
3	Population 2011 (in Lakh)	31.21	28.1	41.13	30.86	8.17	25.23	13.07	334.06
	Rural	10.25	21.33	22.96	10.14	7.86	8.82	7.98	174.71
	Male	4.88	10.31	10.95	4.85	3.86	4.26	3.88	84.08
	Female	5.36	11.02	12	5.29	4	4.56	4.11	90.63
	Percentage Decadal Growth (2001-2011)	-52	-5.7	-29.8	-43	-4.6	-26.3	-17.7	-25.9
	Urban	20.96	6.77	18.17	20.73	0.32	16.41	5.09	159.35
	Male	9.92	3.28	8.65	9.86	0.15	7.56	2.41	76.19
	Female	11.04	3.49	9.52	10.86	0.16	8.85	2.68	83.16
	Percentage Decadal Growth (2001-2011)	149.7	89.8	410.2	88.2	6.6	35.3	117.8	92.8
	Density	1031	627	1157	1316	384	852	657	860
	Fishermen Population, in number	90306	2534	82044	106613	230	60208	43342	1001625
	SC population as % of Total Population	10.4	14.4	7.5	6.5	4	3.3	4.1	9.1
	ST population as % of Total Population	0.3	1.7	0.6	0.5	18.5	1.6	3.7	1.5
4	Literacy Rate (2011)								
	Male	96.78	93.1	95.76	97.42	92.51	97.19	94.05	96.11
	Female	93.56	85.79	91.62	92.99	85.7	93.29	86.49	92.07
5	Percentage of Dropouts 2021-22 (latest)								
	Lower Primary	0.01	0.03	0.02	0.02	0.02	0.02	0.01	0.03
	Upper Primary	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.02
	High School	0.05	0.07	0.06	0.02	0.18	0.01	0.08	0.05

6	GDVA 2021-22 (Quick) (at constant price)								
	GDVA at Basic Prices (₹ in lakh)	5101154	3647124	4550872	4141763	889283	3573387	1705805	49858853
	Share in Percentage								
	Primary	6.18	11.21	8.92	7.73	19.55	7.77	13.05	9.33
	Secondary	27.91	29.68	19.13	31.07	8.88	32.70	28.71	26.82
	Tertiary	65.91	59.12	71.95	61.20	71.57	59.54	58.24	63.85
7	Production of Rice in Kerala (2021-22) in Tonnes	72574.5	242975.2	31314	2406.3	22807	10783	6098	559336
8	Net Area Irrigated (2021-22) in ha	64190	75573	29558	4785	14766	13425	55939	403235
9	Number of Commercial Banks (March 2022)	756	490	496	467	143	389	223	6593
10	CD ratio	50.47	63.26	52.96	71.48	123.17	52.22	73.46	61.68
11	No. of Registered SSI/MSME 2021-22	1789	1413	1236	1455	284	1275	220	15285
12	Length of PWD Roads (km)	1932.34	2101.84	2375.27	1952.22	856.95	2223.16	1444.34	29522.15
13	No. of Motor Vehicles	1572478	1061724	1428443	1447391	259676	993725	478602	15565149
14	Tourist Arrivals 2022								
	Foreign (in no.)	463	41	553	2074	164	81	146	60487
	Domestic (in no.)	659981	200801	342685	567374	703871	346406	125688	7537617
<i>Note: *open forest included</i>									

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CHAPTER

01

KERALA ECONOMY

KERALA ECONOMY

1.1 RECENT TRENDS IN MACRO-ECONOMIC AGGREGATES: LOOKING AHEAD

Kerala remains the only State to have made a public commitment to continue the planning process. The State economy is on the track of recovery, which is primarily due to the COVID-19 relief policies of State Government along with subsequent supporting policies. Kerala has certainly done well in past, but in recent past, the State faced a number of setbacks due to unprecedented outbreak of natural disasters, such as the Cyclone Ockhi in 2017, and severe floods in 2018 and 2019 and more recent COVID-19 pandemic. The resulting recessionary effects forced the State to reorient its economic strategy. The economic crisis in the Gulf countries and resulted slowdown in the inflow of remittances had also impacted the State economy.

Global Macro Economic Overview

The global economy, which is still suffering from the effects of more than two years of pandemic, is experiencing yet another major negative shock. The conflict in Ukraine has resulted in regional slowdown and global consequences. The negative effects compound the effect of the pandemic, such as bottlenecks in supply chains and significant increases in prices of many commodities. The effects of conflict have also caused a reduction in policy space, which is now more limited than that

at the onset of pandemic. Taken together, the conflict in Ukraine, inflation in energy, food and commodity prices and tightening monetary policy stances by major central banks have significantly weakened global growth prospects. The Global financial conditions have tightened and borrowing costs have increased, particularly in Emerging Market and Developing Economies (EMDEs). In addition, the unwinding of fiscal support measures has continued to weigh down global activity. Against this backdrop, the world economy is expected to experience a sharp slowdown in growth.

According to World Bank estimates, global growth is projected to slow from 5.7 per cent in 2021 to 2.9 per cent in 2022 and average 3 per cent in 2023-24. IMF global growth forecasts a reduction of growth from 6.0 per cent in 2021 to 3.2 per cent in 2022 and further to 2.7 per cent in 2023. This is the weakest growth profile since 2001 other than during global financial crisis of 2008 and the acute phase of the COVID-19 pandemic. Global inflation is forecast to rise from 4.7 per cent in 2021 to 8.8 per cent in 2022, and to decline to 6.5 per cent in 2023 and to 4.1 per cent by 2024. Growth projections by various international agencies are given in the **Table 1.1.1**.

Table 1.1.1 World Economy Growth Forecast by various agencies for 2022 and 2023 (in per cent)

Agency	World Real GDP Growth projections	
	2022	2023
IMF	3.2	2.7
World Bank	2.9	3.0
OECD	3.1	2.2

Source: IMF WEO October 2022 update; OECD Economic Outlook, November 2022; World Bank (Global Economic Prospects)-June 2022

Growth in advanced economies is projected to slow markedly in 2022, to 2.6 per cent, as spillovers associated with the conflict in Ukraine and the growth is expected to moderate further to an average of 2.2 per cent in 2023-24 (World Bank). The growth in US is forecast to slow to 2.5 per cent in 2022, i.e. 1.2 percentage points below previous projections. It is expected to moderate further to an average of 2.4 per cent in 2023-24. This is in account of continued withdrawal of fiscal support and monetary policy tightening weighing further on economic activity. Growth in Euro area is also projected to slow to 2.5 per cent in 2022, as additional supply shocks caused by the conflict in Ukraine weigh on activity. Growth is projected to moderate further to an average of 1.9 per cent in 2023-24, as the European Central Bank tightens monetary policy and lingering repercussions of the conflict in Ukraine continue to weigh on economic activity.

The growth in EMDEs is projected to slow down from 6.6 per cent in 2021 to 3.4 per cent in 2022 and to 4.2 per cent in 2023. This is well before these economies have recovered fully from the pandemic. The Least Developed Countries (LDCs) are most vulnerable to external shocks. As most LDCs are food and oil importers, the rise in global prices and the disruptions of global food supplies will have severe impact on these economies. Growth in LDCs is anticipated to be 4.1 per cent in 2022 and 5.3 per cent in 2023 (World Bank).

India Macroeconomic Overview

India is still recovering from the impact of the COVID-19 pandemic. As per Union Economic Survey 2021-22, the economy is projected to grow between 8.0-8.5 per cent in 2022-23. IMF projects Indian economy to grow at 6.1 per cent in 2022-23 making India the fastest growing major economy in the World.

Table 1.1.2 Growth forecasts for India (In per cent)

Agency	World Real GDP Growth projections	
	2022-23	2023-24
IMF	6.8	6.1
World Bank	7.5	7.1
Economic Survey 2021-22	8.0-8.5	

Source: IMF WEO October 2022 update; Union Economic Survey 2021-22; World Bank (Global Economic Prospects)-June 2022

I. Gross State Domestic Product

Kerala is among the Top States in India with high per-capita Gross State Domestic Product (GSDP) at constant price of ₹1,62,992 in 2021-22, the corresponding national average was ₹1,07,670.

The quick estimate of Gross State Domestic Product (GSDP) at constant (2011-12) prices is ₹5,73,59,146 lakh in 2021-22 as against the provisional estimate of ₹5,12,07,608 lakh in 2020-21. The State grew by 12.01 per cent in 2021-22 compared to (-)8.43 per cent compared to 2020-21 reveals sign of strong recovery. At current prices, the GSDP is estimated at ₹9,06,92,093 lakh (quick estimate) in 2021-22 as against the provisional estimate of ₹7,71,00,866 lakh in 2020-21 registered an increase of 17.63 per cent over the same period last year. Details are given in **Table 1.1.3**.

The GSVA at constant 2011-12 prices increased from (-)9.95 per cent in 2020-21 to 12.09 per cent in 2021-22 primarily indicate the State economy is in a revival phase from the adverse impact of COVID-19 pandemic.

Trends at the National-level

According to data from the Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation (MoSPI), India's Gross National Income (GNI) at 2011-12 prices is estimated at ₹143.00 lakh crore in 2021-22, as against the previous year's estimate of ₹133.68 lakh crore. In terms of growth rates, the Gross National Income has increased (8.5) per cent in 2021-22, compared to (-)7.0 per cent in 2020-21. The Gross Value Added (GVA) at basic constant (2011-12) prices for 2021-22 is estimated at ₹136.05 lakh crore, shows a growth rate of 8.1 per cent over the GVA for 2020-21 at ₹125.85 lakh crore. The GDP at constant (2011-12) prices for 2021-22 is estimated at ₹147.35 lakh crore, a growth of 8.7

Box 1.1.1 Gross State Domestic Product

Kerala economy posted a strong recovery in the Financial Year 2021-22. According to the quick estimate, Gross State Domestic Product (GSDP) at constant prices recorded a robust growth of 12.01 per cent compared to (-)8.43 per cent in 2020-21. This is the highest growth recorded since 2012-13. The GSVA at constant 2011-12 prices increased from (-)9.95 per cent in 2020-21 to 12.09 per cent in 2021-22. As per provisional estimates, the national economy grew by 8.7 per cent in 2021-22.

The Sectoral composition of growth reveals positive impact across sectors. Agriculture and allied sectors registered a very credible growth of 4.64 per cent in 2021-22 compared to 0.24 per cent in 2020-21. This is the highest growth rate recorded since 2012-13. For the same period, the Industry Sector growth increased to 3.87 per cent from (-)2.82 per cent. A standout feature of Kerala's economy is the significant contribution of the services sectors. The sector registered a robust growth of 17.3 per cent in 2021-22 as against (-)14.44 per cent recorded in 2020-21.

The preceding years were unprecedented in many ways. There were extreme weather events: cyclone Ockhi in 2017, and extreme rainfall events followed by floods and mudslides in 2018 and 2019. There was an outbreak of Nipah virus disease in two districts of the State in 2018. There were new stresses on the State economy caused by demonetisation in 2016 and the roll out of GST in 2017. And in Kerala as elsewhere, the crisis associated with the COVID-19 pandemic unsettled the economy as never before. The Centre-State fiscal relation is yet another concern for the State.

In the midst of multiple challenges the Government of Kerala has attained remarkable growth in GSVA in 2021-22. Several factors contributed to this growth. State interventions in the form of counter-cyclical fiscal policies, including two economic packages of ₹20,000 crore announced in March 2020 and June 2021 respectively, have contributed to recovery. Further, in July 2021, a supplementary package of ₹5,650 crore was announced to support small industries. The stimulus packages, along with the proactive policy interventions of the State Government, have helped to augment growth particularly, at a time when economic activities were severely constrained.

Table 1.1.3 State Domestic Product and Per Capita Income of Kerala

	Income (In ₹ lakh)			Growth Rate (%)	
	2019-20	2020-21 (P)	2021-22 (Q)	2020-21 (P)	2021-22 (Q)
Gross State Domestic Product					
a) At Constant (2011-12) prices	55919418	51207608	57359146	-8.43	12.01
b) At Current prices	81293463	77100866	90692093	-5.16	17.63
Net State Domestic Product					
a) At Constant (2011-12) prices	51455269	46464345	52361222	-9.70	12.69
b) At Current prices	72772184	68041366	80506274	-6.50	18.32
Gross State Value Added (GSVA) at basic prices					
a) At Constant (2011-12) prices	49397423	44479985	49858853	-9.95	12.09
b) At Current prices	73019294	68442541	80813309	-6.27	18.07
Per capita GSDP					
a) At Constant (2011-12) prices	160506	146246	162992	-8.88	11.45
b) At Current Prices	233338	220196	257711	-5.63	17.04
Per capita NSDP					
a) At Constant (2011-12) prices	147693	132700	148790	-10.15	12.13
b) At Current prices	208879	194322	228767	-6.97	17.73

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

Table 1.1.4 Gross National Income, Gross Domestic Product and Per Capita income at 2011-12 prices and current prices, all India in ₹ crore

Sl. No	Item	At 2011-12 Prices			At Current Prices		
		2019-20	2020-21	2021-22 (PE)	2019-20	2020-21	2021-22 (PE)
1	Gross Domestic Product (GDP)	14515958	13558473 (-6.6)	14735515 (8.7)	20074856	19800914 (-1.4)	23664637 (19.5)
2	Net Domestic Product (NDP)	12783337	11726198 (-8.3)	12754679 (8.8)	17909710	17460845 (-2.5)	20898019 (19.7)
3	GVA at Basic Prices	1,32,19,476	1,25,85,074 (-4.8)	1,36,05,474 (8.1)	1,83,55,109	1,80,57,810 (-1.6)	2,13,49,399 (18.2)
4	Gross National Income (GNI)	1,43,74,253	1,33,68,279 (-7.0)	1,45,00,812 (8.5)	1,98,81,742	1,95,34,226 (-1.7)	2,32,96,345 (19.3)
5	Net National Income (NNI)	12641633	11536004 (-8.7)	12519976 (8.5)	17716597	17194158 (-2.9)	20529727 (19.4)
6	Per Capita Gross Domestic Product (₹)	108247	100032 (-7.6)	107670 (7.6)	149701	146087 (-2.4)	172913 (18.4)
7	Per Capita Net Domestic Product (₹)	94,270	85110 (-9.7)	91481 (7.5)	132115	126855 (-4.0)	150007 (18.3)

Note: The figures in parenthesis show the percentage change over the previous year.

PE – Provisional Estimate

Source: Central Statistics Office.

per cent over ₹135.58 lakh crore in 2020-21. Details are given in **Table 1.1.4**.

India's GDP at current prices in 2021-22 is estimated at ₹236.64 lakh crore, showing a growth rate of 19.5 per cent over the estimates of GDP for 2020-21 at ₹198.00 lakh crore. India's GVA at current prices is estimated at ₹213.49 lakh crore in 2021-22, compared to ₹180.57 lakh crore in 2020-21, an increase of 18.2 per cent. The per capita GDP in real terms (at 2011-12 prices) in 2021-22 is estimated at ₹1,07,670 as against ₹1,00,032 in 2020-21, registering an increase of 7.6 per cent. The per capita GDP at current prices is estimated at ₹1,72,913 in 2021-22 as against ₹1,46,087 for the previous year, showing a growth of 18.4 per cent.

The details of India's GDP, NDP, GNI and NNI at current and constant (2011-12) prices from 2012-13 to 2021-22 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 sector-wise distribution of GVA at the basic constant (2011-12) prices and current prices with percentage change over the previous year is given in **Appendix 1.1.5** and **1.1.6**.

Sectoral Composition

A standout feature of the State economy is it has the highest share of services in the Gross State Value Added (GSVA) of 63.8 per cent in 2021-22 (QE). Service sector posted a robust growth rate of 17.3 per cent as per the Quick estimate of 2021-22. The rebound in growth in 2021-22 could be attributed to robust growth in service sector in Kerala. Industry sector posted a growth rate of 3.9 per cent as per the Quick estimate of 2021-22. Sub sectors of industry sector such as Manufacturing (3.63 per cent) and construction (2.4 per cent) shown positive growth in 2021-22 (refer to **Appendix 1.1.9**). Increase in growth in construction sector is primarily due to the relaxation of COVID-19 restrictions in service sectors as well as in financial services in 2021-22. Agriculture sector have posted a positive growth since 2020-21 Agriculture sector have posted a growth rate of 4.16 per cent in 2021-22 (Quick Estimate).

In **Table 1.1.5**, the share of service sector in GSVA has increased from 62.8 per cent in 2020-21 to 64.2 per cent in 2021-22, whereas the share has marginally declined for the other two sectors during the same period.

Table 1.1.5 Sector-wise Annual Growth Rate of GSDP, GSVA and Share in GSVA in Kerala (in per cent)

Item	Constant Prices			Current Prices		
	2019-20	2020-21 (P)	2021-22 (Q)	2019-20	2020-21 (P)	2021-22 (Q)
Growth Rate						
GSDP	0.9	-8.4	12.0	3.1	-5.2	17.6
Agriculture and Allied Activities*	-3.9	0.8	4.2	3.8	5.0	6.4
Industry	1.6	-2.8	3.9	0.1	-2.1	17.3
Service Sector	4.5	-14.4	17.3	6.9	-9.8	20.8
GSVA	2.9	-10.0	12.1	4.9	-6.3	18.1
Share in GSVA						
Agriculture and Allied Activities*	9	10	9.3	11.5	12.9	11.6
Industry	26.8	28.9	26.8	23.3	24.3	24.2
Service Sector	64.2	61	63.8	65.2	62.8	64.2

P: Provisional Estimate, Q: Quick Estimate, *Primary sector

Source: Department of Economics and Statistics

To sum up, Kerala's GSVA grew at relatively fast rates during the period from 2016-17 to 2018-19 despite the many setbacks faced by the State and also the growing signs of recession in the national economy. The sectors that contributed to this fast growth are fishing and aquaculture, manufacturing, trade, hotels and restaurants, social services mainly education and health, public services, and professional services. The turnaround in the performance of State public sector units in the chemicals and electrical sector, fresh investments in petroleum refining, and a new impetus to the manufacture of electronic components were some of the highlights of the improved performance of Kerala's industrial sector from 2016-17. However, the COVID-19 pandemic has severely disrupted economic activities in the State pulling down growth rates in 2020-21 is now showing an improvement.

The details of the sectoral distribution of GSVA in the last three years are given in **Appendix 1.1.7** and **1.1.8**. GSDP with percentage change over the previous year during the last three years is given in **Appendix 1.1.9**. Details of GSVA, NSVA at constant and current prices during 2011-12 to 2017-18 are given at **Appendix 1.1.10, 1.1.11, 1.1.12, and 1.1.13**.

Per Capita State Income

Kerala is among the top States in India with high per-capita Gross State Domestic Product (GSDP) of ₹1,62,992 in 2021-22, the corresponding

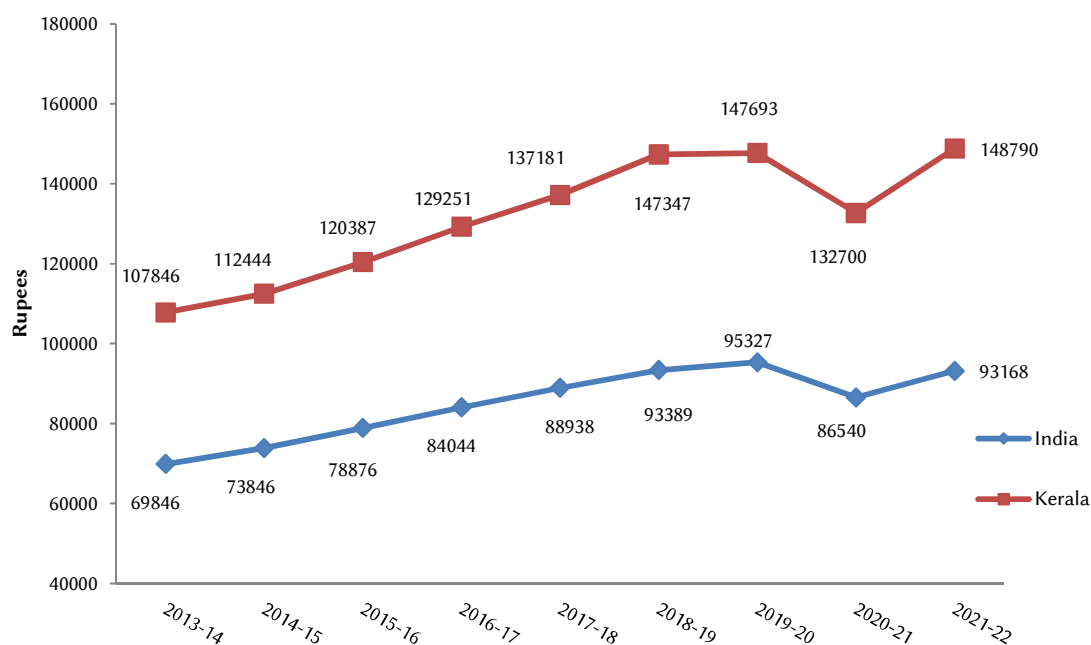
national average was ₹1,07,670. In other words, average income per person in Kerala is slightly more than 1.5 times the Indian average in 2021-22. Kerala, along with Haryana, Karnataka, Telangana, Tamil Nadu, Maharashtra, Gujarat, and, is among the States with the highest incomes per capita in the country.

As per the quick estimates, the per capita GSDP at constant (2011-12) prices in 2021-22 was ₹1,62,992 as against the provisional estimate of ₹1,46,246 in 2020-21, recording a growth rate of 11.45 per cent in 2021-22. At current prices, the per capita GSDP in 2021-22 was ₹2,57,711 registering a growth rate of 17.04 per cent over the previous year's estimate of ₹2,20,196. At constant (2011-12) prices, the quick estimates of per capita NSDP in 2021-22 was ₹1,48,790 as against the provisional estimate of ₹1,32,700 in 2020-21, recording 12.13 per cent growth in 2021-22. **Figure 1.1.1** shows that between 2013-14 and 2021-22, the per capita NSDP at constant prices was higher than the per capita NDP at all India-level.

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. Agriculture and allied activities employed 46.5 per cent of India's total workforce even in 2020-21. However, in Kerala, there has been a large-scale withdrawal of workers from

Figure 1.1.1 Per capita NSDP and per capita NDP at constant 2011-12, prices in ₹



Source: Central Statistics Office and Department of Economics and Statistics
NSDP – Net State Domestic Product, NDP – Net Domestic Product

agriculture over the years, so that it shares in total workforce participation declined to 22.56 per cent in 2020-21. The share of agriculture and allied activities in gross value added was 9.5 per cent and 16.27 per cent respectively in Kerala and India. The share of manufacturing in gross value added was only 13.11 per cent in Kerala compared to 17.86 per cent in India (**Table 1.1.6**).

At the same time, the contribution by construction and the services sectors to the economy are higher in Kerala than in the rest of India. In 2020-21, the share of the construction sector to gross value added was 14.43 per cent and 7.65 per cent respectively in Kerala and India. The services sector accounted for 61.01 per cent of the gross value added and 47.29 per cent of the total workforce of Kerala in 2020-21. At the national-level, the share of the service sector to gross value added and employment were 53.58 per cent and 29.6 per cent respectively (**Table 1.1.6**).

District-wise GSVA

District-wise distribution of GSVA at the basic price at current prices shows that Ernakulam continues to have the highest income of ₹1,05,58,586 lakh in 2021-22 as against

₹89,45,861 lakh in 2020-21, registered a growth of 18.03 per cent. The District-wise GSVA details are given in **Table 1.1.7**.

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 ₹1,91,863 at constant (2011-12) prices in 2021-22 as against ₹1,73,437 in 2020-21. The District-wise per capita income with corresponding rank and growth rate is given in **Table 1.1.8**.

Table 1.1.8 shows that Kottayam, Thiruvananthapuram, Kollam, Alappuzha, Thrissur, Ernakulam, Idukki districts had a higher rate of growth of per capita income than the State average in 2021-22. Kasaragod, Malappuram, Palakkad, Pathanamthitta, Kozhikode, Kannur and Wayanad districts showed lower growth rate of per capita income compared to the State average. District-wise and sectoral distribution of GSVA from 2019-20 to 2021-22 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**.

Table 1.1.6. Shares of different sectors in Gross Value Added and Employment, Kerala and India, 2020-21

Sectors	Shares in Gross Value Added		Shares in employment	
	Kerala (GSVA)	India (GVA)	Kerala	India
Agriculture, livestock, forestry and fishing	9.50	16.27	22.56	46.50
Mining and quarrying	0.52	2.34	0.32	0.30
Primary	10.04	18.61	22.88	46.80
Manufacturing	13.11	17.86	9.82	10.90
Electricity, gas, water supply and other utility services	1.40	2.30	1.68	0.60
Construction	14.43	7.65	12.68	12.10
Secondary	28.95	27.81	24.18	23.60
Trade, repair, hotels and restaurants	14.79	17.07	18.03	12.20
Transport, storage, communication and services related to broadcasting	6.85	1.30	6.50	5.40
Financial, real estate and professional services	24.65	23.54	5.15	2.08
Public Administration and other services	14.72	11.67	15.20	9.92
Tertiary	61.01	53.58	47.29	29.60
	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 in 2020-21 for data on employment.

Table 1.1.7 District-wise distribution of gross State value added

Sl. No	District Name	Gross State Value Added at Basic Price (₹in Lakh)					
		At Current Prices			At Constant Prices		
		2020-21 (P)	2021-22 (Q)	Growth Rate (%)	2020-21 (P)	2021-22 (Q)	Growth Rate (%)
1	Thiruvananthapuram	6564106	7771651	18.40	4250500	4812638	13.23
2	Kollam	6422860	7506331	16.87	4145608	4599803	10.96
3	Pathanamthitta	1961760	2233577	13.86	1225882	1344119	9.65
4	Alappuzha	5507598	6381108	15.86	3661811	3984385	8.81
5	Kottayam	4351862	5090723	16.98	2958868	3255427	10.02
6	Idukki	2406977	2751220	14.30	1421060	1578916	11.11
7	Ernakulam	8945861	10558586	18.03	5999946	6674178	11.24
8	Thrissur	6936459	8206622	18.31	4538437	5101154	12.40
9	Palakkad	5119242	6007069	17.34	3261691	3647124	11.82
10	Malappuram	6181182	7507973	21.47	3893788	4550872	16.88
11	Kozhikode	5656777	6772415	19.72	3676392	4141763	12.66
12	Wayanad	1279161	1535265	20.02	762224	889283	16.67
13	Kannur	4786002	5694430	18.98	3192040	3573387	11.95
14	Kasaragod	2322694	2796339	20.39	1491737	1705805	14.35
	GSVA	68442541	80813309	18.07	44479985	49858853	12.09

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

Table 1.1.8 District-wise per Capita Gross State Value Added at basic price, constant prices, 2011-12

Sl. No.	District	2020-21(P) ₹	Rank	2021-22 (Q) ₹	Rank	Growth Rate (%)
1	Thiruvananthapuram	126261	7	142666	7	12.99
2	Kollam	154460	3	171054	3	10.74
3	Pathanamthitta	105349	12	115858	12	9.98
4	Alappuzha	170663	2	185534	2	8.71
5	Kottayam	148343	4	163037	4	9.91
6	Idukki	130363	6	145107	6	11.31
7	Ernakulam	173437	1	191863	1	10.62
8	Thrissur	138895	5	155365	5	11.86
9	Palakkad	108511	10	120476	10	11.03
10	Malappuram	83980	14	96921	14	15.41
11	Kozhikode	111511	9	124757	9	11.88
12	Wayanad	89255	13	103654	13	16.13
13	Kannur	121078	8	134918	8	11.43
14	Kasaragod	105520	11	119673	11	13.41
State		127032		141679		11.53

P: Provisional, Q: Quick

Source: Department of Economics and Statistics

INFLATION: RECENT TRENDS

Price Trends

Rise in prices is not necessarily unpleasant for the economy. Creeping inflation has positive impact on the overall economy. However, higher inflation creates uncertainty as it reduces the real wage which leads to decline in purchasing power, less saving, lower investment, and lower production and less job creations. An agreed inflation rate by Reserve Bank of India and Central Government under inflation mechanism is the range between two to six per cent with a median rate of four per cent.

The persisting Russia-Ukraine conflict and consequent hike in oil prices followed by multiple waves of COVID-19 pandemic has led to increased levels of inflation across the world. The October update of IMF's World Economic Outlook predicts 8.8 per cent of Global inflation in 2022 and is expected to decline to 6.5 per cent in 2023 and to 4.1 per cent by 2024. The US has hiked the federal interest rate by 75 basis points for four consecutive times till November 2022 to reach 3.75-4 per cent.¹ This increased Federal Rate

prompted capital outflow from emerging countries and consequently, the exchange rates of these countries have been run down. As a result, the imports of inputs became costlier which resulted in rise in the general price-level of these countries. International crude oil prices have exhibited large volatility this year. Brent crude oil prices peaked in mid-June 2022. Continued supply management by OPEC plus countries also raise concerns regarding increase of price.

As a result of these events, Consumer Price Index (CPI) combined in India has consistently been higher than the six per cent upper tolerance threshold set as part of the flexible inflation targeting framework during the first six months of the financial year 2022-23. Retail inflation rate had surged to an eight-year high of 7.79 per cent in April 2022. August and September witnessed resurgence in price rise after a minor relief in July.

In the background of stress, the RBI was forced to adopt contractionary monetary policy. It had consistently raised the short-term lending rate (repo) by 225 basis points from April 2022 to December 2022. The central bank in May raised

¹Various US Federal Open Market Committee press releases

the repo rate by 40 bps, while in June, August and September; it made a revision by hiking it 50 bps each. In December the rate was further increased by 35 bps². As per the Monetary Policy Committee (MPC), the inflation is likely to be above the upper tolerance-level of six per cent throughout the first three quarters of 2022-23.

Based on the National Statistical Office (NSO), India the CPI-combined stood at 7.41 per cent in September 2022. The rate of inflation in rural areas (7.56 per cent) is higher than that of urban areas (7.27 per cent) in September 2022. Retail inflation has remained below the national average in Kerala. In Kerala, inflation based on CPI Combined increased to 6.45 per cent. Inflation is marginally higher in rural areas (6.48 per cent) than in urban areas (6.31 per cent) of the State in September 2022. The CPI based inflation levels of India and Kerala for August and September 2022 are given in **Table 1.1.9**. The inflation rates at India and Kerala for the month of January 2022 to September 2022 are given in **Figure 1.1.2**.

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 increased to 142.61 in 2022 (up to August) from 130.34 in 2021 (Base year 2015-16). There is an overall increase in prices of all crops by 9.41 per cent in 2022 (till August). Prices of food crops as a whole has increased by 16.03 per cent due to rise in prices of cereals, fruits and vegetables and condiments and spices. Among the food crops, the prices of pulses have shown a decrease of 0.06 per cent. Prices of non-food crops as a whole decreased by 3.67 per cent. The prices of commercial crops, beverages and other non-food items under the non-food category have shown an increasing trend. But a sharp decline

(25.09 per cent) in the case of oil seeds have led to an overall decrease in prices of non-food crops. The WPI of agriculture commodities in Kerala 2021-2022 (Base:2015-16=100) are given in **Appendix 1.1.20**.

The month-wise WPI of agricultural commodities in Kerala shows that index of all crops increased to 135.92 in December from 131.25 in January 2021. Within this, the index of food crops increased to 130.58 in December 2021 from 125.69 in January 2021 and the index of non-food items increased to 148.7 from 144.55 in the corresponding period. For the year 2022, the WPI index of all crops increased to 155.26 in August from 133.77 in January. Within this, the index of food crops increased to 161.11 in August 2022 from 130.37 in January 2022 and the index of non-food items decreased marginally to 141.25 from 141.9 in the corresponding period. The month-wise WPI of Agricultural commodities in Kerala from January 2021 to December 2021 (Base 2015-16=100) is given in **Appendix 1.1.21**. The month-wise WPI of Agricultural commodities in Kerala from January 2022 to August 2022 (Base 2015-16=100) is given in **Appendix 1.1.21(i)**.

Consumer Price Index (CPI), Kerala

For Kerala, the annual average CPI (Base year 2011-12) has increased from 174.17 in 2020 to 182.35 in 2021. For the period upto August 2022, the above index further increased to 191.18. The per cent variation in 2021 over 2020 is 4.7 per cent. The highest rate of inflation measured by CPI among the selected centres in 2021 was registered in Palakkad (6.92 per cent) followed by Punalur (5.88 per cent) and Chalakkudy (5.62 per cent). Pathanamthitta at 2.14 per cent registered the lowest rate of inflation among the selected centres. 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 2022 to September 2022 are given in the **Appendix 1.1.23**.

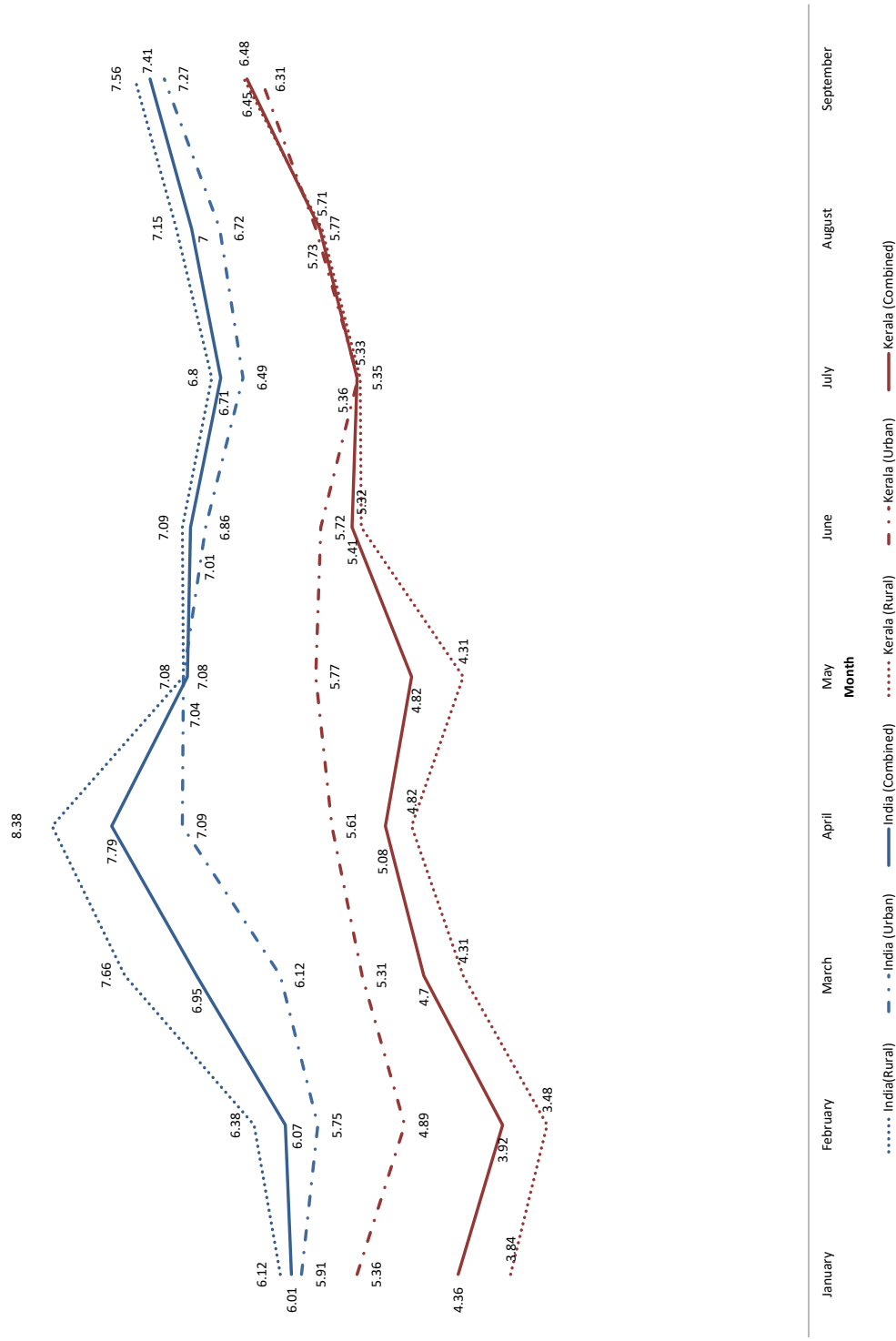
Table 1.1.9 Inflation at, All-India and Kerala, based on Consumer Price Index (General), September 2022 over August 2022, in per cent

Consumer Price Index (General)	September 2022			August 2022		
	Rural	Urban	Combined	Rural	Urban	Combined
India	7.56	7.27	7.41	7.15	6.72	7.00
Kerala	6.48	6.31	6.45	5.71	5.77	5.73

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

²Various Monetary Policy Statements, RBI

Figure 1.1.2 Inflation Rates Current Series (Base 2012) for India and Kerala, General Index (All Groups), January to September 2022, in per cent



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

Parity Index

Parity Index estimates the income and expenditure of the farmers from their cultivation. Cultivation cost has exceeded the revenue of the farmers from 2008-09 onwards. For the year 2021, parity index has been estimated at 55.58 which is lower than that of 2020 (56.50). The index has increased to 57.20 in 2022 (till May). The index of price paid by the farmers was 16,063.42 and the index of prices received by the farmers was only 9,055.50 in 2020. The corresponding indices in 2021 were 16,705.42 and 9,274.58 respectively. Parity index reveals that farmers in the State are distressed. The high cost of farm input, exorbitant transportation cost and steep hike in the wages of labourers are the major reasons for this situation. The yearly average price received and paid by farmers from 2009 to 2022 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 to ₹973.03 in 2021-22 from ₹946.95 in 2020-21. Similarly, the daily wage rates of masons also increased to ₹978.45 in 2021-22 from ₹950.52 in 2020-21. The daily wage rate of a carpenter has increased by 2.75 per cent and that of a mason has increased by 2.94 per cent during the above period. The average daily wage rate of skilled workers in the agriculture sector from 2008-09 to 2021-22 is given in **Appendix 1.1.25**.

The average daily wage rate of male unskilled workers (paddy field workers) in the agricultural sector in 2020-21 was ₹741.89 and that of female unskilled workers was ₹536.68. By 2021-22, the wage rate of male workers has increased by 5.37 per cent and reached ₹781.75. The female workers wage rate has also risen by 7.65 per cent and reached ₹577.73 in 2021-22. The gap between average wage rates of male and female paddy field workers decreased marginally from ₹205.21 in 2020-21 to 204.02 in 2021-22. The average daily wage rate of unskilled workers in the agriculture sector from 2008-09 to 2021-22 is given in **Appendix 1.1.26**.

There is a vast difference between the average daily wage rate of workers in rural Kerala and rest of India. **Table 7.1.4** shows, for instance, according to the data from Labour Bureau on wage rates of male non-agricultural labourers in rural India in

2020-21, that the average wage rate in rural India was ₹315.30 and the average wage rate in rural Kerala is ₹677.60, the highest in the country.

State Interventions

Government of Kerala took various supply side measures to provide universal access to food and essential commodities to the people. The State was the first to announce a substantial programme, much ahead of other States in India and the Central Government to address the anticipated economic impact of the COVID-19 pandemic in the form of ₹20,000 crore package. ₹2,000 crore was disbursed as loans through the Kudumbasree scheme, with the Central Government bearing the interest component. ₹2,000 crore was set aside to provide jobs under the employment guarantee scheme. Further, the State Government allocated ₹14,000 crore to clear all pending payments of the State Government to institutions and individuals. Other measures taken by the State include providing food kits to all categories of people, providing essential commodities at subsidised prices through co-operative institutions, Supply-co and Consumerfed, *Janakeeya* hotels and *Subhiksha* hotels which ensure cooked food at an affordable price. State Government has also been making significant allocations for the Public Distribution System (PSD) which ensures distribution of food grains and essential commodities through ration shops. Prices of thirteen commodities has not increased in the past six years in the Government fair price shops in the State. These interventions of the State Government was crucial in curbing inflation in the State.

1.2 DEMOGRAPHIC PROFILE

Demography

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 2023.

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

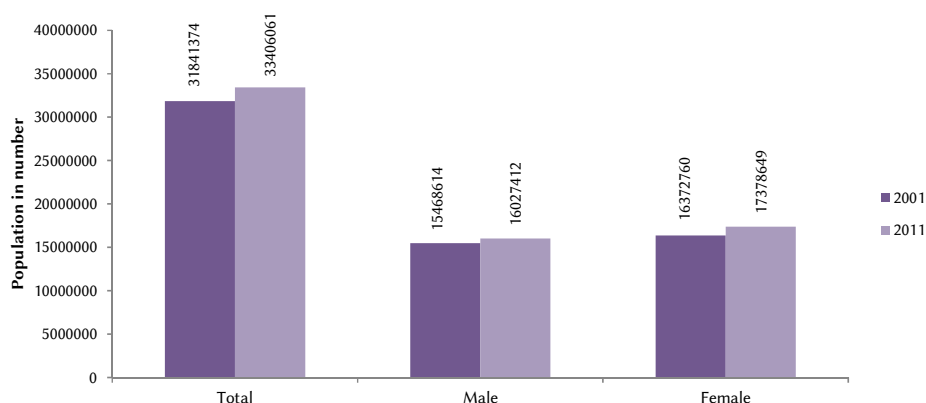
population in the country in 2011 in the age group 0-6 is 16,45,15,253 and the child sex ratio in the age group 0-6 is 918 females per thousand males.

Population Profile of the State

According to the Census of India 2011, the population of Kerala is 33,406,061, constitute 2.76 per cent of India's population. Out of the State's total population, 48 per cent population are males and 52 per cent are females (**Figure 1.2.1**). The rural population is 1,74,71,135 and the urban population is 1,59,34,926. The details are given in **Figure 1.2.2**.

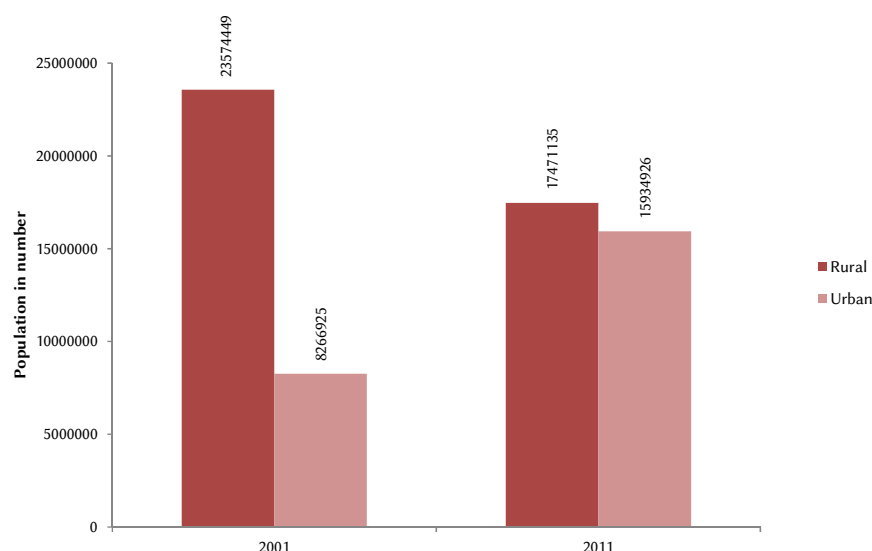
As per the ranking of districts by population size during 2001 and 2011, Malappuram District ranked first in population. The Pathanamthitta District

Figure 1.2.1 Population in Kerala



Source: Census 2001, 2011

Figure 1.2.2 Rural and Urban Population in Kerala



Source: Census 2001, 2011

ranked 11th in 2001 Census and became 12th rank in 2011 Census. Wayanad District has the lowest population growth between 2001 and 2011 Census are given in **Table 1.2.1**.

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

Table 1.2.1 Ranking of Districts by Population Size 2001 and 2011

Rank in 2011	District	Population 2011	Per cent share in total population of the State 2011	Population 2001	Per cent share in population of the State 2001	Rank in 2001
1	2	3	4	5	6	7
1	Malappuram	4,112,920	12.31	3,625,471	11.39	1
2	Thiruvananthapuram	3,301,427	9.88	3,234,356	10.16	2
3	Eranakulam	3,282,388	9.83	3,105,798	9.75	3
4	Thrissur	3,121,200	9.34	2,974,232	9.34	4
5	Kozhikode	3,086,293	9.24	2,879,131	9.04	5
6	Palakkad	2,809,934	8.41	2,617,482	8.22	6
7	Kollam	2,635,375	7.89	2,585,208	8.12	7
8	Kannur	2,523,003	7.55	2,408,956	7.57	8
9	Alappuzha	2,127,789	6.37	2,109,160	6.62	9
10	Kottayam	1,974,551	5.91	1,953,646	6.14	10
11	Kasaragod	1,307,375	3.91	1,204,078	3.78	12
12	Pathanamthitta	1,197,412	3.58	1,234,016	3.88	11
13	Idukki	1,108,974	3.32	1,129,619	3.55	13
14	Wayanad	817,420	2.45	780,619	2.45	14

Source: Census India Report, 2011

Table 1.2.2 Population by religious community Kerala

Religion	2001	per cent	2011	per cent
Hinduism	17,88,3449	56.16	18,282,492	54.73
Islam	7,863,842	24.70	8,873,472	26.56
Christianity	6,057,427	19.02	6,141,269	18.4
Buddhism	2,027	0.01	4752	0.01
Jainism	4,528	0.01	4489	0.01
Sikhism	2,762	0.01	3814	0.01
Other	2,256	0.01	7618	0.02
Not stated	25,083	0.08	88,155	0.26
Total	31,841,374	100	33,406,061	100

Source: Census tables, 2001 and 2011, www.censusindia.gov.in

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 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. 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 of the Economics and Statistics Department, the crude death rate for the year 2020 was 7.17 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 is

5.13 for the year 2020, whereas it was 7.42 for the year 2010. The corresponding figure in Sample Registration System 2020 is 6.0. 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 is 14 for the year 2020 where as it was 30 for the year 2010. The corresponding figure in Sample Registration System 2020 is 19. All the indicators show a decreasing trend. Details are given in **Appendix 1.2.3**.

Religion

According to the 2011 Census, Hindus constitutes 54.7 per cent of Kerala's population, followed by Muslims with 26.6 per cent of the population and Christians in third place with 18.4 per cent of the population.

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**.

Table 1.2.3 Literacy Rate of Kerala (1951-2011)

Year	Male	Female	Total
1	2	3	4
1951	58.35	36.43	47.18
1961	64.89	45.56	55.08
1971	77.13	62.53	69.75
1981	84.56	73.36	78.85
1991	93.62	86.17	89.81
2001	94.24	87.72	90.86
2011	96.02	91.98	93.91

Source: Census Report, 2011

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

Table 1.2.4 District-wise Distribution of the Population in Different Age Groups-2011

Sl. 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	42,27,879	23.4	63.9	12.7

Source: Census 2011

(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 1.2.4**. The State has 63.9 per cent of its population in the working age group of 15-59, 23.4 per cent and 12.7 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.

Urbanisation

Urbanisation is regarded as an impetus to development. It is the transformation of a rural area to 'urban', and the growth trend by which human settlements turn 'urban'. In India, out of the total population of 1210 million, about 377 million are in urban areas, as on March 1, 2011. Further, the number of million-plus cities/urban agglomerations (UA) has increased from 35 in Census 2001 to 53 in Census 2011. By 2031, it is projected that there will be six cities with more than 10 million population. At current rates of growth, urban population in India will reach a staggering total of 575 million by 2030.

In 1901, Travancore, Cochin, and Malabar combined had a population of 6.4 million, of which 5.9 million (92.2 per cent) were living in rural areas. The urban population accounted for only half a million, estimated as less than 10 per cent of the total population. Over a period of hundred years, the share of rural population has undergone a steady decline, and was 74 per cent of total population in 2001. Significantly, in 2011 Census, the population of the State was almost equally divided between rural and urban areas. The State has now an urban population of 15.9 million, 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 the fourth most urbanised State in India, and is regarded as the fastest urbanising State. The District which has the highest proportion of urban population to total population is Ernakulam (68.1 per cent), and the lowest is 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 – 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. As land is scarce in Kerala, increased urbanisation is at the cost of ecological and agricultural land.

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 located 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 are becoming more and more of a challenge for the State. On the other hand, urbanisation presents a significant opportunity for economic development. Proper institutional coordination mechanisms in urban areas are essential to make the most of this.

1.3 INDICATORS OF POVERTY

COVID-19 marked the end of a phase of global progress in poverty reduction. During the three decades that preceded its arrival, more than 1 billion people escaped extreme poverty. The incomes of the poorest nations gained ground. By 2015, the global extreme-poverty rate had been cut by more than half. Since then, poverty reduction has slowed in tandem with subdued global economic growth. The economic upheavals brought on by COVID-19 and later the war in Ukraine produced an outright reversal in progress. It became clear that the global goal of ending extreme poverty by 2030 would not be achieved. Given current trends, 574 million people-nearly seven per cent of the world's population-will still be living on less than US \$2.15 a day in 2030, with most in Africa. (Poverty and Shared Prosperity-Correcting Course, 2022, World Bank)

The report of the World Bank on the detrimental impact of COVID-19 pandemic on poverty levels states that in 2020 alone, the number of people living below the extreme poverty line rose by over 70 million; the largest one-year increase since global poverty monitoring began in 1990. It also points out that the impact of the pandemic has been deepest for the poorest. Income losses of the poorest 40 per cent of world's population were twice as high as those of the richest 20 per cent, hinting at a rise in the global inequality rates as well.

The pandemic has had its impact on poverty levels in India too. According to the report, Indians account for 80 per cent of those who became poor globally in 2020 due to COVID-19. It is estimated that 56 million Indians additionally slipped into

poverty in 2020. Barring the COVID period, 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 (**Table 1.3.1**) 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. However, 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 has 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 is estimated to be 11.3 per cent in 2011-12. The details of absolute poverty ratio (GoI, 2014) in Kerala and at all India-level from 1973-74 to 2011-12 are given in **Table 1.3.1**.

Table 1.3.1 Proportion of Poor in India and in Kerala, 1973-74 to 2011-12

Year	Kerala			India		
	Rural	Urban	Total	Rural	Urban	Total
1973-74	59.19	62.74	59.79	56.44	49.01	54.88
1977-78	51.48	55.62	52.22	53.07	45.24	51.32
1983	39.03	45.68	40.42	45.65	40.79	44.48
1987-88	29.10	40.33	31.79	39.09	38.20	38.86
1993-94	25.76	24.55	25.43	37.27	32.36	35.97
1999-00	9.38	20.27	12.72	27.09	23.62	26.10
2004-05	13.2	20.2	15.0	28.3	25.7	27.5
Rangarajan Committee Estimates						
2009-10	9.7	23.7	16.0	39.6	35.1	38.2
2011-12	7.3	15.3	11.3	30.9	26.4	29.5

Source: Planning Commission, GoI, 2014 (Lakdawala Methodology is used from 1973-74 to 2004-05)

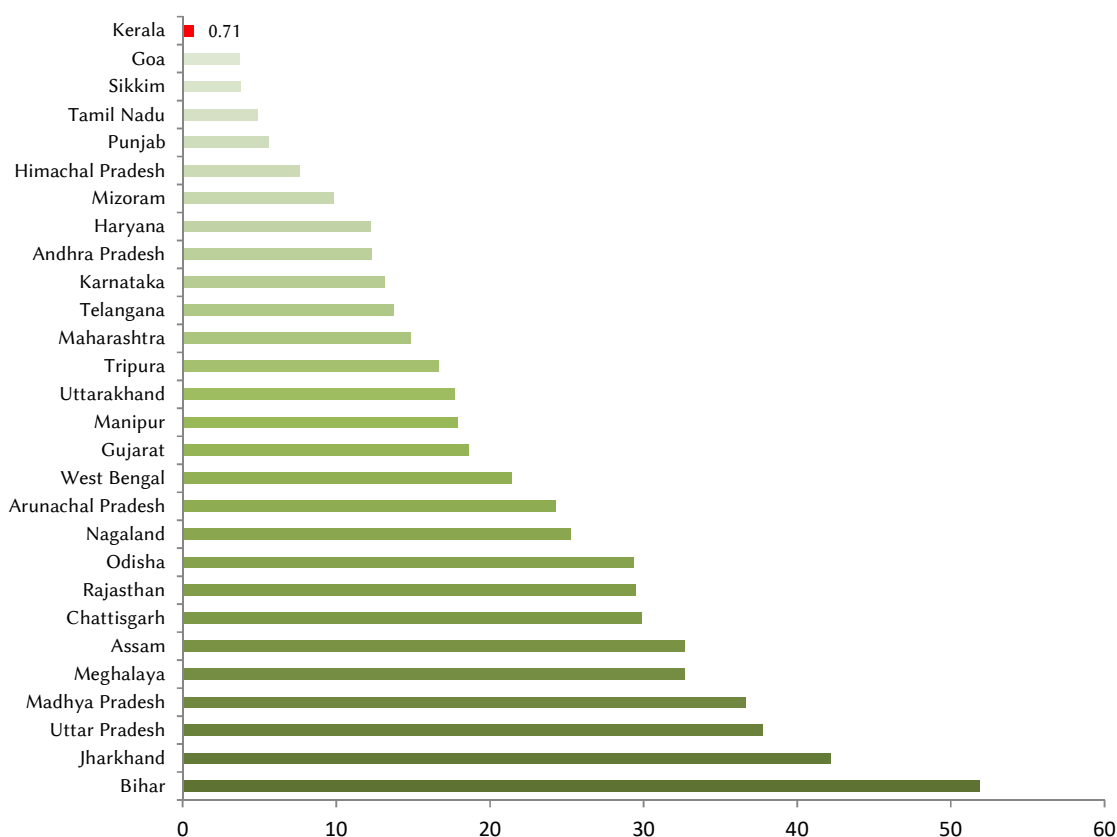
Kerala has substantially reduced both rural and urban poverty. During the period from 1973-74 to 2011-12, rural and urban poverty ratios in Kerala declined from 59.19 per cent to 7.3 per cent and from 62.74 per cent to 15.3 per cent, respectively. The challenge before Kerala is to bring it down further and continue the programmes which have made this achievement possible.

According to the Socio-Economic and Caste Census (SECC), 2011 conducted by Government of India (GoI) which ranks households based on their socio-economic status, out of the 76.99 lakh households in Kerala, 63.19 lakh (82.08 per cent) live in rural areas. Of this, 10.32 per cent are SC households and 1.63 per cent are ST households. Out of the total rural households, 19.16 lakh (30.33 per cent) rural households are deprived. SECC estimates a deprivation index based on seven criteria. The highest deprivation rate was found to be in Palakkad (42.33 per cent) followed by Thiruvananthapuram (38.36 per cent) and Wayanad (36.33 per cent) districts. Lowest deprivation was observed in Ernakulam (20.30 per cent), Kottayam (23.02 per cent), and Kannur (24.25 per cent). Out of the total rural SC and ST households, 57.66 per cent of SC households and 61.68 per cent of ST households were found to be included under the deprived category. District-wise details of the proportion of deprived rural households in Kerala against their total number of rural household across different categories are given in **Appendix 1.3.1**.

While considering the different indicator-wise deprivation rates among the rural households in Kerala, the highest deprivation was recorded among 'landless households deriving major part of their income from manual casual labour' (18.86 per cent), followed by 'SC/ST household' (7.11 per cent) and 'female-headed households with no adult male member between age 16 to 59' (3.65 per cent), respectively. Deprivation was found to be low in families with 'disabled member and no able-bodied adult member' (0.19 per cent), 'only one room with kucha walls and kucha roof' (1.43 per cent), and 'no literate adult above 25 years' (1.81 per cent). District-wise details of the per cent of deprived rural households based on the deprivation index are given in **Appendix 1.3.2**.

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). 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 concerning child and adolescent mortality (0.19 per cent), maternal health (1.73 per cent), years of schooling (1.78 per cent), school attendance (0.3 per cent), and sanitation (1.86). Very few households were found to be deprived in the parameters of nutrition, cooking fuel, sanitation,

Figure 1.3.1 Percentage of Population who are Multi Dimensional Poor



Source: National MPI Report 2021, NITI Ayog

drinking water, electricity, housing, assets and bank accounts. Among Districts, Kottayam was the best performer with zero per cent multi dimensionally poor. Wayanad with 3.48 per cent has the highest percentage of multidimensional poverty. The unwavering commitment of the State towards social and economic upliftment of the poor is evident in the MPI index.

Though Kerala is better off than most other States in India in terms of average poverty estimates, there are still several pockets of deprivation in the State. Poverty in Kerala is mainly found among the marginalised social categories, and groups such as SC, ST and fisher-folk. 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 Governments and State departments like SC, ST, Fisheries etc. to address the issues of deprivation and abject poverty among marginalised communities and other categories. These isolated islands of extreme poverty in the

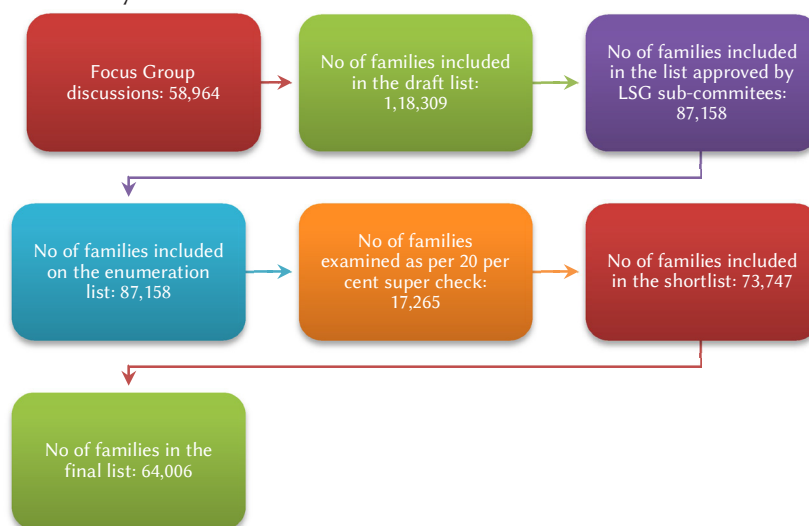
society also must be identified and eradicated. It was with this objective that the Government launched a comprehensive programme to eradicate extreme poverty through pointed interventions by Local Governments and various development departments.

Extreme Poverty Identification Process

Kerala initiated the drive to eradicate extreme poverty from the State with a State-wide survey to identify extremely poor households on the basis of four key deprivation categories – lack of food, income, health and shelter. The Commissionerate of Rural Development was the nodal Department for conducting the survey. It targeted households not previously covered under the Ashraya programme (States' programme for identification of the destitute, which had 1.57 lakh beneficiaries)

After an extensive multi-stage identification process, 64,006 extremely poor families (1,03,099 individuals) have been identified in the State. The Extreme Poverty Identification Process (EPIP)

Figure 1.3.2 Extreme Poverty Identification Process

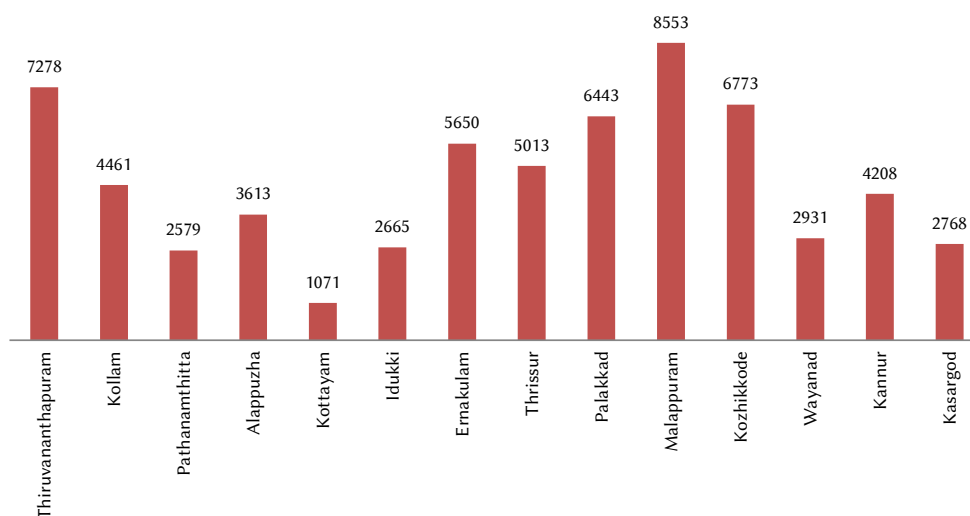


Source: EPIP State Cell, Commissionerate of Rural Development

began with nomination of 1,18,309 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 scrutinised by Grama Sabhas for a further round of elimination of ineligible households, and the final list of 64,006 households was drawn up.

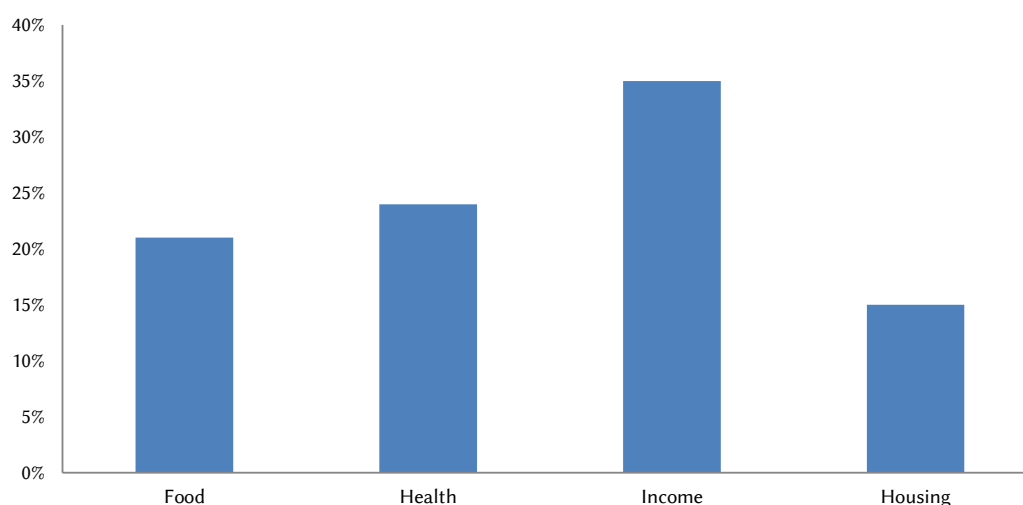
Out of the 64,006 identified families 75 per cent belonged to the general category, 20 per cent to Scheduled Caste, and five per cent belonged to Scheduled Tribe categories. A small percentage of people did not know which category they belonged to. The survey data also showed that 81 per cent of the extreme poor are in Grama Panchayats, 15 per cent in Municipalities, and 4 per cent in Municipal Corporations, indicating a larger concentration in rural areas District-wise analysis showed that Malappuram with 8,553 families topped the list, accounting for 13.4 per cent of the extreme poor in the State. Thiruvananthapuram followed with 11.4 per cent. Kottayam has the least number of extreme poor in the State (1,071 families).

Figure 1.3.3 District-wise break up of no: of extreme poor families identified in the State.



Source: EPIP State Cell, Commissionerate of Rural Development

Figure 1.3.4 Disaggregated list of Deprivation categories



Source: EPIP State Cell, Commissionerate of Rural Development

As previously mentioned, EPIP was to identify the extreme poor in the State, and was based on four major deprivation categories – food, health, income and shelter. It was seen that 35 per cent households face income deprivation, 24 per cent experience health-related issues, 21 per cent encounter deprivation of food, and 15 per cent are deprived of shelter. 3 per cent belong to other vulnerable categories. Special categories and vulnerable groups were also considered as secondary deprivation categories. It is to be noted that there will be overlap between these categories, and say: one person could experience deprivation under multiple categories.

The next step to wipe out extreme poverty from the State in the next four years was to prepare an Extreme Poverty Sub Plan. The programme will be implemented and monitored by Local Governments with the support of the State Poverty Eradication Mission – Kudumbashree Mission. The identified deprivations will be addressed by Local Governments through Micro-level plans – one micro plan per family. These are prepared after collecting additional details of the families in addition to those previously collected in the EPIP survey.

The contents of the plan can be divided into three sections:

1. Immediate care plan
2. Intermediate Plan
3. Longterm 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 Local Government has to prepare a long term comprehensive plan. After undertaking the projects to be covered under immediate care plan like provision of aadhar card, ration card, emergency medical care and the like, Local Governments are now in the process of preparing the intermediate and long term comprehensive plan in consultation with the families identified as extreme poor.

An important factor contributing to the success of the EPIP process has been the innovative programme management style. The concerted efforts by all Local Governments, under the exemplary leadership of the State Government contributed to the successful completion of the process in just six months. The local political leadership owned the process, and a large number of volunteers stepped up. Extreme Poverty Identification Process is the very first step of a mammoth task. It is the responsibility of the Local Governments to prepare individual micro plans for each identified household and provide suitable survival as well as livelihood opportunities to them.

1.4 ROLE OF FINANCIAL INSTITUTIONS IN DEVELOPMENT INITIATIVES

Financial institutions serve as intermediaries that facilitate the flow of funds between those who want to save and those who invest in productive assets. Globally, there has been a shift towards an 'inclusive financial sector'. This means that the vast majority of the population is offered sustainable access to a range of financial services suited to their needs. If the poor are to benefit from development, they too will need access to financial services. With the world glaring at another low growth phase as predicted by World Bank and IMF, the role of financial institutions has increased further.

Spread of Banking – India and State-level

As per RBI Quarterly Statistics, 136 scheduled commercial banks (SCBs) are operating in India through a network of 1,51,320 bank branches at the end of March 2022. Among these bank branches, 53,069 branches are in rural area, 42,532 are in semi-urban area, 27,641 are in urban area and the remaining 28,078 branches are operating in Metropolitan cities. Uttar Pradesh has the largest number of bank branches (17,686) followed by Maharashtra (13,220) and Tamil Nadu (11,781). Kerala has 6,593 scheduled commercial bank branches which is 4.36 per cent of the total bank branches in India. According to the RBI data, the number of bank branches in Kerala shows a decrease of 0.66 per cent in March 2022 when compared with the previous year. According to the State Level Bankers' Committee (SLBC), Kerala

has 7,622 bank branches as on March 2022, which includes commercial banks, regional rural banks, small finance banks and co-operative banks. Of the total number of 7,622 bank branches in Kerala, 12.14 per cent branches are in rural area, 66.37 per cent branches are in semi urban area and 21.49 per cent branches are in urban area. Kerala has the largest number of bank branches among the semi-urban areas in the country as per the RBI data. (**Appendix 1.4.1**). The group-wise branch network in Kerala as on March 2022 according to SLBC Report is shown in the **Table 1.4.1**.

As per SLBC report, Kerala has a total of 6,330 scheduled commercial bank branches (which includes only public sector commercial banks, regional rural banks and private sector commercial banks) in March 2022 as against 6,319 bank branches in March 2021, which shows an increase of 11 branches in March 2022. The total number of branches of Kerala Gramin Bank is 634 as on March 2022 which is same as that of previous year's. There are 294 small finance banks and 998 co-operative banks in Kerala as on March 2022.

Deposits

As per RBI data, the total deposits in the country shows an increase of 10.21 per cent at the end of March 2022 over the previous year. But the growth rate of deposits decreased from 12.3 per cent to 10.21 per cent in March 2022. In Kerala, there

Table 1.4.1 Banking Group-wise Branch Network in Kerala, 2022

Sl. No.	Banking Group	Number of Branches			
		Rural	Semi-urban	Urban	Total
1	Public Sector Commercial Banks	142	2331	832	3305
2	Regional Rural Bank – Kerala Gramin Bank	53	542	39	634
3	Private Sector Commercial Banks	127	1671	593	2391
4	Small Finance Banks	147	111	36	294
5	Co-Operative Banks*	456	404	138	998
	Total	925	5059	1638	7622

*includes branches under Kerala Bank

Source: State Level Bankers' Committee Report, Kerala, March 2022

is an increase of 9.75 per cent in the total bank deposits in March 2022 as compared to March 2021. As on March 2022, the total deposits in the scheduled commercial banks in the country is ₹1,70,15,931 crore whereas it was ₹1,54,39,970 crore in March 2021. The share of deposits in scheduled commercial banks in Kerala to total deposits in the country as on March 2022 is 3.94 per cent. Maharashtra has the highest share of deposits (20.57 per cent) in the country (**Appendix 1.4.2**). In metropolitan areas the growth rate of aggregate deposits decreased from 14.9 per cent in March 2021 to 11.6 per cent in March 2022 and in rural areas it shows an increase from 6.9 per cent in March 2021 to 7.6 per cent in March 2022. In public sector banks, the growth rate of aggregate deposits decreased to 8.0 per cent in March 2022 from 10.4 per cent in March 2021; while in small finance banks the aggregate deposits shows a growth rate of 37.3 per cent in March 2022 from 25.6 per cent in March 2021, as per RBI report. Among the bank groups the growth of aggregate deposits in small finance banks is at a faster pace and in regional rural banks, the growth is slow (5.7 per cent).

The total bank deposits (including deposits of commercial banks, regional rural banks and small finance banks) in Kerala as on March 2022 is ₹6,66,220 crore as against ₹6,05,914 crore in March 2021 as per the SLBC data. However, the annual growth rate of total deposits in Kerala showed a decline from 11.31 per cent in March 2021 to 9.95 per cent in March 2022 as per the SLBC report. The growth of bank deposits in

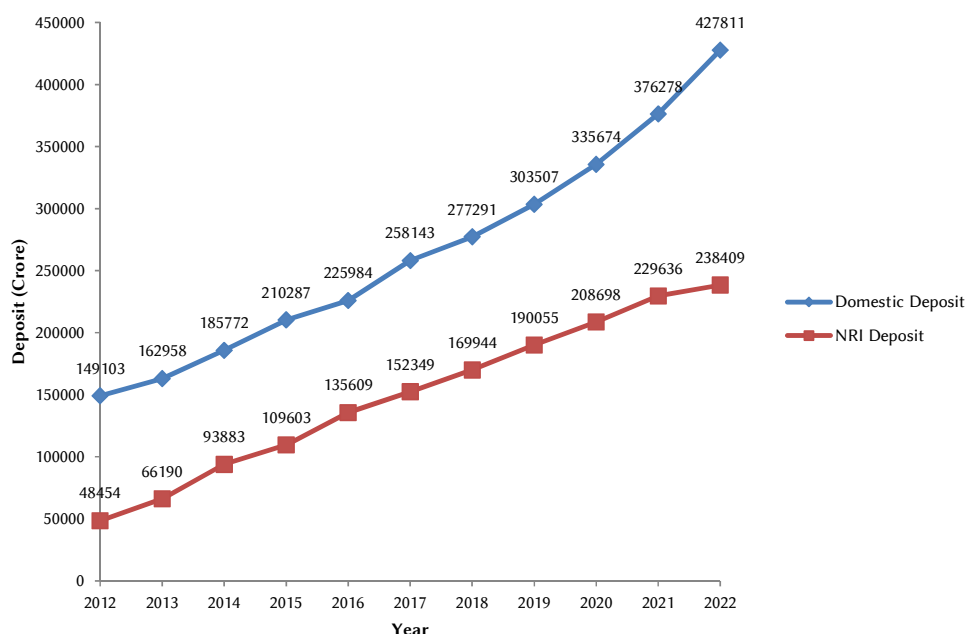
Kerala for the period from 2012-2022 is given in **Appendix 1.4.3**.

Domestic Deposits and NRI Deposits

The total bank deposit in Kerala comprises ₹4,27,811 crore as domestic deposits (64.21 per cent of total deposits) and ₹2,38,409 crore (35.79 per cent) as NRI deposits in March 2022 whereas it was ₹3,76,278 crore and ₹2,29,636 crore respectively in March 2021 as per the SLBC data. The annual growth rate of total domestic deposit in March 2022 is 13.70 per cent which is higher than that in the previous year. The total NRI deposits in the State in March 2022 showed only a marginal increase of 3.82 per cent. In the previous year it was more than 10 per cent. The growth of bank deposits in Kerala (domestic and NRI) from 2012-22 is shown in **Figure 1.4.1**.

According to SLBC data, total NRI deposit of public sector banks as on March 2022 is ₹1,08,971.40 crore which is 45.71 per cent of total NRI deposits. Whereas the private sector banks have NRI deposits of ₹1,25,076.47 crore i.e., 52.46 per cent of total NRI deposits. In the previous year it was 45.83 per cent and 52.60 per cent respectively. The SFBs received ₹2,552.01 crore as NRI deposits in March 2022 which is 1.07 per cent of the total NRI deposits. Similarly, RRBs received ₹1,808.68 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 2022 are given in **Appendix 1.4.4**.

Figure 1.4.1 Growth of Bank Deposit in Kerala (Domestic and NRI) from 2012-2022, in ₹ crore



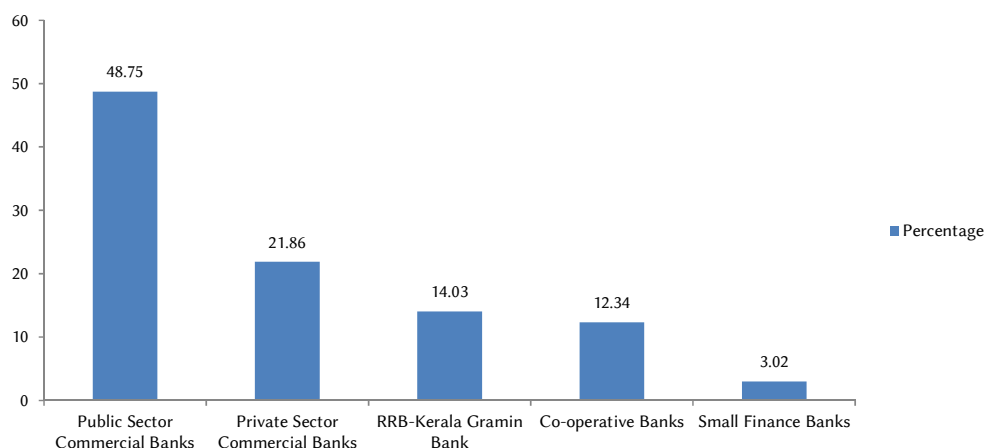
Source: State Level Bankers' Committee Report, Kerala March 2022

Advances

As per SLBC data, in March 2022, ₹4,78,657.12 crore was disbursed as advances in the State by commercial banks and co-operative banks compared to ₹4,43,554.33 crore as advances in March 2021 which is 7.91 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 ₹4,24,625.73 crore at the end of March 2022 as

compared to ₹3,92,669.16 crore as advances at the end of March 2021. Out of this, the advances of public sector commercial banks, private sector commercial banks, RRBs and small finance banks were ₹2,32,866.27 crore, ₹1,66,524.59 crore, ₹19,276.34 crore, and ₹5,958.53 crore respectively. There is an increase of 7 per cent in Priority Sector Advance (PSA) as compared to previous year. Public sector commercial banks disbursed 48.75 per cent of their advances to primary sector, which is higher than that of previous year (44.54

Figure 1.4.2 Share of Primary Sector Disbursement as on March 2022



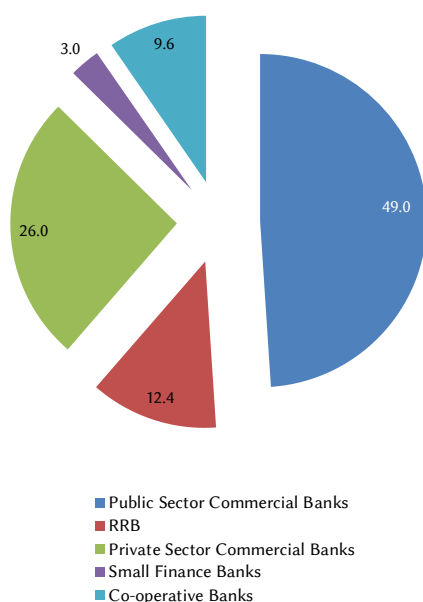
Source: SLBC Report, March 2022

per cent) and Co-operative banks disbursed only 12.34 per cent of their advances to primary sector. In the previous year it was 20.30 per cent. Kerala Gramin Bank has a share of 14.03 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 quarterly 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 ₹1,04,841.94 crore in March 2022 from ₹95,676 crore in March 2021, registered a growth of 9.6 per cent. The share of agricultural advance to total advances remains as same as 22 per cent in March 2022. Share of agricultural advances of various banks as on March 2022 is shown in **Figure 1.4.3**.

Figure 1.4.3 Share of Agricultural Advances by various banks in Kerala as on March 2022



Source: SLBC Report, March 2022

Advances to SCs/STs and Weaker Section

As on March 2022, an amount of ₹2,335.98 crore and ₹398.72 crore were disbursed to persons belonging to Scheduled Castes (SC) and Scheduled Tribes (ST) respectively in the State by various banks as against ₹5,354.1 crore and ₹1,205.7 crore in March 2021. The SLBC report shows that advances provided to SCs and STs by banks

decreased by 56.37 per cent among SCs and 66.93 per cent among STs as compared to previous year. Amount disbursed to weaker sections in the State shows an increase of 16.97 per cent as compared with previous year. The amount disbursed in March 2022, was ₹1,01,759.09 crore which was ₹86,995 crore in the previous year. The group-wise advances 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 ₹41,842.51 crore to 7,52,631 beneficiaries as housing loan as on March 2022 against ₹39,507 crore to 7,11,356 beneficiaries in March 2021. There is an increase of 5.91 per cent in the total housing loan sanctioned compared to March 2021. Public sector banks disbursed ₹23,864.67 crore to 3,07,988 beneficiaries, RRBs disbursed ₹3,152.28 crore to 60,928 beneficiaries, private sector commercial banks disbursed ₹5,899.12 crore to 98,472 beneficiaries, small finance banks disbursed ₹129.90 crore to 4,791 beneficiaries and co-operative banks disbursed ₹8,796.55 crore to 2,80,452 beneficiaries during the review period. Public sector commercial banks disbursed major share of housing loans (57 per cent) followed by co-operative banks (21 per cent).

Educational Loan

In the State, ₹11,129.03 crore was sanctioned as educational loan for 2,95,717 students as on March 2022. The total amount sanctioned showed an increase of 3.62 per cent but the number of students decreased by 15.16 per cent compared to previous year. The public sector commercial banks disbursed 84 per cent of the total educational loan provided i.e., ₹9,335.49 crore to 2,20,795 students. RRBs disbursed ₹517.61 crore to 17,455 students and private sector commercial banks disbursed ₹1,157.73 crore to 31,414 students. The SFBs disbursed ₹49.84 crore to 23,810 students. Co-operative banks disbursed ₹68.36 crore to 2,243 students in March 2022.

Credit-Deposit Ratio

The quarterly statistics of RBI showed that the Credit-Deposit (CD) ratio of scheduled commercial banks in India slightly increased from 71.47 per cent to 71.87 per cent at the end of March 2022. Andhra Pradesh has the highest CD ratio, 138.78 in March 2022. Tamil Nadu (101.58 per cent) has the second highest CD ratio,

Table 1.4.2 Details of SC/ST Advances by various banks, Kerala, as on March 2022, in ₹ crore

Sl. No.	Bank	SC Advances 2022		ST Advances 2022		SC Advances 2021		ST Advances 2021		Percentage increase or decrease in advances to SC in 2022 compared to 2021	Percentage increase or decrease in advances to ST in 2022 compared to 2021
		Number	Amount	Number	Amount	Number	Amount	Number	Amount		
1	Public Sector Commercial Banks	53735	979.95	10161	193.53	163643	3164.92	34140	706.63	-69.04	-72.61
2	RRB	49015	381.99	11482	67.68	37264	271.15	20065	146	40.88	-53.64
3	Private Sector Commercial Banks	127103	356.17	28977	74.71	252138	693	66701	144.18	-48.60	-48.18
4	Small Finance Banks	13233	40.94	4151	14.82	152042	374.27	58641	147.07	-89.06	-89.92
5	Co-Operative Banks	23615	576.93	3008	47.98	35462	850.71	7759	61.82	-32.18	-22.39
	Total banking sector	266701	2335.98	57779	398.72	640549	5354.05	187306	1205.7	-56.37	-66.93

Source: State Level Bankers' Committee Report, Kerala, March 2022

which remains same as that in the previous year. Maharashtra showed a declining trend in the CD ratio i.e., from 94.83 per cent in March 2021 to 90.91 per cent in March 2022. Telangana also have a high CD ratio (96.96 per cent) when compared to other States. In 2021 also, Andhra Pradesh had the highest CD ratio.

As per RBI report, the CD ratio of scheduled commercial banks in Kerala as on March 2022 is 61.68 per cent (**Appendix 1.4.6**). The total deposits in scheduled commercial banks in Kerala increased by 9.75 per cent i.e., ₹6,70,023 crore as on March 2022 from ₹6,10,519 crore in March 2021. Total credit also increased by 10.04 per cent i.e., ₹4,13,288 crore as on March 2022 from ₹3,75,588 crore in March 2021. As per SLBC data, all banks in Kerala including co-operative banks, the CD ratio as on March 2022 is 64.59 per cent.

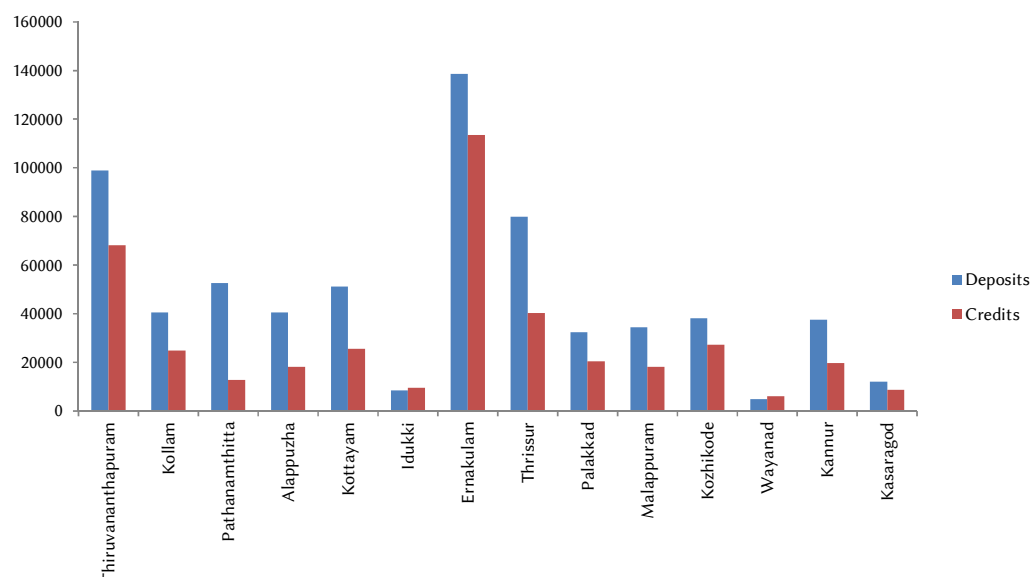
The CD Ratio of public sector banks in India remained the same as 65 per cent in March 2022. The highest CD Ratio among public sector banks is in Andhra Pradesh which increased to 145.62 per cent in March 2022 from 136.20 per cent in March 2021. Telangana has the second highest

CD ratio of 105.62 per cent in March 2022 which increased from 95.10 per cent in March 2021. Tamil Nadu which was in second place in March 2021(103.05 per cent) showed a decrease in March 2022 (99.76 per cent). The CD Ratio of public sector banks in Kerala increased from 64.74 per cent as on March 2021 to 65.85 per cent in March 2022. (**Appendix 1.4.7**). Among the public sector banks in Kerala, State Bank of India has the major share of deposits (57.70 per cent) but as in March 2022 it's CD ratio is 48.48 per cent which is lowest in the bank group.

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; but the number of bank branches decreased to 1,008 in March 2022 from 1,013 in March 2021. Thrissur (756) and Thiruvananthapuram (742) are in second and third places respectively. Wayanad, which has the lowest number of bank branches, showed a decrease in the number of branches, from 147 to 143 (**Appendix 1.4.8**). District-wise distribution of deposits and credit of scheduled commercial banks in Kerala as on March 2022 is shown in **Figure 1.4.4**.

Figure 1.4.4 District-wise Distribution of Deposits and Credit of Scheduled Commercial Banks in Kerala as on March 2022.



Source: RBI – Quarterly statistics on Deposits and Credit of Scheduled Commercial Banks, March 2022

Co-operative Banking Sector in Kerala

Co-operative banks play a vital role in the development of Kerala. As per SLBC report 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 2022. Of the

total 998 branches, 456 are in rural area, 404 are in semi-urban area and 138 are in urban area.

The total deposits of commercial banks, RRBs, SFBs and co-operative banks as on March 2022 was ₹7,41,122 crore, of which 10 per cent is from

Table 1.4.3 Performance of Co-operative Sector, in Kerala, March 2022, in ₹ crore

Sl. No.	Parameter	As on March 2022			Share of co-operative to Total banking sector (%)
		Co-operative Sector	Commercial Banks+ RRBs + SFBs	Total banking sector	
1	Branches	998	6622	7622	13
2	Total Deposits	74902	666220	741122	10
3	Total Advances	54031	424626	478657	11
4	Total Business	128933	1090846	1219779	11
5	Priority sector advances	34704	203194	237898	14
6	% Priority sector advances	64%	48%	50%	-
7	Agriculture advances	10094	94748	104842	10
8	% Agriculture advances	19%	22%	22%	-
9	MSME Advances	3004	64957	67961	4
10	% MSME Advances	6%	15%	14%	-
11	CD Ratio	72.14%	63.74%	64.59%	-

Source: State Level Bankers' Committee, Kerala 2022

co-operative sector. The share of co-operative banks in the total business (deposits and advances together) is 11 per cent which remains the same as that of previous year. The total advances from both commercial banks and co-operatives in the State was ₹4,78,657 crore in March 2022, of which, the share of co-operatives is ₹54,031 crore. The total agricultural advances from commercial and co-operative banks in the State as on March 2022 was ₹1,04,842 crore and the share of co-operatives is ₹10,094 crore. The per cent share of co-operatives in the agricultural advances shows an increase to 10 per cent in March 2022 from nine per cent in March 2021. Co-operative banks provide 64 per cent of their advances to the priority sector and 6 per cent to the MSME sector. The performance of Co-operatives in the banking sector 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 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 2022 is ₹59,323 crore. The business transaction of KSFE in 2021-22 is shown in **Table 1.4.4**.

Table 1.4.4 Business transactions of KSFE in 2021-22

Sl. No	Particulars	Amount (₹ crore)
1	Chitty (yearly sala)	30688
2	Advances (o/s)	9115
3	Deposits (o/s)	19520
	Aggregate Turnover	59,323

Source: Report from 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. Net profit of KFC has increased from ₹6.6 crore in 2020-21 to ₹13.20 crore in 2021-22. The Government have implemented the 'Chief Ministers Entrepreneurship Development Programme' (CMEDP) through KFC targeting 500 MSME units every year to give financial assistance up to ₹100 lakh. Further details on KFC are covered in the industry section.

1.5 STATE FINANCE

The State has had to manage its public finances amidst a global economic downturn the lingering effect of natural disasters, and the COVID-19 pandemic. The Russia-Ukraine war has also had a destabilising impact on the world economy due to inflationary pressures it created. Persistent inflation has triggered moves by central banks towards a tighter global monetary policy. The hiking of US Fed fund rate has made far reaching changes in the balance of payments position of many countries, particularly the developing ones. India is also adopting the policy of hiking interest rates as a monetary policy response to higher inflation.

In spite of odds, Kerala has undertaken all efforts to make sure that welfare measures are not adversely impacted. The Government revenues including ability to borrow determine the fiscal capacity of the Government to support the economy and to minimise the damage caused by the economic slowdown. Given the slowdown in the growth of the State's own tax and non-tax revenues in the pandemic period and after, access to enhanced Central transfers to finance budgetary expenditures grew in importance. However, developments on this front have not been positive for Kerala. Central transfers to the State include i) a share of Central taxes based on the formula recommended by the Finance Commission; (ii) Grants-in-aid for purposes such as covering revenue deficit, disaster relief, assistance to local bodies, and financing of sector-specific and State-specific schemes based on the recommendation of the Finance Commission and (iii) grants disbursed by the Central Government and its ministries.

The 14th Finance Commission (FC) enhanced the States' share of shareable tax revenue of the Union to 42 per cent from 32 per cent recommended by 13th FC and the 15th FC recommended a share of 41 per cent. However, these figures do not reveal the real picture of benefits accruing to the States for a number of reasons. Over the years the Union has relied on surcharges and cesses that are not includible in the shareable pool of the Government. Second, with the abolition of the Planning Commission and the Central Plans, Central assistance in the form of Plan grants based on the Gadgil formula was withdrawn. And, finally, the Centre's contribution to expenditures incurred on Centrally Sponsored Schemes (CSS) was reduced from 75 per cent to 60 per cent, which diverted more of the states' own resources away from programmes they had prioritised.

The framework within which revenue accrues to the State has been altered drastically since the shift to the Goods and Services Tax (GST) regime. Further, the financial health of the State has been seriously affected by the tapering off of revenue deficit grant, loss due to stoppage of GST compensation and the new conditionality imposed on open market borrowing, that is reducing the borrowing limit by taking into account the borrowings by entities to which State Government gives a portion of taxes collected. In addition, given the global geo-political uncertainties and corresponding economic slowdown at national and local-level, fiscal stress of the State may persist. Nevertheless, major fiscal indicators of the State have shown a marginal improvement in the year 2021-22, when compared to 2020-21.

Major Deficit Indicators

Revenue Deficit for 2021-22 is 2.29 per cent as against 2.51 per cent in 2020-21. As per the Budget estimates of 2022-23, revenue deficit is estimated to be 2.3 per cent. Fiscal deficit to GSDP ratio, which was 4.57 per cent in 2020-21 has decreased to 4.11 per cent in 2021-22 and is estimated to be 3.91 per cent in 2022-23. Major deficit indicators of the State for the period from 2012-13 to 2022-23 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 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 ₹44,137.31 crore in 2012-13 to ₹1,16,640.24 crore in 2021-22 in nominal terms, recording a CAGR of 11.40 per cent. The growth rate of revenue receipts showed an increasing trend from 16.12 per cent in 2012-13 to 19.49 per cent in 2021-22. In 2021-22

the revenue receipts of the State in proportion to GSDP increased marginally to 12.86 per cent from 12.66 per cent in 2020-21.

The largest component of revenue receipts of the State is State's Own Tax Revenue (SOTR). In 2021-22 contribution from SOTR was ₹58,340.52 crore (50.02 per cent). The contribution of State's Own Non-Tax revenue was ₹10,462.51 crore (8.97 per cent). The share of Central taxes and grants was ₹47,837.21 crore (41.01 per cent). Out of the Central receipts, share of Central taxes was ₹17,820.09 crore and Grants in aid received from the Centre was ₹30,017.12 crore. From the Grant in aid received from the Government of India, an amount of ₹21,743.99 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**.

In 2013-14, the proportion of Central assistance to 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 Budget instead of directly to implementing agencies. After reaching the highest-level of 43.67 per cent in 2020-21, the share of Central assistance declined to 41.01 per cent in

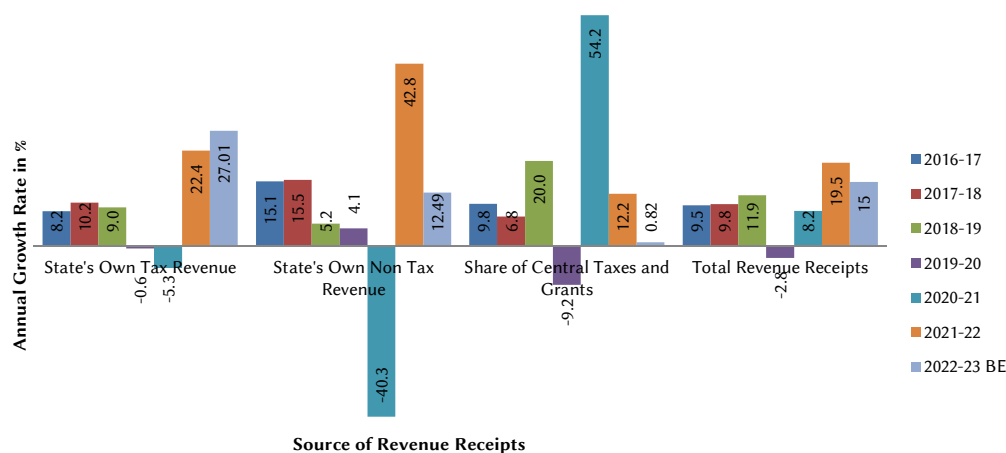
Table 1.5.1 Major deficit indicators from 2012-13 to 2022-23, ₹ in crore

Year	Revenue Deficit		Fiscal Deficit		Primary Deficit	
	Amount	% to GSDP	Amount	% to GSDP	Amount	% to GSDP
2012-13	9351.45	2.27	15002.47	3.64	7797.66	1.89
2013-14	11308.60	2.43	16944.13	3.64	8678.74	1.87
2014-15	13796.00	2.69	18641.72	3.64	8872.13	1.73
2015-16	9656.81	1.73	17818.46	3.20	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*	20063.50	2.51	35203.69	4.57	14228.33	1.85
2021-22*	20799.96	2.29	37306.47	4.11	14003.65	1.54
2022-23 BE	22968.09	2.30	39116.62	3.91	13150.76	1.32

Source: Finance Department, Government of Kerala

Note * As per the letter F.40(1) PF-S 2021-22 dated 10.12.2021 of Ministry of Finance, Department of Expenditure (Public Finance State Division), GoI, the loan received in lieu of GST compensation would be over and above the borrowing ceiling of the State and the repayment obligation of this loan will not be met from the resource of the State. Therefore, the loan received in lieu of GST compensation of ₹5766 crore and ₹8,739.31 crore in 2020-21 and 2021-22 respectively is reckoned as Revenue Grant for the calculation of Fiscal indicators.

Figure.1.5.1 Source-wise Annual Growth of Revenue Receipts of Kerala, in per cent



Source: Finance Department, Government of Kerala

2021-22 and it is expected to decline to 35.97 per cent in 2022-23. The loss due to the stoppage of GST compensation from June 2022, 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 is given in the **Figure 1.5.2**.

(i) State's Own Tax Revenue

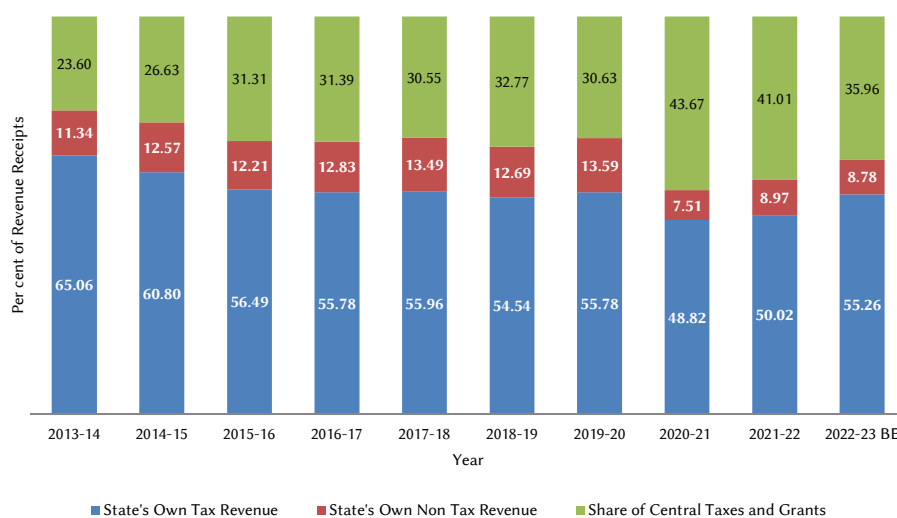
The main sources of SOTR are State Goods and Services Tax, Sales Tax on petroleum and alcoholic liquor for human consumption, Stamps and Registration fees, State Excise Duties, Motor Vehicle Tax and Land Revenue. In 2010-11 the SOTR had a growth rate of 23.24 per cent. It declined to (-)5.29

per cent in 2020-21 primarily due to adverse impact of COVID-19 pandemic. (**Appendix 1.5.2**).

The growth rate of SOTR of Kerala in 2021-22 was 22.41 per cent. This high growth rate of SOTR is mainly attributable to 20.68 per cent growth in GST (₹4,141.5 crore) and 27.13 per cent in Sales Tax and VAT (₹4,798.26 crore). Growth trend of SOTR during 2017-18 to 2022-23 is given in the **Figure 1.5.3**.

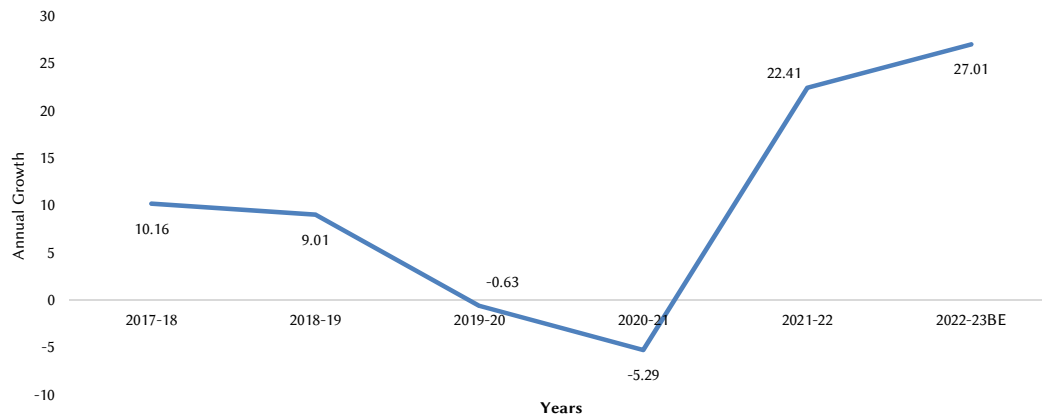
The receipt from SOTR in 2021-22 was ₹58,340.52 crore as against ₹47,660.84 crore in 2020-21. Goods and Services Tax constituted the major share of SOTR. In 2021-22 receipts from State Goods

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



Source: Finance Department, Government of Kerala

Figure 1.5.3 Growth trend of State Own Tax Revenue (SOTR) during 2017-18 to 2022-23



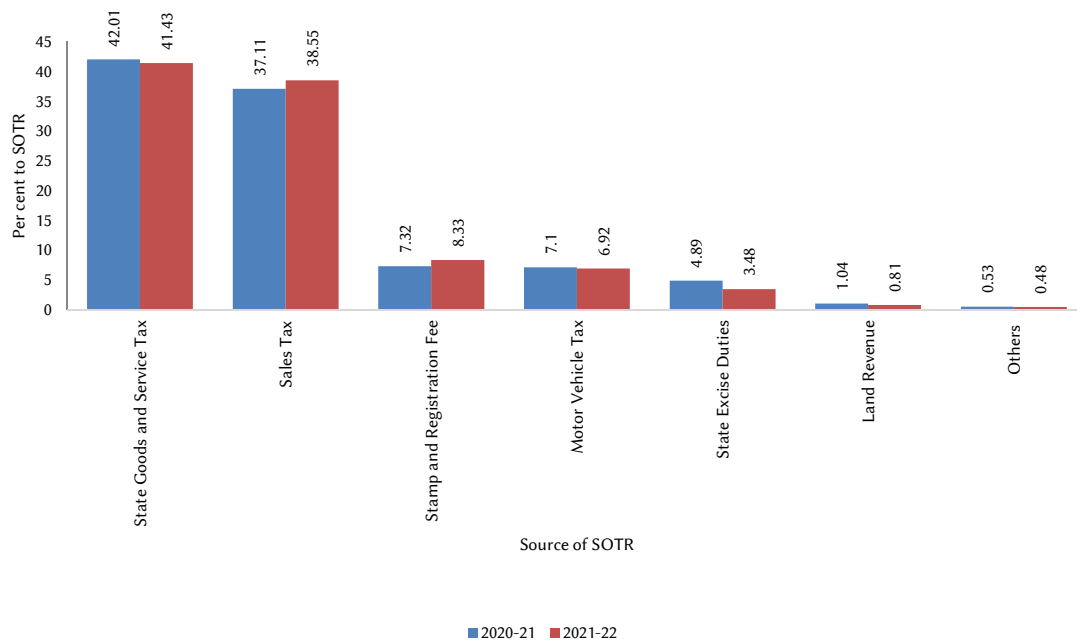
Source: Finance Department, Government of Kerala

and Services Tax (₹24,169.81 crore) contributed 41.43 per cent of the total SOTR, followed by 38.55 per cent from Sales Tax (₹22,487.43 crore), 8.33 per cent from Stamp duties and registration fees (₹4,857.33 crore), 6.92 per cent from Taxes on Vehicles (₹4,037.10 crore), 3.48 per cent from State Excise Duties (₹2,032.23 crore), and 0.81 per cent from Land Revenue (₹470.84 crore). **Figure 1.5.4** shows the source-wise State own tax revenue during 2020-21 and 2021-22.

(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 2021-22, ₹10,462.51 crore was realised as SONTR recording a growth rate of 42.79 per cent when compared to 2020-21 (₹7,327.31 crore).

Figure 1.5.4 Source-wise State own tax revenue during 2020-21 and 2021-22



Source: Finance Department, Government of Kerala

Details of State own non-tax revenue are given in the **Appendix 1.5.3**.

(iii) Central Resource Transfers

Share of taxes and grants as recommended by the Finance Commission and grants disbursed by the Central Government are the two major components of Central transfers. Within Central devolution, share of taxes is to be devolved 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 devolves sector specific grants. The tax devolution and revenue deficit grants are the untied 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 for 2.5 per cent of net sharable union tax proceeds during the 14th FC period. Due to change in the criteria for horizontal distribution, the share of net proceeds has been reduced to 1.925 per cent in the 15th FC period. **Figure 1.5.5** shows the trend of net shareable tax proceeds based on different Finance Commissions.

In 2021-22, total Central transfers to the State were ₹47,837.21 crore as against ₹42,628.68 crore in

2020-21. In this period share in Central taxes was ₹17,820.09 crore as against ₹11,560.40 crore in 2020-21. An amount of ₹3,000 crore was the arrears to be received in the previous year. In 2021-22 the State received ₹30,017.12 crore as Grant in aid from the Centre which included compensation for loss of revenue arising out of the implementation of the GST of ₹3,855.55 crore. Details of Central transfers are given in the **Table 1.5.2**.

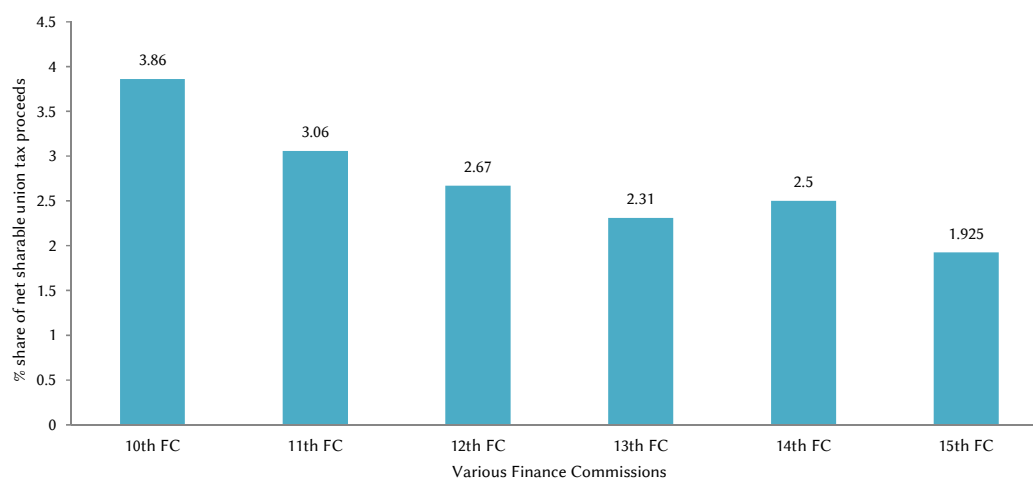
Expenditure

Expenditure of State includes three components viz. revenue expenditure, capital expenditure and expenditure on loan disbursements. Between 2012-13 and 2021-22, total expenditure increased from ₹59,228.18 crore to ₹1,63,225.53 crore in nominal terms, recording a CAGR of 11.92 per cent. Out of the total expenditure of ₹1,632,25.53 crore in 2021-22, non-Plan and Plan expenditure stood at ₹1,28,765.74 crore (78.89 per cent) and ₹34,459.79 crore (21.11 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 1.5.3**.

Figure 1.5.5 Trend of net shareable tax proceeds based on different Finance Commissions



Source: Various Finance Commission Reports, GoI

Table 1.5.2 Central Transfers, ₹ 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	11606.90	17.69
2014-15	7926.29	6.13	7507.99	81.43	15434.30	32.98
2015-16	12690.70	60.11	8921.35	18.82	21612.00	40.03
2016-17	15225.00	19.97	8510.35	(-)4.61	23735.40	9.82
2017-18	16833.10	10.56	8527.84	0.21	25360.90	6.85
2018-19	19038.20	13.10	11389.00	33.55	30427.10	19.98
2019-20	16401.10	(-)13.85	11235.30	(-)1.35	27636.30	(-)9.17
2020-21	11560.40	(-)29.51	31068.28	176.52	42628.68	54.25
2021-22	17820.09	54.15	30017.12	(-)3.38	47837.21	12.22

Source: Finance Department, Government of Kerala

The operational and maintenance cost for the completed projects and programmes are 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 also classified as revenue expenditure. Major portion of revenue expenditure devolved to the LSGIs is utilised for the creation of capital assets at Local Government-level.

Revenue expenditure increased to ₹1,46,179.51 crore in 2021-22 as against ₹1,23,446.33 crore in

2020-21. Of the total revenue expenditure of 2021-22, Plan expenditure was ₹18,433.02 crore and non-Plan expenditure was ₹1,27,746.49 crore. The ratio of revenue expenditure to GSDP shows a marginal increase of 0.11 per cent, from 16.01 per cent in 2020-21 to 16.12 per cent in 2021-22.

In 2021-22, the share of committed expenditure on revenue expenditure increased compared to the previous year. Expenditure on committed liabilities on salaries, pension, interest payments, subsidies and devolution to the LSGIs constituted 75.04 per cent of revenue expenditure. In 2021-22

Table 1.5.3 Trend in Revenue Expenditure, ₹ in crore

Year	Total Revenue Expenditure		Development Expenditure		Non Development Expenditure	
	Amount	Annual Growth Rate	Amount	% of total revenue exp.	Amount	% of total revenue exp.
2012-13	53488.74	16.17	29889.00	55.88	23599.70	44.12
2013-14	60485.50	13.08	32921.10	54.43	27564.40	45.57
2014-15	71746.43	18.62	39182.20	54.61	32564.20	45.39
2015-16	78689.47	9.68	41762.70	53.07	36926.80	46.93
2016-17	91096.31	15.77	48602.63	53.35	42493.68	46.65
2017-18	99948.35	9.72	52979.53	53.01	46968.82	46.99
2018-19	110316.39	10.37	56787.99	51.48	53528.40	48.52
2019-20	104719.92	-5.07	47550.18	45.41	57169.74	54.59
2020-21	123446.33	17.88	71223.99	57.70	52222.34	42.30
2021-22	146179.51	18.42	74026.85	50.64	72152.66	49.36
2022-23 BE	157065.89	7.45	82714.33	52.66	74351.56	47.34

Source: Finance Department, Government of Kerala

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.

salary expenditure as proportion of total revenue expenditure was 30.44 per cent whereas it was 22.46 per cent in 2020-21. Pension expenditure as per cent of total revenue expenditure was 18.40 per cent in 2021-22 compared to 15.35 per cent in 2020-21. Interest payment as per cent of total revenue expenditure decreased to 15.94 per cent in 2021-22 from 16.99 per cent in 2020-21. 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 been relatively 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 during the recent years. The capital expenditure of the State in 2021-22 was ₹17,046.02 crore and in 2020-21 it was ₹15,438.16 crore. Public works continued to remain the major segment of capital outlay with 24.43 per cent of the total capital outlay in 2021-22 followed by, Industries and Labour 3.81 per cent, Agriculture and allied activities 3.37 per cent, and Irrigation 3.10 per cent. Trend in capital outlay is given in the **Appendix 1.5.7**

Debt Profile

The debt outstanding of the State comprises of (i) Internal debt including market loan and loans from financial institutions; (ii) Loans and advances from Centre; and (iii) Small Savings, Provident Fund, etc. Outstanding public debt of the State at the end of 2021-22 was ₹2,19,974.54 crore. The annual growth rate of public debt decreased to 10.16 per cent in 2021-22 from 14.34 per cent in 2020-21. The Public Debt – GSDP ratio stood at 25.90 per cent in 2020-21. It decreased to 24.26 per cent in 2021-22. The total outstanding liabilities of the State was 37.13 per cent in 2020-21 and is at 37 per cent in 2021-22.

The ratio of public debt to revenue receipts decreased to 188.59 per cent in 2021-22 from 204.56 per cent in 2020-21. The share of internal debt in the public debt of the State was 95.83 per cent in 2021-22. Outstanding internal debt increased to ₹2,10,791.60 crore in 2021-22 from ₹1,90,474.10 crore in 2020-21. The growth rate of outstanding internal debt in 2021-22 was 10.67 per cent. The outstanding liabilities under loans and advances from the Centre decreased to ₹9,182.96 crore in 2021-22 from ₹9,207.63 crore in 2020-21. The share of the Central loan in the public debt of the State was 4.17 per cent in 2021-22.

The outstanding liabilities under small savings, provident fund etc at the end of 2021-22 were ₹1,15,666.60 crore compared to ₹97,219.13 crore in 2020-21. The gross and net retention of debt in 2021-22 was ₹38,740.29 crore and ₹15,538.41 crore respectively.

Kerala's efforts to improve its finances through the fiscal consolidation path have been jolted by a series of setbacks in the realms beyond the control of the State Government. To make fiscal consolidation sustainable, the State cannot afford any slippage in own-revenue mobilisation. Efforts to strengthen own resource generation must be accorded high priority and to attain the goal, each revenue-generating department should have a vision document from 2022-23 itself. Along with the efforts to raise resources through tax and non-tax sources, State also needs to focus on rationalisation of expenditure, especially revenue expenditure. Mobilisation of additional revenue and prioritising expenditure assume significant importance in the way forward towards fiscal consolidation.

1.6 FOURTEENTH FIVE-YEAR PLAN (2022-27) AND ANNUAL PLAN 2022-23

Planning is widely accepted as an effective tool for attaining faster and inclusive economic development. Even though the Government of India has given up the process of formulating Five-Year Plans and Annual Plans, Government of Kerala has imparted more attention to the planning process of the State and has also given due care for the formulation of Five-Year Plans and Annual Plans. In the present economic situation, systematic planning is required for the all-round development of the State and to structure the aspirations of the people into schemes and programmes.

Fourteenth Five-Year Plan (2022-27)

The process of formulation of Fourteenth Five-Year Plan (2022-27) was started in the middle of 2021 and wide consultation and discussions were conducted by the State Planning Board. The Board constituted 44 Working Groups for addressing specific issues and concerns in different sectors. Each working group comprised eminent academicians, scholars, subject experts, administrators and social and political activists. Valuable inputs and specific recommendations of the working groups were considered for addressing specific issues, concerns and hurdles faced during

Box 1.6.1 Thrust Areas and Main objectives

- Strengthen social investment (particularly in health, school education and housing), social welfare, social and gender justice;
- Use the strengths of the State in human development to build a knowledge society and accelerate growth of the productive forces in the economy;
- Apply science, technology and modern skills to enhance growth in agriculture, allied activities, modern industry, infrastructure development, and income-bearing services, including information technology, tourism, and retail trade;
- Build a modern, high-employment, productive economy;
- Modernise and enhance the system of higher education and provide Kerala's youth with the best forms of skilled employment available in a modern economy;
- End extreme poverty in Kerala;
- Establish comprehensive and innovative systems of waste management;
- Help Local Governments become engines of growth; and
- Promote an inclusive development process – the guiding principle of the development process will be to leave no person behind.

the implementation process of Plan schemes. Approach Paper for the Fourteenth Five-Year Plan has been finalised and it focussed on Kerala's development vision for the ensuing Five-Year Plan period.

Annual Plan 2022-23

Annual Plan 2022-23 is the first year of the 14th Five-Year Plan. The key challenge before the State is the severe constraint in mobilising financial resources for the Plan. Despite the constraints, Government has ensured promoting various sectors/areas with a view to eradicate extreme poverty, enhance growth in productive sectors including productivity in agriculture and allied areas and industry especially MSME, ensure service delivery to the public in various fields, facilitate creation of employment, promote knowledge

economy and ensure gender development and social justice. The Plan has also given priority to promote crop husbandry, animal husbandry, special packages for Idukki, Wayanad, Sabarimala and Kasaragod, higher education, medical and public health and water supply and sanitation. LIFE Mission and Ayyankali Urban Employment Guarantee Scheme have been allocated adequate provision.

The Aggregate Plan outlay was ₹39,640.19 crore which included State Plan of ₹30,370 crore and Central Assistance of ₹9,270.19 crore. As per the recommendation of the Sixth State Finance Commission, Kerala, ₹8,048 crore (26.5 per cent of the total State Plan outlay) has been earmarked to the Local Self Government Institutions (LSGIs). Out of the total State Plan outlay of ₹30,370

Table 1.6.1 Sector-wise outlays in Annual Plans 2021-22 and 2022-23 (₹ in crore)

Sl. No.	Sector/Sub Sector	2021-22			2022-23			Per cent increase/decrease in Aggregate Plan 2022-23 over 2021-22
		State Plan Outlay	Central Assistance	Aggregate Plan	State Plan Outlay	Central Assistance	Aggregate Plan	
1	2	3	4	5	6	7	8	9
I	Agriculture and Allied Activities	1528.42	287.38	1815.80	1648.44	268.09	1916.53	5.55
II	Rural Development	1607.72	4358.69	5966.41	1753.11	4343.19	6096.30	2.18
III	Special Area Programmes	245.67	12.00	257.67	390.50	0.00	390.50	51.55
IV	Irrigation and Flood Control	469.69	59.00	528.69	540.85	11.60	552.45	4.49
V	Energy	1150.11	0.00	1150.11	1152.93	0.00	1152.93	0.25
VI	Industry and Minerals	1059.70	6.75	1066.45	1214.66	12.00	1226.66	15.02
VII	Transport	1444.25	0.00	1444.25	1788.67	0.00	1788.67	23.85
VIII	Science, Technology and Environment	954.44	55.30	1009.74	1027.14	61.39	1088.53	7.80
IX	General Economic Services	1343.38	94.38	1437.76	1425.58	108.82	1534.40	6.72
X	Social Services	8615.58	4523.41	13138.99	9696.23	4429.10	14125.33	7.51
XI	General Services	81.04	36.00	117.04	83.89	36.00	119.89	2.44
	Total (I To XI)	18500.00	9432.91	27932.91	20722.00	9270.19	29992.19	7.37
XII	LSGD	7280.00	0.00	7280.00	8048.00	0.00	8048.00	10.55
XIII	RKI	1830.00	0.00	1830.00	1600.00	0.00	1600.00	-12.57
	Grand Total	27610.00	9432.91	37042.91	30370.00	9270.19	39640.19	7.01

Source: Annual Plan Documents 2021-22 and 2022-23

Box 1.6.2 PLANSPEACE 2.0 – Online Plan Monitoring System

PLANSPEACE 2.0, the new version of Planspace has been introduced in 2022, which facilitates capturing data regarding the implementation life cycle of all Plan schemes. The salient features are:

- Facilitate to monitor physical and financial progress of Plan schemes on real time basis.
- Extended up to local body-level and facilitate local body-level monitoring.
- Mobile app developed for uploading geo-tagged images of projects.
- Beneficiary details are made available for monitoring.
- Constituency-level dashboard has been developed.
- SDG mapping of schemes to monitor the attainment of Sustainable Development Goals.
- Facilitate Multi-level Plan Monitoring.
- Access to public and Democratisation of Plan monitoring system.
- More than 40 main reports and a number of subsidiary reports are made available.
- Hands on training imparted to 6000 + implementing officers across the State.

Visit Website: www.planspace.kerala.gov.in

crore, ₹22,322 crore was earmarked for State sector schemes. Likewise, an amount of ₹2,979.4 crore was allocated to Scheduled Caste Sub Plan (SCSP) and ₹859.5 crore to Tribal Sub Plan (TSP). Besides, ₹4,665.20 crore (20.90 per cent) of the State Plan outlay was exclusively earmarked for girls/women which included ₹5.80 crore for the Transgender community. In 2022-23, the total allocation of resources intended for benefiting children was ₹2,063.88 crore (9.25 per cent). The sector-wise outlays earmarked in the Annual Plans 2021-22 and 2022-23 are given in **Table.1.6.1**.

CHAPTER

02

HIGHER EDUCATION FOR
GROWTH AND DEVELOPMENT:
AN OVERVIEW

HIGHER EDUCATION FOR GROWTH AND DEVELOPMENT: AN OVERVIEW

Introduction

A major feature of the development experience of Kerala is public intervention in education and health. In Kerala, the share of Government spending on the social sector has been much higher than the national average and higher than in other major States in the country. Consistent efforts towards improving education have led to accomplishments such as universal literacy and school education, and health indicators that are comparable to many developed nations. Kerala's school education is also recognised for its inclusive nature and gender parity. Over the years, the State has sought to include all sections and communities in public education, by enhancing physical and social access to schools. Since the beginning of the 13th Five-Year Plan, the school education sector has emerged as an excellent performer because of the intensive efforts taken under *Pothuvidyabhyasa Samrakshana Yajnam* (Mission to Protect Public Education) to enhance enrolment in public schools by providing state-of-the-art infrastructure and other facilities and creating a conducive learning environment. Consequently, public schools in the State have become more attractive to parents as well as children, and during the last five years more than ten lakh new students have enrolled in Government and aided schools. Kerala has become the topper among Indian States in respect of the

quality of school education index prepared by NITI Aayog, three times in a row.

Higher education is vital to a society's efforts to further develop human capabilities in the widest possible sense. Improvement of higher education is regarded as a pre-requisite for the development of the State into a knowledge society as envisioned by the Government and it would eventually form the foundation of *Navakeralam* (New Kerala).

Kerala has major tasks ahead in this sphere. The first is related to raising the gross enrolment ratio (GER) in tertiary education. The Government has declared the objective of raising the gross enrolment ratio in tertiary education from 38 per cent to 75 per cent. The task of raising the GER in tertiary education to 75 per cent involves providing tertiary education to lakh of new students. While these students will enter different streams of education, public and private, it is clear that the achievement of the objective requires qualitatively new levels of Plan funding at all levels of tertiary education and training. Secondly, the State also has the task of providing youth with high standards of undergraduate, postgraduate, and research education.

The Government of Kerala has initiated measures to reform the higher education sector to help to enhance academic standards, increase the enrolment ratio, and provide the younger population with state-of-the-art facilities to have the best education in a wide range of existing and emerging knowledge domains. These initiatives also aim at transforming the higher education sector as the prime source of intellectual and technological support for the growth and development of Kerala's economy.

Government Spending on Higher Education

Public spending on education is an important determinant of the reach and quality of education. This includes direct expenditure on educational institutions as well as educational-related public subsidies given to households and administered by educational institutions. Achieving and sustaining adequate levels of quality to capture the social returns of spending in higher education requires minimal stability in public financing, with robust programmes to tap financial resources from various sources (Birdshall, 1996).¹ But in most developing

countries public spending mainly constitutes only the Government spending since the other sources are very minimal. Government of Kerala, since the formation of the State, has made huge investment in education sector even during times of revenue crisis. **Table 2.1** shows the Government investment in education especially higher education during the last five years.

Though the expenditure on both higher and school education was comparatively low in 2020-21 due to the pandemic and consequent closure of educational institutions, there has been an impressive overall increase in public spending on higher education during these five years. As given in **Table 2.1**, the proportion of higher education expenditure to total Government expenditure has varied across years, with a low proportion in 2020-21, which increased to more than four per cent in 2021-22, regaining the previous status. It is also observed that nearly the percentage expenditure on higher education was as much as 4.86 per cent of the total expenditure in 2017-18 and 2019-20. Compared to previous years, the percentage

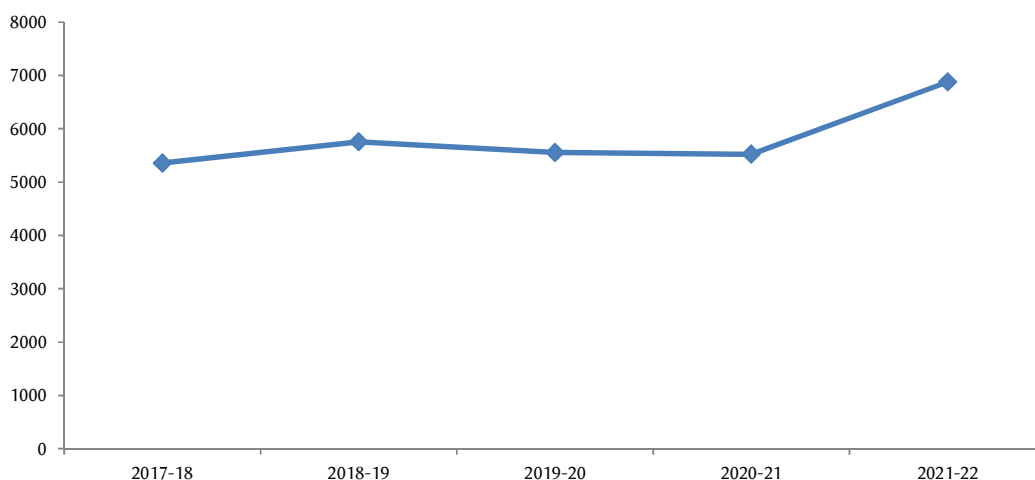
Table 2.1 Government Investment in Education (₹ in crore)

Item	2017-18	2018-19	2019-20	2020-21	2021-22
a. University Education	2510.44	2696.75	2578.99	2501.21	3148.95
b. Secondary Education	7400.62	7246.67	7459.27	6551.93	10433.96
c. Primary Education	7320.74	7384.61	7192.66	6168.22	9705.78
d. Special Education	27.54	78.74	17.17	19.52	24.04
e. General Education	56.56	71.80	41.80	45.59	66.11
f. Technical Education	948.02	964.09	977.46	913.99	1180.54
g. Sports and Youth Affairs	166.18	178.05	151.00	132.85	166.52
h. Agriculture Education	514.44	496.60	511.83	548.46	589.92
i. Art and Culture	215.06	219.40	209.19	241.11	262.39
j. Medical Education	1385.65	1598.33	1487.33	1560.70	1958.63
k. Capital Outlay	625.92	612.49	311.64	563.78	692.61
l. Loans	0.97	0.97	0.91	0.00	53.00
Total	21172.14	21548.50	20939.25	19247.36	28282.45
Higher Education (a+f+h+j) Expenditure (HEE)	5358.55	5755.77	5555.61	5524.36	6878.04
% of HEE to Total Government Expenditure	4.86	4.79	4.86	3.98	4.17
% HEE to GSDP	1.04	1.04	0.99	1.08	1.20

Source: Finance Department, GoK, 2022

¹ Birdshall, N, 1996: Public Spending on higher education in developing countries: Too much or too little? *Economics of Education Review*, 15(4), pp 407-419

Figure 2.1 Government Expenditure on Higher Education (in crore) during 2017-18 to 2021-22



Source: Finance Department, GoK

Note: Government Expenditure includes both Plan and non-Plan expenditure

of higher education expenditure to GSDP has increased to 1.20 in 2021-22, indicating the added emphasis on this sector.

Though the proportion of expenditure on higher education to the total expenditure on education is less than that of school education, the Government spending on higher education has increased over a period of five years from 2017-18 to 2021-22. (Figure 2.1).

Higher Education Sector in Kerala: A Profile

The modern higher education sector in Kerala has its origin in the 19th century. Substantial roles were played in this process by the colonial rulers and the rulers of Travancore and Cochin. The higher education system has undergone several transformations, particularly since the formation of the State, with the establishment of arts and science colleges across the State. There has also been a significant increase in the number of institutions in the professional and technical education segments. The higher education sector has responded to the requirements of the emerging times with significant reforms in curriculum. The most important change is in the number of higher education institutions in the State, in the public, private and cooperative sectors. This has increased the access to higher education. The social and economic mobility attained is mainly due to the affordable higher education. Over the years, a major development in higher education in Kerala

has been the establishment of several self-financing institutions in the State.

The discussions on permitting self-financing educational institutions have always highlighted the financial and equity issues involved in this system. Many have been apprehensive about the possibility that this sector would not adequately address equity concerns in education. In this regard, the Government has devised mechanisms to ensure public control over the mode of operation of these institutions, and compliance with stipulated standards and norms on equity as well as quality.

Growth of Higher Education Institutions in Kerala

As stated earlier, the growth of higher education owes to both Government and private initiatives. The Government has been the main source of support, till the 1990s when self-financing institutions were accorded sanction. Government support to private educational institutions in the form of grants and teachers' salaries has played a crucial role in the growth of higher education in the State.

There are 14 State universities in Kerala. Out of these, four universities, namely Kerala University, Mahatma Gandhi University, Calicut University and Kannur University are general in nature and offer diverse courses. 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 and the Digital University established in 2020 are the newly founded universities. The Digital University is the first of its kind in the country and has the mandate of education and research in cutting-edge knowledge domains. Besides these, the National University of Advanced Legal Studies (NUALS), established in 2005 and a Central University incepted in Kasaragod District are also functioning in the State.

Out of this 14 universities, Kerala University, Mahatma Gandhi University, Calicut University and Kannur University, Sree Sankaracharya University of Sanskrit, Thunchath Ezhuthachan Malayalam University, Cochin University of Science and Technology, Kerala Technological University, National University of Advanced Legal Studies (NUALS) and Sree Narayana Guru Open University come under Higher Education department. The other implementing agencies under State Higher Education Department are, 1. Collegiate Education Directorate 2. Kerala State Higher Education Council 3. Universities (Kerala, Calicut, M.G, Kannur, Sree Sankaracharya Sanskrit University, Malayalam University and NUALS) 4. Centre for Continuing Education 5. Kerala Council for Historical Research (KCHR) 6. Law Colleges (Thiruvananthapuram, Ernakulam, Thrissur and Calicut) 7. Rashtriya Uchchadar

Table 2.2 Number of Major Higher Education Institutions in the State

Sl. No	Category	No. of Government colleges	No. of Government Aided colleges	No. of private and Government Self Financing colleges (Pvt+Co-operative)
1	Kerala University (Including all courses)	15	48	48
2	Calicut University (Including all courses)	38	60	139
3	Mahatma Gandhi University (Including all courses)	11	66	124
4	Kannur University (Including all courses)	11	17	73
5	Kerala Technological University	9	3	104+26*
6	CUSAT	1	-	
7	Sree Sankaracharya University of Sanskrit	1	-	
8	Malayalam Sarvakalsala	1		
9	Medical colleges (All branches of medicines)	24	5	53
10	Nursing Colleges	6	-	118
11	Pharmacy and paramedical institutions	13	-	100
12	Law colleges	4	-	19
13	Kerala Agricultural University	9	-	-
14	Kerala University of fisheries and Ocean Studies (KUFOS)	1	-	-
15	Kerala Veterinary and Animal Sciences University (KVASU)	7	-	-
16	Kerala University of Digital Sciences, innovation and Technology (Masters and Ph.D)	1	-	-
17	Polytechnics	45	6	49**

* 104 private self-financing, 26 Government self-financing

**49 (IHRD 8, CAPE 4, SF Poly 36, KELTRAC 1)

Shiksha Abhiyan (RUSA) 8. Additional Skill Acquisition Programme (ASAP) 9. National Cadet Corps (NCC) Directorate, 10. K.R Narayanan Institute of Visual Science and Arts, 11. Directorate of Technical Education 12. Kerala Technological University 13. Cochin University of Science and Technology (CUSAT) 14. Institute of Human Resource Development (IHRD) 15. Kerala Science and Technology Museum (KSSTM) 16. LBS Centre for Science and Technology 17. TrEST Research Park and 18. Centre for advanced printing technology (C-apt). The number of higher education institutions/colleges are detailed in **Table 2.2**. In terms of affiliation of colleges, Calicut university stands top with 237 colleges followed by MG university with 201 colleges.

Specialised universities in Kerala are affiliated with the development departments concerned. The Kerala Agricultural University comes under the Department of Agriculture Development and Farmers' Welfare, Kerala Veterinary and Animal Sciences University is dealt with by the Department of Animal Husbandry, Kerala University of Health Sciences is affiliated with the Department of Health. Kerala University

of Fisheries and Ocean Studies is linked to the Department of Fisheries.

Annual Intake of Students in Higher Education Institutions in 2021-22

Annual intake of students in colleges and universities in 2021-22 is given in **Table 2.3**. It has been reported that in the year 2021-22 a total of 4,04,799 students have enrolled in various institutions. Most students are enrolled in Arts and Science Colleges followed by Engineering colleges in the State. It is interesting to note that except in KTU, Polytechnic colleges, CUSAT and the Kerala University of Digital Sciences, Innovation and Technology, the proportion of girl students is much more than 50 per cent. (See Chapter 6.1 also).

Performance Indicators of Higher Education in the State-A Profile

Kerala has been keen on raising the gross enrolment ratio in higher education (GER_{HE}). In 2019-20, the GER_{HE} in Kerala was estimated at 38.8 per cent, which was higher than the national average of 27.1 per cent. This is a remarkable achievement since Kerala's GER_{HE} in 1972-73 was

Table 2.3 Annual Intake of Students in Higher Education Institutions in 2021-22

Sl. No	Category	Girls	Boys	Trans Gender	Total	% of Girls
1	Kerala University	44,453	22,367		66,820	66.53
2	Calicut University	71,907	40,307		112,214	64.08
3	Mahatma Gandhi University	72,287	49,766	1	122,054	59.23
4	Kannur University	13,454	7,178		20,632	65.21
5	Kerala Technological University(KTU)	12,568	17,579		30,147	41.69
6	Poly Technic	2,656	9,665		12,321	21.56
7	CUSAT	4,111	5,019		9,130	45.03
8	Sree Sankaracharya University of Sanskrit	1,043	389		1,432	72.84
9	Malayalam Sarvakalsala	64	120		184	34.78
10	Health and Allied Sciences	18,800	4,361		23,161	81.17
11	Kerala Agricultural University	2,585	900		3,485	74.18
12	Kerala University of fisheries and Ocean Studies (KUFOs)	379	134		513	73.88
13	Kerala Veterinary and Animal Sciences University (K VASU)	1,605	905		2,510	63.94
14	Kerala University of Digital Sciences, innovation and Technology (Masters and Ph.D)	75	121		196	38.27
Total		2,45,987	1,58,811	1	4,04,799	60.77

Source: Universities, DCE and DTE

5.9 per cent and in 1986-87, it was merely 4.5 per cent. The State could significantly improve the GER_{HE} since then. In 2006-07, the ratio had grown upto 11.8 per cent in Kerala. After 2009-10 Kerala's GER_{HE} began to rise rapidly till it reached 38.8 per cent in 2019-20.

It is noteworthy that while GER_{HE} of the State had improved significantly from 30.8 per cent in 2015-16 to 38.8 per cent in 2019-20, India's GER_{HE} grew at a much slower pace and reached only 27.1 per cent in 2019-20.

Data on the enrolment ratio in higher education shows that in 2019-20, Kerala ranked sixth among the major States in the GER_{HE}. Tamil Nadu had the highest GER_{HE} at 51.4 per cent, followed by Delhi at 48 per cent. Notably, several States that recorded rapid economic growth rates in the recent period had lower GERs than Kerala. For example, the enrolment ratio in Gujarat was 21.3 per cent; Haryana had attained 29.3 per cent; Karnataka had 32 per cent and Telangana had 35.6 per cent.

The efforts to ensure gender parity have paid off significantly as evidenced by the higher female GER_{HE}. In 2019-20, the enrolment ratio of women in higher education was 44.7 per cent and that of men was 32.9 per cent, while the national female GER_{HE} was 27.3 per cent. However, Kerala ranked only fifth among the major States. (Report of the Commission for Reforms in Higher Education, 2022).

In terms of inclusiveness, Kerala's GER_{HE} of all scheduled castes (SC) was 26.7 per cent in 2019-20. The State ranked only 11th among the major States. Though the national average was still lower at 23.4 per cent, the major concern is to increase this ratio. It should be noted that the reason for this mainly relatively low enrolment ratio of SC men (18.7 per cent) compared to that of SC women (34.8 per cent). The corresponding national averages stood at 22.8 per cent and 24.1 per cent respectively. While Kerala ranked fifth among the major States in SC female GER_{HE}, it was at the 17th position in SC male GER_{HE}.

Kerala's GER_{HE} of ST population was 24 per cent in 2019-20, ranking eighth among the major States. The national average was, however, lower at 18 per cent. As in the case of SC, there was significant difference between the enrolment ratio of men and women. While GER_{HE} for ST men

was 19.1 per cent, the ratio of ST women was 28.7 per cent. Though we were much above the corresponding national averages of 18.2 per cent and 17.7 per cent respectively, Kerala ranked only seventh in female GER_{HE} and 17th in male GER_{HE}.

However, the data from the household surveys of the National Sample Survey Organisation (NSSO) shows a slightly different picture. The Gross Attendance Ratio for the post-higher secondary-level (GAR_{HE}; i.e., the proportion of the number of persons attending a post-higher secondary-level of education to the number persons in the 18-23 age group) in 2017-18 was 37.6 per cent in Kerala and 22.8 per cent in India. In fact, Kerala had the highest GAR_{HE} among all the States for the post-higher secondary-level.

The NSSO surveys have also shown that the Age-Specific Attendance Ratio (ASAR_{HE}; i.e., proportion of persons in the 18-23 years age group currently attending educational institutions, irrespective of the level or class in which they are studying). The ASAR_{HE} of Kerala in 2017-18 was 47.4 per cent in Kerala, which was the highest in the country, this ratio was 28.8 per cent in India.

In terms of the number of colleges per lakh population (18-23 years), Kerala stood fifth among the major Indian States with 48 colleges per lakh population in 2019-20, as per the AIS_{HE} data. The national average stood at 30 colleges per lakh population. Karnataka was on top with 59 colleges per lakh population, followed by Telangana (53), Andhra Pradesh (51) and Himachal Pradesh (49).

Rankings of the Higher Education Institutions in the State: A significant accomplishment by Kerala is the quality of education in the State. Kerala has performed remarkably in achieving better standards in education, as evident from the ranking of colleges under the National Institutional Ranking Framework (NIRF) of the Ministry of Human Resource Development (MHRD). In 2022, there were 17 colleges from Kerala in the first 100 ranks (17 per cent), and 38 colleges from Kerala in the first 200 ranks (19 per cent). Considering the size and population of the State, this is indeed a remarkable achievement. The major recognitions earned by the higher education institutions in the State are summarised in **Box 2.1**.

The remarkable achievement by the major universities in accomplishing top grades in

Box 2.1 Awards/Accreditation/Rankings of major Higher Education Institutions in Kerala

The National Assessment and Accreditation Council is a Government organisation 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 40th among universities and 52nd among higher education institutions (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 2021 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 69th among universities (overall in India as per the National Institute ranking framework (NIRF) for the year 2022. 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 in the second cycle of accreditation by the NAAC in 2021.

Source: University and DCE

accreditation has turned out to be an impetus for all universities to upgrade their infrastructure facilities and improve their academic standards to higher levels with a view to getting better grades in NAAC accreditation and sustaining the high standards. In view of the great potential of higher education institutions to achieve this goal in a short span of time, the State Government has devised a strategy to support all the universities and public sector institutions to improve their ranking to the maximum extent possible.

Accessibility and Affordability of Higher Education in the State

As seen in **Table 2.1**, there are a good number of higher education institutions in the Government sector and they were the sole players in the sector till private self-financing colleges were allowed to function in the State during 1990s. It is the presence of sizeable number of higher education institutions in the Government sector, which ensures affordability and inclusiveness in higher education in the State.

The cost of education has been maintained at affordable levels, by providing grants to aided institutions as well. This has increased accessibility to higher education for all sections and considerably enhanced its affordability over the years.

Scholarships: Various Scholarships at PG and UG levels are being given to improve the quality of education and to ensure equity in higher education. Central and State sector scholarships of 13 types are given to students in 2019-20. In 2019-20, post-metric scholarships were given to 65,626 students, District merit scholarships were availed by 20,409 students and Kerala State Suvarna Jubilee Scholarships were awarded to 4,473 students. Apart from these, Aspire scholarship, scholarships separately for Social sciences, literature, music, arts, performing arts etc. are also being given. Besides these, special merit scholarships are given by Higher Education Council to the degree and PG students in arts and science courses. The prestigious Kairali

Scholarships and C.M. Fellowships have been recently added to this list.

It was in a bid to foster high-quality research in State universities, the Chief Minister's Nava Kerala Post-Doctoral Fellowships were instituted. It was announced in the State Budget (2021-22). The State is planning to grant fellowships ranging from ₹50,000 to ₹1,00,000 per month for a period of two years. This scheme has been designed to further the development plans of the State by promoting research in domains of eco diversity, agriculture, digital technology, genetics, climate change and the indigenous culture of Kerala.

It is insisted that the applicant should be a Keralite in origin and should possess a doctoral degree. The upper age limit is 45 years as on the date of application, with relaxation for women and candidates from other eligible categories. The post-doctoral research work must be carried out in any university in the State and there should be a mentor in a regular position in a recognised institution. The fellowship is tenable only in Kerala and can be implemented in any of the recognised schools/departments of a university in the State. The proposals are selected by a high-level expert committee, proposed by the Kerala Higher Education Council. Since the selection process for these fellowships is rigorous to ensure that the proposals are of high standards, the CM's post-doctoral fellowships are highly prestigious. It is anticipated that this scheme would enable universities and other higher education institutions to innovate and provide technology backstopping to the development of the State.

Inclusiveness and Gender Parity in Higher Education

Government has taken deliberate attempts to give opportunities of higher education to all sections of the students, irrespective of their caste, community, sex and physical conditions. The marginalised communities are provided the opportunities to access to higher education by making education almost free and by ensuring adequate reservation of seats in proportion to their representation in the proportion. Apart from providing free education in Government and aided institutions, the fees of SC/ST students in private financing institutions are met by the Government. The proportion of SC/ST students in higher education institutions is comparatively better compared to their population proportion. However, as explained earlier, Kerala's GER_{HE}

of all scheduled castes (SC) was 26.7 per cent in 2019-20 and the State ranked only 11th among the major states. Kerala has registered low enrolment ratio of SC men (18.7 per cent) compared to that of SC women (34.8 per cent). Similarly, there was significant difference between the enrolment ratio of men and women among the ST. While GER_{HE} for ST men was 19.1 per cent, the ratio of ST women was 28.7 per cent. Kerala ranked only seventh in female GER_{HE} and 17th in male GER_{HE}. For details see Chapter 6.1 where details of course-wise enrolment of SC/ST students are given.

Another important highlight of the higher education sector in Kerala is its gender parity. As discussed in the section on performance indicators of higher education in the State: An overview, there is an increasing representation of girl students in higher education. Though the GER_{HE} of girl students in the general, SC and ST is significantly higher than the national average, Kerala has ranked only fifth among the major States. However, with its legacy of ensuring gender parity in many other sectors including Local Governance, we can improve the status without much difficulty and be the topper at the National-level.

In Chapter 8.1 (Gender and Development), it is observed that except in engineering education girls outnumber boys in all courses including professional education. As per the data available, after four years more than 60 per cent of all professionals including doctors, lawyers and agriculturists will be women in Kerala.

Major Initiatives Towards Accomplishing Excellence of Higher Education During 13th and 14th Five-Year Plans

Recognising the importance of improving the standard of higher education as a catalyst of development, the Government has taken several initiatives to improve the quality of higher education, ensure equity, enhance enrolment, improve standards of research, etc., The pathways towards this goal would be strengthening curriculum and pedagogy and devising mechanisms for the effective implementation of the reforms; linking the higher education institutions to the global innovation ecosystem; improving the infrastructure facilities; increasing the overall enrollment ratios and that of the marginal sections of the society, in particular; promoting high end interdisciplinary and translational research programmes etc.

It is also necessary that pedagogical strategies should enable this transition. The learning process should be based on definite outcomes. An academic environment that fosters rote learning would have to be discouraged. The teaching-learning-evaluation processes must have as their primary goal the development of critical thinking and analytical rigor in the students.

Correspondingly, the assessment systems that are to emerge, possibly through well designed experiments, must place considerable importance on the learning processes and provide space for new ways of thinking and learning on the part of students. A summative evaluation, without considering the logical progress in learning by a student would be lopsided. The components of internal assessment have to be integrated with the learning management system. The assessment criteria have to be explicitly stated to make it fair, objective and free from student victimisation.

The Working Group of the State Planning Board on higher education observed that the administration of content and the quality of its transaction in the classroom are seriously affected by the unfavourable academic environment currently prevailing in HEIs. These limitations are imposed by the excessive daily administrative chores, engagement with the student support mechanisms and, high work load resulting in part from unfavourable teacher-student ratios. In addition, the lack of opportunity to undergo faculty development also affects the delivery of curricular objectives. The reforms proposed by the Government intends to take all these key issues into consideration. Across the world, there is increasing emphasis in higher education on both strong disciplinary grounding and inter/multi-disciplinary approaches at the post graduate/doctoral levels. The academic ecosystem has to evolve mechanisms that will strengthen disciplinary competence and encourage multi/inter-disciplinary orientation among faculty and students.

The aim of the Government to transform the State into a knowledge society and institute a knowledge. It was against this backdrop the Government decided to examine the issues that constrain the higher education system in the State thoroughly and formulate strategies to make it timely as well as futuristic. Based on this, three commissions were instituted to explore the current status and suggest reforms in higher education. However,

the Government had initiated several measures to improve higher education even before the commissions' report were submitted. These efforts have started to earn positive results, as shown in **Box 2.1.**

New Institutions/Institutional Development

Building up new institutions of higher education has been a priority of the Government. Recently, two new universities were established with very specific objectives of universalising and to bridge some of the existing gaps in higher education.

The Sree Narayana Guru Open University was established to impart higher education through distance learning and online mode. It is expected that this university would be able to universalise higher education and evolve into a national-level distance learning hub.

The Kerala University of Digital Sciences, Innovations and Technology (formerly IIITM-K), established in 2020 is the first of its kind in the country and this model was shortly emulated at the national-level. The Digital University is mandated to conduct high end academic and research programmes in sunrise technologies. In a short span of time, the Digital University has ventured into cutting edge areas of research and initiated several innovative programmes that help to evolve new models of academia-industry linkages.

The infrastructure development of the relatively new Malayalam University and Technological University has also been supported by the Government for acquisition of land and preparation of detailed project reports.

Another recent development is the reorientation of the State Board of Technical Education, with elaborate functions for the comprehensive development of employment oriented education in the State.

New Posts/Recruitment and Courses

Deployment of adequate manpower is an important pre requisite for enhancing the quality of higher education. During 13th Five-Year Plan, more than 1,000 teaching posts have been created and a number of innovative courses have been started in Government and aided colleges. 17 courses for recent technologies were started in engineering colleges at UG-PG levels. Faculty recruitment, which was pending for a long time

was resumed in all universities. The 13th Five-Year Plan recorded an unprecedented surge in the number of teaching positions in all the universities in the State. While new positions were created in the newly founded universities, large number of vacant positions were filled in.

Recruitment for the posts of assistant, computer assistants and other clerical posts has been made through KPSC. The tenure of several statutory officers in university has been fixed and retirement age of these officers has been limited to 56 years in order to increase the operational efficiency. As per the latest ordinance, the term of registrars, finance officers and examination controllers has been limited to four years.

Infrastructure Development

There has been marked improvement in infrastructural facilities in the higher education institutions, particularly in universities. During the 13th Five-Year Plan and afterwards, there had been earnest attempts to improve the infrastructure facilities by making use of Plan funds and grants from various funding agencies. Construction of academic blocks, classrooms, laboratories, libraries, sports facilities and other amenities are in different stages of completion in the Universities and Government colleges.

The major accomplishments in infrastructure development are: An Academic Complex at Karyavattom and Indoor Stadium at Senate House Campus constructed at Kerala University, Academic Complex and a modern lab building in M.G University; men's hostel and academic buildings in CUSAT; new buildings for academic block/libraries/laboratories at Government Colleges of Attingal, Kannur (women's) and Kozhikkode, Model Engineering College, Ernakulam, College of Engineering, Thiruvananthapuram (CET), RLV College of Music and Finance, Thrissur, Polytechnic colleges of Mattannoor, Nedumangad, Poonjar and Payyannoor. In College of Engineering Thiruvananthapuram, an Industrial and Production Engineering block has also been constructed.

The emphasis on orienting the higher education sector to innovation and entrepreneurship development has resulted in the establishment of incubation centres and centres of excellence in all Government engineering colleges as well as universities. In this regard, special care has been

taken to ensure that such facilities are established in all Government colleges, particularly in those which are in remote places.

Infrastructure Development Assisted by KIIFB

The Kerala Infrastructure Investment Fund Board (KIIFB) is providing assistance worth ₹570 crore to the development works in various higher education institutions in the State. The projects funded by KIIFB are in different stages of completion. Infrastructure development projects amounting to ₹70 crore implemented in various institutions under the higher education department have been completed and the buildings were inaugurated in October, 2020. Construction of an air strip for the training of NCC cadets has been completed and inaugurated. Under various KIIFB projects in the higher education sector, 48 colleges were given a grant of 8.5 crore each, five heritage colleges were given 30 crore each for and 12 colleges were provided with 10 crore each. The construction works of 45 buildings are in progress as part of the basic infrastructure development. More than 30 buildings were already completed between 2016 June and 2020 November and handed over to the respective institutions.

Initiatives under Directorate of Collegiate Education

The emphasis on improving the quality of higher education has not only focused on infrastructure development and manpower deployment, but also led to several innovative initiatives to empower weaker sections, ensure gender parity, improve intellectual output, foster innovation, improve amenities, create better learning ecosystems through hybrid mode, facilitate placements, promote co-curricular activities, and create better opportunities for students. Some of the major programmes that have been conceived and implemented by the Directorate of Collegiate Education in this regard are given below:

- **Jeevani:** This is a programme to provide counselling services to the student community. Jeevani counselors have been appointed in every Government colleges for the mental health needs of college students. The project has been greatly appreciated as it provides a platform for students to get advice on stress management and academic and non-academic issues faced by them. This platform has great potential of developing into centres that can handle issues like substance abuse, addiction etc.

- ***Performance Linked Encouragement for Academic Studies and Endeavour (PLEASE)***: It 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. As part of this, financial assistance is given to every institution to build a lab, purchase equipment etc to strengthen research.
- ***Green Campus***: Green campus project is implemented to eliminate plastic waste on campuses and to properly dispose of bio-waste. With the help of start-ups, the project is implementing vegetable cultivation, floriculture, Butterfly Park and Miovaki forest in vacant lots.
- ***Award for gifted students as part of the Chief Minister's 100 Day Action Plan***: Honorable chief minister's scholarship is an innovative scheme designed by the Department of Higher Education to give awards to 1,000 financially backward talented students as part of the CM's 100 Day Programme. The prize money of this scholarship is ₹1 lakh.
- ***ORICE and Online Programmes/services***: The Collegiate Education Department has implemented three study series namely Beyond Syllabi, Malayala Sahitya Yatra and Winglish through Meghanatha Saha Centre for Content Development Studio as part of the Online Resource Initiatives of Collegiate Education (ORICE) programme. ORICE is an initiative of Government of Kerala to develop and disseminate video content of eminent academics within India and abroad. The programme is part of the ongoing efforts for developing quality educational content for e learning. High-speed stable internet service is provided in Government colleges by installing the BSNL single optical fibre network. Most of the services offered by universities, including admissions and certifications, were made online; entrance exams to professional courses except engineering were conducted online.
- ***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 centres of advanced knowledge.

Initiatives under Technical Education

Closely following the new thrust on enhancing the capability of institutions, fostering innovations, and helping them to develop viable and feasible technological solutions, the Department of Technical Education has initiated several programmes. Some of the major initiatives in this regard are given below:

- ***Specialised technology development centres***: Many specialised centres working on technological solutions were established in different engineering colleges. Out of these, the Rural Technology Development Centre at Government Engineering College, Kannur, Transportation Research Centre and Product Design and Development Centre at College of Engineering, Trivandrum, Re-usable Building system at Rajiv Gandhi Institute of Technology, Kottayam and Centre for Bamboo Technology at Government Engineering College, Barton Hill, deserve special mention. They formulate and implement research projects with social relevance and better applicability.
- ***Interdisciplinary research centres***: The Directorate of Technical Education has initiated to establish Interdisciplinary Research Centres in all Government Engineering Colleges in specific areas identified by the host institution, in a phased manner. The centres are envisaged to act as platforms to facilitate and promote interdisciplinary research among the faculty members, so as to produce quality research outputs useful for the society. Three centres are already established during 13th Five-Year Plan period. The details of these centres are given below:
 - ♦ College of Engineering, Trivandrum has started work on launching a

student satellite, with CET Centre for Interdisciplinary Research (CCIR) as the nodal agency.

- ♦ A nodal Centre for Robotics and Artificial Intelligence has been set up at Government Engineering College, Thrissur.
- ♦ Centre of Excellence in Systems, Energy and Environment is set up at Government Engineering College, Kannur.
- *Production and training centres, material testing centres and advanced fabrication laboratories:* To expose students to the latest development in technology and to improve the teaching-learning process through hands – on training, the department is setting up Production and Training Centres, Material Testing Centres and Advanced Fabrication Laboratories at all Government Polytechnic Colleges in a Phased manner.
- *Industry on Campus (IoC)* scheme is under process at all Government Polytechnic Colleges, which are identified as Additional Skill Development Centres.
- *Technology Business Incubation Centres:* Entrepreneurial initiatives are channelled through the Technology Business Incubation Centres functioning at all Government Engineering Colleges and selected Government Polytechnic Colleges. They are encouraged through collaboration with Kerala Start-up mission. Main objectives of TBIs are:
 - ♦ Assist prospective entrepreneurs in nurturing their technology ideas and promote successful corporate entity at pre-start up and start up stages.
 - ♦ Promote innovation among budding engineers trained by the institution.
 - ♦ Commercialise the ongoing research.
 - ♦ Spot and nurture entrepreneurial talents from among the students.
 - ♦ Conduct entrepreneurship development programs (EDP) for the students and faculty, professionals employed in the industry and individuals. At present there are around 50 TBI units active under DTE, out of which 21 have started functioning in 2021-22. Many applications are being mentored and will be ready for incubation. Besides this, around 40 pre-incubation units are nurtured and more than 50 units have completed their gestation period

since inception of the scheme in 2014. In 2021-22, 10 units have completed their gestation period. Measures to foster innovative thinking are also implemented in colleges. With this objective, several Boot camps are organised at institutions to welcome prospective entrepreneurs.

- *Human Resource Development (HRD) Cell:* Special programmes to train the teachers to keep abreast of the latest developments in their domains have also been implemented. Acknowledging the importance of enhancing the core competencies of teachers and researchers, faculty members are encouraged to pursue higher studies. To enable holistic development of youngsters with high levels of social commitment, Human Resource Development (HRD) Cell was established in 2019-20, which is functioning successfully in various institutions.
- *National Board of Accreditation:* To enable our technical institutions to acquire international visibility and recognition, the department has devised strategies to get National Board of Accreditation for all higher-level institutions in 2022-23. All engineering colleges except GEC, Idukki have successfully extended NBA accreditation status. Process is already underway for GEC, Idukki. Among Polytechnic colleges, NBA accreditation was achieved by WPTC, Nedupuzha and five more Polytechnic colleges have completed the registration formalities, waiting for inspection.

Activities of Higher Education Council

- **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.
- **Community Higher Education (Prabudhatha):** This is an initiative formulated to help the larger public to be aware of how advanced knowledge impacts the quality of life and conditions of human existence.
- **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 database in the 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):** This initiative ensures the co-operation of the libraries attached to the Higher Education Institutions by forming a network in the State which would enable the sharing of resources among them. KALNET consist of two levels;
 - ♦ Libraries of a University to be networked and to be known by the name of the University.
 - ♦ The network of the affiliated college libraries which in turn would be linked to KALNET
- **Scholarships:** KSHEC has been giving merit scholarships to students with amounts of ₹12,000, ₹14,000, and ₹24,000 consecutively for UG students (1st, 2nd and 3rd year) and ₹40,000 and ₹60,000 for PG students (1st and 2nd year) per annum. The amount of scholarship is little bit higher for students with disabilities. An amount of ₹4,031.95 lakh has been disbursed as higher education scholarship during the last five years and an amount of ₹127.41 lakh has been disbursed as Chief Minister's Post Doctoral Fellowships.

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 KW Grid connected Solar Photo Voltaic Power Plant installed on the rooftop of the Golden Jubilee Building of the Kariavattom

Campus, that generates 1,46,000 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).
- ***Computerisation of libraries:*** Almost all the library operations in Kerala University are computerised 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 MG University:*** Completion of the construction of "Convergence Academia Complex" in MG 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.

- ***'Digitisation of Tabulation Registers'*** – Mahatma Gandhi University has digitised 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 realisation 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 ₹410.39 Lakh was utilised from the Budget allocation in 2021-2022.
- ***Technology Business Incubation and Startup Initiatives in CUSAT:*** CUSAT is the first State university in Kerala to establish a 4,000sq ft Technology Business Incubator (TBI) named CITTIC with a grant of ₹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 Agricultural University: Kerala started a new College of Agriculture at Ambalavayal, Wayanad, in 2018 with an intake of 60 students. In the last five years, the total intake of students in the B.Sc. (Hons.) Agriculture programme in KAU has been enhanced from 220 to 420 to provide more professionally qualified manpower for the State's agricultural sector. During this period, the University also established a new college, viz., College of Climate Change and Environment Science at Vellankkara, Thrissur, considering the need for trained human resources in climate-related aspects in agriculture and allied sciences. From academic year 2021-22 onwards, admissions to BSc. (Hons.) Co-operation and Banking, B.Tech. (Biotechnology) and B.Sc (Hons.) Climate Change and Environmental Science courses have been streamlined through Commissioner for Entrance Examinations, Kerala.

New academic programmes viz., M.Sc. Agriculture programme in Seed Science and Technology was initiated at College of Agriculture, Vellayani. In the academic year 2021-22, KAU also initiated two new academic programmes of 4-year duration, namely B.Tech.(Biotechnology) and B.Sc (Hons.) Climate Change and Environmental Sciences. Two new one year PG Diploma programmes in Horticultural Therapy and Landscaping and Ornamental Gardening were also launched during this period. During this period, the University also started three new departments, namely, Nanotechnology, Remote Sensing and GIS, Organic Agriculture, and one new Centre for Trade and IPR. In addition, the University initiated collaborative programmes with international universities, including Western Sydney University, Australia, and Cornell University, USA.

Kerala Veterinary and Animal Science University: During the past five years the University has received many prestigious laurels including the Prestigious Emerging young University Award for the year 2016-17, 2017-18 and 2018-19, appreciation from the Indian Council of Agricultural Research (ICAR), New

Delhi. The flagship courses under the University are accredited by National Council such as ICAR, Veterinary Council of India and AICTE. During the last five years, the University has started many academic programmes and collaborative research projects from State Plan fund, NABARD, National Live Stock Mission, Rashtriya Gokul Mission and KIIFB.

Kerala University of Fisheries and Ocean Studies: The university acts as a centre of excellence for human resource development in Fisheries and Ocean Studies and it caters to the demand for a specialist professionals in the fields of fisheries, aquaculture, fish processing, fisheries engineering, ocean studies, fisheries and coastal zone management, climate studies, disaster management, food technology, management and marine law. With a view to meet the requirement of State and national priorities, specialised course are introduced. A number of collaborative research programmes are developed as a result of the MOUs signed with leading Central and State Research Institutions. As per Elsevier Research Intelligence Report, KUFOS occupies 2nd position going by Field Weighted Citation Impact in 2020.

Skilling in Higher Education Institutions

In view of the objective of the Government to facilitate massive employment generation and entrepreneurship development, skilling has been given prime importance in recent years. Several programmes have been initiated by the department and universities to impart skills on modern enterprises and knowledge domains, to different categories of students:

- **Advanced Skill Development in Technical Institutions:** To bridge the skill gap in Engineering and Polytechnic institutions and to connect students with future technologies, ASAP set up Advanced Skill Development Centres (ASDCs) in 66 Engineering Colleges and 45 Polytechnics across Kerala. ASDCs partner with industry leaders and offer advanced courses such as artificial intelligence and machine learning and robotic process automation. As an indication of the desire to break free from traditional job roles, female students show huge interest in enrolling in these advanced courses. In 2021-22, 9,180 students have enrolled in ASAP-level 2 courses (ASDC courses), 249 enrolments in 2018-19 and 8,931 in 2019-2020. A total of 96 students were placed in artificial intelligence and machine learning course. Though these figures show improvement in the number of skilling programmes, the current enrollment in skill development programmes needs to be increased several folds to meet the declared target of massive skilling and to enhance the employability of the students. This may require programmes for training the trainers, engaging competent agencies, and establishing a network of skilling agencies across the State.
- **Earn While Learning – Internship Programme for Graduate Students:** State Government entrusted ASAP with the task of operating State Internship Portal to offer graduate students an opportunity to work while undergoing a conventional educational programme. The portal aims to follow the approach of ‘learning by doing’. The State Initiative on Internship for Employability Enhancement project is an online web platform designed in such a way that all stakeholders-students, academics and industries will meet at the same point. One of the salient features of the internship portal is that it connects students not only with industries but also with State departments that involve technical work.
- **Community Skill Parks:** ASAP’s flagship initiative Community Skill Parks (CSPs), conceived as an Industry led Public Private Partnership model of skill training, have been developed as multi skill training centres equipped with state-of-the-art training facilities in various locations across the State. CSPs operate on a hub and spoke model and connect with academic institutions, vocational training institutions and the local industry to foster a skill development ecosystem. A total of 16 CSPs are to be implemented in the State out of which 9 of them are already operational, while the construction works of the remaining 7 CSPs are in the initial phase.
- **National Qualification Register (NQR):** ASAP has acquired expertise and competence to develop Skill Qualifications as per National Skills Qualification Framework (NSQF). Over the last two years, ASAP has developed five NSQF Qualifications that are now

available in the National Qualifications Register (NQR). With this ASAP has entered the domain of skill course curriculum development. The NSQF qualifications developed by ASAP are Communicative English Trainer (NSQF-level 6), Junior Correspondent Course (NSQF-level 5), Assistant Offset Printing Operator (NSQF-level 4), Air Cargo Management Executive (NSQF-level 6) and Certificate Course in Hi Tech Farm Management (NSQF-level 6). In 2019, four more qualifications were developed. The qualifications have obtained approval of the NSQF and they are 3D Prototyping Manager-NSQF-level 6, Manager Pre press-NSQF-level 6, Binding Machine Operator-NSQF-level 4 and AI-Machine Learning Developer-NSQF-level 7.

- **ASAP Community Colleges in Polytechnics:** The community college model, as conceptualised and operational under the All India Council for Technical Education (AICTE) aims to uplift the weaker sections of communities by identifying local employment and self-employment opportunities and provide relevant skill training. Trainings programmes are conducted by skill knowledge providers who are the real industry people.
- **She Skills:** She Skills is an exclusive training programme for women above 15 years of age for a period of three months. Improving living standards by helping women, mostly home makers, to learn marketable skills, and promoting entrepreneurship to become economically self-sufficient. She-Skills 2019 offered 23 courses in 11 job sectors. Placement grooming, softs skills training are salient features of the programme. 5,529 women enrolled for the programme.

Accomplishing Excellence and Transition to Knowledge Economy: The Future of Higher Education in Kerala

As stated earlier, Kerala as a State has, in comparison with other Indian states, an enviable track record in respect of issues of access, equity and excellence in school education. This achievement now needs to be extended into higher education as well. The challenge here is far greater, given the historically inherited inequalities across regions and social groups, and given the fiscal and

other constraints imposed both by the economic policies of the Union Government and National education policies that have paid little attention to issues of inclusion and diversity, notwithstanding the rhetoric on reforms for improving quality and standards.

Kerala has embarked on a difficult, yet possible mission to transform itself into a knowledge society and concomitantly build up a knowledge economy. This implies that Kerala, as a society has to generate, share, and make available to all its members, knowledge that may be used to improve the human condition. A knowledge society serves to transform information into resources that allow society to take effective action, that would facilitate its development and well-being. The capacity to gather and analyse information has existed throughout human history. Since the idea of the present-day knowledge society is based on the vast increase in data creation and information dissemination that results from innovations in a multitude of knowledge domains and intricate applications of information technologies, Kerala has to make deliberate attempts to build up systems that would enable this process. Reforms in the higher education sector are viewed from this perspective. A comprehensive restructuring has been targeted from school-level to higher education-level including research and innovation to stimulate knowledge production and ensure its wide application across Kerala.

The reforms that have been envisaged in view of the above objectives would broadly address the following:

A survey of the regional distribution of HEIs and their resources across the State can provide a part of the data base required to design policies to redress regional inequalities. The individual HEIs in Kerala have evolved out of the region-specific socio economic, political and cultural processes that have been quite distinct from one another. Over the years, with rules and regulations and policies that apply to the State as whole, there has been some degree of convergence across the State among HEIs. Nonetheless, many institutions have retained some distinct inherited features and have evolved in distinct ways as well. Ideally, while we need to encourage the development of institution-specific plans and programmes that take advantage of the specific strengths of each institution, we also need

Box 2.2 Commissions for Excellence in Higher Education

The Government 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. The Government has constituted three Commissions at the State-level for exploring reform initiative in Higher Education System of the State. The Commission for Reforms in Higher Education chaired by Dr. Shyam B. Menon has examined important aspects of the existing system of higher education in the State, particularly the larger objectives of transforming the State into a knowledge society and developing a knowledge economy. The Commission for Reforms in Examination in the Universities and Higher Education Institutions of Kerala chaired by Prof. (Dr.) C.T. Aravindakumar reviewed the present state of examination in the Universities and higher education institutions of Kerala and put forward substantial reformation in the system of examination and its processes. The Commission for Kerala State University Law Reforms chaired by Prof. (Dr.) N.K. Jayakumar examined the laws, statutes, regulations and ordinances of universities, particularly in the context of the regulations of U.G.C., A.I.C.T.E. and N.C.T.E., and formulated proposals for revising them to achieve the objective of transforming the State into a knowledge society. The commissions individually have examined the status quo and came forward with fundamental and far-reaching changes in the system of higher education in the State. An implementation cell has been established in Government in order to examine and implement the recommendations of the commissions on priority basis.

to encourage the institutions concerned to align their goals and objectives as well as processes with overall State policy imperatives in higher education.

The vision for the transition of higher education in Kerala also involves substantial investment for infrastructure development, manpower deployment, collaboration with institutions of global repute, and building up efficient and congenial academic administrative systems in higher education institutions. Apart from public funding, new sources of financial and intellectual assistance will have to be identified and utilised, with a due regulatory vigil on norms and standards. Strengthening of the content of undergraduate and graduate curricula as well as the pedagogies utilised in transacting these curricula is a top priority in the quest for excellence. In addition to the revision of syllabus content, the careful evaluation of the existing academic mechanisms and the ways in which they would have to be modified and strengthened and implemented to fulfil the envisaged curricular objectives is necessary. The existing modes and mechanisms of governance in our HEIs also need to be critically examined and modified and upgraded to achieve the goals of both equity and excellence. HEIs should aim to create an academic ecosystem conducive not only to knowledge production of the highest order, but to independent, creative and critical thinking as well. For attaining this, a resolute commitment to academic freedom and promotion of a spirit of inquiry are needed. It is also to be ensured that our graduate and post graduate curricula and pedagogy provide strong grounding in the respective

disciplines and adequate exposure to relevant other disciplines to equip students to pursue inter-disciplinary research as well at the Ph.D-level.

Significant advances in the field of information and communication technologies and the emergence of interactive digital communication possibilities at relatively low cost, present a huge opportunity for vastly enhanced knowledge production and transmission. These also widen the scope for use of novel and effective pedagogical methods. Properly designed and applied, these advances can also help us in reaching those historically deprived of reasonable and equal access.

Production, acquisition and transmission of knowledge are best pursued as cooperative endeavours carried out by institutions which support and synergise one another. For this, highly competent and active research and innovation and a culture of academic excellence needs to be promoted in our universities and research institutes and interactions with academic institutions of excellence in other parts of India or abroad can play a significant role in this regard. Collaboration of HEIs with one another within the State will be a good starting point. Organised efforts of HEIs at academic collaboration with other HEIs at national and international levels must also be encouraged. Going beyond the academia, collaboration with industries at State and National levels aimed at excellence and valuable application potential in the arena of research and development as well as their commercialisation must be encouraged. In this process, prioritising public sector institutions

and encouraging affordable access to the people of the State to the benefits of such collaborative R&D and innovation efforts should be an important objective.

Recent Initiatives for Reforms in Higher Education in Kerala

The recent initiatives in the higher education sector have tried to address the broad objectives explained above. To start with, the Government has tried to delineate and assess the constraints that have adversely influenced the current systems and formulate concrete recommendation to formulate a strategic plan to reform the sector. For this purpose the Government appointed three commissions to look into different aspects of higher education in the State and formulate recommendations. The details of the commissions thus constituted are given in **Box 2.2**.

The commissions have suggested a slew of measures which could be implemented on short term, medium term and long terms bases. The general recommendations include substantial investment in the higher education sector to enhance the Gross Enrollment Ratio to 75 per cent from the current ratio of 37 per cent. They have observed that this cannot be attained only by Government investment. The role and importance of public investment in higher education cannot be overlooked given the non-rival nature of knowledge (public good nature) and the quantum of positive externalities it generates. The source of funding (public investment or private investment) has an important bearing upon the question of equity with respect to access and outcomes in higher education. Public investment is very crucial in deciding the development of growth capability and eventually the growth potential of the economy given the distributional consequences of benefits generated. In addition to the public funding, universities and other higher education institutes (HEI) should explore the possibility of mobilising private philanthropic funds, CSR funds, alumni contribution, private donations and endowments in order to augment public investment in higher education. Similarly the scope of fund mobilisation on the basis of the idea of “interest free loans” has to be explored. All such funds must be channelised either by setting up a State-level co-operative institution or Chief Minister’s Higher Education Fund (as a special purpose vehicle). Such an institutional arrangement will ensure the social control over the financing of higher education. Other major

recommendations include establishment of Centres of Excellence and mechanisms of inter institutional linkage and active relationship with industry.

The commissions have recommended drastic changes in the administrative systems of higher education institutions, with restructuring of governance systems, including the structure and functions of the senate and the syndicate, conduct of examinations, rendering of syllabi and curricula, which would require a thorough relook at the acts and statutes of the universities.

Concluding Remarks

In the last five years, important steps have been taken in this sphere of higher education in Kerala. Change is reflected, inter alia, in the ranking of colleges and universities, which has seen significant progress in the last few years. The progress of higher education, and of teaching and infrastructure in the sector, is a priority area of this Government. 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 per cent of the Plan fund of the universities. Significant investment is also envisaged under KIIFB and a financial aid worth of ₹2,000 crore from KIIFB for infrastructure development of Universities has been envisaged. The efforts of the Government to reform the higher education sector continue. However, given the legacy of the State and the determination of the Government, the task of transforming higher education is one that will be accomplished.

CHAPTER

03

AGRICULTURE AND ALLIED
SECTORS

AGRICULTURE AND ALLIED SECTORS

3.1 AGRICULTURE

Performance of Agriculture

Kerala, with its diverse topographic, climatic and soil features is conducive to diversified cropping pattern comprising cash crops, food crops and plantation crops. The sector has witnessed significant changes over the years, such as transformation from food crops to non-food crops. Over the last two decades, the share of non-agricultural area (including cultivable wasteland and fallow land other than the current fallow) in the total geographical area of the State has increased considerably. There has also been a decline in land holdings' average size to 0.18ha (Agriculture Census 2015-16).

In Kerala, the agriculture sector continues to be the primary source of livelihood for a majority of the population. Agriculture and allied sector in the State contributed about 11.28 per cent to total Gross State Value Added (GSVA) in 2021-22(Q) at current prices. In the 13th Five-Year Plan period, agriculture sector in the State was severely impacted due to the unforeseen adversities of cyclone Ockhi (2017), major flood in 2018, and the COVID-19 pandemic. After attaining annual growth rate of 2.11 per cent in 2017-18, it declined to negative growth rates in two succeeding years. However, the growth recorded an improvement to 4.64 per cent in 2021-22 from 0.24 per cent in 2020-21 which is higher than the national growth rate of three per cent (P) at constant prices).

With a little scope for increasing the area under cultivation due to the shrinking land availability, the only way to increase farmers' income is to increase crop productivity. The rise in productivity of crops requires a serious reliance on modern agricultural science. Modernisation of agriculture based on scientific inputs and farming practices ensuring higher farm business income and ecological sustainability needs to be emphasised in this context. Diversification of agriculture assumes importance to accomplish the vision of the State of imparting income security to the farmers. Considering the potential for creation of employment opportunities and enhancing farmer's income, improving the exports and strengthening domestic supply chains, enhanced emphasis on value addition need to be the thrust areas of the sector

Gross Value Added in Agriculture

The share of agriculture and allied sectors in the country's total GVA at constant prices has declined from 17.8 per cent in 2013-14 to 15.5 per cent (P) in 2021-22 (**Table 3.1.1**). The performance of agriculture sector in the State has been fluctuating in the 13th Five-Year Plan period. The sector's share in total GSVA (at constant 2011-12 prices) of the State declined to 8.88 per cent in 2021-22 (Q), compared to 9.52 (P) per cent in 2020-21(**Table 3.1.1**).

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	15.1	9.61
2018-19	14.6	9.03
2019-20	15.0	8.55
2020-21	16.3	9.52(P)
2021-22	15.5(P)	8.88(Q)

Note: (P) Provisional, (Q) Quick

Source: National Accounts Statistics 2022, GoI; Directorate of Economics and Statistics, GoK

The annual growth rate (GSVA at constant 2011-12 prices) of agriculture and allied activities (including crops, livestock, forestry and logging and fishing and aquaculture) has been fluctuating over the years. An analysis of the growth rate over the last five years recorded a positive growth in 2017-18 at 2.11 per cent (Department of Economics and Statistics, GoK). From 2018-19, the growth rate was negative. In 2021-22, growth rate of agriculture and allied activities was 4.64 per cent compared to 0.24 per cent in 2020-21 (**Table 3.1.2**). The growth in crop sector was 3.63 per cent compared to 0.46 per cent in 2020-21 (Department of Economics and Statistics 2022, GoK).

Table 3.1.2 Growth rate in Gross value Added (GVA) in Agriculture and Allied Sectors in Kerala, 2013-14 to 2021-22.

Year	Growth rate per annum in Kerala (%)
2013-14	(-)6.31
2014-15	0.02
2015-16	(-)5.10
2016-17	(-)0.65
2017-18	2.11
2018-19	(-)2.09
2019-20	(-)2.56
2020-21	0.24
2021-22	4.64 (P)

Source: Department of Economics and Statistics, GoK
Note: (P) Provisional

Trends in Growth Rate

The all India growth rate of agriculture and allied sectors has been fluctuating since 2013-14. In 2021-22, growth in agriculture, forestry and fishing declined to 3.0 per cent compared to 3.3 per cent in 2020-21. The share of crops, livestock, forestry and fishing in Gross Value Added (GVA) of the country had been fluctuating since 2013-14. As per the provisional estimates of national income, the share declined to 15.5 per cent in 2021-22 as compared to 16.3 per cent recorded in 2020-21 (**Table 3.1.1**).

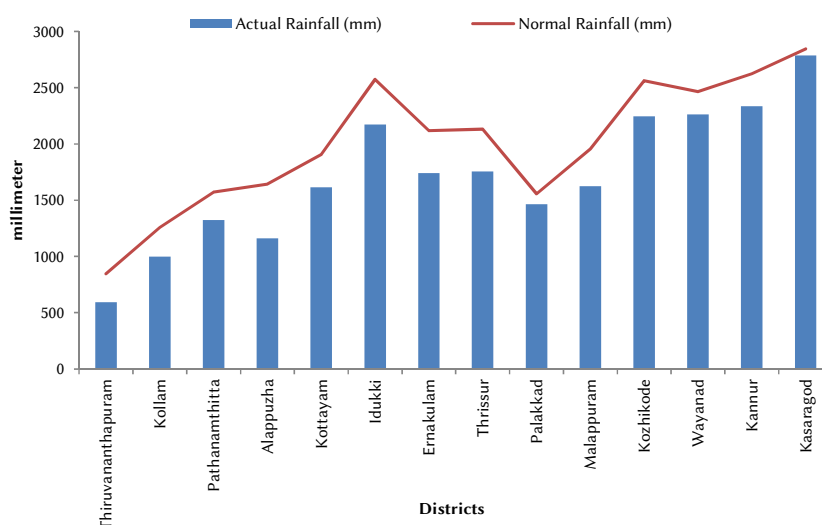
Monsoon 2022

The pre monsoon rainfall received in the State from March 1, 2022 to May 31, 2022 was categorised as 'large excess' with a departure of 84 per cent from the normal. The average actual rainfall received was 676mm against the normal of 367mm. All districts except Thiruvananthapuram, Kollam, Alappuzha and Malappuram received 'large excess' rainfall. Ernakulam (1007.6mm) and Kottayam (971.6mm) received highest rainfall in this period. The percentage departure from normal was highest in Ernakulam (152 per cent) followed by Kottayam (124 per cent).

The actual rainfall received in Kerala in the South West Monsoon season (June 1, 2022 to September 30, 2022) was 'normal' at 1720mm as against the normal rainfall of 2004mm. This was only a departure of (-)14 per cent from the normal. Eleven districts in the State received normal rainfall in 2022, while three districts viz, Thiruvananthapuram (592.9mm), Kollam (998.7mm), and Alappuzha (1,159.3mm) received deficient rainfall. All the northern districts received normal rainfall. Kasaragod District received the highest rainfall (2,785.7mm) (**Figure 3.1.1**).

The rainfall received in the North East Monsoon season from October 1 to November 2, 2022 in the State was deficient with an average rainfall of 233 mm which is a deviation of (-)27 per cent from the normal of 322 mm. Thiruvananthapuram, Pathanamthitta, Idukki and Wayanad received normal rainfall while all other districts were deficient. The highest rainfall was received in Idukki District (420.7mm) followed by Pathanamthitta District (352.2mm) (**Figure 3.1.2**). District-wise rainfall distribution in the State in 2022 is given as **Appendix 3.1.1**.

Figure 3.1.1 South West Monsoon Rainfall received from June, 1 to September 30, 2022



Source: Indian Meteorological Department 2022

Land Use Pattern

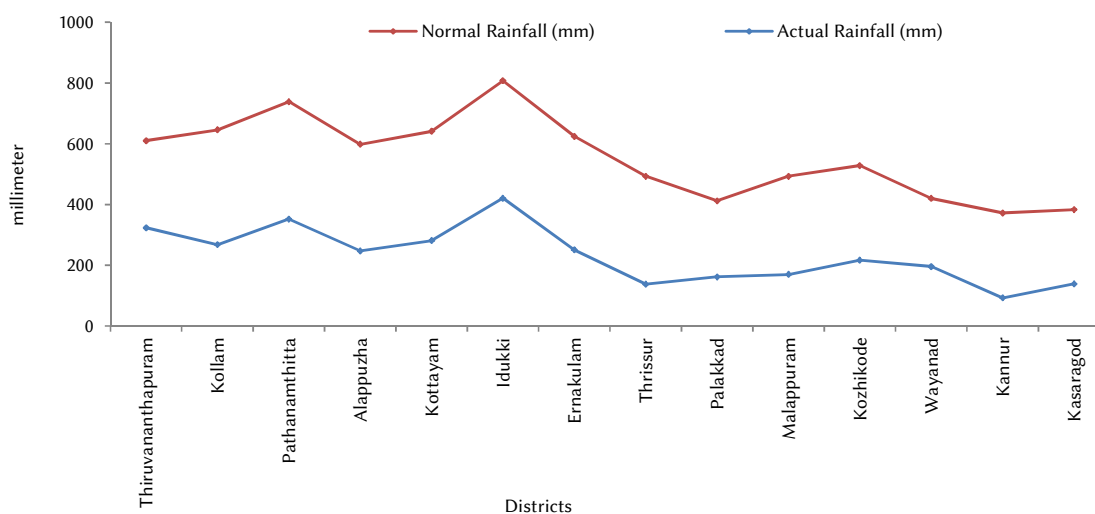
The land use pattern of the State had witnessed drastic changes over the years. Out of the total geographical area of 38.86 lakh hectares of the State, the net sown area was 20.29 lakh ha (52.22 per cent), land put to non agricultural use was 5.72 lakh ha (14.71 per cent) and area under forest was 10.82 lakh ha (27.82 per cent).

The change in agricultural land use is marked by changes in coverage of individual crops and the total cropped area. The total cropped area which was

77 per cent of the total geographical area in 2000-01, has declined to 64.92 per cent in 2021-22. As per the land use data of 2021-22, out of the total geographical area of 38.86 lakh ha, total cultivated area was 25.23 lakh ha (64.92 per cent) and the net area sown was 20.29 lakh ha (52.22 per cent).

Compared to the land use data of 2020-21, the area under cultivable waste and current fallow has declined by 5.83 per cent and 0.63 per cent respectively. But, there has been considerable increase in the area under 'fallow other than

Figure 3.1.2 North East Monsoon Rainfall received from October 1 to November 2, 2022



Source: Indian Meteorological Department 2022

current fallow' and 'barren and uncultivated land' by 15.6 per cent and 2.67 per cent respectively (**Appendix 3.1.2**).

The 'net area sown' and 'area sown more than once' declined by 0.28 per cent and 7.53 per cent respectively. This is reflected in the total cropped area of the State showing a decline of 1.79 per cent in 2021-22. The cropping intensity declined from 126 per cent to 124 per cent in the period of review (**Appendix 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 0.22ha 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.

Cropping Pattern

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

In the gross cropped area of 25.23 lakh hectares in 2021-22, food crops comprising of rice, pulses, tapioca, ragi, small millets, sweet potato and other tubers constituted 10.51 per cent. Compared to 2020-21, the production of all food crops except small millets recorded a decline.

The performance of spices except ginger and cardamom showed a declining trend in production in 2021-22. The production of ginger and cardamom recorded an increase of 6.5 per cent and 3.4 per cent respectively. Among the plantation crops, production of coffee, rubber and cardamom increased by 1.97 per cent, 7.14 per cent and 3.4 per cent respectively, while that of tea declined by 9.7 per cent over 2020-21. The production and productivity of coconut also increased by 15.6 per cent and 16 per cent respectively.

Cash crops comprising of cashew, rubber, pepper, coconut, cardamom, tea and coffee constituted 65.8 per cent and rubber, coffee, tea and cardamom constituted 28.2 per cent of the total cropped area. Coconut occupied the major area with 30 per

cent followed by rubber with 21.8 per cent. Rice constituted 7.69 per cent of the total cultivated area.

Crop-Wise Analysis

Rice

China stands first in rice production in the World followed by India and Bangladesh as per the Food and Agriculture Organisation Statistics 2020. According to the fourth Advance Estimate 2021-22, estimated rice production in India is at 130.29 million tonnes registered an increase of 4.8 per cent over the previous year.

In 2021-22, the area under rice cultivation (wetland) in the State decreased to 1.94 lakh ha showing decrease of 3.9 per cent compared to 2020-21. The production and productivity of rice also declined to 5.59 lakh tonnes and 2,884kg per ha respectively, registering a decrease of 10.7 per cent and 7.1 per cent over 2020-21 (Department of Economics and Statistics, 2022, GoK).

Rice constitutes about 7.69 per cent of the total area cultivated in the State in 2021-22. Since last 10 years, the highest area under paddy was recorded in 2020-21 i.e. 2.02 lakh ha with a production of 6.27 lakh tonnes. The steady increase in production and productivity noticed from 2017-18 declined in 2021-22 (**Appendix.3.1.5**).

Season-wise data of rice reveals that the area under Virippu (autumn) and Mundakan (winter) has declined, while that of Punja (summer) crop has increased in 2021-22 over the previous year. The production and productivity of rice recorded a decline in all the three seasons. As against the previous two years, the highest productivity was recorded in Mundakan season with 3066 kg per ha. However, it was 3.12 per cent lower than the previous year (**Appendix 3.1.6**).

Mundakan crop contributed to 44 per cent of the total cultivated area of paddy in 2021-22 with 62.8 per cent of the area in Palakkad and Thrissur districts. Alappuzha and Palakkad District contributed to 78 per cent area of Virippu crop with 69 per cent in Palakkad District. While Punja crop was dominant in Alappuzha District, Mundakan and Virippu crop were prominent in Palakkad District (**Appendix 3.1.7**).

Palakkad (39 per cent), Alappuzha (18.8 per cent), Thrissur (12 per cent) and Kottayam (9.1 per cent)

accounted for about 79 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 Malappuram and Wayanad recorded a decline in area under paddy compared to 2020-21.

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 Palakkad. The production of rice in all the districts except Malappuram recorded a decline compared to 2020-21. Among the major rice producing districts of the State, Alappuzha District recorded the highest decline in production and productivity of 25 per cent and 18 per cent over 2020-21 respectively under wetland category (**Appendix 3.1.8**).

In addition to wetland cultivation, upland paddy was cultivated in an area of 1,784ha producing 2,761 tonnes. The productivity of upland rice was 1,548kg per ha. Significant decline in upland paddy is noticed in 2021-22 compared to the previous years from 3,175ha to 1,784ha (**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 per cent of the paddy area extending to 1.88 lakh ha was cultivated with high yielding varieties and 5,777 ha with local varieties.

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

Other incentives to paddy farmers include, paddy production bonus of ₹1000 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 the rate of ₹3,000 per ha from 2022-23.

Vegetables

13th Five-Year Plan gave thrust to augment vegetable cultivation in the State to attain self-sufficiency. The vegetable production of the

State has gained momentum over the past years. Promotion of vegetable cultivation by way of support to vegetable clusters including urban, staggered and graded clusters, homesteads, institutions, fallow land, rainshelters and micro irrigation and fertigation paved way for significant improvement of vegetable cultivation in the State. This was facilitated through State Department of Agriculture Development and Farmers Welfare, Vegetable and Fruit Promotion Council, Kerala (VFPCCK), State Horticulture Mission, Local Self Government Department and Kudumbasree.

Over the last five years, the production which was 10.01 lakh tonnes in 2017-18 increased to 16.01 lakh tonnes in 2021-22. Correspondingly, the area under vegetables also increased from 69,047 ha to 1.08 lakh hectare. The area and production of vegetable in 2021-22 increased by 5.9 per cent and two per cent respectively compared to the area and production of 1.02 lakh hectare and 15.7 lakh tonnes of 2020-21.

Emphasising the plan focus on the safe to eat concept of food production, organic farming and Good Agricultural Practices (GAP) were popularised in the State in the 13th Five-Year Plan period. According to the Department of Agriculture Development and Farmers Welfare, the area under organic cultivation had increased from 7,355.12 ha in 2017-18 to 73,543 ha in 2021-22.

Pesticide Residue Analysis

Pesticide Residue Research and Analytical Laboratory, College of Agriculture, Vellayani under Government of Kerala accredited with NABL under ISO:IEC 17025 undertakes pesticide residue analysis in different food commodities in the State in conformity with national and international standards. It issues certificate on analysis of pesticide residues of vegetables, fruits, cereals, pulses, spices, milk, meat, water, herbs (curry leaf), pepper and fish samples with NABL logo and upto 98 pesticides are included in the scope of analysis of the laboratory. The results of pesticide residue analysis in food commodities, samples of vegetables and fruits collected from public markets, farm gate, eco shops and "Organic" shops in Kerala are published in public domain (www.kerala.gov.in) periodically.

In 2021-2022, 1,136 samples collected from open market, farm gate, eco-shops and organic shops were analysed for the presence of pesticide residues. Out of the total samples analysed, 344 were found to

be contaminated with pesticide residues (30.28 per cent). Among vegetables, the lowest contamination was reported in samples collected from eco-shops (21.11 per cent) and organic shops (21.05 per cent). Highest pesticide residue was detected in samples collected from open markets (32.87 per cent). Among vegetables, the most contaminated were chilli, capsicum, amaranthus, curry leaf, fenugreek leaf and mint leaves. Out of the 77 fruit samples analysed, 14 samples (18.18 per cent) were contaminated. Apple and grapes were the most contaminated fruits.

Coconut

According to Food and Agriculture Organisation Statistics 2020, Indonesia stands first in coconut production in the world followed by India and Philippines in the second and third position.

As per second advance estimate by Ministry of Agriculture and Farmers Welfare, the area under coconut in 2021-22 was 21.10 lakh hectares with production of 19,247 million nuts and productivity of 9,123 nuts per hectare. Among the coconut growing States, the southern States of Tamil Nadu, Kerala, Karnataka and Andhra Pradesh contributed to 89 per cent of the total area and 91 per cent of the production. The area, production and productivity of coconut in the country declined in 2021-22 compared to 2020-21. It was attributed to the adverse weather situations due to 'Gaja' cyclone and drought and the white fly infestation affecting the major coconut growing States. Among the coconut growing States, Karnataka stood first in production and Andhra Pradesh recorded the highest productivity. Kerala was first with respect to area under coconut and third in production.

According to the data of Coconut Development Board, the performance of coconut sector in the country over the last five years from 2017-18, showed a declining trend in production and productivity. But, there was improvement with respect to area except in 2021-22. The production and productivity declined by 19 per cent in the five year period. Though the area declined over the previous year in 2021-22, compared to 2017-18 area had increased by 0.6 per cent.

In 2021-22, coconut was cultivated in 7.65 lakh ha occupying 30.3 per cent of the gross cropped area in the State. The production and productivity increased to 5,535 million nuts and 7,231 nuts per ha respectively, which is an increase of 15.6 per cent and 16 per cent compared to 2020-21.

The performance of coconut sector in the State has been fluctuating over the last five years. However, compared to 2017-18 the area, production and productivity has increased by 0.65 per cent, 5.83 per cent and 5.13 per cent respectively (**Appendix 3.1.11**).

Coconut development programmes implemented in the State has been directed towards addressing these challenges through major programmes such as *Keragramam*, for the integrated management of coconut gardens on cluster basis and 'Coconut Mission' for reviving the coconut wealth of Kerala through a campaign of replanting and maintenance for enhancing the productivity and ensuring forward linkages with the agro industry. As per the Hon'ble Chief Minister's directive, a massive coconut replanting programme was started in the year 2018 which will be implemented till the year 2028. Farmer Producer Organisation (FPO) promoted in the State would enable aggregation of produce, thereby reducing cost in transportation and facilitate value addition. This would also aid in better by-product utilisation and efficient marketing which in turn can ensure better price to the farmers.

Pepper

As per the estimate of the International Pepper Community, the global production of pepper in 2021 declined to 5.37 lakh tonne compared to 5.93 lakh tonne in 2020. Vietnam, the top most pepper producing country, contributed to 31 per cent of the global pepper production.

The domestic pepper production which has shown an increasing trend since 2018-19 declined sharply in 2021-22. As per the advance estimate of Spices Board, pepper production in India in 2021-22 was estimated at 60 thousand tonnes, a decline from 65 thousand tonnes recorded in 2020-21. Karnataka stood first in terms of area and production of pepper in the country, followed by Kerala.

According to the Department of Economics and Statistics GoK, the area and production of pepper in the State recorded a decline in 2021-22 compared to 2020-21. The production of pepper declined by 3.2 per cent recording 32,516 tonnes from an area of 76,351 ha (**Appendix 3.1.4**). But there was an increase in productivity from 409 kg per ha to 429kg per ha in the period.

The United Planters Association of South India (UPASI) reported declining trend in domestic price

of pepper since 2016. The prices declined from ₹697.69 per kg to ₹336.47 per kg in 2020. However, in 2021, pepper prices have increased to ₹419.44 per kg.

In the last 5 years, the highest export of pepper was recorded in 2021-22, exporting 21.86 thousand tonnes. The value realisation was ₹753.31 crore, and the unit value realisation was ₹344.56 per kg, an increase of ₹182.63 crore and ₹58.93 per kg respectively, compared to 2020-21.

Integrated pepper development and pepper rehabilitation programmes are being promoted for improving pepper production in the State. Adoption of hygienic post-harvest operations, aggregation of farmers as FPOs in value addition and establishing direct market linkage for farmers/FPOs can enhance income from pepper cultivation.

Cashew

According to the FAO Statistics 2020, Cote d' Ivoire was the leading producer of cashewnut followed by India.

The statistics of Directorate of Cashewnut and Cocoa Development shows the production of raw cashew nuts in the country as 7.52 lakh tonnes which is an increase of 14 thousand tonnes compared to 2020-21. The area under cashew also increased by 4 per cent to 11.84 lakh hectare in the period. In the last five year ending 2021-22, the extent of cashew cultivation in the country has recorded a steady increase, whereas the raw nut production has been fluctuating (**Appendix 3.1.12**).

Among the cashew growing States in India, Maharashtra retained its first position in production contributing a share of 25.23 per cent followed by Andhra Pradesh contributing 16.9 per cent of the domestic production. Area-wise, Orissa recorded the largest area under cashew with 2.23 lakh ha followed by Andhra Pradesh with 1.98 lakh ha. As per the data of the Directorate of Cashewnut and Cocoa Development, the total export of cashew kernels from India in 2021-22 was 51,908 tonnes which is an increase of 6.8 per cent over 2020-21.

According to the data of Directorate of Cashewnut and Cocoa Development, the area under cashew in Kerala increased, while production declined in 2021-22 compared to the previous year. The extent of cashew in the State, which was 92,810 ha in 2017-18 increased by 14.7 per cent to 1,06,520 ha in 2021-22. The production of cashew nuts in the State

declined from 88,180 tonnes to 71,760 tonnes in the period.

According to the State-wise export data of CMIE, the export of cashew from Kerala in the last five years has shown a declining trend. The export which stood at 45,133 tonnes in 2017-18 declined to 29,091 tonnes in 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 7.11 lakh ha, accounting to 28.2 per cent of the total cropped area in the State (**Appendix 3.1.4**). Kerala's share in the national production of rubber is 72 per cent while that of cardamom, coffee and tea were 91 per cent, 20.4 per cent and 4.5 per cent respectively in 2021-22.

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

In 2021, all rubber producing countries in the world except Malaysia showed a positive growth rate in natural rubber production. According to the International Rubber Study Group, the world Natural Rubber (NR) production in 2021 was 13.770 million tonnes which is an increase of 5.4 per cent over 2020. Among the main NR producing countries, Thailand recorded the highest production of 48.36 lakh tonnes followed by Indonesia and Vietnam. India was the sixth largest producer with a share of 5.5 per cent of world production. The global consumption of natural rubber also increased over the previous year by 10.2 per cent recording 13.978 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 2021-22 showed improvement over the previous year, with a growth of 8.4 per cent recording 7.75 lakh tonnes. Out of the 7.19 lakh ha of tappable area under

natural rubber, 5.27 lakh ha has contributed to the NR production. The average yield measured in terms of tapped area increased from 1,442kg per hectare to 1,472kg per ha. Increase in yield along with the increase in tappable area and improvement in percentage of area tapped over the previous year contributed to the increase in natural rubber production. The Rubber Production Incentive Scheme and its enhancement to ₹170 per kg and remunerative price throughout the year can be the factors for improvement in production.

The country consumed 12.38 lakh tonnes of NR in 2021-22, 12.9 per cent more than the quantity of 10.96 lakh tonnes consumed in 2020-21. The import of natural rubber in 2021-22, increased by 33 per cent to 5.46 lakh tonnes compared to 4.10 lakh tonnes in 2020-21 (**Appendix 3.1.14**). The volume of natural rubber exports from the country decreased to 3,560 tonnes in 2021-22 from 11,343 tonnes in 2020-21.

Rubber occupies the second largest area in the State next to coconut with 21.8 per cent of the gross cropped area. In 2021-22, the rubber production in the State increased by 7.1 per cent to 5.57 lakh tonnes compared to 2020-21. However, there was a decline in area recording 5.5 lakh ha. The productivity of rubber increased from 1,534kg per ha to 1,565kg per ha in 2021-22 (**Appendix 3.1.13**).

The performance of rubber in the State has shown improvement in the last five year period in terms of production and productivity. The production increased from 5.4 lakh tonnes in 2017-18 to 5.57 lakh tonnes in 2021-22.

Annual average domestic price for RSS 4 grade rubber for the year 2021-22 was ₹17,101 per 100kg compared to ₹14,185 per 100kg in 2020-21. The domestic price of rubber was above the international prices throughout the year. Price analysis of natural rubber over the last five years in the period of 2017-18 to 2021-22 shows an increasing trend except for a decline in 2018-19. (**Appendix 3.1.15** and **3.1.16**).

Coffee

According to the International Coffee Organisation, the global coffee production in 2021-22 is estimated at 167.17 million bags (60 kilo bags), a decrease of 3.66 million bags over 2020-21. Brazil stood first in coffee production with a share of 35.7 per cent of the global production followed by Vietnam with 18.7

per cent. India was in seventh position with 3.7 per cent share. Globally, *Arabica* production declined and *Robusta* production increased in the period.

Coffee Board estimated the domestic coffee production in 2021-22 at 3.42 lakh tonnes, which is an overall increase in total production by 8 thousand tonnes. In this, the share of *Arabica* production was 95 thousand tonnes (27.8 per cent) and *Robusta* production, 247 thousand tonnes (72.2 per cent). The *Arabica* production declined by four thousand tonnes and *Robusta* production increased by 12 thousand tonnes compared to 2020-21. Karnataka, Kerala and Tamilnadu were the major contributors of coffee production in the country. Karnataka occupied the first position in production followed by Kerala.

The Indian coffee export increased by 35 per cent to 420 thousand tonnes while value realisation increased by 43 per cent to ₹7,767 crore in 2021-22 compared to 2020-21. The unit value of coffee increased by 5 per cent to ₹185 per kilogram.

The production of coffee in Kerala increased from 68,545 metric tonnes in 2020-21 to 69,900 metric tonnes in 2021-22. The area planted under coffee remained stagnant at 85,880 ha in 2021-22 (**Appendix 3.1.13**). Kerala's share of coffee production in the country was 20.4 per cent. The productivity of the crop in Kerala was 814 kg per ha. In the last five year period, the coffee production in the State had increased by 5.2 per cent. With respect to employment generation, the coffee plantations in Kerala provided employment to 44,194 persons per day.

As per the CMIE data, the State-wise export of coffee from Kerala in 2021-22 was 45 thousand tonnes which is an increase over the previous year. In the last five years, coffee exports have increased by 66 per cent from 27 thousand tonnes in 2017-18.

Focus on productivity improvement of existing coffee plantations by systematic planting and adequate irrigation facilities can facilitate increase of coffee production in the State. Encouraging coffee growers to access high value specialty markets through production of eco certified coffees under proper branding would help to realise higher returns. Value addition through improved technologies, formation of FPOs and direct market access to coffee growers through e-platforms would help the coffee sector in terms of production and marketing.

Tea

As per the International Tea committee data, the world tea production had shown a steady increase since 2017. In 2021, the global tea production increased by 2.7 per cent to 6,455 million kilogram compared to 2020. China maintained its first position contributing to 47.5 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, there are 2.12 lakh tea growers in the country, cultivating in an area of 6.37 lakh hectares. Tea cultivation is predominant in North India and contributes to 84 per cent of area under tea in the country. The performance of tea production sector in India has shown an increasing trend in the last five years except in 2020-21. Domestic tea production in 2021-22 was 1,344.40 million kilogram which is an increase of 4.8 per cent over 2020-21 (**Appendix 3.1.17**). Assam was the major tea producing State in the country contributing to 50 per cent of the domestic tea production followed by West Bengal with 30 per cent. The South Indian tea production constituted 17 per cent of the tea production and Tamilnadu contributed the major share in South India.

In 2021-22, the tea export was 201 million kg which was lower by three million kg compared to 2020-21. The unit value of tea export increased from ₹260.64 per kg to ₹269.72 per kg and the total value realisation increased by ₹104.25 crore to ₹5,415.78 crore in the period. The import of tea in the country in 2021-22 declined by 1.78 million kg compared to 2020-21.

According to the Tea Board Statistics, there are 8590 tea growers in the State cultivating in an area of 35,872 hectares. Kerala accounted for 4.5 per cent of the total domestic production of tea in the country in 2021-22. Both, the production and productivity of tea in the State declined by 9.7 per cent to 60.36 million kg and 1,683 kg per ha respectively compared to 2020-21 (**Appendix 3.1.13**). As per the State-wise export data of CMIE, the export of tea from Kerala has shown a declining trend in the last five years, recording a decline from 35 million kg in 2017-18 to 23.7 million kg in 2021-22.

Cardamom

India is the second largest producer of small cardamom in the world. As per the advance estimate of Spices Board 2021-22, cardamom production in

India in 2021-22 is estimated at 23.34 thousand tonnes, which is an increase of 3.6 per cent over 2020-21.

The highest price for cardamom was recorded in 2019-20 at ₹2,980.50 per kg which declined since then, recording the lowest in 2021-22 at ₹953.16 per kg. The highest export of cardamom in the last five years was witnessed in 2021-22 recording 10.57 thousand tonnes.

Kerala had a major share in cardamom production contributing to 91 per cent of the national production. The production of cardamom increased to 21.27 thousand tonnes in 2021-22, which is an increase of 3.4 per cent over 2020-21 (**Appendix 3.1.13**).

In the last five years (2017-18 to 2021-22), the cardamom production declined in the initial three years. In 2020-21, it doubled to 20.57 thousand tonnes and the growth continued in 2021-22. The area under cardamom was fluctuating in the period. However, compared to the extent of 39,080 ha in 2017-18, the area increased to 39,143 ha in 2021-22.

Consumption of Fertilisers and Pesticides

Consumption of pesticides in 2021-22 was 484.05 metric tonnes comprising of 207.38 metric tonnes of chemical pesticides and 276.67 metric tonnes of bio-pesticides. This indicates a decrease in overall pesticide consumption by 1.7 per cent compared to 2020-21. In this period, the consumption of bio-pesticides showed a marginal increase. Comparison of the pesticide consumption data over the last four years indicates a declining trend. The chemical and bio pesticide consumption declined by 60 per cent each in 2021-22 compared to 2018-19.

The total consumption of NPK fertilisers have been fluctuating in the last five years. However, the use of nitrogen, phosphorus and potassium fertilisers have declined by 44 per cent, 16 per cent and 17 per cent respectively in 2021-22 compared to 2017-18 (**Table 3.1.3**).

As indicated in **Table 3.1.4**, highest pesticide consumption in 2021-22 was for banana crop, followed by paddy and coconut. But the pesticide usage has decreased by 33 per cent in paddy crop and 34.5 per cent in coconut in 2021-22 compared to 2019-20.

Table 3.1.3 Pesticide and Fertiliser (NPK) Consumption Pattern in the State, 2017-18 to 2021-22 (MT)

Year	Chemical Pesticides	Biopesticides	Total	Nitrogen	Phosphorus	Potassium
2017-18	na	na	na	138213	43295	60472
2018-19	517.30	676.76	1194.06	73109	40802	67877
2019-20	291.01	343.80	634.81	75292	36797	55866
2020-21	224.53	268.37	492.89	89238	42613	75085
2021-22	207.38	276.67	484.05	76682	36327	50072

Note: na not available

Source: Department of Agriculture Development and Farmers Welfare, Kerala

The per hectare consumption of nitrogenous fertilisers increased in 2021-22 compared to the previous three years with 29kg per ha, contributing to 47 per cent of the total nitrogen, phosphorus and potassium fertilisers. The consumption of phosphorus and potassium was 14kg per ha and 19kg per ha respectively, which is lower than the previous year (**Appendix 3.1.18**).

Collective Farming through Kudumbashree

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 2021-22, an area of 20,441 ha was cultivated with paddy, vegetables, banana, tubers and other crops with the participation of 58,755 JLG's. The area brought under cultivation of paddy was 3,286ha, vegetables 4,681ha, tubers 5,674ha and banana 5,683 ha. Other crops were cultivated in 1,117ha.

On comparing with the area covered in 2020-21, the area taken up under all the crops through collective farming has declined. Details of area covered in 2021-22 are given in **Appendix 3.1.19**.

Soil Health Card

Department of Agriculture Development and Farmers Welfare and Department of Soil Survey and Soil Conservation undertakes distribution of Soil Health Card to farmers in the State. As part of the Central Soil Health Card Scheme of National Mission for Sustainable Agriculture (NMSA), 23.62 lakh soil health cards were distributed between 2017-18 and 2021-22. In the 2017-19 period corresponding to cycle II, one sample per 10ha grid for rainfed areas and one sample per 2.5ha grid for irrigated areas was followed and 20.52 lakh soil health cards were distributed.

From 2019-20, in the third cycle of the programme, the concept of model village development was introduced, under which soil samples were collected from individual farmer holding. Accordingly, 3.09 lakh Soil Health Cards were distributed in the period 2019-22 in the State (Department of Agriculture Development and Farmers Welfare). In addition to the Central scheme, 8,325 soil health cards were distributed by the Department of Soil Survey and

Table 3.1.4 Commodity and crop-wise consumption of pesticides, chemical and bio, 2019-20 to 2021-22 (MT), technical grade

Commodity	Chemical Pesticides			Biopesticides			Total		
	2019-20	2020-21	2021-22	2019-20	2020-21	2021-22	2019-20	2020-21	2021-22
Cereals,Paddy	72.32	52.85	48.97	85.64	62.88	56.30	157.96	115.73	105.27
Vegetables	40.00	34.14	35.64	57.01	42.79	58.25	97.01	76.94	93.89
Spices	32.47	22.05	15.15	45.00	31.19	24.84	77.46	53.25	39.99
Coconut	78.05	52.89	46.22	81.70	63.66	58.43	159.75	116.55	104.65
Areca nut	17.20	12.35	10.68	19.73	19.89	23.11	36.94	32.24	33.79
Banana	50.97	50.24	50.72	54.72	47.94	55.74	105.69	98.19	106.46
Total	291.01	224.53	207.38	343.80	268.37	276.67	634.81	492.89	484.05

Source: Department of Agriculture Development and Farmers Welfare, Kerala

Soil Conservation and 5,500 by VFPCCK under different programmes (Department of Soil Survey and Soil Conservation, VFPCCK).

Agricultural Marketing

Agricultural marketing in the State is facilitated with the support of Government and Local Self-Government (LSG) institutions and farmer producer organisations (FPOs). Organised marketing of agricultural commodities in the State is provided through a network of markets established in rural and urban areas. This includes six wholesale agricultural markets, three in urban areas (Anayara in Thiruvananthapuram, Maradu in Ernakulam, Vengeri in Kozhikode) and three in rural areas (Nedumangad in Thiruvananthapuram, Moovattupuzha in Ernakulam, and Sultan Bathery in Wayanad) and five District procurement cum marketing centres functioning in Kaliyanchantha (Kollam), Kodenthuruthu (Alappuzha), Kuruppunthara (Kottayam), Thodupuzha (Idukki), and Pavaratti (Thrissur). These markets under the Department of Agriculture Development and Farmers Welfare functions as per market rules framed by Government of Kerala. The six agricultural wholesale markets are registered with the National Agriculture Market e-NAM, a scheme launched by the Government of India to facilitate online transparent competitive bidding to farmers, ensuring remunerative price to their produce. Thus 998 farmers and 165 traders are registered with e-NAM in the State through these markets. Besides these, local market outlets placed at various levels, facilitated marketing of the local farm produce with different mode of aggregation, either on cluster-based business model or aggregating from farmers. The marketing mechanism of 289 *Swasraya Karshaka Samithies* established by the Vegetable and Fruit Promotion Council at the production centres in aggregation and direct marketing through auction procedure could exclude middlemen. The turnover of these markets in 2021-22 was ₹212.23 crore with trading quantity of 78,373 metric tonnes of fruits and vegetables. The seven primary processing centres and the centralised vegetable and fruit processing and marketing centre established by VFPCCK could effectively carry out trading of *Thalir* branded products worth ₹15.96 lakh.

“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 2021-22, this programme was implemented through 550 selected nodal markets including 250 Primary Agricultural Cooperative Societies and 300 nodal markets of the Department of Agriculture. Under this, ₹2.99 crore was disbursed to 2,675 beneficiaries. As part of the market intervention programme for price stabilisation, which aimed to provide products at reasonable price to consumers, 2,000 Onam markets were organised through VFPCCK, Department of Agriculture Development and Farmers Welfare and HortiCorp in the Onam season of 2021. About 3,203 metric tonne products worth ₹10.76 crore were traded through these markets. In addition to this, 28 mobile retail outlets also functioned under VFPCCK throughout the State with trade volume of 76.24 metric tonnes worth ₹33.27 lakh.

Lack of an organised market information system and market intelligence mechanism, absence of a protocol for standardisation and grading of produce, fragmented production, lack of an exclusive logistic management system and storage and warehousing facilities for agricultural produce particularly perishables are some of the challenging factors in the development of an efficient agricultural marketing system in 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 2021-22, SFAC Kerala provided assistance to 16 new agripreneurs consisting of nine micro, five small and two medium units. Forty eight value addition units promoted since 2017-18 are successfully functioning in the State, in addition to these 16 units.

FPOs being the appropriate institutional mechanism to mobilise farmers and build their capacity for collective production and marketing, State Government focussed on providing favourable environment for creation of new FPOs by providing necessary technical and managerial skills along with marketing infrastructure facilities. The process for the formation of 50 new FPOs and strengthening of existing 50 FPOs was initiated in 2021-22 under the lead role of SFAC. In the same period, 41 FPOs were registered in the State under VFPCCK covering crops such as banana, pineapple, spices, jack, mangostein

and vegetables. As part of the Government of India scheme for formation of 10,000 FPOs, 25 FPOs were registered in the State through NABARD, NCDC, NAFED and SFAC, India. Under this programme, 34 FPOs were registered in the previous year.

The Department of Agriculture Development and Farmers Welfare took steps to tap the Agriculture Infrastructure Fund intended to improve agriculture infrastructure in the country focusing on post-harvest management infrastructure and community farming assets through incentives and financial support. Accordingly, funds were tapped for Primary Processing Centres, warehouses, custom hiring centres, cold storage, sorting and grading units and smart and precision agriculture. An amount of ₹102.14 crore was sanctioned to FPOs, Startups, farmers, Cooperative Societies, Agri entrepreneurs and PACS for these programmes.

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

Shortage of agricultural labour force, identified as one of the major constraint in agriculture in the State necessitates rapid mechanisation of agricultural operations. Investments are made through the Agriculture Department and the various agencies to create infrastructure and trained manpower for adequate and timely mechanisation support to farmers. 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. But, lack of a definite business plan, lack of coordination between units, improper and inadequate training to the members and improper maintenance of agro machinery procured are some of the factors that hinder the efficient functioning of these centres.

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 service 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 per the report of the Mission for 2021-22, out of the 107 ASC and 368 KKS established in the State, 95 ASCs and 194 KKS are provided with agro machinery. As per the farm machinery inventory conducted by the mission, 4,633 farm machineries in different categories are available in the Agro Service Centres and *Karshika Karma Senas* throughout the State, of which 3,788 machineries are functional. Since its inception, 1,855 machineries were repaired and made functional through the mission and 705 ASC and KKS members were skilled in machinery repair. The District-wise status of availability of agricultural machineries that are functional in the ASCs and KKS are given in **Table 3.1.5**.

In 2021-22, 249 individuals comprising of 161 male, 87 female and one transgender were trained in repair and maintenance of agricultural machineries through the Mission. The ASC and KKS besides providing mechanisation services, also provided support for production and supply of 15.22 lakh fruit seedlings as part of the one crore fruit seedling distribution programme in 2021-22.

Major Achievements of Department of Agriculture Development and Farmers' Welfare in 2021-22

In 2021-22, activities of the Agriculture Development and Farmers' Welfare focussed on 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. Introduction of the scheme "Kerala Farm Fresh-Pazham Pachakkari Base Price" to provide financial support to farmers for 16 items of fruits and vegetables in the event of decline in prices below the base price fixed was a new initiative in 2021-22.

Some of the major highlights of achievement are as follows.

- Assistance was provided for rice development in 1.67 lakh ha as input subsidy at the rate of ₹5,500 per ha
- Disbursement of Royalty to owners of 18,519.9ha of cultivable paddy land at the rate of ₹2,000 per ha for ecosystem services.
- Published wetland databank of 1,061 Panchayats as part of enforcement of Wetland and Paddyland Act, 2017.
- Distributed 8,98,647 West Coast Tall, 31,293 dwarf and 1,30,052 hybrid coconut as part of the rehabilitation and rejuvenation of coconut palm campaign under Coconut Mission.
- Under the fruit development package 84.3 lakh planting materials belonging to 30 fruit varieties were distributed.
- Registration of 11,735 farmers as members of Farmer Welfare Fund Board. Under PM KISSAN scheme 37,32,621 farmers benefitted as on July 2022.
- Paddy production bonus amounting to ₹752.42 lakh was provided at the rate of ₹1,000 per ha.
- As part of strengthening agricultural marketing, support was provided for establishment of 32 container model outlets for fruits and vegetable and 19 temperature controlled vehicles for transportation.

Major Highlights of 13th Five-Year Plan

- Royalty to the owners of cultivable paddy land at the rate of ₹2,000 per ha was introduced in 2020-21, for conserving the cultivable paddy lands.
- Constitution of “Coconut Development Council” in 2018 with a 10-year development vision for reviving coconut farming in the State through replanting and under planting with high yielding varieties and local varieties, enhancing productivity and ensuring forward linkages with agro industry.
- Shift to planning and implementation of schemes based on the concept of five agro ecological zones and 23 agroecological units, considering the importance of crop choice and crop management prescriptions on a regional basis to ensure economic, and ecological sustainability and farmer welfare
- Establishment of Block-level Agricultural Knowledge Centres (AKC) as hub of scientific information for various interventions and training to farmers on the latest advances in the field of agriculture in 152 Blocks with the participation of scientists of Kerala Agricultural University, field-level officials, people’s representatives and farmer representatives.
- Constitution of Kerala State Agriculture Mechanisation Mission in 2017 as the apex body to coordinate the activities of Agro

Table 3.1.5 District-wise details of Agro Service Centres and Karshika Karma Senas (2012-13 to 2021-22)

District	Total Number of machineries	Agro Service Centre (Numbers)		Karshika Karma Sena (Numbers)	
		ASCs	Functional Machineries	KKS	Functional Machineries
Thiruvananthapuram	305	10	168	23	74
Kollam	343	7	146	18	151
Pathanamthitta	247	4	95	27	51
Alappuzha	383	8	144	31	193
Kottayam	314	8	177	23	119
Idukki	340	6	206	20	95
Ernakulam	310	8	118	31	126
Thrissur	251	12	163	37	52
Palakkad	139	7	41	27	72
Malappuram	300	7	92	36	99
Kozhikode	562	10	294	32	194
Wayanad	275	4	103	11	99
Kannur	624	11	267	39	270
Kasaragod	240	5	103	13	76
Total	4633	107	2117	368	1671

Source: Kerala State Agricultural Mechanisation Mission

- Service centres and *Karshika Karma Senas*
- Launching of *Subhiksha Keralam* project in the COVID-19 pandemic to overcome the shortage of food supplies in convergence with Animal husbandry, Fisheries, Cooperation and LSG departments.
- Establishment of Biofertiliser and Organic Manure Quality Control Laboratory (BOQCL) at Pattambi in 2020 to ensure the quality control of bio fertilisers and organic manure.
- Initiated establishment of Centre of Excellence for vegetables and flowers in Wayanad District for comprehensive promotion of vegetables and flowers in the State through adoption of better practices and creating value chains for fetching higher income to the farmers.
- Introduction of “Kerala farm fresh *Pazham Pachakkari* – base price” programme in 2021-22 so as to enable assured price to farmers produce, by way of base price fixed for 16 items of vegetables and fruits in the State.
- Formation of Kerala Farmer Producer Organisations (FPO) Policy, 2020 and operational guidelines for FPOs in May 2020. In 2021-22, 85 FPOs were constituted in the State through VFPC and SFAC.
- Establishment of Jack fruit trading centre at Idukki, integrated vegetable and banana pack house of 20 metric tonne storage capacity with precooling, cooling and ripening facilities in Wayanad with the fund support from APEDA were the major initiatives to prevent post harvest losses.

Crop Insurance Schemes

Keeping in view of the risks involved in agriculture and to insure the farming community against various risks, crop insurance schemes are being implemented in the State. The insurance schemes currently under implementation 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, and lightning, wild life menace and forest fire. In 2021-22, an amount of ₹31.80 crore was disbursed as compensation to crop damage under this scheme.

The crops notified under Restructured Weather Based Crop Insurance Scheme (RWBCIS) include paddy, arecanut, pepper, ginger, sugarcane, turmeric, cardamom, pineapple, banana and nutmeg in Kharif season and paddy, banana, cashew, mango, sugarcane, pineapple, potato, cabbage, carrot, garlic, french bean, yard long bean, snake gourd and bitter gourd in Rabi season. In Kharif 2021 season, 28,661 farmers were insured. Claims worth ₹29.53 crore were settled with respect to 26,788 farmers. Consequent to the floods, new add-on covers were notified under RWBCIS viz. inundation (for all crops), landslide (for all crops) and heavy wind cover (for banana, cardamom, nutmeg, arecanut). Automatic Weather Stations installed in 140 locations linking Panchayats facilitating settlement of claims for adverse weather on the basis of weather data of respective weather stations.

Paddy, banana, tapioca and plantain were the crops notified under Prime Ministers Fasal BimaYojana (PMFBY) in the State. Under this scheme, 8,796 farmers were insured and ₹4.53 crore paid as claims for 4,741 farmers for paddy crop alone in Kharif 2021 season.

Vegetable and Fruit Promotion Council, Kerala (VFPC)

Vegetable and Fruit Promotion Council, Kerala (VFPC) provides support to commercial fruit and vegetable growers in Kerala in various farm operations from seed to marketing. The major activities of the Council include technology support to farmers, participatory technology trials, formation of self-help groups (SHGs), campaigns, training, capacity building programmes, production of quality seeds and planting materials, participatory credit support, group marketing, export promotion and programmes for the promotion of vegetable cultivation in urban areas.

Through the Self-Help Group concept popularised by the Council, 19,000 farmers were inducted in 392 SHGs in the 13th Five-Year Plan Period. Thus 2,08,194 farmers were registered in 10,211 SHGs. As on August 2022, the number of registered farmers were 2,09,091.

VFPCCK caters to production and distribution of quality seeds and planting materials through the seed processing plant at Alathur, Hitech Plug nursery at Nadukkara, Ernakulam and Krishi Business Kendras at Ernakulam, Thiruvananthapuram and Kasaragod. In 2021-22, 68 metric tonnes of seeds and 50.35 lakh vegetable and fruit seedlings were produced and distributed through these centres. Green coconut procurement was initiated and under this, 2301 MT was procured through 34 procurement centres in Malappuram, Kozhikode and Palakkad.

Soil test based nutrient application was promoted through distribution of 5,500 soil health cards and supply of soil ameliorants and micronutrients. Farmers including lease land farmers were provided credit facility and ₹76.51 crore was disbursed under Kissan Credit Card (KCC). Interest subsidy amounting to ₹109.07 lakh of two per cent was provided to prompt repayers. Participatory approach in technology development was carried out and out of 70 trials conducted, 12 technologies were adopted and popularised. Technology popularised by VFPCCK through participatory approach include production and distribution of 'banana special' and 'vegetable special' for correcting micro nutrient deficiencies, using the technology of Indian Institute of Horticultural Research (IIHR), Bangalore and secondary and micronutrient mixture preparation, bunch covering tool technology and protocol for dehydrated banana using Kerala Agricultural University (KAU) technology.

VFPCCK, the designated State nodal agency for agri export policy developed the sea shipment protocol of Nendran banana in collaboration with the National Research Centre for Banana (NRCB), Trichy and ventured into export in 2020-21. Till August 2022, a total of 55 metric tonnes of fruits and vegetables were exported in association with six export firms. VFPCCK took lead in formation of clusters in Thiruvananthapuram, Wayanad and Thrissur for promoting banana export with the guidance of Agricultural and Processed Food Products Export Development Authority (APEDA) and training was provided to stakeholders through Indian Institute on Planning and Management (IIPM), Hyderabad.

VFPCCK received the Cluster based business organisation (CBBO) status of Central SFAC for formation and registration of Farmer Producer Organisations and was also selected as the nodal training institute of MANAGE in undertaking agripreneurship training. In the year, 41 FPOs were

registered through VFPCCK with the objective of export business and value addition prospects.

In the 13th Five-Year Plan period, this organisation ventured into processing and value addition, branding of products and export promotion activities in addition to its involvement in production and marketing of fruits and vegetables. VFPCCK farmer products were marketed in the brand name *Thalir*. Value added products in the form of dehydrated ripened banana and oil less banana chips marketed through VFPCCK gained popularity. The infrastructure facilities were strengthened through commissioning of Hi-tech Plug nursery at Nadukkara and setting up of seed storage structure at Seed Processing Plant, Alathur. Soil testing labs at Thiruvalli and Thuravoor, seven primary processing centres and a centralised vegetable fruit processing and marketing centre for primary processing of fruits and vegetables and marketing of *Thalir* branded products were also set up. The role of VFPCCK in the field of marketing and processing was strengthened by opening 63 *Thalir* Green ecoshop outlets for promotion of organic products, establishment of Jack procurement centres at Idukki and Wayanad and Jack processing centre at Idukki. Two pack houses were established in Wayanad and Thrissur with the assistance of APEDA.

State Horticulture Mission (SHM)

The State Horticulture Mission functions with the objective of holistic development of the horticulture sector in the State. The mission undertakes implementation of centrally sponsored schemes of Mission for Integrated Development of Horticulture (MIDH), PMKSY-Micro Irrigation component (Pradhan Mantri Krishi Sinchayee Yojana), Paramparagat Krishi Vikas Yojana (PKVY) and Rashtriya Krishi Vikas Yojana (RKVY). In 2021-22, besides production and productivity improvement programmes, the mission's activities also concentrated on infrastructure development for post-harvest management activities by way of assistance to processing units, sorting and grading units, mobile pre cooling units, integrated packhouses, retail outlets and reefer containers.

As part of dissemination of technology, the Arka Vertical Garden Structure of Indian Institute of Horticulture Research, Bengaluru was popularised in the State for safe growing of the selected vegetables, medicinal plants and ornamentals in sunlit utility area, balcony and terrace utilising the vertical space. 340 units were established in the State.

Another initiative of the mission was the propagation of exotic and indigenous fruits under which dragon fruit cultivation was promoted in 131 ha and new exotic fruit cultivation was expanded to 660 hectares with support for drip irrigation.

As part of infrastructure development for post-harvest operations, SHM-Kerala provided assistance for 10 primary processing units, 20 pack houses, one integrated pack house, one reefer van, two retail outlets and, nine preservation units in various districts of the State. This also includes assistance provided to Kattapana Service Cooperative Bank of Idukki District for purchase of reefer van for collecting vegetables and fruits from farmers and transporting them to local as well as distant markets. Assistance was provided to Thulunad Eco Green Farmers Producer Company for establishment of pack house for spices, honey, vegetables and seasonal fruits in Kasaragod District, benefiting 250 farmers.

With the support of the mission, cardamom processing unit was established by Rajakad Spices Farmers Society, benefitting 600 farmer families and a preservation unit for cocoa was established by Manimala Cocoa Producer's Society in Kottayam District for preservation of cocoa beans benefitting nearly 500 farmers. Besides these, eight mushroom value added units were established with the support of the mission using RKVY assistance in 2021-22.

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. Its functions centres on development of improved crop varieties and efficient agrotechnologies and farm implements for production as well as post-harvest management and value addition of crops and related enterprises.

In the 13th Five-Year Plan, the research projects of KAU targeted to bridge major research gaps in the agricultural sector to ensure inclusive and sustainable growth. Assessment of climate change impact on agricultural sector, social vulnerability

and mitigation and adaptation strategies to manage the impacts, development of stress tolerant varieties through breeding, biotechnological applications and conservation and utilisation of traditional varieties, conservation of natural resources (crop varieties, soil and water, flora and fauna) were the major focus areas of research interventions. 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.

Major Achievements in 2021-22

1. Kuttiattoor Mango and Edayur Chilli were added to the list of ten GI registered agricultural products and Kerala got the status of being the first State in the country in terms of maximum GI registration and Plant Genome Saviour.
2. Three National Plant Genome Saviour Awards received for the State through the efforts of the University.
3. Three new departments were set up to develop modern technologies in the field of nanoscience and technology, remote sensing and organic farming. Centre for the study of intellectual property and commerce was also established.
4. Developed Integrated Farming Systems models based on paddy, coconut, and banana.
5. Process protocols for spray dried cashew apple powder, Osmo air dehydrated fruits (carambola and papaya), portion packaging of jackfruit and mixed fruit and vegetable jam were

standardised and made available for transfer of technology.

6. Developed production protocol for novel health drink from cashew apple and streamlined commercial production technology for cashew sprout.
7. Produced and distributed 1,365 tonnes seeds, 68 lakh seedlings/grafts/layers and 520 tonnes bio control agents to the farming community.
8. Patent obtained for KAU Weed Wiper Design, low cost 'electrostatic spray charging system' with a novel nozzle design, Hand held wiper device for weed control, Wheel Hoe Weeder and power operated floating paddy harvester used in Pokkali Cultivation.
9. Extension services included capacity building programmes, on-farm trials and front line demonstrations, farm advisory services, exhibitions and seminars and workshops. Farm advisory and diagnostic services were offered through Multi-Disciplinary Diagnostic Team (MDDT) visits and farmer interface *Mukhamukham*. Twenty one field visits involving 966 farmers were conducted in the year.
10. The Directorate of Extension was instrumental in forming seven Farmer Producer Organisations across the State with the involvement of Krishi Vigyan Kendras
11. Three Massive Open Online Courses viz; Pests and disease management through biocontrol agents, mushroom cultivation, and apiculture were offered by the Centre for e-learning (CEL, KAU) with 300 registered students in 2021-22.

Salient achievements of KAU in 13th Five-Year Plan period include

1. Release of 35 varieties of various crops (rice-8, coconut-1, vegetables-9, spices-12, others-5), establishment of Pesticide Residue Laboratories, at College of Horticulture, Vellanikkara, College of Agriculture, Padanakkad and Regional agricultural Research Station, Kumarakom as part of the 'safe to eat' food programme, development of secondary micronutrient mixtures Ayar, Sampoorana, Banana Micromix and Vegetable Mixture.
2. Establishment of Seed Bank with facility to conserve about 50,000 seed collections for a period of 30 years under the Seed Bank Project for promoting protection, conservation, availability and spread of local land races and traditional varieties.
3. R-ABI (RKVY-RAFTAAR – Agribusiness

Incubator) implemented by KAU since 2019 incubated 122 startups out of which 45 per cent are processing startups.

4. Conduct of programme for Diploma in Agricultural Extension Services for Input Dealers (DAESI) in four districts to transform input dealers into para-extension professionals for enabling them to address the day-to-day problems faced by the farmers at the field-level.
5. Lead role in the Block-level Agricultural Knowledge Centres (AKC) functioning in 152 blocks to disseminate scientific agricultural practises and demonstrate latest technologies to farmers.
6. Functional association with the Kudumbasree, Department of Education, Local self-Government department, Agricultural Skill Council of India and Social Welfare Department in imparting training to the various stakeholders.
7. Establishment of a new College of Agriculture at RARS, Ambalavayal in Wayanad District with intake capacity of 60 students.
8. Launching of the multi-nutrient, nutribar to address malnutrition of young and adolescent children in the State under the *Sambushta Keralam* project.

Key initiatives of 14th Five-Year Plan

One of the major initiative in the 14th Five-Year Plan is the introduction of the farm plan based development approach to tap the resource potential scientifically at the basic farm unit-level and provide maximum returns per unit area to farmer through multiple cropping and farming systems. Integrated Farming System models encompassing crops, livestock, fisheries and other enterprises like apiculture and sericulture will also form part of this approach. Thus, planning of schemes will not only be crop-focussed but also be focused on field agriculture and oriented towards integrated farming schemes.

Another initiative in the 14th Five-Year Plan period is for upgrading the existing Krishi Bhavans to "Smart Krishibhavans" with the objective of streamlining the functioning of Krishi Bhavans. The Krishi Bhavans will be equipped to focus on productivity-enhancing interventions for farmers in a scientific manner with the integration of latest technologies including Information Technology.

Scheme for strengthening and streamlining the agricultural marketing system will be implemented

concentrating on aggregation of produce and infrastructure development of markets including cold storage facilities. Establishment of new markets and development of a regulated supply chain network will be given importance with equal emphasis on strengthening storage and warehousing facilities.

Programmes for promotion of value addition and agro processing including agripreneurship development will be supported in coordination with PACS, LSGIs, Co-operatives, Kudumbhasree and Industries department. The Value Added Agriculture Mission will be responsible to undertake measures to address the existing institutional, infrastructural, financing, marketing, and knowledge and information constraints in the promotion of entrepreneurship in agriculture. The potential for modernisation of agricultural practices through application of digital technology for increasing overall efficiency of agricultural production processes as well as entire value chain will be tapped.

Agriculture research programmes will concentrate on development of scientifically validated recommendations on the crops and cropping patterns, including the varieties and production packages for each AEU. Other major focus areas of research will include development of short duration stress tolerant, climate resilient varieties, protocols for precision farming and innovations in digital agriculture. The programs of KAU will be aligned to the broader strategies of agriculture development undertaken by the Department of Agriculture.

Way Forward

Sustainable agriculture development depends on how well our farmers are sensitised about the recent advances in R&D of agri-technology and their just application towards efficient and effective management of agri inputs. Low productivity of crops, high cost of production, shortage of labour, inefficient mechanisation, fragmented supply chain and underdeveloped post-harvest facilities are some of the areas identified as critical in the development of agriculture sector in the State. Agricultural planning has to change to make it sustainably profitable with changes in production, agribusiness, value chain and more investments. Developing skills in modern farming and other agricultural activities would be a right move towards self-sufficiency in food production.

Considering the importance of women in farming, empowerment of women at all levels of the agricultural value chain needs to be explored. Formation of Farmer Producer Organisations promotion of cluster farming for mechanisation, modernisation and automation in production and post-harvest processing will help farmers in better price realisation through direct marketing of their produce. Contingent crop planning based on agroclimatic or agroecological zones well in advance of main cropping season will help farmers to prepare for weather uncertainties in the particular year.

Finance to Agriculture and Allied Sectors

Agricultural finance is crucial to support the growth of the agricultural sector. Indeed, it is essential for food security, job creation, and overall economic growth. Agriculture finance empowers poor farmers to increase their wealth and facilitates the development of food value chains. Credit is critical to agricultural finance, whether to purchase inputs (seeds, fertiliser), tools, or to cover on-going operational costs prior to harvest time.

There is a heavy demand for investment capital and sustainable financial services in rural areas and agricultural activities necessary for global growth and food security. In particular, small holder households and enterprises in developing countries lack the required investment capital and access to financial services, which result in low agricultural productivity and efficiency with attendant low incomes and high losses. By 2050 the global food demand will increase by 70 per cent and accordingly at least \$80 billion annual investments in the value chains are required in response to this. Most of which needs to come from the private sector due to the limited public resources, large scale mechanisation, climate smart technologies, processing, and agro-food logistics. Smaller investments are also needed for farmers and agriculture micro, small and medium enterprises to increase their productivity while reducing environmental impact and accounting the climate risks.

Agriculture loans and investments portfolios currently are disproportionately low as compared to the agriculture sector's share in GDP. Important challenges for the financial markets include managing unique risks in agriculture, limited effective demand for finance and lack of expertise of financial institutions in managing agricultural loan portfolios, high transaction costs in dealing with

large numbers of small farmers and micro small and medium enterprises.

Agriculture and its many associated value-adding agribusinesses and services can play a crucial role to meet the 17 global Sustainable Development Goals (SDGs), including the important targets towards ending hunger, poverty and reducing inequality. In India 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.

Kerala agriculture is distinct from the rest of the country 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.

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, as on March 2021. As per State Level Bankers Committee, Kerala has an excellent banking network, with the total number of bank branches placed at 7,622 as on March 2022 which includes 6,624 commercial banks, RRBs and Small Finance Banks and 998 banks and their branches in the co-operative banking sector.

The cooperative banks and primary agriculture credit societies (PACS) have played a greater role in furthering financial inclusion in the State. Cooperation and primary cooperatives are Kerala's strength, a rich legacy of freedom movement. People's confidence in these institutions is part of Kerala's historical heritage. Today, these institutions form the backbone of much of rural economic activity in the State. The cooperative sector in Kerala experienced an active role of the Government in their development and functioning. In fact, most of the cooperatives 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 cooperatives have a good network through 170 offices of Kerala State Cooperative Agriculture Rural Development Bank and 1,644 PACS, as on March 2022.

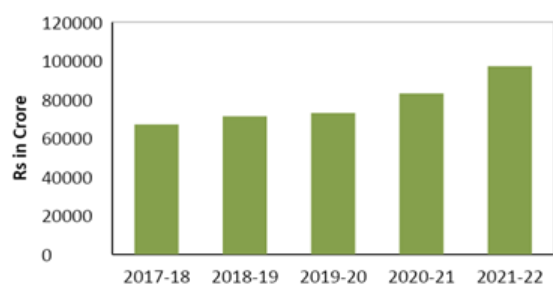
The Credit Deposit ratio of the State, year on year, has come down marginally from 65 per cent to 64 per cent as on March 2022. Non-performing assets in agriculture and allied sectors was 4.08 per cent of total agriculture advances. Primary sector lending in Kerala has achieved 128 per cent as against the target fixed for 2021-22, an increase of 28 per cent. The balance outstanding under Kisan Credit Card (KCC) was ₹43,159.41 crore as on March 2022. The cumulative disbursement in the year 2020-21 under KCC by all agencies was ₹24,413.31 crore in respect of 12.89 lakh cards issued.

There has been considerable increase in agriculture credit flow from ₹67,089 crore in 2017-18 to ₹83,102 crore in 2020-21. Out of the total agriculture credit disbursed in 2020-21, ₹52,224 crore was disbursed by public and private sector commercial banks; ₹16,872 crore by co-operative banks ₹12,846 crore by Regional Rural Banks (RRB) and ₹1,160 crore by other small finance banks. It shows that commercial banks continue to play a predominant role in the advance of credit in agriculture and allied activities (**Table 3.1.5**).

In 2020-21 the achievement in crop loan lending has improved to 110 per cent, whereas the same was only 105 per cent of the target fixed for 2019-20. There has been substantial improvement in lending to agriculture by cooperatives, achieving 84 per cent of the crop loans against lending target in 2020-21 as compared to previous financial year of 55 per cent.

The achievement in agricultural term loan was 117 per cent of the target fixed for 2020-21 as against 97 per cent achievement in 2019-20. It is to be noted that cooperatives gain an additional 19 per cent in lending to term loan, achieving 119 per cent of the lending target of term loans in 2020-21. Hence it shows a remarkable achievement of cooperative banks, as compared to public sector commercial banks. Over the past five years, the priority sector lending shows an increasing trend (**Figure 3.1.5**).

Figure 3.1.5 Agriculture lending in Kerala from 2017-18 to 2021-22



Source: State Focus paper 2022-23

Investment Credit

As regards the breakup of total agriculture credit to production and investment, as compared to previous year, it can be seen that the share of investment credit has slightly decreased to 36 per cent of the total credit in 2021-22. In the long run there is a gradual increase in investment credit from 20 per cent in 2015-16 to 36 per cent in 2021-22. However the share of long term credit has slightly decreased from 38 per cent of total Ground Level Credit to agriculture in 2018-19 to 33 per cent in 2019-20. It was 37 per cent in 2020-21 and 36 per cent in 2021-22, which shows a consistency in investment credit lending as compared to production credit. (Figure 3.1.6).

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 2020-21 the proportion of production and investment credit

changed to 64 per cent and 36 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 2021-22, ₹97,265 crore was disbursed as agricultural credit in the State, out of which ₹62,609 crore is production credit and ₹34,657 crore is investment credit. Break up of production and investment credit is provided in **Appendix 3.1.25** and sub-sector-wise agriculture credit flow 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**.

Agency-wise Disbursement of Investment Credit to Agriculture

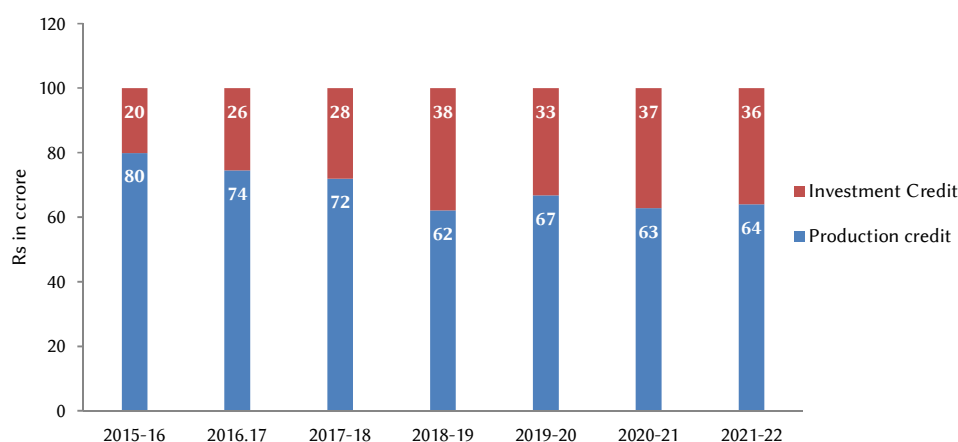
The agency-wise disbursement of investment credit to agriculture in Kerala in 2020-21 is indicated in **Figure 3.1.7**. In 2020-21, ₹30,922 crore was disbursed as investment credit in the State, of which private and public sector commercial banks provided ₹22,135 crore, Co-operative banks ₹6,342 crore, RRBs ₹1,504 crore and others ₹941 crore. The share of commercial banks stood at 72 per cent of total

Table 3.1.6 Credit flow to Agriculture Sector in 2020-21(₹ 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	27433.55	30088.46	110	18378.59	22135.19	120	45812.15	52223.66	114
2	Cooperative Banks	12490.94	10530.03	84	5323.05	6341.73	119	17813.99	16871.76	95
3	Regional Rural Banks	7227.59	11342.91	157	2270.28	1503.72	66	9497.87	12846.63	135
4	Small Finance Banks	305.90	218.57	71	477.57	941.01	197	783.47	1159.58	148
		47457.98	52179.97	110	26449.49	30921.65	117	73907.48	83101.63	112

Source: State Focus paper 2022-23

Figure 3.1.6 Share of Production and Investment Credit in Total agriculture Credit in Kerala



Source: State Focus Paper 2022-23

long term credit, whereas the share of cooperatives was only 20 per cent, a slight increase as compared to the previous year. The share of RRBs and Small Finance Banks in LT credit was five per cent and three per cent respectively.

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. As per the reports available with NABARD, 12.89 lakh Kisan Credit Cards (KCCs) with an amount of ₹24,413 crore was issued in 2021-22 in the State. The issues of KCC through various agencies are shown in **Appendix 3.1.28**. Banks are expected to leverage 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. It is estimated that around eight lakh KCC accounts are with Kerala Grameen Bank and DCBs.

National Bank For Agriculture And Rural Development (NABARD)

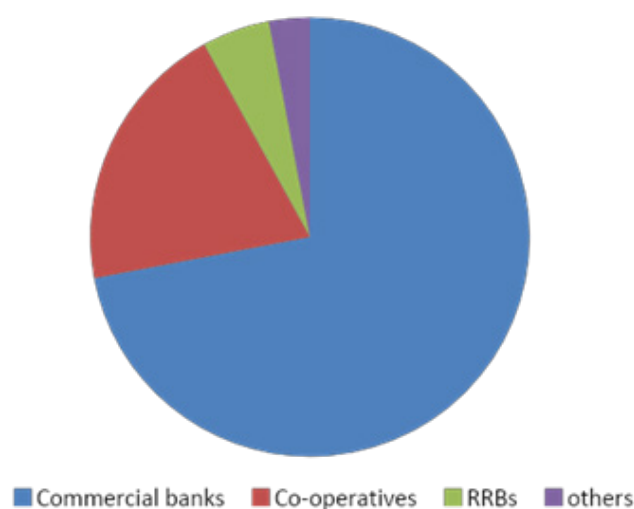
NABARD extends support to the States in the form

of loan/refinance and also as grant support. 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, promotion of off farm activities, skill development, support for financial inclusion and digitising banking transactions, creation of livelihood opportunities through Self Help Group/Joint Liability Group and capacity enhancement through training and marketing support for such groups. In the financial year 2021-22, NABARD Kerala region disbursed ₹19,660 crore in the State, registering an impressive growth of 46 per cent as compared to previous financial year.

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

Investment credit induces technological up gradation resulting in increased production, productivity and incremental income to farmers and entrepreneurs. 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

Figure 3.1.7 Agency-wise disbursement of investment credit to agriculture (2020-21)



Source: State Focus Paper 2022-23

NABARD, subject to the satisfaction of eligibility criteria.

In the financial year 2021-22, NABARD Kerala region refinanced ₹18,350 crore, 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. NABARD extends refinance of ₹18,250.95 crore in the form of long term and short term credits and ₹100 crore as direct refinance to DCB's. Out of ₹18,250.95 crore, the Kerala region disbursed ₹11,280 crore as Short Term refinance including Special Liquidity Facility (extended by RBI) and ₹6,970.95 crore 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. In 2021-22 NABARD has provided an amount of ₹1720 crore to Kerala State Co-operative Banks, an amount of ₹1,000 crore to Kerala Gramin Bank and ₹200 crore to KSCARDB under Special Liquidity Facility-2 as a liquidity support measure. 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.

The Rural Infrastructure Development Fund supports State's efforts in creation of infrastructure for agriculture development. In 2021-22, an amount of ₹507.17 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.

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). In 2021-22 total financial support extended for other infrastructure financing was ₹802.55 crore.

In addition, there are Central Sector schemes via, Micro Food Enterprises (MFE) Fund, Pradhan Mantri Matsya Sampada Yojana and Animal Husbandry Infrastructure Development Fund, 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 three per cent which in turn finances PACS at four 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.

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 scaleup 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

The cooperative movement extends across the globe and encompasses diverse sectors of the economy. More than 12 per cent of humanity is part of the three million cooperatives in the world. Cooperatives contribute to the sustainable economic growth and provide jobs opportunities to 280 million people across the globe. According to the World Cooperative Monitor, 10 per cent of the world's employed population is in the cooperative sector.

The place of cooperatives in the economy is vital and its functions spreads over almost all sectors of the economy including credit, procurement, production, construction, marketing, agricultural processing, consumer market, traditional industries and infrastructure development. In the new competitive and deregulated financial environment, cooperative institutions have re-orient their policies by drawing up prospective strategies to become globally competitive.

In Kerala, networks of cooperatives have a wide reach in rural and urban areas. Co-operative societies in the State 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, the distribution of agricultural commodities, health, education including professional education, housing, agro processing and development of Schedule Caste and Scheduled Tribe, women's development and fisheries.

A Land Mortgage Bank was formed in 1932 to provide long term loans. The Cochin Cooperate Societies act was enacted in 1913. The first cooperative society registered under the Act was "The Advanced Cooperative Society" (Kerala Development Report, 2021). In Kerala, the Registrar of cooperative societies (RCS) controls the cooperative societies. The co-operative societies are classified according to the area and nature of work and the authorities and functions undertaken by them. At present, there are 16,256 co-operative societies in Kerala, of which 12,285 are working and the rest are dormant. Among the majority are consumer co-operatives (4,640), followed by credit co-operatives (3,753) and womens co-operatives (1,245). In addition, there are marketing, housing, processing, health, and Scheduled Caste and Scheduled Tribe co-operatives. Details of the various types of cooperative in 2022 are given in **Appendix 3.2.1.**

Credit Cooperatives

Credit cooperatives are an important source of credit, particularly rural credit, in Kerala. About

33 per cent of the total household debt in Kerala was raised from credit cooperatives in 2018, the corresponding share was only eight per cent at all India-level. In the cooperative sector, credit cooperatives, including Kerala Bank, PACS, Farmers Service Societies (FSS), 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 credit structure of the State into a two tier structure. The short term and medium term structure consists of Kerala Bank and Malappuram District Cooperative Bank (MDCB) and Primary Agriculture Cooperative Society (PACS) including Farmers Service credit Society (FSCS) at the bottom-level. As of March 2022, 3,753 credit co-operative societies are registered in the State, of which 3,383 are working 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. A large part of the success story of the PACS in Kerala can be explained by the strong base of the co-operative structure at the primary-level. 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 2022, there were 1,644 PACS working under Registrar of Cooperatives in the State. The PACS had issued total loans and advances of ₹1.08 lakh crore to its members and collected deposits of ₹1.39 lakh crore. Of the total loan disbursed, showing that 72 per cent of the deposits are deployed among the members as short, medium and long term loans. 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 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. Apart from Head office, the bank has one corporate business and liaison office, seven regional offices, 13 credit processing centres and 769 branches with membership coverage of 1558 as on March 31, 2022. The members include Government of Kerala and 1557 primary societies as 'A' class members. As on 31 March 2022, the total share capital of the Bank is ₹2,042.08 crore, which includes the share of Government, societies, and individuals. It has a deposit of ₹69,907 crore, which includes the deposits of societies, individuals and institutions. The Bank has a reserve and surplus fund of ₹816.5 crore. The total borrowing of the bank was ₹10,574.82 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 2022 was ₹40,950 crore. Being a bank from the co-operative segment, the vast majority of customers are from the rural and unorganised sectors. The detailed financial particulars of the Kerala Bank for the financial year in 2021-22, 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 a major cooperative institution providing long term lending, advancing loans and advances for agricultural and allied activities, non-farm sector activities and rural housing through the affiliated Primary Cooperative Agriculture Rural Development Banks (PCARDB). 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 with Head office located at Thiruvananthapuram. The KSCARDB accounted for 33 per cent of the loan outstanding in cooperative sector (14th FYP documents, Kerala State Planning Board 2022). 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 grassroot-level. The loan disbursement in

2021-22 was ₹762.5 crore, of which ₹11.41 crore was ordinary loan and ₹751.09 crore was scheme loan. Major portion of the loan is utilised 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 subsidised rates to the consumers and prevent them from exploitation by private retailers. As on March 31, 2022, 4,640 consumer cooperative societies are registered in the State, of which 3,801 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 grassroot-level. The District wholesale stores and primary stores cater to the needs of consumers through their own outlets, supermarkets and department stores. Consumerfed is also engaged in retail business through their super markets. Kerala State Co-operative Consumers Federation Ltd (Consumerfed) was established in 1965 as an apex body of consumer wholesale co-operatives in Kerala. It has a network of retail outlets viz, 179 Triveni supermarkets and 47 mobile Triveni outlets and 13 E-Triveni Business centres, located across the State. Consumerfed is obviously vested with market intervention responsibilities especially during the festival seasons. Consumerfed has broadened its retail business portfolio by bringing in medicinal and surgical items through its neethi medical scheme. It has 12 neethi medical warehouses and 76 Neethi medical shops. Further it also operates through 36 foreign liquor and three Beer outlets across the State for beverage business. Besides, Consumerfed owns the notebook manufacturing unit at Kunnamkulam, Neethi Gas Plant at Palakkad and the Triveni Institute of Pharmacy (TIP) at Thrissur. The notebook manufacturing unit at Kunnamkulam had a turnover of ₹512.3 lakh till March 2022.

There are 179 Triveni units and 47 mobile Triveni units across the State. The total sales volume in Triveni units in 2021-22 was ₹290.55 crore. In 2020-21, the Federation achieved total subsidy sales of ₹56.8 crore by conducting 2,478 festival markets. About 1,685 festival markets were also organised during Onam in 2022 with an aggregate subsidy sales of ₹42.36 crore. In order to survive in

this competitive business environment, the Triveni outlets as well as godowns need to be modernised to a great extent.

Consumerfed owns 36 foreign liquor shops and three beer shops in Kerala. The liquor sales turnover reached ₹1,790 crore in 2018-19, ₹1,821.60 crore in 2019-2020 and ₹1084 crore in 2020-21. In 2021-22, the sales turnover from foreign liquor was ₹1,500.99 crore. Due to the increased sale in the foreign liquor shops and beer shops, they are upgraded with starting self-service counters, premium counters, delivery counters.

Consumerfed owns 12 medical warehouses and 76 medical stores across Kerala that supply medicines at reasonable rates through consumer medical stores as well as shops run by co-operatives. In 2021-22, Neethi Medical scheme sales was ₹200.88 crore and the sales up to August 2022 was ₹86.76 crore. Consumerfed owns a gas plant at Moongilmada, Palakkad through which domestic gas named “Neethi Gas” is filled and distributed in Kerala. The total sale of Neethi gas was ₹101.4 lakh in 2021-22 and up to August 2022, the sales was ₹48.15 lakh. Consumerfed take up the sale of “Chottu gas” cylinders through Triveni outlets. Beside these institutions and business it has a B-Pharm course institute called “The Triveni Institute of Pharmacy”.

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. As on March 2022, 1,245 women co-operative societies were registered, of which 951 societies were working. The main objective of the Federation is to provide integrated credit and services to the beneficiaries through its member societies in an effective manner for improving the social and economic conditions of the women in the State.

Housing Co-operative Societies

In Kerala, housing co-operative societies function in a two-tier structure. As on March 2022 there were 395 housing co-operative Societies registered, of which 288 societies were working. The Kerala State Co-operative Housing Federation Ltd (HOUSEFED) is the apex body of the housing co-operatives. State Government and primary housing cooperative societies are its members. In 2021-22,

an amount of ₹56.14 crore has been disbursed through 970 loan applications.

SC/ST Co-operative Societies

Scheduled Caste/Scheduled Tribe Co-operatives are organised and established for the socio economic development of the Scheduled Caste and Scheduled Tribes in the State. As on March 31 2022, there were 837 Scheduled Caste/Scheduled Tribe cooperative societies registered in the State, of which 434 are working. The revival of SC/ST Co-operatives is vital, to create new job opportunities and livelihood for SC/ST families. 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). In 2020-21, a total of 612 primary marketing and processing societies were registered, of which 234 are working in the State.

Health Co-operatives

As on March 2022, 194 hospital and dispensaries co-operative societies are functioning in the State, of which 98 societies are working. An apex body of health cooperatives named Kerala State Hospital Federation Ltd. is functioning in the State with Ernakulam as its headquarters.

Miscellaneous Co-operatives

There are 4,557 registered miscellaneous co-operative societies in the State, of which 3,074 were working as on March 2022. Miscellaneous co-operatives include labour contract, transport, rubber plantation, poultry, joint farming, collective farming societies and tourism societies.

Education, Research and Training

The Co-operative Academy of Professional Education (CAPE) was formed to establish educational institutions in various professional fields to provide facilities for education and training. The CAPE is promoted by the Co-operative department and it is an autonomous society under Government of Kerala. Under

CAPE, nine engineering colleges, one MBA college and a finishing school at Punnapra are functioning, 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.

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 centres and six extension centres functioning for conducting higher diploma in co-operation (HDC) and junior diploma in co-operation (JDC) courses. Grant-in-aid for member education programmes and for running SC/ST centres are provided by the Government as assistance to the training centres. The State Cooperative Union has a sister organisation, Kerala Institute of Cooperative Management, in Neyyattur, which offers MBA programs.

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. In the financial year 2021-22, the ICM Kannur conducted 13 training programmes with 524 participants and up to August 2022 the ICM Thiruvananthapuram conducted 123 training programmes with 3866 participants.

Agricultural Co-operative Staff Training Institution (ACSTI),

The Agricultural Co-operative Staff Training Institute (ACSTI), established in 1992, sponsored by National Cooperative Development Corporation has been functioning for the last 30 years. The Institute has been training the personnel of co-operative credit structure. The Agricultural Co-operative Staff Training Institute which was functioning under the Kerala State Co-operative Bank Ltd. was accorded autonomous

status by the Government of Kerala on 27th August, 2018. Accordingly, the Institute was officially declared as an autonomous institute under the Government of Kerala.

Innovative Initiatives and model schemes in 2021-22

Branding and marketing of co-operative products. There are several co-operative societies in Kerala which produce a variety of consumer goods, both food and non-food products. Few societies have developed their own brands and are able to capture significant market share. But many societies with low finances and production are not able to market their products due to lack of brand visibility. In order to enhance the brand visibility and increase the sales of products the Department of Co-operation has formulated a new project for branding and marketing of cooperative products.

The project aims to build an integrated branding and market network to deliver quality products to the customers, to enter into the national and international markets, to set up outlets in key locations and to create online markets. As part of the project, 14 “coopmart” outlets have been set up in 14 districts and 360 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 11-member Managing Committee was constituted to issue “coopkerala” certification marks to cooperative products, which satisfies the stipulated standards and criteria fixed by the Co-operative department. The project also intends to integrate various cooperative societies on common B2B and B2C IT platform enabling them to trade between themselves and with common citizens.

Palakkad Paddy Procurement Processing and Marketing Co-operative Society Ltd (PAPCOS):

As a solution to the problems faced by the paddy farmers in Palakkad and nearby districts, the PAPCOS was established and started functioning in 2019. The society procures paddy as soon as it is harvested and make payment at the time of procurement itself. The major objective of the society is to procure, to 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 ₹13.7 crore. The society has a membership of 36 Primary Agricultural

Co-operative Societies (PACS) in the Palakkad District.

Formation of a State wide 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 ₹310 crore. The objective of the society is to address the procurement and marketing issues faced by the paddy farmers. The KAPCOS will procure paddy at a fair price from the farmers, process it and market it through Government, semi-Government, co-operative and private marketing institutions, online marketers and own marketing centres. The Society has 26 PACS in Kottayam District as member societies. The society is headquartered in Kottayam. Except Palakkad, all districts are part of the new co-operative society. Rice mills will be established in Kuttanad and Upper Kuttanad.

Disbursement of Pension to Retired Employees of KSRTC:

In 2021-22, ₹821 crore was disbursed to the retired employees of KSRTC as pension. In order to disburse the pension, a consortium of PACS was formed by the Co-operative department with Kerala State Co-operative Bank as leader. An amount of ₹754 crore was refunded to the respective PACS by the Government along with 10 per cent interest.

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. Youth co-operative societies are an innovative venture by the Government for the youth. 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 lakh human-days

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 with the help of cooperative sector to help them with the support of technology to process and market their product directly or through value addition. 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, precession 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. In the financial year 2022-23, the scheme is being implemented in seven districts. An allocation of ₹22.5 crore has been made for this scheme in the financial year 2022-23. In CITA, the projects of 15 PACS from 7 districts are selected for implementation, after scrutiny by a 11 member high-level technical committee comprising technically qualified professionals from various fields. Nine projects are selected by the technical committee and approved by the Working Group so far. The State-level inauguration of this project was done by the Honourable Minister for Cooperation Sri. V. N. Vasavan at Anikad Primary Agriculture Credit Society in Kottayam District.

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 and Leasing), Labour Bank in primary sector, Agricultural Training Centre, Cold chain facilities.

are generated under the society every year. The Society undertakes civil construction work in infrastructure development and is one of the most preferred organisations for development of roads, bridges and allied infrastructure. The Society has

completed more than 7,500 major projects in Kerala and projects worth more than ₹4,587.28 crore are in various stages of completion. 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 at Kollam to improve skill and education. The annual turnover and net profit of ULCCS in 2021-22 is ₹77.76 crore and ₹4.08 crore respectively. The United Nations (UN) has selected ULCCS as the model co-operative society in India and is making a documentary on ULCCS to broadcast the success story of the society in the world. ULCCS is the only Primary cooperative society having International Cooperative Alliance membership in India.

CARe Kerala: In the wake of the devastating flood of 2018, the Co-operative Department formulated a project, Co-operative Alliance to Rebuild Kerala (CARe Kerala) 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 constructed to flood affected people who possess suitable land. This scheme is 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. Department collected ₹52.7 crore from the societies and the same had been credited to CMDRF. The Government released an equal amount of funds deposited from CMDRF to the Registrar of Co-operative Societies to undertake the implementation of CARe Home project. In addition to this, ₹35 crore from Member Relief Fund was also utilised for this scheme.

Under this scheme, each house will be built at a cost of ₹5 lakh, which is the amount permissible to the beneficiaries from State Disaster Response Fund (SDRF). In addition to the sanctioned amount, beneficiaries can utilise their own fund to construct the house. Voluntary contributions (cash/kind) from co-operatives and the public are also accepted for this purpose. Under this scheme construction of houses was started in 2018, almost 2000 houses were constructed in 2021 under the Scheme. In August 2022, 90 more houses were completed and construction of three houses are in progress.

However the Co-operative department has now started the implementation of the second phase of CARe Home project to construct 14 collective dwellings (flat) for the landless and homeless

people. Each dwelling unit will have facilities like a 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. The key handed over ceremony of 40 dwelling units under Care home Second phase in Thrissur District was inaugurated on December 6, 2021 by the Honorable Chief Minister of Kerala Sri. Pinarayi Vijayan. The Care Home project will be implemented in Thiruvananthapuram, Kollam, Alappuzha, Palakkad, Kozhikode and Kannur districts as soon as the land becomes available

Navakeralaleeyam Kudishika Nivaranam (One Time Settlement Scheme). In order to reduce the NPA of co-operatives, the Co-operative department announced a one-time settlement scheme called 'Navakeralaleeyam 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 and loss of employment due to lockdown were entitled to get maximum incentives in this scheme. In the financial year 2021-22, a total of 4,28,450 default accounts have been given a concession of ₹843.57 crore.

Distribution of Social Security Pension: For the smooth distribution of social security pension in the State, the consortium of co-operative societies comprising primary agricultural co-operative societies, employee's co-operative societies, and other primary co-operative societies were formed. The consortium named 'The Kerala Social Security Pension Limited' is constituted at the Government-level under the Companies Act. The consortium raises funds from these co-operative societies at an interest rate of eight per cent. The current balance in the consortium pool account is ₹3,585.80 crore. 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. Pension was distributed effectively even during challenging circumstances at the time of floods and the pandemic. The co-operative societies distributed the social security pension amount

of ₹4,218 crore during the period of 31st to 46th phases in March 2022.

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 aim of this project was to deliver safe and local vegetables as per the requirements of the consumers. Collection and distribution of required fruits and vegetables were started with the help of the agriculture department. The objective of the scheme is 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. The project was implemented through Kudumbasree units. Under this scheme up to August 2022, an amount of ₹2,421.58 crore has been disbursed to 5, 25,986 beneficiaries.

Deposit Mobilisation Campaign: In 2022, the Co-operative department conducted the 42nd deposit mobilisation campaign to attract depositors including youth. The campaign was successful and the sector mobilised ₹9,967 crore, against a target of ₹6,000 crore, thereby achieving an increase of ₹1,527 crore. In the previous year it was ₹8,440 crore against a target of ₹6,000 crore. These campaigns were successful in attracting deposits more than the targeted amount (**Appendix 3.2.7**).

Co-operative EXPO 2022: In coinciding with the first anniversary of the Government formation, the department of Co-operation organised Co-operative EXPO 2022 with a tagline “Orumayude Pooram”. The eight days Expo from April 18th to 25th was inaugurated in Marine Drive, Ernakulam by the Honourable Chief Minister of Kerala Sri. Pinarayi Vijayan. The exhibition cum sales stalls in the expo featured a grand line-up of stalls with diverse products – organic produce, food, turmeric, Ayurveda products, refined jaggery, furniture, traditional cooperative banks turning into smart banks by introducing the fin tech services, and even renewable solar energy installations. There were around 210 stalls

organised in a pavilion spanning 60,000 square feet including co-operatives under Registrar of Cooperative Societies, co-operatives under functional registrar and national co-operatives. The Cooperative Expo 2022 opened a unique platform to the cooperatives of Kerala for exhibiting, trading, branding, awareness and marketing of their activities, products, and services. ‘Co-op Kerala Mart’ certificates were distributed to 12 societies for the 28 different products by the Minister for Co-operation Sri. V.N. Vasavan. The expo had a combination of seminars, lecture sessions, business meet and also featured cultural events.

II Phase-100 Day's Programme

Creation of 20,000 Job opportunities: The Hon’ble Chief Minister launched a programme to generate 20,000 direct and indirect employment opportunities in 100 days. Creation of 20,000 direct and indirect job opportunities in 100 days was the goal fixed for the 100 days action plan. Even if the target was 20,000, the department had created 759 permanent jobs and 34,942 temporary job opportunities through the primary co-operative societies, apex federations and all other co-operative societies.

Indoor Football/Cricket/Badminton Turf: As part of the second 100 day programme of Government of Kerala, the department of cooperation has decided to construct indoor football/cricket/badminton turfs in each District under the primary co-operative societies. Turfs were completed and started functioning in Thiruvananthapuram District under Vithura Service co-operative bank, in Palakkad District under Pattambi service co-operative bank, in Malappuram District under Kadannamanna service co-operative bank and in Kannur District under Kathiroom service co-operative bank. The final work of turf in Ernakulam District under Vadakkekara service co-operative bank and in Kasargod District under Muttathotti Service co-operative bank are in progress.

Sabakaranam Sowbridam: In connection with the second 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. The project was inaugurated by the Honourable Minister for

co-operation Sri. V N Vasavan on May 10, 2022. An amount of ₹4.25 crore was sanctioned through 508 loans, till September 2022.

Co-operative Palliative Care Project: As part of the second phase of the 100 day programme, the department of Co-operation implemented a Palliative care project under the leadership of co-operative hospital societies with the intention of providing quality palliative care through the co-operative sector. The State-level inauguration of the project was done on May 18, 2022. The main aim of the project was to provide treatment and care for those who suffer from old age diseases and destitute. As of September 2022, 20 co-operative hospitals and co-operative societies participated in the scheme covering 10 districts.

Under the Haritham sahakaranam project, about 1.14 mango trees were planted by the societies. In connection with the *Subishakeralam Project*, ₹554.72 crore was expended toward the combined projects of agriculture, animal husbandry and dairy. In the third phase of the *Member Relief fund*, an amount of ₹21.36 crore was sanctioned by considering 10,271 applications.

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

National Bank for Agriculture and Rural Development (NABARD) has sanctioned ₹1200.00 crore as Short-Term Sessional Agricultural Operations ST (SAO) refinance to Kerala State Co-operative Bank in 2021-22. The same along with the portion of the Kerala State Co-operative Bank was disbursed through the District offices as agricultural loan 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.

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.

Table 3.2.1 District-wise disbursement of Agricultural Loans (₹ in crore)

Sl No	District Co-operative Bank	Total
1	Thiruvananthapuram	430.84
2	Kollam	406.35
3	Pathanamthitta	220.94
4	Alappuzha	737.89
5	Kottayam	465.98
6	Idukki	322.14
7	Ernakulam	539.13
8	Thrissur	544.02
9	Palakkad	348.59
10	Malappuram	0.00
11	Kozhikode	312.82
12	Wynad	121.27
13	Kannur	477.75
14	Kasaragod	229.35
Total		5157.07

Source: Registrar of Co-operatives, GOK.

NCDC in the State had sanctioned ₹200.00 crore to finance the cooperative sector in Kerala, out of this ₹92.12 crore had been released for the period from April 2021 to August 2022. NCDC has disbursed a cumulative financial assistance of ₹8,978 crore for various co-operative development projects in Kerala as on March 2022. Of this, ₹2,227.38 crore is through the State Government and ₹6,750.62 crore is via direct funding. Of which ₹2.26 crore is long term loan and ₹0.48 crore is subsidy and ₹6,747.88 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**.

The Kerala Bank, the flagship establishment in Kerala's cooperative structure, has to 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 ₹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 thirty-eight 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 involvement of cooperative institutions in the primary, industrial, service, and trade sectors should be increased so as to increase investment in the primary sector, agricultural marketing, product integration and industry, service and retail trade and other sectors. 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

The livestock sector contributes in numerous ways to the socioeconomic development of rural households. 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 among the most promising in the agriculture and allied sectors. The 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 latest Livestock Census (2019), the total livestock population in the country is 536.76 million.

The Livestock Census (2019) reports the State's livestock population as 29.09 lakh. The poultry population in the State was 297.71 lakh, which accounts for 3.49 per cent of total poultry population in the country. The poultry population registered 22.61 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 (16.81 per cent).

Contribution to the National and State Economy

As per the estimates of National Accounts Statistics (NAS) 2022, the contribution of livestock in total agriculture and allied sector GVA (at constant prices) increased from 29.33 per cent in 2019-20 to 30.13 per cent (2020-21). The contribution of the livestock sector was 4.90 per cent of total GVA in 2020-21.

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 26.44 per cent (Quick estimates) (DES, 2021-22). The share in the total GSVA of the State was 2.35 per cent in 2021-22. In real terms, GSVA in the Livestock sector at constant prices (2011-12), marginally increased from ₹11,701.86 crore in 2020-21 to ₹11,714.01 crore in 2021-22.

Major Department and Agencies under Animal Husbandry Sector

The major departments and agencies under the Animal Husbandry sector are Kerala State Animal Husbandry Department, Kerala Feeds Limited

(KFL), Kerala Livestock Development Board (KLDB), Meat Products of India Ltd. (MPI), Kerala State Poultry Development Corporation (KSPDC), Kerala Co-operative Milk Marketing Federation Ltd (MILMA) and Kerala Veterinary and Animal Science 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, 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, 50 Veterinary Polyclinics, 214 Veterinary Hospitals, 868 Veterinary Dispensaries, 38 regional Animal Husbandry Centres, 1,330 Veterinary Sub Centres, 9 Mobile Veterinary Hospitals/Dispensaries, seven Mobile Farm Aid Units and one Motor Boat Veterinary Hospital. 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 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**.

An outlay of ₹1,517.84 crore was provided for the animal husbandry sector in the 13th Five-Year Plan as against the outlay of ₹1,355.96 crore for the 12th Five-Year Plan (11.94 increase). In 2021-22, the total outlay in the Animal Husbandry sector was ₹289 crore and the total expenditure was ₹242.11 crore (83.77 per cent).

Major Livestock Products in Kerala

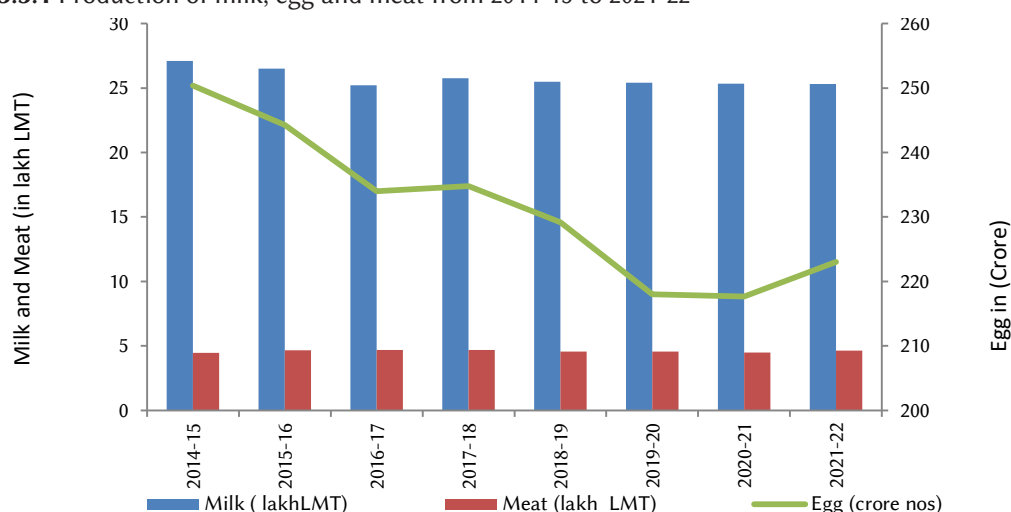
Milk, meat and egg are the major livestock

Table 3.3.1 Department/agency-wise outlay and expenditure in 13th Five-Year Plan, in ₹crore and per cent

Dept/PSUs	13th Five-Year Plan		
	Outlay	Expenditure	Per cent
Kerala State Animal Husbandry Department	870.77	741.13	85.11
Kerala Livestock Development Board (KLDB)	109.06	95.24	87.33
Kerala Feeds Limited (KFL)	36.86	20.9	56.70
Meat Products of India Ltd (MPI)	58.43	19.32	33.07
Kerala State Poultry Development Corporation (KSPDC)	58.44	25.86	44.25
Kerala Cooperative Milk Marketing Federation (KCMMF)	37.91	37.91	100.00
Kerala Veterinary and Animal Sciences University (KVASU)	346.37	152.07	43.90
Total	1517.84	1092.43	71.97

Source: Kerala State Planning Board.

Figure 3.3.1 Production of milk, egg and meat from 2014-15 to 2021-22



Source: Kerala State Animal Husbandry Department, GoK 2022

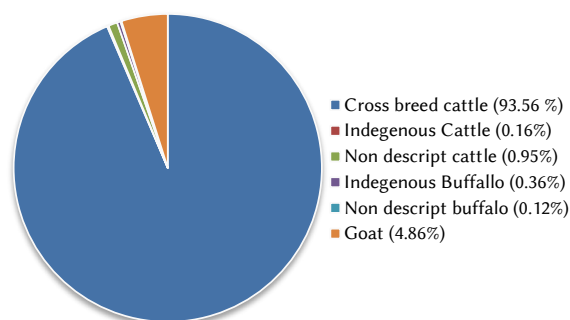
products in the State. The production of these three livestock products in 2014-15 to 2021-22 is shown in **Figure 3.3.1**.

Milk Production

India continues to be the largest milk producer, with a 23 per cent share in total milk production in the world in 2020-21. At the national-level, milk production has increased from 19.84 crore tonnes in 2019-20 to 20.9 crore tonnes in 2020-21, registering a growth of 5.80 per cent, sustaining the trend over the past three decades. The highest five milk-producing states in India in 2020-21 were Uttar Pradesh (14.94 per cent), Rajasthan (14.63 per cent), Madhya Pradesh (8.57 per cent), Gujarat (7.51 per cent), and Andhra Pradesh (7.01 per cent), which together contributed 52.69 per cent of total milk production in the country (indiastat.com). Kerala ranks 15th among the milk-producing states in India. The per capita availability of milk has been increasing in India over the years and is estimated at 427 grams/day in 2020-21 (provisional figures, Economic Survey, 2021-22). The highest per capita availability is in Punjab (1,219 grams per day) followed by Rajasthan (1,075 grams per day). Kerala's per capita availability is 197 grams per day (indiastat.com). The species-wise milk production in the country shows that nearly 33 per cent of total milk production is contributed by indigenous buffaloes, followed by cross-bred cattle (nearly 30 per cent). The indigenous cattle contribute 8.82 per cent of the total milk production in the country. Goat milk contributes 2.98 per cent of the total milk production (provisional figures www.indiastat.com).

The total milk requirement in Kerala in 2021-22 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 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 (Department of Animal Husbandry). Details of species-wise milk production in Kerala in 2021-22 is provided in **Figure 3.3.2**.

Figure 3.3.2 Species-wise milk production in Kerala in 2021-22



Source: Animal Husbandry Department, GoK 2022

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 animal in India in 2020-21 for exotic and crossbred cattle is 11.1kg per day and 6.98kg per day, respectively. For indigenous cattle and non-descript cattle, it is 3.08kg per day and 2.7kg per day, respectively (indiastat.com). The average yield from crossbred cattle in Kerala is 10.27kg per day, the third highest among the Indian states after Chandigarh (11.05kg per day) and Punjab (13.23kg per day). This advantage for Kerala was due to high per cent of exotic and crossbred animals in the population compared to other states.

Egg Production

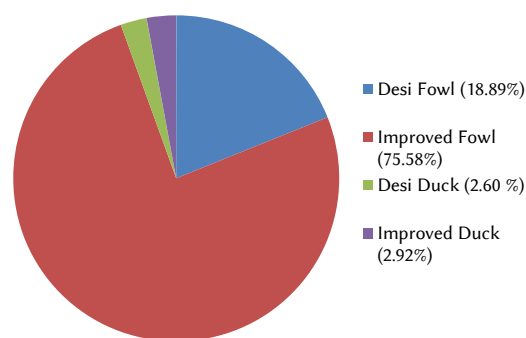
Egg and meat production in India has taken a quantum leap in the last four decades, emerging from an unscientific farming practice to a commercial production system with state-of-the-art technological interventions. According to FAOSTAT production data for 2020, India ranks third globally in egg production (Economic Survey, 2021-22). Total egg production in India has increased from 11,438 crore in 2019-20 to 12,205 crore in 2020-21, registering a growth of 6.7 per cent. There has been a steady increase in the per capita availability of eggs since 2000-01. It has increased to 91 eggs per annum in 2020-21 (Economic Survey 2021-22). In 2020-21 the largest producer of eggs was Andhra Pradesh, which produces 20.45 per cent of total egg production in the country, followed by Tamil Nadu (16.49 per cent) and Telangana (12.98 per cent). Other states contributing a major share of the country's egg production include West Bengal (8.64 per cent) and Karnataka (6.20 per cent). Kerala contributes 1.81 per cent to the total egg production in the country. The highest per capita availability of egg is in Andhra Pradesh (475 eggs per annum) followed by Telangana (423 eggs per annum) and Tamil Nadu (265 eggs per annum) (indiastat.com).

Kerala ranks 14th among the States of India in egg production. The production of egg in Kerala has been showing a declining trend in the 13th Five-Year Plan period. The total egg production in the State was 235 crore eggs in the year 2017-18, it declined to 229 crore in 2018-19. In 2019-20, the total egg production was 218.12 crore eggs; in 2020-21, the total eggs produced in the State further declined to 217.68 crore (Department of Animal Husbandry). However, in the year 2021-22 the total egg production increased to 223.01 crore but the requirement was 536.14 crore eggs

(Department of Animal Husbandry). The per capita availability of eggs in our State was 63 eggs per annum in 2020-21 which is lower than the country average of 90 eggs per annum.

According to the Animal Husbandry Department data, about 75.58 per cent of the total eggs produced in the State are from improved fowl and around 18.89 per cent are from desi fowl. The contribution of desi duck and improved duck to the total egg production of the State is 2.59 per cent and 2.92 per cent, respectively. The details of species-wise poultry production in Kerala is shown in **Figure 3.3.3**.

Figure 3.3.3 Species-wise poultry production in Kerala 2021-22



Source: Animal Husbandry Department, GoK 2022

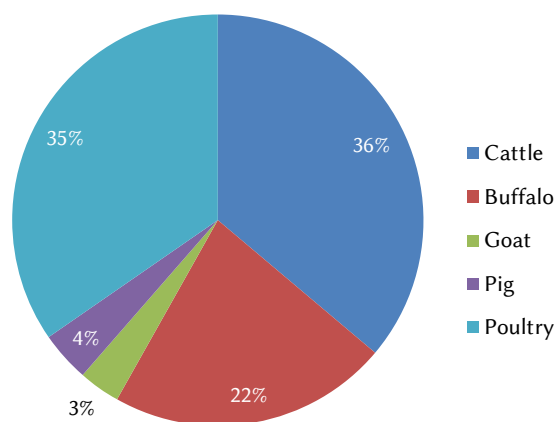
Meat Production

Meat production has witnessed a steady increase over the last ten years in our country. According to FAOSTAT (2020), India ranks 8th in meat production in the world. Meat production in the country has increased from 8.60 million tonnes in 2019-20 to 8.80 million tonnes in 2020-21 (Economic survey, 2021-22). The largest producer of meat in the country in the year 2020-21 was Maharashtra producing 12.60 per cent of the total meat followed by Uttar Pradesh (11.79 per cent), West Bengal (11.29 per cent), Andhra Pradesh (10.84 per cent) and Telangana (10.45 per cent). These states together contribute 57 per cent of total meat production in the country in this period. Kerala's contribution to the total meat production in the country is 5.24 per cent (www.indiastat.com). Species-wise meat contribution shows that more than 50 per cent of meat production in the country is contributed by poultry in the year 2020-21. Maharashtra, Haryana and Andhra Pradesh are the country's largest poultry meat producers. In India's total

meat production, meat from buffaloes and goats accounts for roughly 18 per cent and 14 per cent, respectively.

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 2021-22 was 4.63 lakh MT. The total requirement of meat in the State in 2021-22 was 8.71 lakh MT. Domestic demand for meat has been growing at a faster rate. In this context, expanding the “Kerala Chicken” scheme 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**.

Figure 3.3.4 Species-wise meat production in Kerala 2021-22



Source: Animal Husbandry Department, GoK 2022

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 a provider of safe meat, it is necessary to take a perceptible shift from unorganised to organised sector. This necessitates a strategic plan to modernise 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 remain underutilised under the ownership of progressive farmers, other individuals, LSGDs and PSUs are selected and intensive fodder cultivation activities are taken up. In 2021-22, fodder cultivation was taken up in 2397 ha of land and 343 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 2021-22 was 3.58 lakh metric tonnes against 3.26 lakh metric tonnes in 2020-21. The details of production of feed and fodder are shown in **Appendices 3.3.2, 3.3.3 and 3.3.4** respectively.

Table 3.3.2 Area under fodder farms, Kerala 2017-18 to 2021-22

Year	Area under Hybrid Napier (ha)
2017-18	2250
2018-19	2750
2019-20	2865
2020-21	2363
2021-22	2397

Source: Dairy Development Department

Presently, there are 7,755 fodder plots in the State, of which, 5,638 plots (72.7 per cent) are between one acre and 2.5 acres in area. There are 1858 plots (23.9 per cent) with area between 2.5 acres and five acres. There are only 259 plots (3.3 per cent) of area more than five acres. The area under fodder farms in Kerala is shown in **Table 3.3.2**.

The table indicates a slight increase in the area cultivated with fodder over 2021-22.

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 has 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 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.

As per the Kerala Livestock Development Board's data, frozen semen production in 2021-22 was 29.87 lakh doses. The distribution of frozen semen inside the State was 14.96 lakh doses. The distribution of frozen semen outside the State was 9.01 lakh doses in 2021-22. Details of the production and distribution of Frozen Semen in Kerala are shown in **Appendix 3.3.5**. In 2021-

Box 3.3.1 Towards making Kerala fodder sufficient

Dairy Development Department is the Nodal agency for Fodder Development in Kerala. As per the data from the Department, the total required fodder for the milch animals in the State is 335.5 lakh kg per day. However, the available fodder cultivation is only 47 per cent of the total required fodder. The State urgently needs a fodder and feed plan for its livestock sector to cover the deficit in fodder production, to reduce the cost of production of milk, to ensure a balanced ration for animals and maintain productivity and animal health.

As per the data from Dairy Development Department, during the 13th Five-Year Plan, 10078 ha of land have been brought under fodder cultivation which yielded nearly 17.08 lakh MT of additional fodder in the State. The total subsidy provided by the Dairy Department for fodder cultivation activities in 2021-22 was ₹585.4 Lakh.

It is estimated that fodder cultivation would be required in at least 54,750 ha, if Kerala has to meet the roughage production target. Public Sector Undertakings viz, Kerala Feeds Ltd and MILMA, District Cooperative Societies and Joint Liability Groups must be encouraged and supported to initiate and expand fodder production in the State.

Source: Dairy Development Department

22, 11.07 lakh numbers of artificial inseminations (AI) was done in 2,515 insemination centres with a calving recorded as 2.53 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 (IIITMK). 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) is 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 2021-22 was 56,373 as against 42,410 in 2020-21. 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 197.45 lakh doses and livestock vaccine was 6.44 lakh doses. Production of poultry vaccine decreased by 9.01 per cent and livestock vaccine increased by 18.87 per cent compared to the previous year. The number of vaccinations done in 2021-22 was 9.43 lakh for livestock and 93.78 lakh for poultry. In comparison to the previous year, vaccination for cattle decreased by 26.07 per cent and poultry vaccination increased by 31.67 per cent. Anti-Rabies vaccinations to dogs increased from 1.8 lakh in 2020-21 to 3.04 Lakh in 2021-22. 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. ‘Bhumika’ was developed in association with Digital University through which the geographical location of farmers can be captured. The app is available in Google Play store for download.

Prices

Average price of important inputs and products of livestock sector for the last six years is presented in **Appendix 3.3.11**. All the products recorded an increase in prices in the period. According to the data from the Department of Animal Husbandry, in the year 2021-22, the price of chicken broiler, chicken desi, mutton, beef and pork increased by 7.24 per cent, 0.48 per cent, 1.79 per cent, 0.42 per cent and 0.72 per cent respectively, compared to the previous year. Compared to 2020-21, the price of fowl-white egg increased by 1.82 per cent, brown egg by 2.27 per cent and duck egg by 2.56 per cent in 2021-22. The price of cow milk increased by 1.87 per cent and buffalo milk by 0.26 per cent in the same period.

On the input side, in 2021-22, the price of straw increased by 2.44 per cent, grass by 7.17 per cent, ground nut cake by 4.02 per cent, coconut cake

by 2.64 per cent and gingelly oil cake by 4.17 per cent compared to 2020-21. 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 2021-22 is shown in the **Figure 3.3.5**.

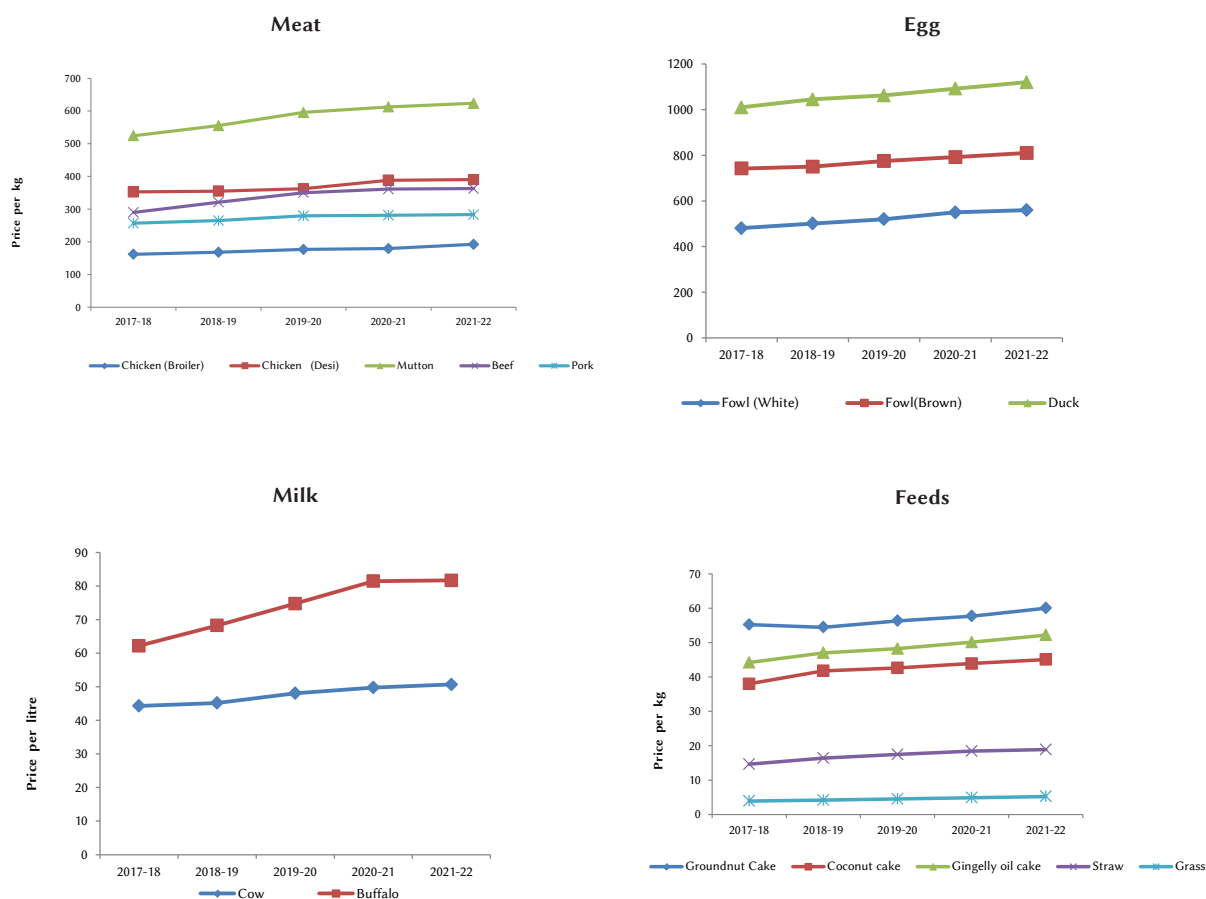
Achievements of 13th Five-Year Plan

Serious interventions were made in the 13th Five-Year Plan period to increase the benefits from the animal husbandry and dairy sectors. Certain achievements directly caused an enhancement in production and productivity in the sector while some others were of policy importance. The opening of 31 veterinary hospitals covering around 45 blocks across the State was a major achievement. An insurance scheme for cattle has been introduced. 85,000 animals have been covered under the scheme. Four regional laboratories under the animal resources department

have received accreditation status. Two tele-veterinary units have been established. About 500 artificial insemination centres for goat have been opened. Animal Husbandry Department has developed a Geographic Information System (GIS) based mapping of farmers “Bhoomika” to build a geospatial data base of farmers engaged in animal resources activities for effective management and monitoring of health, breeding, production, risk and disaster management, and human resource management. Enterotoxaemia vaccine production started in IAH&VB Palode. Special emphasis was provided for promoting goat production in the 13th Plan period through schemes such as the Goat Satellite scheme.

Another major achievement was the commencement of the Kerala Chicken programme, the project intended to supply safe broiler chicken at a reasonable price to the consumers and to develop a viable livelihood opportunity to the

Figure 3.3.5 Trend in average prices of livestock products from 2017-18 to 2021-22



Source: Animal Husbandry Department GoK, 2022

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 digitalising 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 ₹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 Husbandary 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 softwares 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 Department GoK, 2022

farmers. 82 Kerala Chicken outlets have been opened so far, reaching sales worth ₹106 crore. To ensure a consistent supply of good quality of cattle feed at a reasonable price to the dairy farmers of Northern Kerala, a 300 TPD Hi-tech cattle feed plant with budgetary support of ₹46 crore was set up at Thiruvangoor, Kozhikkode.

Physical Achievements of 2021-22

- 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 56,373 new calves under 'Govardhini' and 'SLBP' schemes. A total of 85,157 calves were benefitted.
- In the department farms 64.39 lakh eggs, and 39.60 lakh chicks were produced.
- Established 214 commercial goatery units and 911 backyard goat rearing units and 500 goat artificial insemination centres in association with KLDB.
- 2362 no of male calf fattening units established under the National Livestock Mission Programme (NLM).
- An amount of ₹1.70 crore was disbursed to those farmers as compensation, whose animals are not covered under insurance.

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. 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. 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 agrarian sector.

As per FAO's 'Overview of global dairy market developments' in 2020, global milk production reached nearly 906 million tonnes in 2020, driven by output increases in all geographical regions, except in Africa, where production remained stable. In India, milk output reached 195 million tonnes in 2020, underpinned by the continued rise in dairy cattle numbers and improved feed and fodder availability on favorable monsoon

rains (June to September). The fast mobilisation of the village cooperatives' network at the early phase of the pandemic and channelling milk into drying plants further facilitated milk output growth. India continues to be the largest producer of milk in the world. Our country has the largest bovine population in the world and it contributed 23 per cent of global milk production in 2021. Milk production in the country has grown at a compound annual growth rate of about 6.2 per cent to reach 209.96 million tonnes in 2020-21 from 146.31 million tonnes in 2014-15. In India, per capita availability of milk is 427 grams per day in 2020-21.

Out of the total milk produced in the country, about 46 per cent of milk 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 the marketable surplus available for sale to consumers in urban areas. The total size of dairy market was about ₹11.35 lakh crore in 2020. 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 ₹26 lakh crore by 2026 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 2021-22, Department of Animal Husbandry and Dairying, GoI).

Government 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 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.

Financial Performance of the Dairy Sector in the 13th Five-Year Plan is provided in **Table 3.3.4**.

Table 3.3.4 Financial performance of Dairy sector in the 13th Five-Year Plan ₹in lakh

Year	Outlay	Expenditure	Expenditure as per cent of total outlay
2017-18	9775.00	12863.40	131.59
2018-19	10753.00	11399.55	106.00
2019-20	10853.00	7598.52	70.01
2020-21	9621.00	9409.45	97.8
2021-22	9621.00	8639.62	89.79
Total	50623.00	49910.54	98.59

Source: Kerala State Planning Board

Achievements of 13th Five-Year Plan period

Substantial interventions were made in the 13th Five-Year Plan period to increase the benefits from the dairy sector. Certain achievements directly caused an enhancement in production and productivity in the sector while some others were of policy importance. In the period, there was 16.46 per cent hike in milk procurement, equipping the State towards attaining self-sufficiency in milk production. In this period, 134 dairy cooperatives were newly registered and 120 dormant societies were revived and made functional. In Kerala, around eight lakh families are involved in dairying activities. The dairy co-operative societies are the backbone of the Dairy Sector of Kerala. The membership in dairy cooperatives has risen by 25,000 in the 13th Plan period. Annual milk production of the State is 26 lakh Metric Tonne (MT) and the milk collection through dairy co-operatives has reached a record figure of 21.37 lakh litre per day in 2021. There was around a 30 per cent hike in milk procurement from 2015-16 to 2020-21. Around 9.5 lakh person days of employment are generated every year in Kerala dairy co-operative sector. The Integrated Dairy Development Programme and Dairy Zone Programme in selected districts or blocks provided

a great impetus to the dairy development activities. The establishment of Heifer parks and Calf adoption programme also helped to stabilise the dairy sector of the economy. As the part of herd induction programme, financial assistance was extended for inducting 29,577 milch animals and 7576 heifers. The Comprehensive Dairy Insurance Scheme “Ksheera Sandvanam” covering the cattle (18,278) and cattle owner (60,792) is for ensuring the socio-economic stability of farmers.

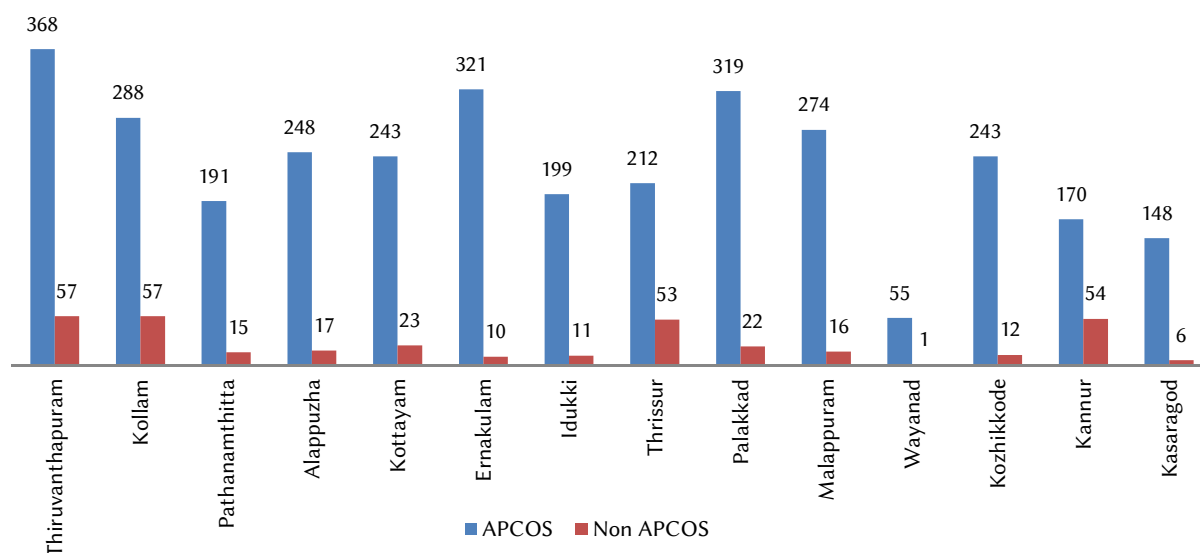
Dairy Co-operatives

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 3,633 registered Dairy Co-operative societies (including Anand Pattern Co-operative Societies (APCOS) and non-APCOS) as on March 2022. Out of the total registered 3,633 DCS, 3,364 are functional and remaining 269 DCS are dormant. There are 3,643 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. Under this Plan, organised milk handling is to be increased to 41 per cent by 2022 and 50 per cent by 2023-24. Milk procurement by co-operatives is targeted to increase from 10 per cent in 2020 to 20 per cent in 2023.

Indian dairy co-operatives and private players could create additional milk processing capacity of 4.5-4.8 crore liter 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 17 crore litre per day. It is estimated that one lakh liters of milk is procured and distributed to organised players, around 6,000 people get employment annually, and the Animal Husbandry

Figure 3.3.6 Details of APCOS and Non APCOS in Kerala



Source: Dairy Development Directorate GoK, 2022

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.

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 2021-22, a total of 7,732.72 lakh litres of milk was procured by the dairy co-operative societies in the State, of which 5,502.69 lakh litres were sent to the dairies and 2201.08 lakh litres were marketed locally by the societies. Only 28.95 lakh litres, of the total procurement, was utilised for different product preparation. The average milk procured per day by APCOS in 2021-22 was 1,565.84 MT against the previous year average of 1,367.67 MT. The procurement/day/society in 2021-22 was 508.17 litres. In 2021-22, the procurement and sale of milk by Kerala Co-operative Milk Marketing Federation (KCMMF) were 5,549.07 lakh litres and 5,214.06 lakh litres respectively. Except in Ernakulam, Palakkad, Kozhikkode, 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 **Appendices 3.3.12, 3.3.13 and 3.3.14**. The price revision and price spread of milk from 2010 onwards is given in **Appendices 3.3.15 and 3.3.16** respectively. To enhance the dairy farmers income, the Government of Kerala has increased the price of milk by ₹4 to ₹6 per litre by December 1, 2022.

Rebuild Kerala Initiative (RKI)

The Malabar Milk Union, in 2021-22, initiated the procedures to establish fodder hubs in Wayanad, Malappuram and Palakkad districts with a total outlay ₹630 lakh under RKI. The Mananthavadi unit in Wayanad District started its operation after completing all works. The Nilambur unit in Malappuram District and

Palakkad unit are nearing completion and will be operational by 2022-23.

Kerala's dependence on imported milk is declining. By November, 2021, the Dairy Co-operative sector, for the first time in the history, could achieve self-sufficiency as far as milk production is concerned. The milk procurement is around 21.19 lakh litre per day. By the end of 13th Five-Year Plan, the State which was importing around six lakh litre milk per day is sending excess milk to neighbouring states for milk powder conversion. There was around a 16.46 per cent hike in milk procurement from 2017-18 to 2021-22 (Dairy Development Department).

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 attaining 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 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 Kissan Credit Card in February 2020, Dairy Development Department was assigned as the nodal agency for leading the campaign for distribution of Kissan 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 ₹335.20 crore 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 modernisation 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.

The demand for protein food in Kerala is forecasted to increase manifold in the coming years. Hence the policy of the State Government is to take a strategic route forward, encompassing changes to improve the productivity along with ensuring environmental sustainability. Marketing its products within the State and outside is vital. The target of all policy interventions is to raise the demand for food made in Kerala.

3.4 FISHERIES DEVELOPMENT

Fishing and fisheries are an important part of Kerala's social and economic heritage. This is a sector that augments nutrition and helps generate employment and revenue. India is the third largest fish producing country in the world and accounts for 7.96 per cent of 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. The export of marine products stood at 13.69 lakh MT with a value of ₹57,586.5 crore in 2021-22 (Marine Products Export Development Agency). India is also a major producer of fish through aquaculture and ranks second in the world after China.

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 2021-22 constitutes 0.97 per cent and accounts for 0.84 per cent of Gross State Domestic Product (GSDP). Fisheries and aquaculture contributes 10.92 per cent of the GSVA (constant prices 2021-22 (Q)) from the Agriculture and allied sectors. Details regarding the contribution of fisheries sector in GSVA are given in **Appendix 3.4.1**.

Kerala with a coastline over 590km., and an Exclusive Economic Zone (EEZ) of 2.18 lakh Sq km has a significant marine fisheries sector that has long been an important source of occupation and livelihood for the coastal population in the State. In addition to this its abundant inland water resources play a keen role in contributing to the

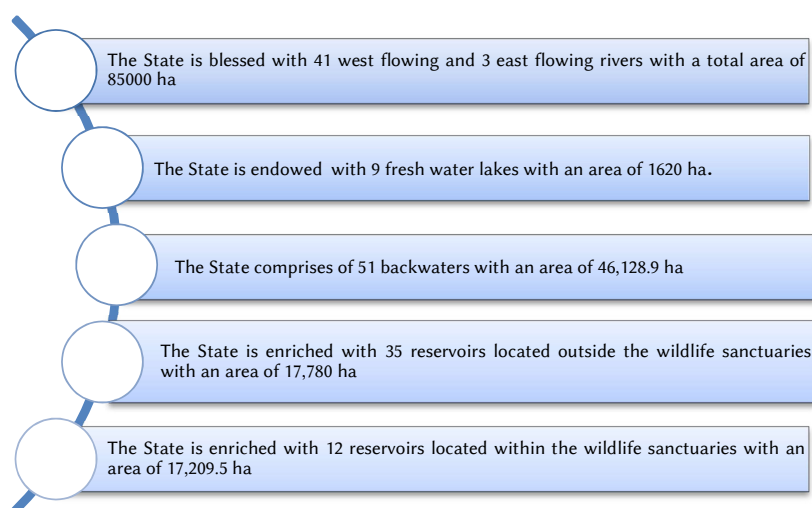
fish production of the State. A summary picture of Kerala's open water bodies is in **Figure 3.4.1**.

Growth Trends

Fish production in India in 2020-21 is estimated at 147.3 lakh MT with a contribution of 112.5 lakh MT from inland sector and 34.8 lakh MT from marine sector (Annual report 2021-22, Department of fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India). In 2021-22, Kerala recorded an inland fish production of 2.25 lakh tonnes and the contribution from the marine sector was 6.01 lakh tonnes. 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 2021-22, has registered an increase in marine fish production compared to that of the production obtained during 2019-20 and 2020-21, which demonstrates the revival in the sector and increase in man-days. The inland fish production also increased in 2021-22 due to the introduction of diversified and innovative fish farming practices, across the State.

The production of most of the marine fishes like elasmobranchii, oil sardine, lesser sardine,

Figure 3.4.1 State-level abstract of open water bodies



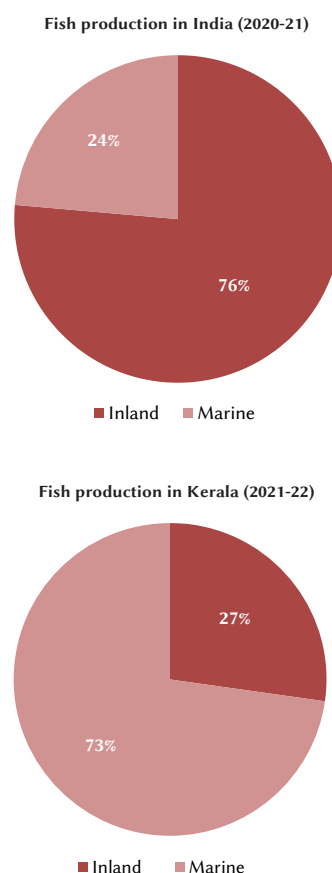
Source: Aquaculture Resource Book, 2021, Government of Kerala and Department of Fisheries

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 2021-22. The per capita fish consumption of Kerala is 19.4kg per year. Among the union territories the Andaman and Nicobar islands per capita fish consumption is 59.5kg per year (Handbook of Fisheries Statistics, 2020). The species-wise marine fish landings in Kerala from 2018-19 to 2021-22 are given in **Appendix 3.4.2**. The Inland fish production in Kerala has increased gradually during the last four years. The State has made conscious efforts in enhancing the inland fish production through projects like 'Subhikshakeralam'. Species-wise inland fish production in Kerala from 2018-19 to 2021-22 are shown in **Appendix 3.4.3**.

The difference in the composition of total fish production in India and Kerala is shown in **Figure 3.4.2** and in **Appendix 3.4.4**. District-wise fish production in Kerala is given in **Appendix 3.4.5**.

Kerala has made vital contributions to export of marine products the country. In 2021-22, export of marine products from Kerala was 1.8 lakh tonnes valued at ₹6,396.2 crore. It accounts for 13.2 per cent in terms of quantity and 11.1 per cent in terms of value of the marine products export from India. Details are provided in **Appendix 3.4.6**.

Figure 3.4.2. Fish production in India and Kerala – Share of Marine and Inland fishing



Source: Annual report 2021-22, Department of fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India and Department of Fisheries, Government of Kerala

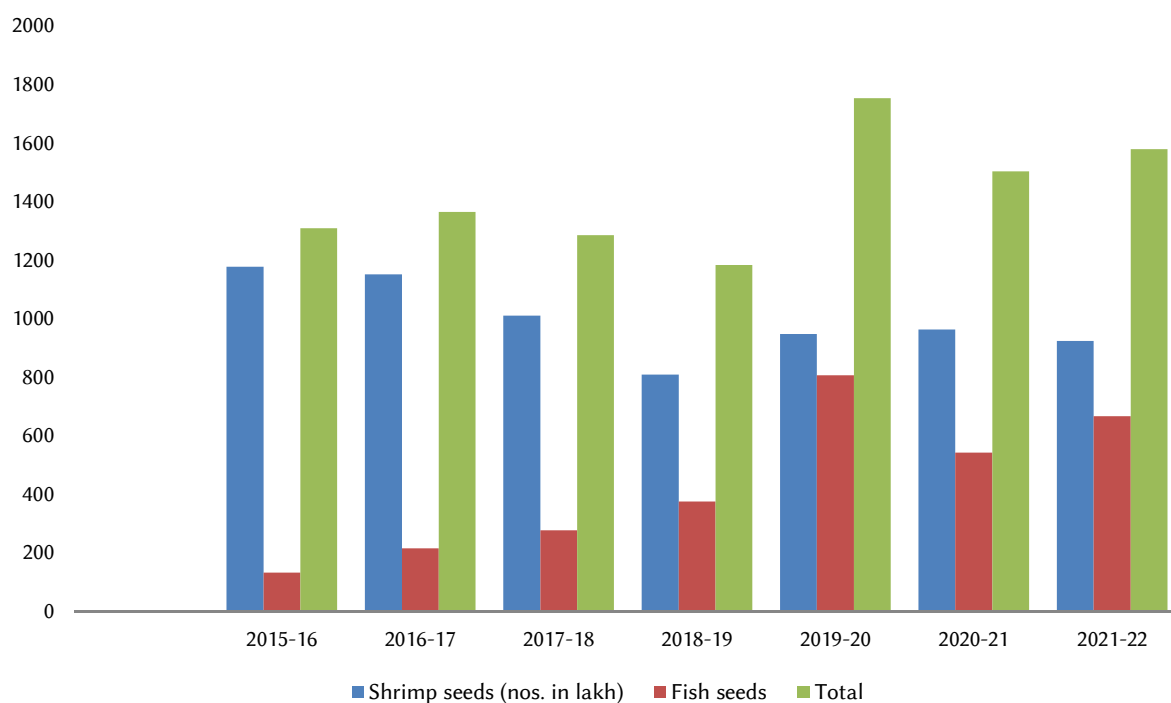
Aquaculture is the fastest growing segment of the fisheries sector. Given that overfishing of our oceans and other natural resources is continuously increasing, humans need alternate sources for seafood. Aquaculture is the tool to fill the gap of seafood supply. Farming fish responsibly and sustainably is the solution to future generations with access to healthy and environmental friendly protein.

The production of marketable fish begins with the stocking of fry or juveniles into a rearing environment that assures optimum and rapid growth to allow harvest in the shortest possible time. 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 7.6 crore fish seeds were produced through 20 department hatcheries in 2021-22. The seed production from department hatcheries has increased from 2.0 crore to 7.6 crore. A total of 15.9 crore seed production was achieved through department hatcheries and agencies in 2021-22. However we are having a demand of 29.25 crore fish seed for the year 2022-23. The year-wise seed production achieved by the department and the agencies is shown in

Figure 3.4.3. New hatcheries were established at Neyyar, Kulathupuzha, West Kallada, Peechi, Thalipuzha and Karapuzha. The infrastructure facilities at carp hatcheries at Polachira, Pallom, Meenkara, Kallanod and Chulliyar were developed for enhancing the seed production capacity. (GIFT) seed hatcheries were established at Pannivelichira and Neyyar. Pompano fish seed hatchery is also established at Azheekode in Thrissur District. 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. As part of the PMMSY 2020-21, aquatic referral lab was established at Kerala University of Fisheries and Ocean studies (KUFOs), which includes aquatic quarantine facilities, bio secure wet lab and necessary laboratory facilities. As





Figure 3.4.3 Seed production from 2015-16 to 2021-22



Source: Department of Fisheries

Box 3.4.1 Aquaculture Production

Aquaculture production is highly resource efficient

				
Protein retention	31%	21%	18%	15%
Energy retention	23%	10%	14%	27%
Feed Conversion ratio	1.1	2.2	2.0	4-10
Edible meat/100 kg fed	61kg	21kg	17kg	4-10kg

Aquaculture is 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.

Source: The Norwegian food research institute (Nofima) and Global sea food alliance.

part of establishing Pearl spot brood bank at Ayiramthengu fish farm, in Trivandrum under PMMSY 2020-21 scheme, modular breeding unit and collection of varieties of the species from different regions are progressing.

The quality of fingerlings and feed are important components for the development of Pisciculture. Feeds and feed stuffs contain the energy and nutrients essential for the growth, reproduction and health of aquatic animals. Deficiencies or excesses can reduce growth or lead to disease. KUFOS developed artificial feeds suitable for pangasius and other catfishes such as *singhi*. The university has also optimised the growth of different live feeds suitable for feeding different stages of ornamental and food fishes in different substrata.

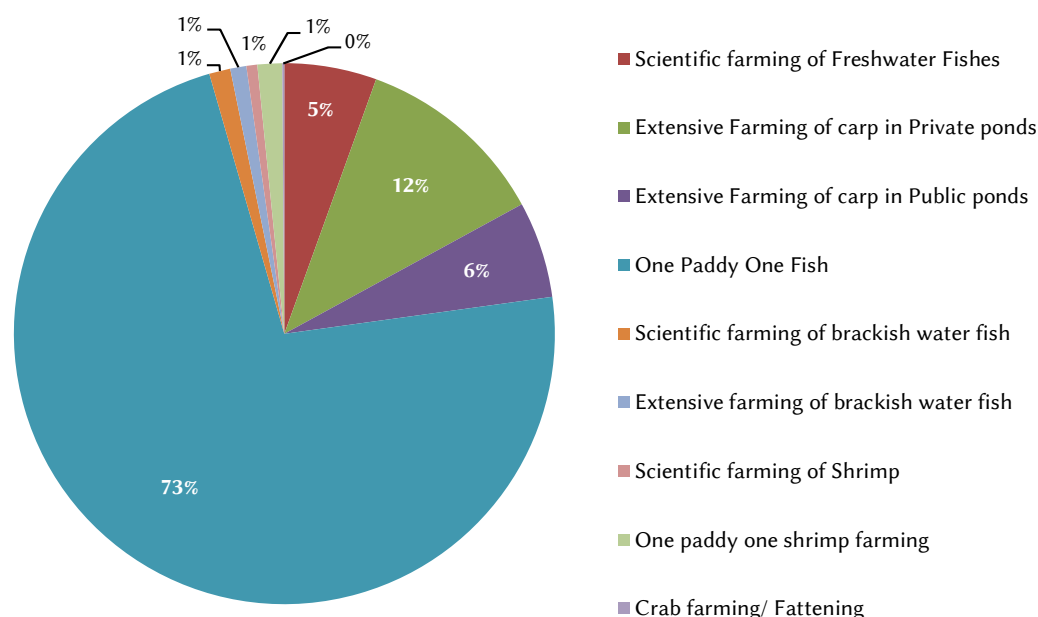
Inland fish production in Kerala has increased gradually during the last four years. The State has made conscious effort in enhancing the inland fish production through projects like 'Subhikshakeralam'. The species that have high potential in Kerala include tilapia, murrel, basa, anabas, carp, giant freshwater prawn, penaeus vannamei, penaeus monodon, Asian sea bass, pompano, cobia, mullets, crab and mussel. As part of achieving self-sufficiency in fish production, Janakeeya Matsyakrishi, 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 (example family ponds for domestic consumption) to high technology systems (example 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. The farming techniques adopted under Janakeeya Matsyakrishi is depicted in **Figure 3.4.4**. The figure shows the area utilised for adopting various farming techniques.

Livelihood and Social Security

The fishery-related livelihoods are complex, dynamic and adaptive. The fisherfolk population in Kerala is estimated to be around 10.5 lakh which is around 3.2 per cent of the total population of Kerala. The total fisherfolk population includes 8.1 lakh belonging to the marine sector and 2.4 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**. The number of active fish workers registered with Kerala Fishermen's Welfare Fund Board (KFWFB) in the State in 2021 was 2.4 lakh. Active fish workers are those fish workers who are engaged in fishing for their livelihood and are registered with the KFWFB. The number of active fish workers registered in KFWFB is highest in Thiruvananthapuram followed by Alappuzha. In 2021, the number of allied workers in Kerala is 85,094 who are engaged in allied activities related

Figure 3.4.4 Farming Techniques Adopted under Janakeeyamatsyakrishi



Source: Department of Fisheries

to fisheries and are 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 2.4 lakh fishworkers and 84,603 allied workers benefitted from the Group Accident Insurance Scheme. A total of 1.6 lakh fishworkers and 21,743 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 Bepore 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 has come down from 79 in 2017-18 to 33 in 2021-22.

The fishing fleet of Kerala comprises of 6,474 mechanised vessels, 34,008 motorised vessels and 3,050 non-motorised traditional vessels. The number of fishing crafts insured has increased from 924 in 2020-21 to 2,758 in 2021-22.

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. The fisherwomen play an important role in terms of their involvement in fish related activities such as fish vending, fish drying, prawn peeling, sorting, grading, packing and net making. 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.

To Promote Gender Mainstreaming, Society for Assistance to Fisherwomen

(SAF) augmented the entrepreneurial competency among fisherwomen by encouraging

Box 3.4.2 Some path breaking achievements of Women's Micro Enterprise in fisheries

A Theeramythri Activity group amma neithal special sea food kitchen was inaugurated on September 07, 2015 in Poyya grama Panchayat of Thrissur District. With the support and guidance from SAF, the unit run by six fisherwomen made this enterprise into a huge success in terms of revenue and as a micro enterprise unit. Through this micro enterprise unit the earnings and livelihood of the members increased and it also enabled them to increase their living standards in the society. The Outlay of the unit was ₹8 lakh, which included the assistance from SAF, beneficiary contribution and bank loan. In the initial stage, the unit's daily income was ₹5,000 per day which increased to ₹15,000 per day. The monthly income of a unit member also increased from ₹3,000 to ₹10,000. Besides, the unit members are also depositing a share in a chitty. The unit also has a fixed deposit of ₹6.00 lakh. Apart from this the unit has given employment to five fisherwomen other than the six-unit members. The unit procures fresh fish from the Adak fish farm (Agency for development of aqua culture Kerala) in Poyya. The unit cooks and serves various varieties of fishes like milkfish, etroplus, prawns and crab. Homemade ingredients and flavours are used for cooking. The taste and quality of the food has attracted people from different walks of life. The micro enterprise was chosen as one of the best performing enterprise in Thrissur District.

Muthu activity group formed by three fisherwomen in the Chellanam grama Panchayat of Ernakulam District has an annual turnover of ₹1.28 crore. The unit started by availing loan from Corporation bank for marketing dry fish. Availability of fresh fish from nearby areas complimented their activity. The group purchased fish from the poor fisherwomen who were engaged in 'Hand picking' of fish in the nearby areas of Chellanam. With the support of the grant availed from SAF, the group constructed a building with the land purchased by their own fund. Different types of marine as well as fresh pearl spot, tuna, seer fish and different varieties of grey mullets, prawns, and sea bass are available for sale in their micro enterprise unit. The group received the award for best activity group in Ernakulam District

Source: Department of Fisheries

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. Assistance was given to 349 fisherwomen beneficiaries in 2021-22 to start micro-enterprises. In 2021-22, 275 Theeramythri activity groups were assisted with interest free working capital. Capacity building training was provided to 2,633 beneficiaries. Support was provided to 81 groups for technology improvement in their units. Online course on digital media marketing was imparted to 30 young women identified from the fisherfolk. The achievement of various programmes implemented by SAF is given in **Appendix 3.4.11**.

Matsyafed is an apex federation of 687 primary-level fishworkers development welfare co-operative societies, of which 346 are in marine sector, 204 are in inland sector and 137 are women co-operative societies. Total membership in these societies is 4,62,614 (Report of Matsyafed as on March 31, 2022). The authorised share capital of the Federation is ₹150 crore. 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 2021-22, ₹57.6 crore was distributed to 17,892 beneficiaries as micro finance support to SHGs. In 2021-22, an interest free loan to the tune of ₹10.6 crore was given to 5,566 women fish vendors. Matsyafed's "Anthipacha" sources fish directly from fisherfolk and transports to spots in and around the Trivandrum city in an insulated van. There are 10 units which deliver fresh and chemical-free fish. The achievement of various programmes implemented by Matsyafed is given in **Appendix 3.4.12**.

A shift from traditional extensive culture to scientific fish farming in Palaikkari farm is a remarkable achievement in fish farming sector of Matsyafed. There are 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 GIFT (Genetically Improved Farmed Tilapia) is being practiced

at Paliakkari 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, Veliamcode in Malappuram and Moplabay in Kannur.

Figure 3.4.5 Marketing activities of Matsyafed



Source: Department of Fisheries

Ornamental fishery is enhanced by setting up three public aquariums in Kollam, Kottayam and Vaikom and by imparting training on ornamental fishery and aquarium maintenance for prospective entrepreneurs. Apart from this, research facility in ornamental fish breeding and fish farming has been created at KUFOS headquarters. A marine ornamental fish hatchery with recirculating aquaculture system (RAS) was created at Puduveyyu research station.

Kerala Aqua Ventures International Limited (KAVIL) is a Government of Kerala undertaking in the areas 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.

Infrastructure

A fishing harbour is a point of convergence between production and trade and it offers enormous opportunity for the promotion of responsible fisheries. Under marine infrastructure the work of 22 fishing harbours are completed and the works of three harbours are progressing. 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 2021-22 was ₹6.9 crore. Highest revenue collection has been from Thottappally harbour followed by Neendakara fishing harbour. Together, Thottappally, Neendakara and Kayamkulam contributed about 73 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 ₹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. As part of RIDF XXVI, four projects amounting to ₹57.4 crore sanctioned for additional facilities in Thangassery 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 ₹55.55 crore was sanctioned for providing additional infrastructure facilities in Thanur, Vellayil, Chellanam fishing harbours and in Valiyazheekkal fish landing centre.

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. In 2021-22, shore protection works, beach stabilisation on southern side of Manjeshwaram fishing harbour, artificial reef installation off the coast of Poonthura, Beemapally and Valiyathura fishing villages worth were completed. A DPR was prepared by KSCADC for “Comprehensive

Development Plan for Chellanam as Model Fishing Village”. The commercial activities of the company included marketing of various solar dried value-added fish products branded as “Drish Kerala”.

Achievements During the 13th Plan period

In the 13th Plan period, the Government’s effort in the marine fisheries sector was to improve livelihood security among the fish worker population by providing better amenities such as sanitation, health care, drinking water, electricity, and library facilities in the coastal regions. The Plan schemes focussed on marine fisheries development; inland fisheries development; extension, training and service delivery; modernisation of markets and value addition; social security to fishworker; development of fishing harbours and management; scheme for the fisheries university; and coastal area development.

Some of the major achievements of the sector are the following

- Completion of the infrastructure projects, such as fishing harbours at Muthalapozhi, Chellanam, Chetuva, Tanur, Thalai, Vellayil, Koyilandy, and Manjeswaram.
- Harbour management societies and fisheries management councils were constituted with the participation of managements, fisheries representatives, people’s representatives, and fisheries experts.
- Educational infrastructure development works in selected 17 schools of nine coastal districts were completed. Construction of 951 individual housing units was successfully completed by KSCADC. The infrastructure works of 16 health institutions in nine coastal districts was also successfully completed during the period.
- The project ‘punargaaham’ was implemented as a rehabilitation scheme in all the coastal districts of the States for rehabilitating the residents living within 50m from HTL (High Tide Line). 2,785 families registered their land, of which 614 families completed the house construction and shifted to new homes.
- Under Chief Minister’s priority projects, farming in public ponds was undertaken and 6.8 lakh carp seeds were used for stocking in 1,367.8 ha. Harvesting completed in 1,344 ponds and provided output worth 230.16 tonnes of fish, valued at ₹ 2.3 crore.
- Establishment of an on premise ‘Fisheries-Call Centre’ which aims to address the public queries relating to various aspects of Fisheries, on the services and schemes provided by the Department and its agencies.
- During 2017-2022, the fisheries department with the assistance of SAF established 934 new microenterprises benefitting 2,699 fisherwomen. They also established 46 Theeramythri seafood restaurants, an apparel consortium with 12 tailoring and garments units and installed 34 hygienic refrigerated mobile fish vending kiosks.
- Kerala pavilion bagged the second-best commercial exhibitor award in the India International Trade Fair held in 2017 and 2019.
- The department introduced ‘Fisheries Information Management System’ (FIMS), for the implementation and monitoring of welfare schemes/services and to transfer the benefit to the bank through DBT (Direct Benefit Transfer).
- The Sagara mobile app was introduced to record the departure and return of fishing vessels at sea. The Kerala Marine Fisheries Control Act and Rules (KMFCAR) of 1980 were comprehensively revised in 2017.
- 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. Suchitwa Sagaram was implemented in Neendakara in Kollam and this project was noted and hailed by the United Nations.
- To reduce sea mortality the Government commissioned fully equipped marine ambulances in three zones of Vizhinjam in Thiruvananthapuram, Vypin in Ernakulam, and Beypore in Kozhikode.
- To attain self-sufficiency in fish seed production six new hatcheries were established in Neyyar, Peechi, West Kallada, Kulathupuzha, Thalipuzha and Karapuzha. KUFOS initiated a pilot hatchery project for producing the seed of “*Penaeus monodon*” adhering to organic protocols
- KUFOS published more than 150 research papers. They documented the traditional knowledge of the fisherfolk and fish farmers and conducted a socio economic survey to assess the socio-economic status of the fisherfolk.
- During COVID-19 pandemic The Harbour Management Societies were entrusted to fix the prices of different fish. In the fishing harbours and landing centres, a token system was

introduced to avoid crowds. A mobile application was also developed for the online marketing of fish.

Key Initiatives in 2021-22

- Subhikshakeralam project implemented in collaboration with LSGs has helped in increasing the inland fish production. A total of 75,226 farmers were trained in different farming techniques and a total of 11,939 innovative farming units have been established.
- One paddy one fish farming/one paddy one shrimp farming in kole lands of Thrissur and Malappuram districts and in Kuttanad area was implemented in 17,854.9 hectares.
- As part of reservoir fisheries development programme, 18.7 lakh Indian major seeds were stocked in five reservoirs which are situated outside the area of wild life sanctuary, viz. Thenmala/Kallada, Idukki, Bhoothathankettu, Sholayar (lower) and Peringalkathu.
- A total of 119 mechanised fishing vessels were fitted with holographic plate. Colour coding of fishing mechanised fishing vessels are completed and 300 mechanised fishing vessels were fitted with vessel tracking system. For ensuring coastal security, surveillance cameras installed at Sakthikulangara, Vizhinjam and Ponnani fishing harbours.
- As part of implementation of the scheme on 'Deep sea fishing and sea safety equipments' traditional fishermen were provided with 360 mounting GPS(Global Positioning System) and 400 hand held GPS.
- As part of PMMSY scheme four cage farming units were established in four reservoirs viz. Banasurasagar, Karapuzha, Peruvannamuzhi and Kakki and 400 cages were installed and as a part of innovative farming activities 366 units of recirculatory aquaculture system were also established.
- 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 'Prathibhatheeram' project, study rooms equipped with electronic equipments and internet facilities were established in 75 coastal libraries. As a part of 'Vidhyatheeram' project coaching programmes was imparted to students for medical entrance, bank coaching and for civil service examination.

Fisheries are recognised as a sunrise sector that recorded faster growth than any other agriculture and allied sectors. The sector is vulnerable to overexploitation of resources. There has been a shift from marine fisheries to inland fisheries in terms of production. Inland fisheries remains a sector of promise. The rapid growth of aquaculture should be enhanced to provide additional employment and to improve the standards of living of farmers. Climate change and rise in increasing sea and river water temperature remains the major challenge impacting yields from the sector. A more systematic approach, based on a better understanding of nationally defined priorities, social context and resource base can guide sustainable and inclusive blue growth, which in turn requires certain novel and critical interventions. Special emphasis should be placed on inclusive development by providing special care to fishermen societies and women.

3.5 WATER RESOURCES

Water is a unique and non-substitutable resource. It is a critical input for agricultural production and plays an important role in food security. The United Nation's World Water Development Report on "Valuing Water" assesses the status of and challenges to the valuation of water, and identifies ways in which valuation can be promoted as a tool to help achieve sustainability. The present status of water resources highlights the need for improved water resources management. A multi-faceted approach to water governance is crucial if sustainability of water use is to be achieved. Recognising and measuring water's worth, and incorporating it into decision-making are fundamental for achieving sustainable and equitable water resources management and the Sustainable Development Goals (SDGs) of the United Nation's 2030 Agenda for Sustainable Development.

The real worth of water has often been neglected, leading to its wastage, misuse, and misappropriation. The increasing demands of a growing population and rapidly developing global economy, combined with the effects of climate change, will aggravate lack of access to water for domestic use. In the efforts towards meeting water-related challenges, the United Nations General Assembly declared 2018-2028 as the International Decade for Action "Water for Sustainable Development".

Hydrology Information Systems

The State has 41 west-flowing and three east-flowing rivers, and has an average annual rainfall of about 3,000mm. However, the extent to which it can retain, store, and use these for agricultural purposes is still inadequate. In order to have a realistic assessment of water resources in the State, the Investigation Design and Research Board of Irrigation department is in the process of modernising the existing hydrology information system with a Real-Time Data Acquisition System. The core activity of the hydrology wing of the Irrigation department is the collection, validation, and collation of hydro-meteorological data from various gauging stations, established across Kerala river basins. The National Hydrology Project, funded by World Bank, also aims at improving the quality and accessibility of water resources information and to strengthen the capacity of water resources management institutions in the State. The objective is to establish an effective hydrologic database and hydrological information system for effective water resources planning and management.

The consecutive floods of 2018 and 2019 necessitated an early flood warning system for the State. Flood Forecasting and Early Warning System (FFEWS) integrated with reservoir operations for Periyar and Chalakudy basins were initiated during the 13th Five-Year Plan period under the National Hydrology Project. FFEWS acts as an end-to-end

Box 3.5.1 Kerala Water Resources Information System (Kerala-WRIS)

Kerala-WRIS acts as a single authoritative digital platform with specific modules such as weather module, water availability module, water demand module, water budgeting, and auditing modules. The software development of all these modules has been completed. This is a web-enabled platform wherein data related to water and its allied sectors are integrated. This was developed utilising Rebuild Kerala Initiative (RKI) funds for a contract value of ₹3.8 crore. The system will be useful to assess water resources within the State of Kerala and also to facilitate and ensure judicious, equitable and sustainable management, allocation and utilisation of water resources. The web portal was launched in August 2022.

Source: Irrigation Department (IDRB), GoK

system for issuing timely warning against disaster. The accuracy of the forecast depends on the real time hydro-met data received, and the quality of topographical features.

Overview of the 13th Five-Year Plan

The 13th Five-Year Plan focussed on expanding agricultural productivity by expanding area irrigated, and increasing the irrigation potential and efficiency. There was special focus on canal modernisation, drought management, and the completion and commissioning of ongoing major and medium irrigation projects. Though the share of minor irrigation outlay has increased during the Plan period, major and medium irrigation continued to play a dominant role in the sector outlay. The total budgeted outlay for the sector during the 13th Plan period was ₹2,682.15 crore. Major and Medium irrigation had the largest share (51.79 per cent), followed by minor irrigation (33 per cent), flood control measures (14.46 per cent), and command area development (0.74 per cent).

Irrigation Status

As per the assessment of Directorate of Economics and Statistics, the net irrigated area in the State in 2021-22 was 4.03 lakh ha, whereas the gross irrigated area was 5.61 lakh ha. There has been an increase in the net and gross irrigated area in 2021-22, compared to the previous year.

The percentage of gross irrigated area to gross cropped area increased from 20.30 per cent in 2020-21 to 22.25 per cent in 21-22, which is significant. The gross irrigated area shows a consistent increase from 5.17 lakh ha in 2019-20 to 5.21 lakh ha in 2020-21, and further to 5.61 lakh ha in 2021-22. Source-wise, the net area irrigated through wells leads with 1.66 lakh ha, followed by other sources (1.16 lakh ha), and small streams (thodu) (0.72 lakh ha) in 2021-22. Details on the source-wise

and District-wise net area irrigated are given in **Appendices 3.5.1 and 3.5.2.**

Crop-wise, paddy and coconut are the major crops most benefitted through irrigation. However, the extent of gross irrigated area under paddy and coconut shows a decline in 2021-22 compared to the previous year. The gross area irrigated under paddy declined to 1.54 lakh ha in 2021-22 from 1.59 lakh ha in 2020-21 and that of coconut declined to 1.52 lakh ha from 1.58 lakh ha during the corresponding period. Percentage of irrigated area under paddy to total irrigated area has fallen to 27.44, as against 30.61 per cent in 2020-21. A sharp fall is seen in the gross area irrigated of banana. In 2020-21, the gross area irrigated under banana was 0.52 lakh ha, which reduced to 0.37 lakh ha in 2021-22. A similar declining trend is seen in the irrigated area of vegetables, marking a fall from 0.28 lakh ha in 2020-21 to 0.25 lakh ha in 2021-22. Details on gross area irrigated and crops benefitted are given in **Appendices 3.5.3 and 3.5.4.**

Highlights of the Department during the 13th Five-Year Plan Period

Thrust on Major and Medium Irrigation Projects

The Government decided to examine the works of four major and medium irrigation projects – Muvattupuzha, Idamalayar, Karapuzha, and Banasura Sagar. These projects have been under implementation over several decades. The Kerala State Planning Board constituted a five-member Technical Committee in the first year of the 13th Plan period to evaluate these irrigation projects. After understanding the hurdles in implementation, the Committee defined certain targets and timelines for the completion/commissioning of these projects, and they were funded accordingly during the Plan period.

The commissioning of Muvattupuzha valley irrigation project in July 2020 was a notable achievement during the period. With a cumulative expenditure of ₹1,083.64 crore, as on date of commissioning, the project benefitted ayacuts of 33,670 (ha) (gross) and 17,179 ha (net). The hindrance in the MC road crossing in the Low-Level Canal of Idamalayar Irrigation project was cleared by adopting the push-through mechanism, the first of its kind in the Department. Thus, the water distribution through this stretch of Low-Level Canal helped meet the agricultural and drinking water requirements of Nedumbassery Panchayat and Angamaly Municipality. For the construction work in the railway crossing portion of the Low-Level Canal, ₹3.06 crore was deposited to the railway authorities.

In the Karapuzha project, the breach rectification works carried out in the Left Bank Main Canal (LBMC) and Right Bank Main Canal (RBMC), would enable water distribution through the entire main canals for the total length of 25.54km from 2022 onwards, which would benefit an ayacut of 636.48 ha. Thus, main canals could be made operational for the first time since the inception of the project. The Karapuzha mega tourism project in the dam premises, inaugurated in 2017, also contributed to the development of the region. The rectification works in the main canal of Banasurasagar project have begun for clearing the major bottleneck from Ch.1130m to 1,500m. Land acquisition processes for Venniyode and Kappumkunnu distributories were also initiated during the period.

Dam Rehabilitation and Improvement Project (DRIP)

The Dam Rehabilitation and Improvement Project (DRIP) aims at improving the safety and operational performance of sixteen dams/barrages/regulators of Irrigation department with the financial assistance from World Bank. Phase I of the project, initiated in 2012, got extended up to March 2021. Major achievements of DRIP Phase I are – (1) Rehabilitation works of 13 dams, including civil, mechanical and electrical works (2) Renovation works of Moolathara regulator (3) Hydro mechanical renovation works of 14 dams (4) Strengthening works of eight dams – Chimoni, Kallada, Kanjirapuzha, Kuttiyadi, Malmapuzha, Malankara, Pazhassi and Pothundy (5) Approval of Emergency Action Plan of 14 dams by CWC (6) Web-based

software package to support the effective collection and management of dam safety data.

Kerala Water Resources Department is now part of DRIP Phase-II (2021-2027) for improving the safety and operational performance of 15 dams/barrages/regulator of Irrigation department.

Improved focus on Minor Irrigation

Greater efficiency in irrigation could be achieved through proper designing of irrigation systems for reducing water conveyance loss. Minor irrigation schemes are intended for irrigating smaller command areas by way of diversion of water from rivers and canals and by effecting proper drainage by constructing sidewalls, sluices and crossbars. The minor irrigation census provides a comprehensive data base on the irrigation potential created and utilised, water distribution practices, and sources used for energising the schemes.

Efforts are needed for the efficient management of water resources in a sustainable manner. Micro-irrigation can play a vital role in improving the water use efficiency. As on March 31, 2021, the area covered under micro irrigation in Kerala (Drip and Sprinkler) was 33,264 ha. (Source: Ministry of Agriculture and Farmer's Welfare Department; Indiatat). Adoption of water-saving technologies like sprinkler and drip irrigation systems have proven to be efficient not just in water conservation, but also in increasing the yield. As part of promoting the same, the Irrigation department has initiated the implementation of community micro-irrigation projects across the State with the assistance of other stakeholder Departments. Based on the joint inspection by the Departments of Agriculture and Irrigation, twenty-one project sites were identified. Among these, six projects identified in the districts of Pathanamthitta, Idukki, Wayanad and Thrissur are taken up in the first phase, and are in design and implementation stages.

Minor Irrigation Schemes During the 13th Five-Year Plan Period

One of the major objectives during the 13th Five-Year Plan period was the shift of focus from major and medium irrigation to minor irrigation. Physical achievements of minor irrigation (surface water) during the period 2017-18 to 2021-22 are given in **Table 3.5.1.**

Table 3.5.1 Physical achievement of Minor Irrigation, 2017-18 to 2021-22 (in ha)

Year	Physical achievement (net) in ha
2017-18	8006.64
2018-19	3388.05
2019-20	4474.86
2020-21	3164.81
2021-22	4566.45
Total	23600.81

Source: Irrigation Department (I&A), GoK

The ayacut benefitted through Minor Irrigation shows a fluctuating trend during the 13th Five-Year Plan period. After 2017-18, the ayacut has declined drastically in the succeeding two years, but the situation had improved slightly in 2021-22. The floods of 2018 and 2019 had severely damaged irrigation structures, river banks, and canals. The shift in the cropping pattern from paddy to cash crops and reduction in ayacut due to hike in the construction cost because of change in the schedule of rates also affected additional ayacut generation. Details of physical achievements of minor irrigation (through various schemes) from 2019-20 to 2021-22 are given in **Appendix 3.5.5**. NABARD aids minor irrigation work such as construction of Vented Cross Bars (VCBs), check dams, cross bars, salinity extrusion structures, and so on. NABARD has sanctioned 1619 schemes till RIDF XXVII, of which 1354 schemes are completed under various tranches. Details are given in **Appendix 3.5.6**.

Kasaragod District forms the drainage basins of many rivers, and the District receives substantial

rainfall. The lack of water conservation schemes has affected the agricultural productivity of the District adversely. To utilise the available water effectively for irrigation, the Kasaragod package envisages construction of VCBs in the District. As per the status report, an amount of ₹42.62 crore have been spent from 2015-16 to 2020-21 for the construction of 77 VCBs. The construction works of 62 VCBs are in progress. (Source: Report of the District Collector, Kasaragod dated: November 18, 2022)

Haritha Keralam Mission – Water conservation and Natural Resources Management

Haritha Keralam, a major mission of Nava Keralam Mission, was introduced by the Government of Kerala, during the period 2016 to 2021 for the comprehensive development of the State. The three sub-missions of Haritha Keralam were sanitation, agricultural development, and water conservation. The mandate of the Department of Water Resources under the Haritha Keralam Mission Programme was water conservation. Water Conservation aimed at renovating the water surfaces like ponds, rivers, and backwaters, linking large ponds to irrigation canals, and to prevent seepage loss in irrigation canals. From 2021-22, Haritha Keralam mission is included under Nava Keralam Karmapadhati. Status of works done under Haritha Keralam is given in **Table 3.5.2**.

Groundwater Development

Groundwater is a major source of irrigation, and dependency on ground water is on the rise. Rationalisation of surface and ground water has an important role in the water management of the State. Groundwater conservation and recharge aims at the sustainable development of groundwater resources. Recharge methods include rooftop rainwater harvesting for groundwater recharge through dug

Box 3.5.2 Micro Irrigation Policy of the State

To popularise the advantages and the need of micro irrigation practices, as well as to overcome the difficulties in the planning, design and implementation of the system, the formulation of a Micro Irrigation Policy is felt necessary. To formulate a Micro Irrigation Policy for the State, the Government has constituted a drafting Committee with Chief (Agriculture), State Planning Board as the chairperson, Chief Engineer Irrigation Department (I&A) as the convenor, and representatives from various stakeholder departments as members.

The broad categories for policy formulation are – the scope and potential of micro irrigation in Kerala, policy objectives, planning and design technology, financing and subsidising, operation and maintenance, sustainability and institutional mechanisms, implementation protocol, and integration of various implementing agencies.

Source: Kerala State Planning Board

Table 3.5.2 Status of works under Haritha Keralam during 2017-18 to 2022-23

Sl No	Name of Scheme	Works sanctioned	Works Completed
1	Renovation of tanks and ponds under Haritha Keralam	711	326
2	MI Class I schemes under Haritha Keralam	67	33
3	MI Class II schemes under Haritha Keralam and micro irrigation	99	59

Source: Irrigation Department (landA), GoK

wells, recharge pits, bore wells, subsurface dykes, and small check dams. Groundwater extraction in Kerala is mainly for domestic use and irrigation purpose.

As per the report “Groundwater Resources of Kerala, March 2020” (prepared by Central Groundwater Board, GoI and Groundwater Department, GoK), the total annual ground water recharge in the State is 5,654.19mcm and the existing ground water draft for all uses is 2,645.9mcm. The estimation for domestic and industrial water supply is 1,483.16mcm and for irrigation it is 1,162.74mcm. The stage of Groundwater extraction in Kerala is 51.68 per cent. Out of the 152 assessed units in the State, 3 blocks (Chittur and Malampuzha blocks of Palakkad District and Kasaragod block of Kasaragod District) are categorised as ‘Critical’, 29 blocks are “Semi-critical”, and 120 blocks are in “Safe” category.

A comparative analysis of the components of dynamic ground water resources during 2017 and 2020 shows that the annual extractable ground water recharge in Kerala in 2020 has decreased by 1.76 per cent when compared with the corresponding figures of 2017. The annual ground water extraction for all uses has decreased by 0.93 per cent during the period. The net ground water availability for future use in the State shows a decrease of 11.34 per cent in 2020 when compared to the corresponding figures of 2017. There was change in the number of blocks in various categories when compared to the previous assessment. The number of ‘Semi-critical’ blocks in the State has decreased from 30 to 29, whereas the number of ‘Safe’ blocks increased from 119 to 120. There is change in the number of ‘Critical blocks’ from 2 to 3. (Source: *Dynamic Groundwater Resources of Kerala, March 2020*). This points to the need for better utilisation of groundwater resources, along with awareness creation for sustainable uses.

During the 13th Five-Year Plan period, as part of Jala Samrudhi project in Kattakada constituency of Thiruvananthapuram District, the Ground Water Department successfully implemented

rooftop rainwater harvesting through recharge pits to enhance groundwater levels of dug wells. Kattakkada constituency was declared in 2019 as the first assembly constituency in Kerala to implement artificial groundwater-recharging structures in all Government schools and offices. Some of the notable achievements of the Department during the period are:

- Installed 178 mini drinking water supply schemes and renovated 384 schemes. 4,074 hand pumps were also repaired.
- Constructed 361 bore wells, thereby benefitting 68,842 families and 22 institutions in the State.
- Implemented 767 ground water conservation structures in various Government buildings, which helped to augment the water-level of the project area.
- Other achievements included groundwater investigation works (52,308), well drilling (11,030), pumping tests (2,398), well logging (235), well developing (2,452) and conduct of water quality analysis (19,534).
- Preparation of periodical Groundwater Resource Estimation Committee Report, jointly by the State Groundwater Department and the Central Groundwater Board.
- The third phase of the National Hydrology Project, a 100 per cent Central sector scheme, spread over a duration of eight years from 2016 to 2024, is aimed at developing an integrated water resources management system through the concept of water budgeting. Project activities include:
 - Modernisation and strengthening of ground water monitoring network system.
 - Upgrading Water Quality Monitoring System
 - Conduct of well census (data collection of ground water abstraction) – Kerala State Remote Sensing Agency developed a mobile application “*Neerarivu*” for the conduct of well census. The activity will be carried out in 39 blocks of the State through Kudumbasree mission
 - Development of Decision Support System

(DSS) and Water Budgeting System – Watershed-based water budgeting system is planned to develop in Neyyar river basin and DSS development is planned to develop in Chittoor river basin.

- Completed two purpose driven studies (1) Water pollution effects due to industrialisation in Ernakulam, and (2) Influence of pesticides in groundwater sources in cardamom plantation areas in Idukki.

Physical achievement of groundwater development schemes is given in **Appendix 3.5.7**. Details on the total annual ground water recharge, net annual ground water availability and stages of ground water development in our State are given in **Appendix 3.5.8**.

Flood Management Programme

Second Kuttanad Package – A holistic approach for the eco-restoration of the Kuttanad region felt necessary particularly after the floods of 2018, led to the preparation of a “Special Package for Post-Flood Kuttanad” by the Kerala State Planning Board. The recommendations of the report, subsequently announced as Second Kuttanad Package by the Hon’ble Chief Minister in 2020, cover various areas for the well-being and livelihood of the people of Kuttanad. Major financial sources of this package are assistance from State Plan, Rebuild Kerala Initiative (RKI), and Kerala Infrastructure Investment Fund Board (KIIFB).

Water management of the Kuttanad region needs to be given a major thrust, for which innovative as well as conventional approaches are required. These include hierarchical classification of water systems in the region, technique of ‘compartmentalisation’ to reduce the flood damages, allowing maximum space for the natural flow of Vembanad and Pamba in-line with the concept of “Room for River”, preserving the existing surface area of Vembanad Lake, and measures to improve the efficiency of Thottappally spillway.

Flood Management works in Kuttanad during the 13th Five-Year Plan Period

To protect the Kuttanadan padasekharams from flooding, the outer bunds were strengthened with clay, rubble masonry and pile and slab as per the requirements. Construction of motorthara, motor shed and box culvert also form part of the infrastructural development works.

Major achievements during the period are:

- Flood mitigation works were done in 231 padasekharams in Kottayam and Alappuzha through the construction of 128.63km of bund, thereby protecting 2,818 ha of paddy land.
- Bund construction in Onattukara region for a length of 33.2km helped to protect 5,834ha of paddy land.
- To mitigate flooding in 397 padasekharams of Kuttanad Taluk and 14 padasekharams of Veeyapuram Panchayath, 177.64km of bund were constructed, thus protecting 3,871.75 ha of paddy land.
- The third phase of the Thanneermukkom barrage was completed and opened for traffic in July 2018.
- The rectification works of the breach in the Puthanarayiram Padasekharam in D block of Kuttanad Taluk was completed in September 2019, thereby enabling cultivation in 2019-20, benefitting more than 200 farmers.
- A breach that occurred in the bund on the eastern side of Mallappally kayal in 2019, led to the destruction of 48.90ha of paddy cultivation in Kanakassery padam, 58.7ha in Meenappally padasekharam and 100.8ha in Valiyakari padasekharam. To rectify the breach, a temporary bund for a length of 60m was constructed by the Irrigation Department.
- The sand bars accumulated near the Thottappally estuary need to be removed to drain the excess water to the sea through the Thottappally spillway. As a flood control measure, to widen the estuary, 2,04,481cubic metre of accumulated sand was removed from the mouth and the channel of Thottappally spillway in 2020, thereby widening the pozhy mouth from 100m to 310m. During 2021 and 2022, 2,49,121.50 cubic metre and 2,01,476.36 cubic metre of sand were removed respectively.
- Of the 42 works initiated using State Plan assistance in 2020-21, for protecting 47.09km of outer bunds in various Panchayats of Kuttanad and Kottayam, 38 works were completed. Desiltation works of thodu were also done for a length of 30.51km during the period. Apart from this, utilising NABARD assistance, 12.15km of outer bund protection works were also done. In 2021-22, 53 works were taken up for constructing outer bunds for a length of 48km, of which, 22 works were completed.

The quality of water in the Kuttanad region poses serious threat which requires immediate attention. To understand and analyse the issue, a team of experts from Chennai IIT had visited the region in 2022. The purpose of the visit was to analyse the prevailing situation in the region and to suggest improved technology based solutions. The team visited the existing water treatment plant at Neerettupuram in Thalavady Panchayath. A new water treatment plant would be made functional with KIIFB assistance to improve the water supply in the 13 panchayaths of Kuttanad taluk. They also held discussions with the representatives of local bodies in the most affected regions and also with the Head of the Department of Community Medicine, Alappuzha Medical College to understand the prevailing health issues due to the contaminated water in the region. Chennai IIT being a premier institute, measures have been initiated to address the water quality issues in Kuttanad with their guidance and technical support.

Desiltation of Rivers and Reservoirs

Government of Kerala had issued orders in 2021, for the rejuvenation of rivers and for the removal of sediment deposits occurred due to the floods of 2018 and 2019. The desiltation works are being done in co-ordination with the District Administration. As of September 2022, out of the 44 rivers, desiltation of 30 rivers are completed, thereby removing 98,35,939 cubic metres of sediments.

Based on the Standard Operating Procedures (SOP) for desiltation of dams and reservoirs in the State,

issued by the Government of Kerala in 2017, from the Mangalam reservoir in Palakkad, 1,55,941 cubic metre of silt was removed. Desiltation works in Chullliyar, Walayar and Meenkara dams are in different stages of implementation. Similarly, based on the SOP for the desiltation of large ponds (more than one hectare), works were initiated in three *Eris* (large water bodies) viz, Kunnumpidari *Eri*, Kambalathara *Eri* and Venkalakkayam *Eri* in Palakkad District. The Environmental Management Plan for the desiltation of these three *Eris* was prepared by Kerala Engineering Research Institute, Peechi. Of the six projects identified for removing the silt, sand and debris accumulated near regulators and check dams, three works ie, Chenganaamkunnu regulator, Manjummel regulator and Cheruthuruthi check dam were completed.

Reservoir Storage Status

The storage position of reservoirs in pre and post monsoon stages is given in **Figure 3.5.1**. The storage-level at the end of the monsoon is marked at 1,312.93 million cubic metre and 1,127.41 million cubic metre in 2021 and 2022 respectively. Post monsoon, the storage-level has increased by 713.55 million cubic metre in 2021, whereas the increase is only 495.94 million cubic metre in 2022. **Appendix 3.5.9** shows the dam storage status (pre and post monsoon) for the period 2020 to 2022.

Focus of the 14th Five-Year Plan

The general approach of the 14th Five-Year Plan for the Irrigation sector would be to continue the efforts initiated during the 13th Plan period,

Box 3.5.3 “Room for the River” Project Hydrodynamic Study – Development of the Thottappally Leading Channel by IIT, Chennai

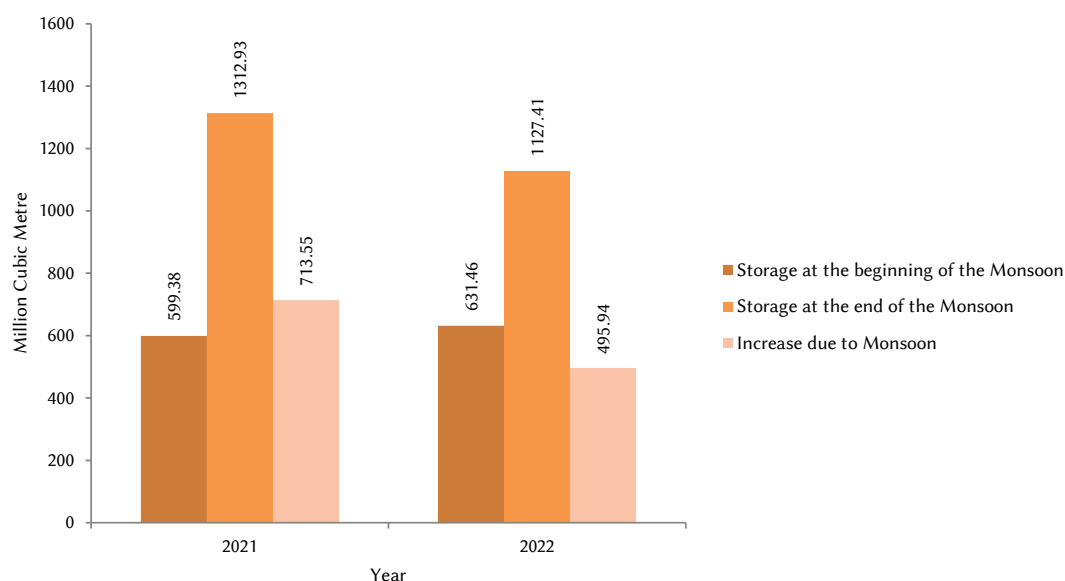
To implement the “Room for the River” programme, for addressing the flooding issues of the Kuttanad region, a Hydrodynamic study is entrusted to Chennai IIT. The study is being conducted with the financial assistance of Rebuild Kerala Initiative. The objectives of the study include:

1. To explore the possibility of strengthening and increasing the height of bunds along the banks of leading channel
2. To examine the impact of flood regulators to divert the flood water from Pamba and Achenkovil rivers through the leading channel and bypass canals to Thottappally estuary, without entering the Kuttanad area
3. Possibility of developing few channels parallel to the leading channel and a bypass canal to Thottappally as a flood control measure
4. To analyse the effectiveness of AC canal development in diverting flood water from Manimala river to Pallathuruthy river

The draft study report submitted by Chennai IIT is under appraisal of the Irrigation Department. The final report is expected soon.

Source: Interim report on Hydrodynamic study by IIT, Chennai

Figure 3.5.1 Storage Position of Reservoirs under Irrigation Department, Kerala



Source: Irrigation Department (IDRB), GoK

especially in the continuance of Plan assistance for Idamalayar, Karapuzha and Banasurasagar. Improved focus will be given to the repair and renovation of canals of irrigation projects, especially the tail end of irrigation canals. The 14th Plan period will encourage minor irrigation and will also support dredging and cleaning of rivers, canals, lakes, ponds and streams across the State. Flood control measures in the Kuttanad region will be continued with special support for the implementation of “Room for the River” concept. The possibility of storing water in large and small reservoirs will be explored, which will help in extending the irrigated area and to meet the drinking water requirements.

Way Forward

Kerala needs to develop a river basin plan for its rivers. Measures to store water in small and large reservoirs should be aligned with the respective river basin plans. There is the need to intensify dredging and removal of sand and other materials from the reservoir beds so as to expand their storage capacity. The State should also focus on precision farming techniques and expand the coverage of drip irrigation. The Dutch expert team that studied Kerala’s water situation after the floods of 2018 had recommended that Kerala should transform its water policy in line with the concept of Integrated Water Resources Management (IWRM). Thus, an Integrated River Basin Management (IRBM) needs to be considered by the State.

3.6 FORESTRY AND WILDLIFE

Forests are vital to our economies and our health. Covering nearly one-third of the earth's land area, forests are home to more than half of the world's land-based species and are the source of 75 per cent of the world's freshwater. As per the World Wild Fund (WWF) report of 2022, 'Deforestation fronts: drivers and responses in a challenging world,' more than a billion people live in and around forests. Forests are the largest storehouse of carbon after the oceans. Tropical forests alone store seven times more carbon than humanity emits every year and draw down up to 1.8 gigaton of carbon annually. Forests keeps many of our most vital natural systems running from keeping our climate stable by absorbing carbon dioxide and releasing oxygen, to regulating our water supply and improving its quality. As per the FAO report, 'State of World's Forests 2022,' the forest sector contributes more than USD 1.52 trillion to world GDP and employs 33 million people.

However, presently forests are in crisis, devastated by fires, converted and degraded for agriculture, for fuel and for timber. The mismanagement of the world's forests is ramping up carbon emissions, ravaging biodiversity, destroying vital ecosystems, and affecting the livelihoods and wellbeing of local communities as well as societies globally. Human impacts have already led to the loss of around 40 per cent of the world's forests. And we're losing forests at a rate of 10 million hectares per year. Halting deforestation, protecting and sustainably managing forests, and restoring forests have never been more urgent.

The FAO offers three forest-based pathways that warrant close examination as a means for tackling local to global challenges. These includes halting deforestation and maintaining forests, restoring degraded lands and expanding agroforestry, and sustainable use of forests and building green value chains. The WWF launched "Forests Forward," a new programme that engages with other stakeholders around the globe to deliver effective strategies for forests. It has got three pillars for engagement; landscape opportunities for nature and communities; responsible supply chains for the future; and improved forest management.

Forest Cover

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. Forest Survey of India (FSI) has presented the assessment of country's forest resources in its 'India State of Forest Report 2021'. Total forest cover of the country as per the report was 7.13 lakh sq km, which is 21.71 per cent of the geographical area of the country. According to FSI, all lands more than one hectare in area, with a tree canopy density of more than 10 per cent, including orchards, bamboo, palms, etc occurring within recorded forest and other Government lands, private community or institutional lands, are included under the forest cover. The tree cover of the country is estimated as 95,748 sq km which is 2.91 per cent of the geographical area. Thus the total forest and tree cover of the country is 8.09 lakh sq km (80.9 million hectares), which is 24.61 per cent of the geographical

area of the country. The assessment in the report shows an increase of 0.25 per cent of forest and tree cover at the National-level between 2019 and 2021.

Forests in Kerala fall in two biogeographic provinces, Western Ghats and the Western Coast, and are rich in biodiversity and vital for environmental protection and considered to be a repository of rare and endangered flora and fauna. Even though the land area of Kerala is only 1.2 per cent of India, the forest cover is 2.3 per cent of the national forest area. 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 (753.57 million tonnes of Carbon dioxide equivalent), which is 2.8 per cent of total forest carbon of the country.

The recorded area of the forest in the State is 11,524.2 sq km or about 29.65 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. However, the extent of very dense forests is 1,944 sq km or 9.2 per cent of the forest cover and the extent of moderately dense forests is 9,472 sq km, accounting for 44.6 per cent of the total forest cover. On the other hand, open forests account for 9,837 sq km or 46.3 per cent of the forest cover. Between 2019 and 2021, the forests cover of the State increased by 0.52 per cent. Among all the states in India, Kerala stood at eighth position in terms of increase in forest cover with an increase of 109 sq km between 2019 and 2021.

District-wise forest cover details are as provided in **Appendix 3.6.1**. Among the districts in the State, Idukki has 3,155 sq km of forest land, followed by Palakkad with 2104 sq km and Malappuram (1,984 sq km). While considering forest area as a percentage to geographical area, Pathanamthitta and Wayanad districts have 74 per cent each of forest area followed by Idukki (73 per cent).

Sustainable management of forests and wildlife calls for a landscape-level approach as the forests and agricultural landscape of the State are inseparably linked and share valuable common resources. There is widespread realisation of the importance of environmental functions of forests in making Kerala a liveable place. Trees outside forests cover very

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 have become the most important source of wood supply in the State, which accounts for 82 per cent of wood supply. Forests account for only 1.6 per cent of the State's wood supply. The share of home gardens in wood production can be increased significantly so that management of public forests could be geared to provision of ecological services.

The role of forests in reducing ecological and economic vulnerabilities is becoming more critical in the context of the climate change. The Five-Year Plans emphasised management of the forests primarily for their public goods functions such as water security, biodiversity conservation, livelihoods of local communities and other social objectives. In 2022-23, the sector focuses on major themes such as increasing water security, minimising human-animal conflict, securing the lives and livelihoods of forest dependent communities and keeping forests as a safeguard against climate change.

Management of Natural Forests

Natural forests in Kerala are managed through protection from encroachments, poaching and tree felling, protection from biotic interference and fire, river bank protection; enhanced involvement of tribals in forest management, rehabilitation of degraded forest areas and protection of fragile ecosystems, and participatory forest management. Management of natural forests envisages 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, strengthening of Rapid Response Teams (RRT) and Elephant Driving Teams etc. Major activities undertaken in 2021-22 included survey of forest boundaries, forest protection, and regeneration of denuded forests. Boundary demarcation was carried out by construction of cairns and kayyals (dwarf walls) along the boundary of the forests. Degraded forest areas were rehabilitated by planting in gaps with the local species. Protection of the forests from fire was carried out mainly by undertaking fire lines and engaging fire protection watchers.

According to FSI, out of the total forest cover in Kerala, 2.2 per cent is highly fire prone. Fire protection works are done through *Vana*

Samrakhana Samithis (VSS), Eco-development Committees (EDC). Special protection of unique ecosystems like shola forests, sandalwood areas, wetlands, mangroves, sacred groves and other fragile ecosystems were carried out along with improvement of degraded forests.

Improving Productivity of Plantations

Forest Department is having around 1.5 lakh hectares (13 per cent of total forest area) of forest plantations of various species of which teak covers an area of approximately 77,000 hectares (51 per cent of total plantation area). Forest plantation management was rationalised so that areas with high potential productivity will be subjected to intensive management ensuring that soil conditions and productivity are improved. Taking advantage of the long history of teak plantation management, a system of improving productivity through application of scientific management practices was adopted.

In 2021-22, maintenance was done in 38.2 hectares of plantation area. Species-wise area under forest plantation is provided in **Appendix 3.6.2**. Area under forest plantations decreased marginally from 156.2 thousand hectares in 2020-21 to 156.1 thousand hectares in 2021-22.

Management of Human-wildlife Interface

Human-wildlife interface is a complicated issue and the Department at various levels are taking measures to tackle the problem effectively. Measures undertaken include 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 RRTs, etc. Attacks by elephants are the main cause of damage to lives and crops to the people living in the fringe areas of forest. Other wild animals like tiger, leopard, pig, and peacock are also involved in human-wildlife conflicts. The increase in wildlife population, habitat loss and fragmentation and change in cropping pattern, climatic change are the main causes of human-wildlife conflict (HWC). A comprehensive strategy having long term and short term measures through prevention and mitigation are required in this regard. Human-wildlife conflict has risen to a great extent in the recent past leading to increase in claims for compensation. In 2021-22 alone ₹13.1 crore was disbursed as compensation, an increase of 25 per cent over the previous year. Details are given in **Table 3.6.1**.

Mitigation measures to solve human-wildlife conflict included integrated landscape based management involving creation of physical barriers to prevent animals from reaching the human habitation and crop fields, adoption of measures to avoid interface between humans and wild animals like early warning electronic systems, use of drones, radio collaring of problematic elephants, creation of corridors for wildlife (wherever habitations are interspersed with forests). It also includes creation of Primary Response Teams (PRT) and RRTs or relocation of such settlements. Forest department with the support of *Jana Jagratha Samithies* (JJS), VSSs and EDCs collaborated with Panchayats and line departments in managing conflict related issues in the fringe zone. In high conflict areas of the State, 15 RRTs are already established including eight permanent and seven temporary, and 25 new RRTs are identified for

Table 3.6.1 Details of adverse incidents of Human-wildlife interface reported and compensation paid in 2021-22

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 ₹)
Human Death	65	35	6	3	1	0	4	114	4,44,10,030
Human Injured	547	44	127	3	0	1	36	758	2,54,90,087
Cattle Death	33	9	3	1	179	180	109	514	1,11,65,868
Crop Damage and Property Loss	0	3349	1737	75	24	0	1395	6580	5,00,20,732

Source: Forest and Wildlife Department, GOK, 2022

establishment. At present Kerala Forest Department has 427 VSSs and 213 EDCs. The involvement of EDCs/VSSs members are ensured in management of high human-wildlife conflict (HWC) areas.

The hotspots where human death, injury and damage to property by wild animals are frequent or death and injury to wild animals are caused by human action were identified and recorded forest division-wise. Joint patrolling operations with the participation of local community representatives are conducted at range and station-level particularly in the hot spots. The State-level inventory of such hot spots is maintained on a secure GIS-based MIS platform under the direct supervision of the chief wildlife warden, and nodes on the platform are available to all wildlife wardens.

Early warning alert system to tackle the Human Wildlife Conflict (HWC) issue is presently using 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 proposed to set up 42 more such units in different parts of the State. Considering the role of Grama Panchayats in community development and conservation of natural resources, 246 JJS were formed across the State. The JJS at Panchayat-level composed of people's representatives, farmers' representatives and forest officers. There were initiatives to form ward-level samithis, where local issues are discussed. These samithis are effective

because conflict issues are discussed in detail and solutions are suggested. Moreover, the public support is ensured in meeting the challenge.

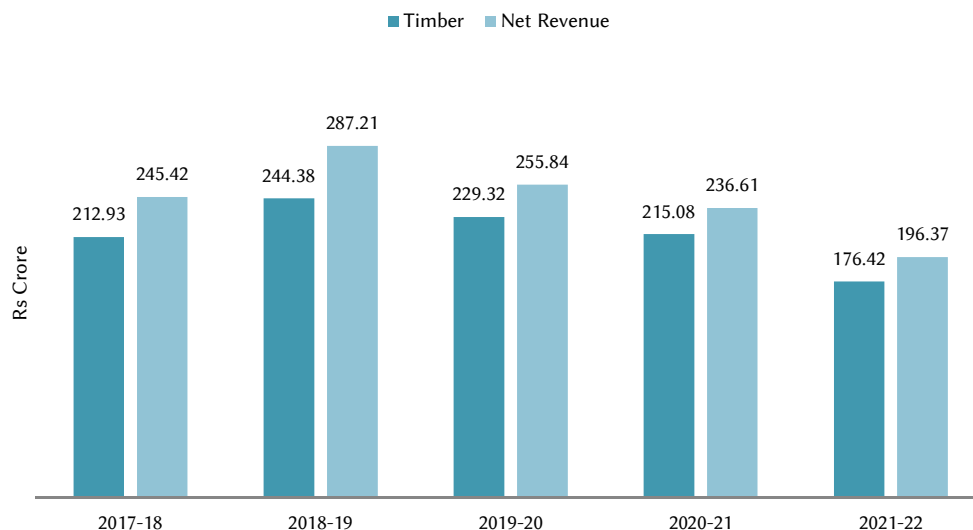
Forest Revenue

The Forest Department contributes substantially to the non-tax revenue of the State. The revenue from forestry sector by way of sale of timber and other forest produces was reported to be ₹196 crore in 2021-22. Major portion of the forest revenue comes through the sale of timber. In 2021-22, ₹176 crore was collected towards revenue from the sale of timber alone, which accounted for 90 per cent of the total forest revenue. Production of timber, firewood, bamboo, eucalyptus, and acacia increased in 2021-22, whereas production of honey, reeds and sandalwood decreased in comparison to 2020-21. Production of major forest produce in 2020-21 and 2021-22 is given in **Appendix 3.6.3**.

Trends in revenue from timber and other forest products during 2018-19 to 2021-22 are given in **Appendix 3.6.4**. Compared to 2020-21, in 2021-22 net revenue from forest products declined from ₹236 crore to ₹196 crore. A major reason for this fall is due to decline in timber revenue.

Figure 3.6.1 shows the trend in forest revenue. From 2017-18 to 2018-19, net revenue from forest increased by 17 per cent, but in 2019-20 it declined by 12.5 per cent and further declined to 5.8 per cent in 2020-21. Between 2020-21 and 2021-22, the revenue from timber declined by 18 per cent.

Figure 3.6.1 Trends in forest revenue 2017-18 to 2021-22



Source: Forest and Wildlife Department, GOK, 2022

The share of forestry and logging in total GSVA at base prices was 0.96 per cent in 2021-22, whereas it was 1.07 per cent in 2020-21. Similarly, the share of primary sector in GSDP which was 8.7 per cent in 2020-21 has decreased to 8.1 per cent in 2021-22. Contribution of forestry sector in GSVA is shown in **Appendix 3.6.5**.

Biodiversity Conservation and Management of Protected Areas

Conservation of wildlife and biodiversity is gaining momentum these days. The forests in Kerala are one of the biodiversity hotspots in the world and conservation of the rich biodiversity continues, especially through the network of established protected areas. The wildlife wing manages 3,441.21 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 cent of the forest area in the State. The wildlife wing is also involved in the conservation and management of important biodiversity areas outside protected areas. 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**.

Apart from the general wildlife census conducted in the forest areas, separate population estimation is conducted for tiger, elephant and Nilgiri tahr. As per the report of Ministry of Environment, Forests and Climate Change (MoEFCC), the tiger population has increased from 136 in 2014 to 190 in 2018. Kerala accounts for 6.4 per cent of the tiger population and 19 per cent of the wild elephants in the country. The estimated population of Nilgiri tahr, an endemic species in Kerala was 575 in 2017, which increased to 643 in 2018; however it declined to 526 in 2019.

Based on detailed scientific studies, wildlife corridors connecting animal habitats are established through acquisition of land. Further, a voluntary resettlement programme was implemented by relocating settlements from the forests to the forest fringes. Support is provided to Local Self-Government (LSGs) to conserve biodiversity, especially through supporting the development and updating of

biodiversity registers and conserving unique areas like sacred groves, mangroves, etc. Kerala has two biosphere reserves that harbour exceptional biodiversity, namely Agasthyamala biosphere reserve and Nilgiri biosphere reserve. 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. There are many environmentally conscious and responsible citizens and citizens groups, who through personal/collective efforts take proactive action in conservation of the biodiversity and biological resources outside forests. To encourage such citizens and citizen groups, *Prakrithi Mithra* award was instituted at the Panchayat-level.

Sustainable Ecotourism

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 section 5.3 Tourism).

Social Forestry and Urban Forestry

Population is becoming increasingly concentrated in the urban-rural continuum of Kerala, which is marked by a striking reduction in public green spaces. It point out the needs of creating green spaces in public areas in urban/semi-urban landscapes. Accordingly, Kerala Forest department proposed such demonstrative forest patches in the urban/semi-urban landscapes through the *Nagaravanam* project. In 2021-22, a total of 11 *Nagaravanams* were established. The Department introduced the concept of 'Forestry clubs' in schools during early 1980s and recently initiated a programme to revive and expand the activities of these clubs through 'Mission forestry clubs.' One of the activities is establishing *Vidyavanam* (miniature forests) in the premises of schools and colleges. Social forestry wing established 26 *Vidyavanam* in 2021-22 and started forestry clubs.

Under the afforestation programme, two lakh seedlings were planted in 2021-22. A conservation initiative was introduced in 2014 in each District for monitoring of birds. *Haritha Keralam* scheme of the Kerala Forest Department was started in 2009-10 with the objective of greening Kerala by way of distributing seedlings free of cost to schools and other educational institutions for planting in public lands, with the involvement of other socio-political organisations. The scheme also included

production of seedlings and supply at subsidised rate to LSGs, media, public and other organisations. 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

The programme for improving wood production from home gardens needs to be implemented with the involvement of the Local Self Governments and the technical expertise of the Kerala Agricultural University (KAU) and other institutions. Production of seedlings and other planting materials are enhanced through active involvement of Kudumbasree units. The concept of District Permanent Nursery was 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.

The incentive for private forestry programme includes giving cash incentives to farmers with the objective of encouraging them to grow more trees and produce timber in private lands. Fifty per cent of the incentive will be given at the end of first year and the remaining at the end of the third year. The scheme also ensures suitable cash awards for the best three performers at the end of fifth and tenth year. The scheme was implemented through farmers, VSS, EDC, Kudumbasree units, self-help groups, co-operatives and NGOs.

Recognition of Forest Rights Act

The Forest Rights Act 2006 recognise the rights of the forest dwelling scheduled tribes and the responsibility and the authority for sustainable use, conservation of biodiversity and maintenance of ecological balance of dependent communities in terms of individual and community rights. Scheduled Tribes Development Department is the nodal agency in the State entrusted with the task of implementation of the Forest Rights Act. Revenue and Forest Departments supplement needed assistance. 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 27,121 individual titles, 190 community titles, and 501 development rights were issued until 27th July, 2022.

Livelihood of Forest-dependent Communities

Forest Department in collaboration with other line Departments and agencies are implementing various programmes to improve the livelihood of the forest dwelling tribal communities. To reduce the dependency of local people on forest resources, alternate livelihood is provided by way of supply of high yielding cattle, sewing machines, etc. Supply of solar lamps, smokeless *Chulas*, LPG and construction of biogas plants are also envisaged to prevent the exploitation of forest for fuel wood. As part of revitalising the living standards of tribal people within the forest area, the Department has vested the collection of Minor Forest Produces (MFP) with them at free of cost. As part of transforming the NTFP management practices, an online solution viz., NTFP-IMS or the virtual godown was developed. The solution provides seamless and updated information to different stakeholders in the management of NTFP.

National Forest Policy 1988 envisages managing forests by forming partnership arrangements with forest dependent communities, especially in tribal population. As such, Participatory Forest Management (PFM) was initiated in the State with grassroot-level institutions of VSS in territorial forest divisions and EDCs in wildlife divisions. Forest Development Agency (FDA) is the federation of VSSs and EDCs at forest division-level and helps to find out better employment and livelihood to forest dependent communities, especially tribal community through various PFM programmes. Presently 50 FDAs are functioning in the State. The main function of the FDA is to make a close inter-link between the two approaches of integrated forest development and rural employment generation into a single umbrella scheme, for effective forest conservation. Minimum support price for MFP seeks to provide fair returns to forest gatherers for their effort in collection and value addition of MFP. 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. Activities under eco-development programme also focus on hamlet development in tribal hamlets.

Initiatives Under Rebuild Kerala Development Project (RKDP)

The Forest Department has drawn a project for the forest areas as part of Rebuild Kerala Initiative (RKI) approved with total project cost of ₹800 crore for three years starting from 2019-20 to rebuild the flood affected areas of the State. The project envisaged relocation of private settlements, acquisition of mangroves and private estates. An amount of ₹291.96 crore was assigned to the relocation of private settlements from forests and ₹385.31 crore for acquisition of private estates within forests, ₹120 crore for consolidation of mangroves and ₹5.98 crore for feasibility study and scoping studies.

Major Achievements and Initiatives under Forestry and Wildlife in 2021-22

As a part of boundary consolidation work in 2021-22, 5,954 cairns were constructed. During the period, 46.52 lakh seedlings were raised and 42.82 lakh seedlings distributed to public. Under non-wood forest produce scheme, maintenance of medicinal plants has done in 33.13ha. During the Plan period 143 families were voluntarily relocated from Wayanad wildlife sanctuary. To mitigate human wildlife conflict, solar fencing (226.5km), hanging fencing (9.5km) and stone wall (0.8km) were built. For the victims of wildlife attack ₹13.1 crore was disbursed as compensation. Nearly 500 elephant proof trenches were maintained during the period.

The Green India Mission project was successfully implemented in the State to bring down deforestation, restoration of the decaying forests and also to create employment opportunities for the forest dependent communities. Around one lakh saplings were planted in 465 tribal colonies in the State with the participation of the forest community. For the first time in the State, the project of converting check posts into integrated forest checks posts were started. As part of human resources development, 557 officials in various cadres were imparted training. A fire management plan was prepared in all circles to prevent wildfires in forests. Fire control room for 24 hours was started and forest control operations were made more efficient by pre-deployment of defence teams including EDC/VSS members. Under forest fire prevention and management scheme (FPMS), 193.47 km of fire line was created.

As part of social forestry, projects such as urban forest, *Vidyavanam*, and coastal forest were implemented to increase the tree cover outside forests. During this period, 12 urban forests were built and Neyyar ecotourism project was completed. More employment days were created in rural areas through *Vriksha Samridhi* scheme and as part of the *Vidyavanam* project, 31 *Kutty Vanam* were established in schools. Construction of 14 integrated forest check post complexes and 15 forest stations was completed. Under borrowing from NABARD through RIDF, eco-restoration works were done in 130.5ha. The *Theeravanam* Programme was introduced to protect the coastline from natural calamities like the tsunami, sea erosion, cyclonic winds etc by establishing a bio-shield of sand binding plant species. Under KIIFB, 64 families in Thiruvananthapuram, Wayanad, and Kannur districts were voluntarily relocated.

Major Highlights under the 13th Five-Year Plan

The Thirteenth Five-Year Plan provided a comprehensive approach to the development of the State's forestry sector, while outlining a clear vision of how forests are to be managed. As part of improving the management of forests, the preparation of working plans were automated. Further, hydrology was made as the central theme of forest management and the working plan prescriptions are made accordingly. As part of boundary consolidation 49,344 cairns were constructed during the Five-Year Plan period. Forest *Adalaths* were conducted in all districts; among the 3,870 grievances received, 3,304 were resolved and ₹2.59 crore was distributed as compensation. *Budha Mayoore* was proclaimed as the official Butterfly of the State. About 165 lakh seedlings were distributed to public as part of social forestry during the period.

The Green India Mission Scheme (GIM) and MSP for MFP (TRIFED aided projects) are the two projects started under eco-development and tribal welfare wing of Kerala Forest Department from 2016-17 and 2019-20 respectively. Through interventions like scientific collection, value addition and better marketing of NTFPs, livelihood and employment opportunities of tribal communities and thereby forest protection was ensured. As part of joint forest management, the Department has setup 640 VSS/EDCs. Members of VSS/EDC are engaged in the collection of NTFP for which the Department provided facilities for value addition and also avenues for the sale of such value-added products. The Department has setup 34 *Vanasree* outlets and two

mobile units for the sale of the NTFPs collected by the VSS/EDCs. The outlets have an annual turnover of more than ₹10 crore. Karimpuzha in Malappuram District was declared as a new wildlife sanctuary.

For effective tackling of the problems of organised encroachment and smuggling, the Department established a unit of RAF and to tackle Human-Wildlife Conflict (HWC) formed Rapid Response Teams (RRT). Forest department along with JSS, VSSs/EDCs have collaborated with Panchayats and line Departments in managing HWC. About 382 eligible families from nine settlements are trans located by utilising the fund of ₹37.96 crore as part of relocation of resettlements in Wayanad wildlife sanctuary.

Organisation of forestry clubs was one of the major activities of the social forestry wing of Forest Department. Presently there are 1131 forestry clubs registered throughout the State. The Department recently initiated a programme to revive and expand the activities of forestry clubs through “Mission forestry clubs”. To tackle environmental issues in urban areas the Government promoted urban forestry. As part of this, green spaces and urban parks called *Nagaravanams* were established in cities across the State. Minimum support price seeks to provide fair returns to forest gatherers for their effort in collection and value addition to Minor Forest Produce (MFP). Under the scheme established 16 storage facilities for MFPs collected from forests by tribal people under various Forest Development Agencies (FDAs). Established 25 Haat bazaars under various FDAs for marketing of MFPs. At present there are 64 eco-shops functioning in the State.

During the second year of the 13th Five-Year Plan in 2018, a five year programme viz. Forest-plus 2.0; forest for water and prosperity was initiated as a collaborative project of the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the United States Agency for International Development (USAID). Thiruvananthapuram Forest Division in Kerala was one of the three landscapes in India identified for implementing the project.

To strengthen the capacity of forests to perform their key role in the hydrological cycle, the State Government has taken several initiatives, like phasing out of plantations of exotic species, eco-restoration of such area to natural forests and so on. Specific emphasis was given on disaster-prone, wildlife corridor and riverside areas. Areas

are identified and the procedures are in the final stage. The felling and conversion to natural forests will be taken up in a phased manner with the final phase to be completed by 2034. Already one project was approved under NABARD-RIDF and work is underway in Thrissur; other eight projects are in the pipeline.

Outlay and expenditure details of the sector from 2017-18 to 2021-22 of 13th Five-Year Plan is shown in **Appendix 3.6.8**.

3.7 ENVIRONMENT

A landmark decision by the United Nations General Assembly was made on 28th July, 2022, recognising that all people are entitled to a clean, healthy and sustainable environment. The UN's forum agreed to this historic resolution with representation from all 193 Member States. It could usher in social and economic transformation to advance an inclusive green recovery and accelerate progress on the 2030 Agenda. The recent Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) makes clear the urgent need to address the threat of climate change. International agencies including the UN and Governments across the world realise the importance of environmental conservation. UNEP's Frontiers Report for 2022 attempts to identify and explore areas of emerging and ongoing environmental concerns and delves into the issues of noise pollution in cities, the growing threat of wildfires and shifts in seasonal events. The purpose of Stockholm+50 of June 2022 was to contribute to the environmental dimension of sustainable development to accelerate the implementation of commitments in the context of the decade of action and delivery for sustainable development.

According to the United Nations, one million plant and animal species are on the verge of extinction. There are 36 biodiversity hotspots, of which four are in India. These 36 hotspots represent just 2.3 per cent of earth's land surface, but they support more than half of the world's endemic plant species. The 2022 Environmental

Performance Index (EPI) of Yale Centre for Environmental Law and Policy ranked India at the last position in a list of 180 countries. The EPI provides a data-driven summary of the state of sustainability around the world.

Kerala is one of the distinctive biodiversity hotspots and has all the three maximally productive and biodiversity rich ecosystems, namely tropical rainforests, freshwater and brackish water wetlands, and the marine coral reefs. Environmental consciousness is all pervasive in Kerala society, and related issues are debated intensely in the public sphere.

Climate Change

Climate change has a profound impact on the environment and human well-being. The IPCC is the United Nations body created to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options. The latest IPCC Report of Working Group three, which was released in April 2022 focuses on climate change mitigation, assessing methods for reducing greenhouse gas emissions, and removing GHGs from the atmosphere. Net Carbon dioxide emissions must be reduced by 48 per cent in 2030 and by 80 per cent in 2040 in pathways that limit warming to 1.5°C compared to 2019. Also global methane emissions are to be reduced by 34 per cent in 2030 and 44 per cent in 2040. The report warns that without strengthening of policies, GHG emissions

are projected to rise beyond 2025, leading to a global warming of 3.2°C by 2100.

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 mitigation.

Climate change poses serious threat to Kerala's environment and has become an agenda for development planning in recent years. Environment Department is the nodal agency for coordination related to climate change in the State. Subsequent to the introduction of NAPCC, State Governments were encouraged to prepare their own State Action Plan on Climate Change (SAPCC) consistent with strategies in the NAPCC. The first Kerala State Action Plan on Climate Change was drafted by the Directorate of Environment and Climate Change (DoECC) with inputs from relevant departments, agencies and research institutions and was endorsed by the Government of India in 2014. The Ministry has requested States to initiate the process of revision of the SAPCCs and issued the guidelines for the revision in 2019. In accordance with the revised guidelines, the Directorate had consultation with nodal officers from 85 stakeholder departments and revised SAPCC was submitted to the Government. Being an important vision document of the State, SAPCC places the climate change concerns at the forefront of sustainable development for maintaining the quality of life of the people in the State. Its main objective is to mainstream climate change strategies into State-level planning and development process and to reduce climate change associated risks of the State.

Major initiatives of the Department of Environment and Climate Change (DoECC) in 2021-22 include the following.

Administrative sanction was accorded for the strengthening of Climate Change Cell in 2021-22. The Cell is involved in inter-departmental coordination and periodic interaction with the stakeholders such as line departments, Local Self Government, different regulatory authorities, R&D institutions, Non-Government Organisations (NGOs), Community Based Organisations (CBOs), and national and international institutions for exchange of information on climate change, data sharing and to facilitate real-time monitoring of the Plan programmes. The Cell mandates to develop a Climate Change Knowledge Management Portal to ensure proper collection, analysis and dissemination of climate change data and information.

Under the *Bhoomithrasena* Clubs, activities to strengthen the environmental commitment of students at colleges and higher secondary schools are carried out. In 2021-22, 58 new BMCs were established in schools/colleges, other than the assistance to existing clubs. Through '*Paaristhithikam*' programme, financial assistance was given to 12 institutions to conduct awareness cum action-oriented programmes focused on creating awareness about local environmental issues. An online database management system and mobile app has been started for effective implementation of the programmes under the 'Environmental Awareness and Incentives' scheme. Various programmes were organised to observe environment relevant days like World Environment Day, World Wetlands Day, World Water Day, World Forest Day and World Ozone Day.

As part of environment research and development, new projects were initiated along with recurring projects. The *Vidhyaposhini* student fellowship programme aims to provide financial assistance to postgraduate students to undertake short term research projects in the field of environment. *Paristhithiposhini* research fellowship programme has supported young researchers on critical issues related to environment and climate change. Two Ph.D scholars successfully completed the fellowship programme during the period.

Financial assistance was given to 21 organisations across the State to conduct training programmes/workshops and recurring financial assistance was given to eight ongoing projects that aim to

develop climate resilient practices and technologies for the major agricultural crops in the State. The scheme on climate resilient farming aims to enhance resilience of agriculture sector to the effects of climate change through strategic research, technology development and demonstration. Conducted consultative workshop to finalise the methodology for measuring the carbon foot print in the State and organised State climate change stakeholder consultation workshop.

As per Coastal Regulation Zone Notification, draft Coastal Zone Management Plans (CZMP) for all the coastal districts are prepared by Kerala Coastal Zone Management Authority (KCZMA). Under the National Plan for Conservation of Aquatic Ecosystems (NPCA) various conservation activities are in progress in Sasthamkotta Lake in Kollam District. As part of notification process of wetlands, consultative meetings of revenue officials, LSG presidents and secretaries of Ernakulam, Kannur, Malappuram and Kollam Districts are completed.

Biodiversity

Rapid decline in biodiversity, ecosystem functions and nature's contributions to people mean that international societal and environmental goals embodied in the Aichi biodiversity targets and the 2030 agenda for sustainable development, will not be achieved based on current trajectories. Such decline will also undermine other goals, such as those specified in the Paris Agreement adopted under the United Nations framework convention on climate change and the 2050 vision for biodiversity.

Biological diversity is a global asset of tremendous value to future generations. The number of species has been significantly reduced by human activities. According to UNEP, three-quarters of the land-based environment and 66 per cent of the marine environment are significantly altered by human actions. One million animal and plant species are now threatened; the pillars on which we build civilisations. But loss of biodiversity threatens all, including our health. Biodiversity loss may expand zoonosis – diseases transmitted from animals to humans. Given the importance of public education and awareness about these issues, the UN has decided to celebrate the international day for biological diversity annually.

The Food and Agriculture Organisation's (FAO) report on 'Framework for action on biodiversity for food and agriculture 2022' states that sustainable management of biodiversity for food and agriculture and promotion of its role in the supply of ecosystem services require multi-stakeholder cooperation across the sectors at local, national, regional and global levels. The UNEP's 'Global biodiversity outlook-5' reported that there has been significant expansion of protected area, increasing over the 2000-2020 period (UN decade on biodiversity) from about 10 per cent to at least 15 per cent terrestrially, and from about three per cent to at least seven per cent in marine areas. The protection of areas of particular importance for biodiversity (key biodiversity areas) has also increased from 29 per cent to 44 per cent over the same period.

As a country with a land area of only 2.4 per cent of the world's total, India holds seven per cent of the world's recorded species and 18 per cent of the world's population. India has been investing huge amount on biodiversity directly or indirectly through several development schemes of the Central and State Governments. A little more than two-thirds of India's geographical area are arid, semi-arid or dry sub-humid on which depend a vast majority of rural and semi urban poor for their livelihoods. India is the first country to have the Biological Diversity Act and implement it in effective manner.

The diverse physical features of Kerala has resulted in 13 agro-climatic zones and a variety of ecosystems such as forests, grasslands, wetlands, coastal and marine ecosystem. Of the 39 sites in the Western Ghats inscribed in the UNESCO world heritage list, 19 are located in Kerala. The Kuttanad below sea-level farming has been recognised as a Globally Important Agricultural Heritage System (GIAHS). Kerala has been in the forefront of sustainable utilisation of bio-resources and the Kani model was the first to receive the Equator prize way back in 2002, much before the Nagoya protocol. The Ashtamudi short-neck clam fishery is the third fishery in Asia to receive the Marine Stewardship Council (MSC) certification.

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 2021-22 are the following.

Identification of Biodiversity rich areas outside protected areas and their conservation as Local Biodiversity Heritage Sites (LBHS): Identified 13 areas which can be declared as 'Other effective area-based conservation measures.' Conducted field studies on already declared 10 LBHS in various districts and DPR for its conservation prepared.

Implementation of People's Biodiversity Registers (PBR), derived action plan and other biodiversity conservation activities: Establishment of biodiversity parks at local-level through BMCs, and PBR updating is progressing in 14 BMCs. District-level BMC training programmes were conducted.

Empowerment of BMCs: Empowerment of BMCs through updation of District-level facilities and infrastructure is progressing.

Propagation of Indigenous, Rare and Endangered Threatened (RET) Species: Development of propagation technique and establishment of nurseries for indigenous RET species notified under Biological Diversity Act and promotion of cultivation with the support of research organisations, Kudumbasree and MNREGS.

Strengthening of ABS cell: Strengthened ABS cell through capacity building of resource user groups in consultation with legal experts, local knowledge and empowerment of BMC for levy of collection fees.

Biodiversity studies: Conducted biodiversity studies on human, animal, plant and issues relating to loss of biodiversity, and biodiversity monitoring.

Updation of infrastructural facilities in museum: Updation of infrastructural facilities was undertaken in the Kerala Biodiversity Museum.

Development of mobile app: As part of awareness creation a mobile app was developed in association with NIC.

Rebuild Kerala Initiative: As part of Rebuild Kerala Initiative following three projects were implemented by KSBB and completed by March 2022.

Database of traded bio-resources of Kerala and their economic valuation: The project covered 250 raw drug dealers, 800 plant nurseries, 138 marine landing centres, 4,000 fishermen, and 100 Ayurvedic medicine manufacturers. Total annual value of the bio-resources (forest, land outside forest, marine and inland aquatic resources, agriculture, and livestock) at their origin was estimated as ₹66,883.11 crore, which indicates the magnitude of the contribution of biodiversity in the State. Besides, the State's biodiversity/ecosystems also provide a number of non-marketed services.

Riverine Biodiversity Rejuvenation – Pampa River: The project aims for restoration of riparian vegetation on degraded river banks and to ensure sustainable livelihood for the local people. It was implemented in the selected 14 Grama Panchayats of Pathanamthitta District.

Conservation of Agro-diversity: The project aims to conserve genetic diversity of crops and their wild relatives and native breeds in situ through custodian farmers. The main objective was the empowerment of custodian farmers for agro-biodiversity conservation through cross learning, training and exposure visits, seed fests, etc.

Pollution Control

According to Air Quality and Climate Bulletin-2022 of the World Meteorological Organisation (WMO) the interaction between pollution and climate change will impose a "climate penalty" for millions of people. The UNEP's Beat Pollution warn 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. To eradicate all forms of pollution by 2030, the UNEP was tasked by the UN Environment Assembly to coordinate the implementation of a global plan towards a pollution-free planet. Addressing pollution is not only an environmental priority; it's a priority for the achievement of the SDGs. Finding a pathway out of plastic pollution is not only about improving the quality of the environment and oceans but also about improving economies, public health, and livelihoods. More than 98 per cent of plastic waste accumulates on land, where it then progressively pollutes inland waterways leading to the ocean. With no action, the annual flow of plastic into oceans will nearly triple by 2040.

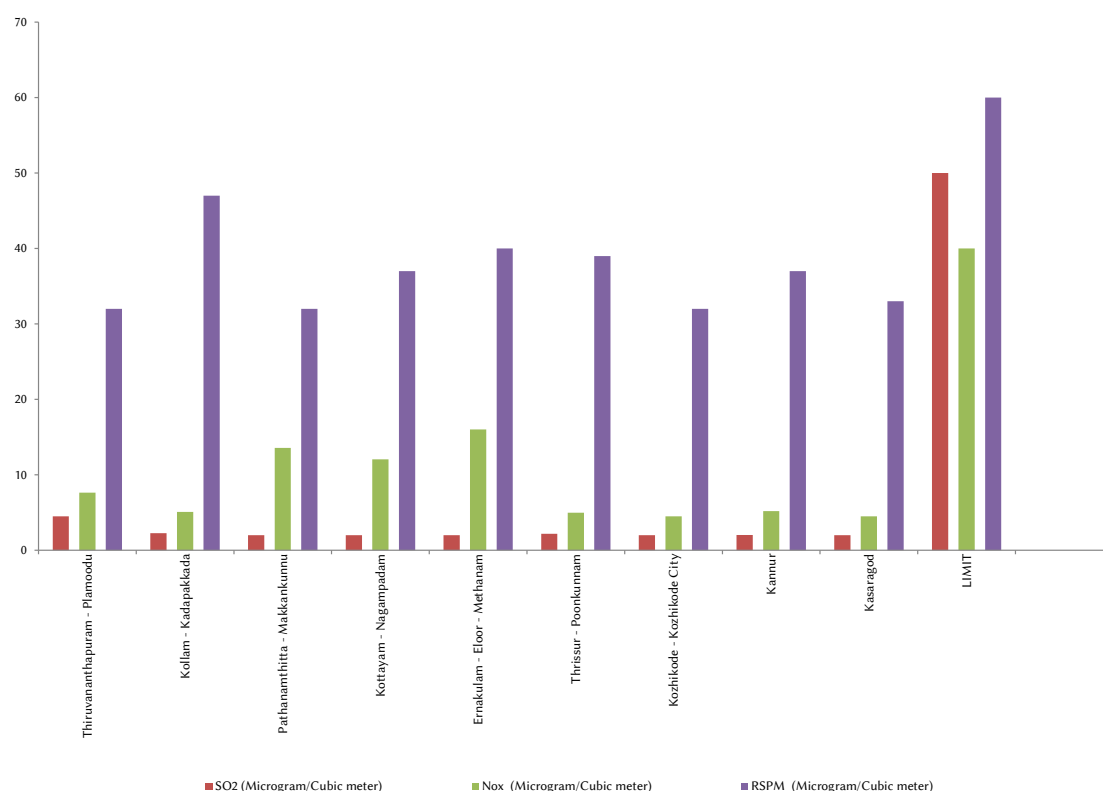
One of the fastest growing economies in the world, India contributes nearly seven per cent of the GHG emissions in the world and ranked third after China and US in GHG emissions. India's share of cumulative emission is, however, very low. The State of India's Environment Report 2022 published by the Centre for Science and Environment warned that three out of every four river monitoring stations in India posted alarming levels of heavy toxic metals such as lead, iron, nickel, cadmium, arsenic, chromium and copper. Among the 588 water quality stations monitored for pollution, total coliform and Biochemical Oxygen Demand (BOD) were high in 239 and 88 stations respectively across 21 States. This is an indicator of poor wastewater treatment from industry, agriculture and domestic households.

The Kerala State Pollution Control Board (KSPCB) is monitoring ambient air quality at 34 stations in the State, of which 28 stations

come under the National Ambient Air Quality Monitoring Programme (NAMP). Continuous ambient air quality monitoring stations were established in Kozhikode, Ernakulam, Kollam, Kannur, Thiruvananthapuram, and Thrissur districts. The average values of air pollutants at major monitoring stations in residential areas, three monitoring stations in sensitive areas and eleven monitoring stations in industrial areas of Kerala in 2021 are shown in **Figures 3.7.1**, **Figure 3.7.2**, and **Figure 3.7.3** respectively.

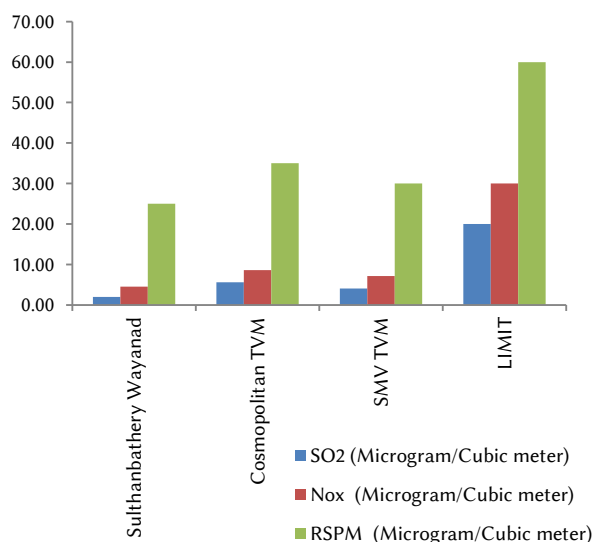
There are 128 water quality monitoring stations under National Water Quality Monitoring Programme (NWMP) in the State. It includes 72 stations in 48 rivers (major, medium and minor rivers), six in reservoirs, three in fresh water lakes, eight in estuarine lakes, three in canals, two in ponds and 34 stations in ground water. State Water Quality Monitoring Programme (SWMP) operates at 115 stations in 23 rivers

Figure 3.7.1 Annual average values of air pollutants at major monitoring stations in residential areas of Kerala 2021



Source: Kerala State Pollution Control Board, 2022

Figure 3.7.2 Annual average values of air pollutants at 3 monitoring stations in Sensitive areas of Kerala 2021

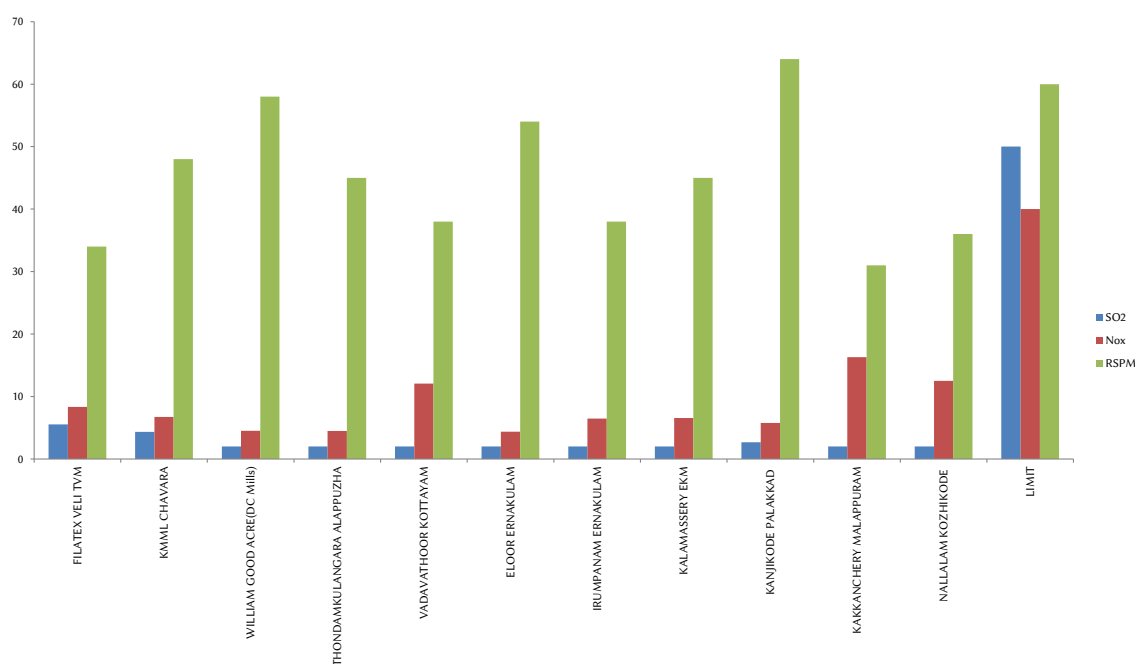


Source: Kerala State Pollution Control Board, 2022

and 23 stations in four lakes. Some of the rivers having high BOD values are 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 Munnattumukku in Karamana river, Kallayi bridge in Kallayi river, Pamba river, Purakatteri in Korapuzha river, Thodupuzha river and Munnar river.

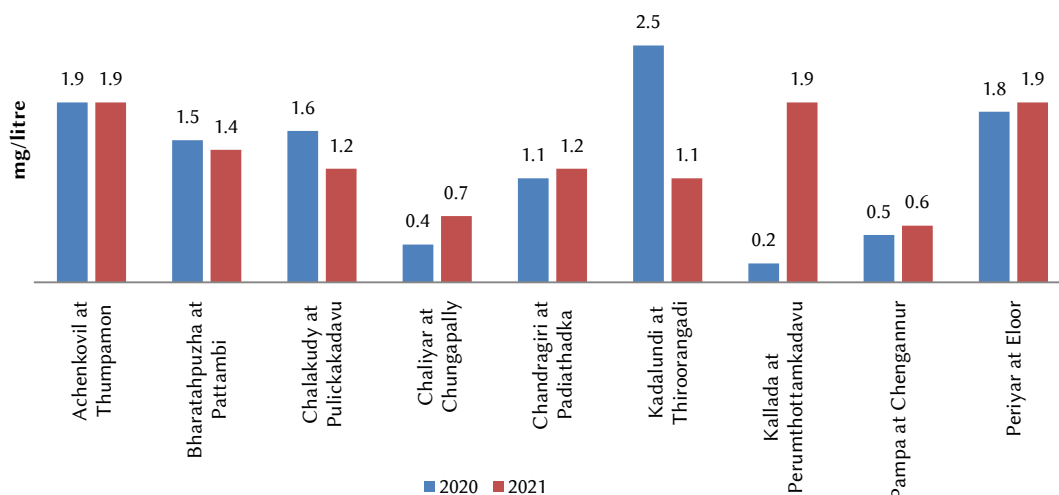
Laboratories attached to Pollution Control Board's offices are strengthened by procuring advanced instruments and equipment with a view to attain NABL accreditation. Financial assistance was provided to Kerala Environment Infrastructure Limited (KEIL) for establishing common biomedical waste treatment and disposal facility (CBWTDF) at Ambalamedu, Kochi. During the period, sanitation survey of Ashtamudi Lake was conducted through socio-economic unit foundation. Digital platform software application of KSPCB as part of its e-governance and ease of doing business initiative is in the final stage. Preparation of action plan for 21 polluted stretches, coastal action plan and action plan for ponds in the State is progressing.

Figure 3.7.3 Annual average values of air pollutants at 11 monitoring stations in Industrial areas of Kerala 2021



Source: Kerala State Pollution Control Board, 2022

Figure 3.7.4 BOD levels at selected river stations in 2020 and 2021



Source: Kerala State Pollution Control Board, 2022

Figure 3.7.5 MSW Generation and Treatment in Kerala, 2019-20 to 2021-22



Source: Kerala State Pollution Control Board, 2022

Pollution Control Board took initiatives in the implementation of Kerala antimicrobial resistance strategic action plan (KARSAP). Consent administration is done through Online Consent Management and Monitoring System (OCMMS), software developed by National Informatics Centre (NIC). **Figure 3.7.4** depicts BOD levels at selected river stations in Kerala. Compared to 2020, BOD levels were high in Chaliyar, Kallada, Chandragiri, and Pampa in 2021.

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 77 per cent in 2021-22. The hazardous waste generation in the State in 2020-21 was 5,949 MT, which is an increase of 65 per cent over the previous year. The bio medical waste (BMW) generated and treated in the State in 2021-22 was 611.4 tonnes.

Achievements in the 13th Five-Year Plan 2017-2022

The 13th Five-Year Plan envisaged clean, healthy, and sustainable environment, which is considered to be an integral component of human well-being. As part of providing environmental education opportunities for students and involving them

in addressing environmental issues 112 Bhoo Mithra Sena Clubs were established in higher secondary schools and colleges. Presently there are 426 BhooMithra Sena Clubs functioning in the State and these clubs helped in disseminating water quality monitoring programme, post flood environmental restoration programmes and so on. Under the *Paaristhithikam* programme, financial assistance was given to 139 institutions including schools, colleges, and NGOs to conduct action cum awareness oriented programme. Department also organised the first National Environment and Climate Change Congress (NECCC) and observed environmentally significant national and international days. During the period, 10 *Paristhithiposhini* fellowships were awarded and initiated a new student fellowship *Vidyaposhini*. Financial support was given to 13 climate change-related projects during the Plan period. Bio-saline agriculture and open water fish farming in Munroe island at Kollam District was inaugurated. Department conducted climate change vulnerability analysis as part of the revision of State Action Plan on Climate Change (SAPCC) and prepared the draft report.

Management action plans of eight major wetlands in Kerala were drafted with the help of CWRDM. Implementation of the management action plan for Ashtamudi, Sasthamkotta and Vembanad estuary; and three Ramsar wetlands are in progress. As part of the Phase-I of 100 transformative ideas mission programme, Vellayani Lake from Kerala was selected for implementing the integrated management action plan. The Directorate carried out a post-flood ecosystem condition assessment of all major wetlands across the State. The Kerala Centre for Integrated Coastal Management (KCICM), the State project management unit was established under the environment department. As per coastal regulation zone notification, Coastal Zone Management Plan was prepared for all coastal districts by the Kerala Coastal Zone Management Authority (KCZMA).

Biodiversity Management Committees (BMC) were constituted at all levels of local bodies and people's biodiversity register preparation was completed in all LSGs during the 13th Five-Year Plan. As part of empowerment, 55 BMCs were supported for implementation of various biodiversity conservation projects including biodiversity-park, riparian vegetation rejuvenation, mangrove rejuvenation, butterfly-park,

conservation of native fruit plants, indigenous varieties of rice, tubers, sacred groves etc. Asramom mangroves in Kollam District on the banks of Ashtamudi-lake was declared as heritage site during the period. Kerala biodiversity fund was established for the conservation of biological diversity, and fair sharing of the benefits. KSBB conducted post-floods impact assessment on biodiversity in 187 LSGs through BMCs to generate data on impact on livelihoods, biodiversity loss, landscape devastation, and destruction of floral and faunal components. Accordingly areas requiring attention were prioritised and 28 studies related to assessment of impact of floods and landslides on biodiversity and ecosystem was awarded to research and development institutions and universities. Three projects including riverine biodiversity rejuvenation through BMCs, conservation of agro-biodiversity through BMCs, and study on database of traded bio-resources of Kerala were done as part of Rebuild Kerala Initiative. The state-of-the-art biodiversity museum showcasing the rich diversity of India and Kerala was established at Vallakkadavu in Thiruvananthapuram. During the period 1,500 biodiversity clubs were formed in educational institutions in Kerala and workshops conducted for creating biodiversity awareness.

Pollution Control Board established continuous ambient air quality monitoring stations at Palayam in Kozhikode, MG road and Eloor in Ernakulam, Polayathode in Kollam, Karyavattom in Thiruvananthapuram, Kannur and Thrissur during the period. Department completed the projects on 'Environmental status report of Thiruvananthapuram', and 'Study on classification of water bodies – Nallathanni and Muthirappuzha river.' Implementation of Kerala Antimicrobial Resistance Strategic Action Plan (KARSAP) has started in the State. Schemes like installation of PM 2.5 sampler at 19 air quality monitoring stations, setting up of online consent management system for ease of doing business, installation of night vision cameras for surveillance of Periyar, development of web based decision support and monitoring system for pollution abatement, sanitation survey of Killi and Karamana rivers, and monitoring of 40,000 wells in flood affected areas have been completed. Also the Pollution Control Board has published State water and air quality monitoring directories, and conducted pollution surveillance of Sabarimala during the pilgrimage season.

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 sustainable development goals of the State. It was set up 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 Governments and other departments to address the major development issues in every District.
- To provide scientific and technical advice to Local Governments.
- Provide leadership to ensure peoples 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.

Sanitation and Waste Management

The Mission has done remarkable work to assert the observance of green protocol in social life to a great extent. Resultantly, majority of the Local Governments in the State have achieved the Suchitwa Padavi status and more than 15,000 Government offices have been declared as green offices. Haritha Karma Sena SHG groups have played major role in waste collection and segregation. Activities like the green law awareness campaign are a powerful public education programme. As part of making the tourist centres of the State garbage free, a green tourism project has already been started in Munnar following the model of 'Vazhikattan Vagamon'. Some of the important specific interventions in this area during the period are:

- Facilities for solid waste disposal have been established in 941 Grama Panchayats and 93 Urban Local Governments.
- Material collection facilities have been set up in 1,002 LSGs for collection and further processing of inorganic waste.
- Clean Kerala Company collected 7,383 tonnes

of sorted plastic, 31,672 tonnes of legacy waste, and 1,962 tonnes of e-waste, 583 tonnes of glass waste and 42 tonnes of textile waste during the reviewing period. Also, 3,183 tonnes of plastic waste was shredded.

- For achieving the Suchitwa Padavi status to Local Governments, 100 per cent doorstep collection and disposal is being done for which technical assistance is provided to Local Governments.
- Roll out of the online monitoring system viz. Haritha Mithram app for tracking waste from source to the point of disposal, has been progressing in 312 Grama Panchayats, 58 Municipalities and four Municipal corporations.
- 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 29,538 Haritha Karma Sena members were trained for doorstep collection of non-organic waste and they are working in Local Governments in the State.

Agriculture Development

The Haritha Keralam Mission under the leadership of the Department of Agriculture and related agencies and Local Governments has done extensive programmes like promotion of agriculture in fallow lands, providing assistance to Local Governments to declare Haritha Samriddhi ward, paddy cultivation including dry land rice cultivation, organic vegetable production, vegetable cultivation in school premises and land of various institutions and promotion of integrated farming.

The action plan to make all ITI campuses in the State green and the scheme to transform maximum number of houses in the State as green houses have also achieved remarkable results. As part of the Subhiksha Keralam project, agricultural activities in public sector institutions under the Industries Department have also yielded impressive results.

'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, 314 new

Pachathuruth (green islets) have been established. At present there are 2,457 Pachathuruth in 617.79 acres. Some of the major interventions by Haritha Kerala Mission in the field of agriculture are:

- Tharishu rahitha gramam 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 126 Grama Panchayats were selected for this programme. In Mainagapally Panchayat of Kollam District has initiated cultivation in 574 acres of paddy field which was lying fallow earlier. Similarly, Nadayakam padasekaram, in Thikodi Panchayat, Kozhikode, was brought under cultivation after 30 years. Harvest fest of the 6 acres paddy field in Palati Patasekaram in Kozhikode Corporation was also conducted.
- Haritha Samrudhi ward project is progressing in 446 wards across the State.
- As part of Devaharitham project which aims at cultivation and greening in the vacant lands of temples and other places of worship, 126 sites have been identified.
- For institutional farming, another major activity of the Mission, 62 industries have been selected and the work is progressing. At the Travancore Titanium Product factory, cashew and vegetables have been planted in five acres and 15 acres respectively.
- Programmes to propagate the idea of carbon neutral State/net zero emission have been initiated. A workshop was organised with the participation of experts and draft guidelines are being prepared.

India High Range Mountain Landscape Project

Haritha Keralam Mission has implemented the India High Range Mountain Landscape (IHRML) project in association with the Forest and Environment Ministry, Government of India, the UNDP and Global Environment Facility. This project aims at ensuring nutritious food and income to tribes through agriculture, support to capacity building of youths through job oriented courses, creating waste management systems and ensuring environmental sustainability. The project was implemented in 11 Grama Panchayats, which includes nine Grama Panchayats of Idukki District and one Grama Panchayat each in Ernakulam and Thrissur districts. As part of this project, the following major achievements were made.

- In convergence with the Subiksha Keralam project, traditional millet and rice varieties were cultivated in about 345 acres of land, benefitting 1160 farmers.

- To conserve indigenous varieties of paddy, millets, medicinal plants and tuber crops, three agro-biodiversity experimental plots were established.
- Medicinal gardens were set up in the homesteads of 2,892 families in Munnar, Marayoor, Kanthalloor and Devikulam Grama Panchayats.
- Through the UNDP project, decentralised waste management systems have been established in Mankulam, Chinnakanal, Marayoor, Kanthalloor, Athirapilly, Kuttampuzha, and Munnar Grama Panchayats.

Soil and Water Conservation

The Mission has initiated several water conservation activities in recent years. River rejuvenation activities were carried out across the State. Renovation and recharging of wells and ponds has also yielded great results. Generally, the programmes for water conservation have enriched the agricultural sector too. The major activities of the Mission in this regard included steps to monitor water availability in the water bodies by establishing water-level scales, Mapathon to mark water sources on digital maps, establishing water quality testing labs for assessing the quality of drinking water etc. The major interventions in this area are briefly mentioned below:

- Rejuvenation of streams was initiated under the programme viz. 'Ini njan ozhukatte' (Now, let me flow) campaign, which is going on actively and have rejuvenated 10,253 km of rivers in the second phase. This is an addition to 45,736 km that had been revived in the last five years. Reclamation of streams in the Western Ghats area has also been included in the third phase of the 'ini njan ozhukate' campaign. As an initial activity based on pilot basis, streams mapathon has been completed in one Grama Panchayat each in 10 districts.
- Apart from this, 11,914km streams and 923 ponds have been revived, 1,839 new ponds were built, 4,486 wells were recharged and 7,582 new wells were constructed.
- Work has started to set up labs for testing the quality of drinking water for the locals in conjunction with the chemistry lab of a Higher Secondary School in each Local Self Government area. Administrative sanction has been accorded to establish 254 labs, out of which establishment of labs have been completed in 166 schools. Apart from this, setting up of 313 laboratories has been initiated under Rebuild Kerala Initiative.

- As part of recharging rock quarries for water conservation, a project has started at two quarries in Karipra Grama Panchayat of Kollam District. The project was started on an experimental basis and preparations are being made to implement it in other places as well.
- As part of establishing water availability determination scale, water scale was installed in four ponds of three Local Governments in Thrissur District.
- The project viz. *Puzha Ozhukum Manickal* which intends to clear the course of major streams in Manickal Grama Panchayat of Thiruvananthapuram District was launched and about 50 per cent of the work has been completed.
- The Nirurav project aiming at soil and water conservation in watershed areas was implemented jointly with the Mahatma Gandhi National Rural Employment Guarantee scheme. This project is nearing completion at Chullalam in Pullampara Grama Panchayat in Thiruvananthapuram District. This project has proposed to be scaled up and propagated to other parts of the State.
- Jalanjali-Nirurav project has reached its final stage in Peravoor block Panchayat.
- Rejuvenation of Pozhiyur A.V.M. canal, a project aimed at canal revival and related tourism development was launched.

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.

3.8 FOOD SECURITY AND PUBLIC DISTRIBUTION SYSTEM

Hunger affected 768 million people worldwide in 2021, an increase of about 46 million more than the previous year and 150 million more than since the outbreak of COVID-19. The prevalence of undernourishment rose from 8 per cent in 2019 to 9.3 per cent of the world population in 2020 and further increased to 9.8 per cent in 2021. Around 2.3 billion people worldwide (29.3 per cent) were moderately or severely food insecure in 2021. The gender gap in food security also increased, with 31.9 per cent of women compared to 27.6 per cent of men. It is estimated that 149 million children have stunted growth and development due to a chronic lack of essential nutrients in their diets (State of Food Security and Nutrition in the World, 2022). In the Global Food Security (GFS) Index 2022 published by the Economist, India was ranked 107th out of 121 countries with an overall score of 29.1 points.

Public Distribution System

The Public Distribution System (PDS) in India is the joint responsibility of the Central and the State Governments. The Central Government, through the Food Corporation of India (FCI), has the responsibility for the procurement, storage, transportation and bulk allocation of food grains to the State Governments. The operational responsibilities, including allocation within the State, identification of eligible families, issue of

Ration Cards and supervision of the functioning of Fair Price Shops (FPSs), rests with the State Governments. Commodities such as wheat, rice, sugar and kerosene are allocated to States for distribution under PDS.

Public Distribution System in Kerala

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 grain in Kerala can be traced back to the period of the Second World War. Later, the State Government introduced an informal system of distribution of rice at subsidised rates to the lower-income group in 1957, which continued till 1964. In pursuance of the Essential Commodities Act 1955 by the Government of India, the Public Distribution System formally came into existence on 1st July 1965. It has since grown into a universal rationing system across India. The State introduced the Targeted Distribution System in 1997 based on policy changes made by the Government of India. Timely lifting of commodities allocated from the Central pool, ensuring their distribution through ration shops, and ensuring that this occurs in time and effectively is a major responsibility of the PDS. 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.

Key Achievements in the 13th Plan

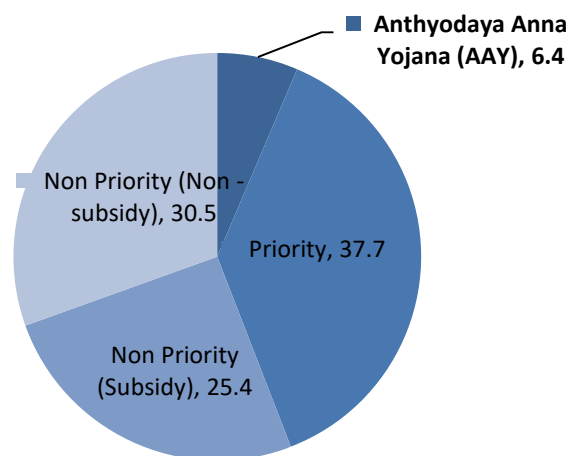
- Modernisation and Digitisation activities, including renovation and automation of ration shops in a unified pattern, implementation of the E-Ration Card Project and issuing ration cards in the size of ATM cards, introduced One Nation One Ration Card for easy accessibility of ration from anywhere. E-PoS machines were installed in all fair price shops in the State and enforcement mechanism has been strengthened to ensure the supply of food grains at right quantity with good quality. The entitlement of persons each month is communicated to them through SMS.
- Doorstep delivery of ration to tribal/coastal destitute living in forest/tribal/coastal remote areas and for people affected by natural calamities and introduced 60 mobile ration shops in tribal pockets of 8 Districts, viz, Thiruvananthapuram, Pathanamthitta, Idukki, Ernakulam, Thrissur, Palakkad, Malappuram and Wayanad.
- Ensuring universal coverage by issuing ration cards to almost all sections of the people and families even beyond the scope of NFSA and the details of eligible households are made available in the public domain.
- Grievance redressal mechanism with separate call centre established at commissionerate-level and established State Food Commission.
- Assistance for the implementation of the National Food Security Act (NFSA), including End to end computerisation, grievance redressal portal, supply chain management from Food Corporation of India to the authorised ration dealers-level, GPS tracking of vehicle carrying food grains and CCTV installation for efficient and transparent service delivery, Information and Communication Technology (ICT) Infrastructure and connectivity, social auditing of 100 fair price shops, Information, Education and Communication (IEC) activities, construction of intermediary godown etc.
- Modernisation of Supplyco includes revamping 241 outlets and other activities like depot management system, outlet management system, software development and mechanisation of tea blending operations etc. Construction of two godowns at Valiyathura in Thiruvananthapuram and Kollam District (near railway station) has

been completed and the works of 2 godowns at Thiruvalla and one at Kochi are progressing. Procurement of paddy through Supplyco is effectively being done in all crop seasons.

Distribution of Ration Cards

The number of ration cardholders in the State increased to 90.21 lakh in 2021-22 from 89.81 lakh in 2020-21. The number of ration cardholders as on August 2022 is 92.51 lakh. Out of this, 40.83 lakh cards come under NFSA, 51.68 lakh come under non NFSA. The NFSA section includes 5.9 lakh AAY cards and 34.93 lakh priority cards. The non-NFSA section includes 23.47 lakh on non-priority subsidy group and 28.21 lakh on non-priority non subsidy group. In addition to this, there were 890 ration permits for institutions issued in 2021-22.

Figure 3.8.1 Category-wise card holders in Kerala as on August, 2022 in per cent



Source: Civil Supplies Department

The category-wise card holders and subsidy amount spent by the Government of Kerala for the distribution of food grains in 2021-22 are given in **Appendix 3.8.1**.

Subsidy Spent by GoK for Various Card Holders

An amount of ₹232.3 crore was spent on various card holders as subsidy in 2021-22. A total of 59.2 per cent of subsidy was spent for priority card holders and 40.8 per cent to non-priority card holders in 2021-22. In 2021-22, the subsidy amount spent for priority card holders increased by 5.7 per cent and that of non-priority card holders decreased by (-)12.5 per cent compared to previous year (**Table 3.8.1**).

Allotment of Food Grains and Kerosene

In 2021-22, the total rice distribution through the PDS in State has decreased to 11,05,835 MT from 12,09,840 MT in 2020-21, registering a negative growth of (-)8.6 per cent. In 2021-22, 1,44,079 MT of wheat, 21,920 KL of kerosene and 6604 MT of sugar were distributed through PDS in State as against 1,99,317 MT, 37,809 KL, and 6641 MT in previous year registering a negative growth of (-)27.7 per cent, (-)42 per cent and (-)0.6 per cent respectively. In 2022-23 (up to August 2022) a total quantity of 4,91,138 MT of rice, 57,344 MT of wheat, 6,500 KL of kerosene and 3320 MT of sugar were distributed through the PDS in the State. Details of the distribution of commodities through the PDS are given in **Appendix 3.8.2**.

Anthyodaya Anna Yojana (AAY)

Anthyodaya Anna Yojana (AAY) scheme aimed at reducing hunger among the poorest of the poor families. There are 5.9 lakh Anthyodaya Anna Yojana (AAY) card holders in 2021-22 (as on March 2022), eligible for 30kg of rice and 5kg of wheat per month. In 2021-22, the off-take of rice under AAY was 1.95 lakh MT. The GoI supplies food grains under AAY to the State at ₹3 per kg for rice and ₹2 per kg for wheat. However, the State Government, in turn, provides it to the beneficiaries free of cost (**Appendix 3.8.1** and **3.8.3**). Details up to August 31, 2022, are given in **Appendix 3.8.4**.

Central Allotment of Sugar and Kerosene

Anthyodaya Anna Yojana (AAY) families are entitled to get sugar through PDS. The sugar allotted for each card is one kg per month at ₹21 per kg. The State Government is incurring the differential cost and also the implementation cost. In 2021-22, a total of 6,604 MT of sugar was distributed in the State against 6641 MT in

2020-21, registering a marginal decline of (-)0.6 per cent. As on August 2022-23, a total of 3,320 MT of sugar has been distributed.

Kerosene allotment in 2021-22 sharply declined to 21,920 KL as against 37,809 KL in 2020-21. Up to August 2022-23, 6500 KL of kerosene was distributed in the State. In the allotment of Kerosene, there exists a wide gap between the actual requirements and the allotment now being received. The fishing sector, particularly the traditional sector, has been affected severely.

District-Wise Distribution of Food Grains

In 2021-22, the off take of AAY rice was highest in Thrissur District with 18,740 MT followed by Malappuram District with 18,513 MT and Wayanad District with 18,146 MT. Off take of rice to Priority Household (PHH) was highest in Malappuram District with 86,489 MT followed by Palakkad with 59,813 MT and Kozhikkode with 56,383 MT. Details are given in **Appendix 3.8.3** and **Appendix 3.8.5**.

Distribution of food kits

The State Government provided essential articles kit at free of 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 in 2022. This is in addition to the free supply of ration through PDS shops for eligible beneficiaries. A total of 52.79 lakh food kits have been distributed in 2021-22. The details of District-wise distribution of food kits in 2021-22 is given in **Appendix 3.8.7**. In 2022, onam food kits were distributed to 85.70 lakh families. Details are given in **Appendix 3.8.8**. The measures taken by the department towards COVID-19 is given in **Box 3.8.1**.

Table 3.8.1 Subsidy spent by Government of Kerala for various card holders, ₹ in lakh

Sl. No.	Category	Amount (₹ in lakh)		Percentage of total		Per cent change in 2021-22 over previous year
		2020-21	2021-22	2020-21	2021-22	
1	Annapoorna	0.00	0.00	0.00	0.00	
2	AAY	6927.0	7096.63	29.0	30.6	2.4
3	Priority	6073.9	6644.04	25.5	28.6	9.4
4	Non-Priority	10842.0	9485.16	45.5	40.8	(-) 12.5
Total		23842.9	23225.83	100.0	100.0	(-) 2.6

Source: Civil Supplies Department

Box 3.8.1 Public Distribution System and COVID-19 response

Kerala witnessed an unusual situation in the food sector, for the first time after its formation in 1956, due to the COVID-19 pandemic outbreak in January 2020. Using the infrastructure and the PDS's well-integrated network, the State could overcome the crisis generated by the outbreak and the lockdown imposed by the Central and State Governments to control the spread. Fully automated fair price shops with e-POS machines, online allocation systems, effective supply chain management, well-categorised beneficiary data and smart grievance redress systems helped the State to implement activities in response to the COVID-19 emergencies successfully

In 2020-21, during April 2020, all families under Non-Priority Subsidy (NPS) and Non-Priority Non-Subsidy (NPNS) were given 15kg rice free of cost. Subsequently, a kit with 17 essential articles costing ₹972 each was provided to 87.9 lakh families in the State free of cost. In addition, free ration to tune of ₹300 crore was distributed to all categories such as Anthyodaya Anna Yojana (AAY), Priority House Holders (PHH), NPS, NPNS etc. During the period of onam 2021, even in the midst of COVID-19, the State took extra ordinary steps and provided onam food kits to ration card holders, which included 11 grocery items. A total of 83.7 lakh families benefited. Also, 10kg of rice/card was given at ₹15 per kg to non-priority sections. Each migrant or guest worker was given 5kg rice or 4kg atta free of cost. In addition 26.26 lakh students up to the primary-level in Government and aided schools who are covered in mid-day-meal scheme were given provisions and rice kit. Also, fisher folk community affected by pandemic as well as the traveling ban were provided with food kits. A total of 1.1 lakh families benefitted.

The distribution continued, and in 2021-22, a total of 52.79 lakh families were provided with free food kits and during September 2021, onam food kits were distributed to 86.92 lakh families. In 2022-23, during September 2022, onam food kits were provided to 85.70 lakh families.

Kerala State Civil Supplies Corporation (Supplyco)

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-Supplyco has been effectively involved in the PDS in the State and intervened in the open market for stabilising the price of 13 essential commodities like pulses, grains, rice, atta and sugar etc.

Supplyco has been designated as the nodal agency for the implementation of NFSA 2013 in the State. Supplyco is engaged in retailing of more than 6,000 fast moving consumer goods items at an average price of 10 per cent less than the open market, retailing of own branded products like curry powder, coconut oil, tea, coffee, cardamom etc. under the name "Sabari", conducting special fairs during festival seasons, retailing of medicines through 95 medical stores and five whole sale divisions at an average of 15 per cent discount, conversion of PDS wheat into atta and distribution at ₹17 per kg, supply of PDS sugar to AAY card holders, distribution of rice under Mid-day Meal scheme and door delivery of food grains under NFSA including lifting of ration articles

from the FCI and CMR mills to intermediary godowns and then distributed to the door step of authorised ration retail dealers. Introduced GPS based vehicle tracking to monitor movement of vehicles for ensuring proper delivery and to prevent its diversion. E-pos enabled online transaction implemented and door delivery started from 2020-21 to cop up with the changing market and trends and in the wake of COVID-19 pandemic. Supplyco is also engaged in procurement of paddy, processing and distribution of wheat and its products and is a dealer of petroleum products like kerosene, petrol, diesel and LPG through 11 petrol bunks, three LPG outlets and one kerosene whole sale depot. The distribution of PDS atta to AAY and PHH card holders has been implemented in all the districts. The cost of AAY atta is ₹6 per kg and PHH atta is ₹8 per kg.

Supplyco has its headquarters in Kochi and operates through five regional offices, 56 depots, five medical wholesale divisions attached to regional offices and morethan 1,600 retail outlets. In 2021-22, three Maveli stores, six supermarkets, 3 Maveli super stores and one medical store were opened by the Supplyco. Construction of godowns at Kollam completed and works in Thiruvalla

under progress. Details of the outlets opened are given in **Appendix 3.8.9**.

Mid-Day Meal Programme

To provide nutritional support to primary school going children and to boost universalisation of primary education by increasing enrolment, retention and attendance, the Mid-day Meal programme was introduced in 1995 by the Ministry of Human Resources Development (MoHRD), Government of India. The Mid-day Meal programme in schools is implemented in the State with the financial support of the State and Central Government.

Supplyco is entrusted with the responsibility of providing commodities to the Mid-Day Meal programme in the State. The required quantity of rice is taken from the FCI. In 2021-22, the FCI supplied 6.71 lakh quintal of rice benefiting 25.97 lakh students as against 8.27 lakh quintal of rice supplied to 27.36 lakh students in 2020-21. In 2022-23, (as on August 2022), 2.8 lakh quintal of rice was supplied to 27.3 lakh students coming under 12,327 schools.

The number of students benefiting from the Mid-Day Meal programme is given in **Figure 3.8.2** and the details of the supply of food grains from 2015-

16 to 2022-23 (up to August 31, 2022) are shown in **Appendix 3.8.10**.

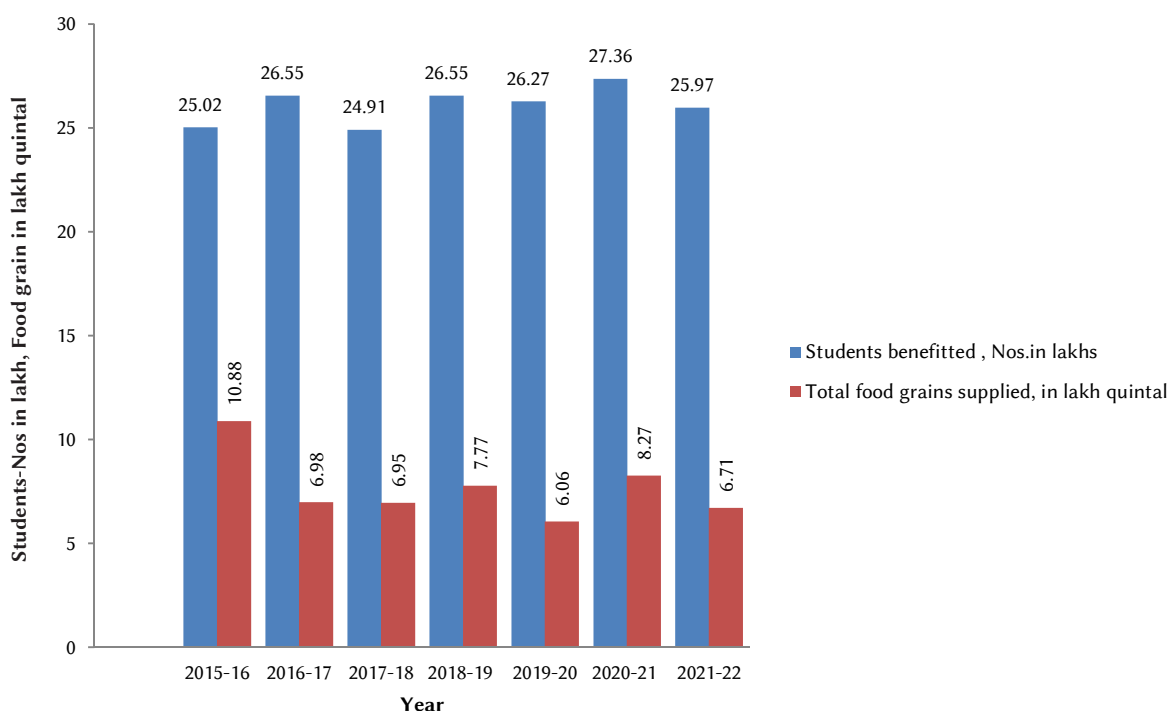
Paddy procurement

Supplyco has been designated as the implementing agency for paddy procurement, processing and distribution in the State as envisaged under the decentralised procurement of Ministry of Food and Public Distribution, GoI. Supplyco procured paddy directly from registered farmers and the cost of paddy is transferred to the bank account of the individual beneficiaries. In 2021-22 season, 7.85 lakh MT of paddy was procured at procurement rate of ₹28 per kg. The processing of paddy into rice as per the quality specification of GoI is done through modern rice mills and the processed paddy is distributed through PDS. The State is providing state incentive bonus to Supplyco for the difference in MSP declared by GoI and the issue price declared by Government of Kerala. Government of India reimburse the actual expenses towards the procurement and distribution of rice as per norms.

Critical gaps/challenges in the sector

- The number of scientifically designed taluk-level intermediary godowns, with scientific storage facilities and CCTV surveillance for adequate storage of food grain and to avoid storage loss, must be increased.

Figure 3.8.2 Mid-day meal programme 2015-16 to 2021-22



Source: Supplyco, Kerala

- More storage space must be created in order that fair price shops can store food stock for two months.
- We need to diversify the food basket in the public distribution system to increase nutrition standards by adding more nutritious food grains such as coarse grain in addition to rice and wheat.
- District grievance redressal offices are needed at District-level for timely settlement of disputes.
- GPS tracking and the integration of weighing balance with e-pos machines can help to ensure transparency.

14th Five-Year Plan: Approach in the sector

The public distribution system in Kerala is the bulwark of food security in the State. During the 13th Five-Year Plan period, in times of natural disaster and pandemic, it was a food security lifeline to the people of the State. The 14th Five-Year Plan will extend support to the different aspects of Kerala's public distribution system's growth and development. These include extending its ration shops and fair-price network, particularly in Scheduled Tribe residential settlements, modernising and digitising the distribution network; building new and modern warehousing facilities; strengthening grievance redressal mechanisms; and continuing to ensure a hunger-free Kerala.

CHAPTER

04

MANUFACTURING SECTOR

MANUFACTURING SECTOR

4.1 KERALA'S INDUSTRIALISATION

A strong and a robust industrial and manufacturing sector helps in promoting domestic production, exports and employment, all of which can be catalysts for higher growth in the economy. Industry sector plays a pivotal role in Indian economy both in terms of its contribution to gross value added and employment generation. The share of the industrial sector in the nominal GVA (at current prices) was 27.81 per cent in 2020-21.

Over the years, Kerala has achieved substantial progress with respect to modernising and diversifying its industrial sector. The industries sector in the State accounted for 26.8 per cent of GSVA at constant basic prices in 2021-22 (QE). According to PLFS 2020-21, 11.9 per cent of total workers of the State were engaged in the manufacturing activities, whereas it is 10.9 per cent at all India level. Construction is the predominant activity within the broad industry sector of the State accounting for over 52.4 per cent of total value added by the sector followed by manufacturing (40.6 per cent). Construction accounted for 13.2 per cent of total GSVA followed by manufacturing (12.2 per cent) in 2021-22(QE). The industry sector achieved robust growth of 17.29 per cent in nominal term in 2021-22 (QE) from (-)2.09 per cent in 2020-21 (PE). In real term, the sector registered increase in growth from (-)2.82 to 3.87 per cent for the same period.

State has taken proactive steps to attract investment, facilitate ease of doing business and enable growth of industries. The Financial Year 2022-23 has

been declared as the 'Year of Enterprises' and the Government has set a target of starting One Lakh Enterprises within the year. 1,153 professionals were appointed in local bodies to identify and handhold aspiring entrepreneurs in starting the enterprises by availing the services offered by various Government departments, agencies, PSUs and banks with loan at four per cent interest rate, help desks at Local Self Government Institutions, and MSME help desks. All districts were part of the initiatives. As a result, the target has been achieved on December 7, 2022, within a span of just 250 days, the State has successfully initiated one lakh enterprises with an investment of ₹6,274 crore generating employment for more than 2.20 lakh people. This includes more than 32,000 women enterprises. The largest number of new enterprises are witnessed in trade, agro – food processing, garments and textiles, and electrical and electronics sectors.

A Revival in Manufacturing in Kerala

The manufacturing sector in Kerala is relatively small in size. It accounted for a share of 12.12 per cent of Kerala's GSVA (at constant 2011-12 prices) in 2021-22 (Quick Estimates). In comparison, the manufacturing sector accounted for 18.16 per cent of India's GVA (at Constant 2011-12 Prices) in 2021-22 (Provisional Estimates).

There has been a steady increase in the size of Kerala's manufacturing sector in value terms, in recent years. The share of manufacturing in Kerala's GSVA (at Constant Prices) increased from 9.78

per cent in 2014-15 to 12.12 per cent in 2021-22. The share had increased to 13.11 per cent in 2020-21. According to data from Annual Survey of Industries India 2018-19, Kerala's share in Gross Value Added by India's factory sector has increased from 1.2 per cent in 2014-15 to 1.52 per cent in 2018-19.

According to Periodic Labour Force Survey (PLFS) data brought out by the Government of India's Ministry of Statistics and Programme Implementation (MOSPI), the manufacturing sector in Kerala employed 15 lakh workers (which comprised 12.8 per cent of the State's total workforce of 127 lakh) in 2017-18. They included workers in the factory sector numbering 3.1 lakh in 2017-18. The factory sector in 2018-19 employed more than 3.42 lakh people. The factory sector is almost identical with the organised manufacturing sector. 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) 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.

Workers in traditional industries, mainly coir, cashew and handloom, form a substantial share of Kerala's manufacturing workforce. Resource based industries like food products and beverages (including cashew processing), beedi manufacturing, and textiles (which include coir processing and handlooms) accounted for 43.33 per cent or 1.48 lakh workers out of the 3.42 lakh workers in Kerala's factory sector (in 2018-19). A comparison of major types of industries in Kerala and India are provided in **Table 4.1.1**.

Over the years, there has been a reduction in the size of the workforce engaged in traditional industries in Kerala. This is because of 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 notable that a new set of modern industries are growing in size in Kerala. The top industries in Kerala with respect to value added are chemicals, refined petroleum products,

rubber and plastic products, electronic products, 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). However, the performance of many of the PSUs in Kerala had not lived up to the expectations. A major highlight of the improved performance of Kerala's manufacturing sector since 2016-17 has been the turnaround in the performance of some of these PSUs, engaged mainly in the production of chemicals and electrical machinery.

Out of 42 PSU's under Industries Department, 21 units have reported operating profit in 2021-22 compared to 16 PSUs in 2020-21. In the financial year 2021-22, the PSUs under Industries Department have reported a total turnover of ₹3,892.14 crore with an operating profit of ₹ 386.03 crore. Total turnover has increased 17.80 per cent compared to previous year. The major profit making PSUs in the year includes Kerala Minerals and Metals Ltd (KMML), Travancore Cochin Chemicals Ltd (TCCL), Kerala State Electronics Development Corporation Ltd (KELTRON), and Travancore Titanium Products Ltd (TTPL). Government of Kerala has taken over the erstwhile Hindustan Newsprints Limited, Kottayam Central PSU. It has been renamed as 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 Kasaragod. It is also being revived and scheduled to start production soon. Government of Kerala is also establishing the Kerala Rubber Limited, a Private Public Partnership (PPP) company based on CIAL Model for promotion of value addition in Natural Rubber Sector in Kerala. It is proposed to establish an integrated facility/Industrial complex for rubber based and ancillary industries at Velloor, Kottayam.

New Opportunities in Modern Industries

The emergence of few modern industries in the State is another positive development in Kerala's industrial

Table 4.1.1 Structure and relative size with respect to employment and value added: shares of industries in total factory sector of Kerala and shares of India's industries in total factory sector of India, 2018-19

Industries	Kerala's total factory sector		Shares in Kerala's total factory sector		India's total factory sector		Shares in India's total factory sector	
	Employment (No's)	Value added (₹ lakh)	Employment (%)	Value added (%)	Employment (No's)	Value added (₹ lakh)	Employment (%)	Value added (%)
1	2	3	4	5	6	7	8	9
Food Products and beverages (10, 11)	100476	408200	29.3	16.6	2005286	13574513	12.32	8.83
Tobacco products (12)	13377	11563	3.9	0.5	456487	1847865	2.80	1.20
Textiles (13)	24682	70762	7.2	2.9	1673250	8027293	10.28	5.22
Garments (14)	9869	36767	2.9	1.5	1197318	3882563	7.35	2.52
Footwear (15)	8048	31436	2.4	1.3	407117	1396126	2.50	0.91
Wood and wood products (16)	10443	25854	3.0	1.0	98176	496470	0.60	0.32
Paper and paper products (17)	3798	17517	1.1	0.7	316614	2596520	1.94	1.69
Printing and reproduction of recorded media (18)	7927	94897	2.3	3.8	152344	1313662	0.94	0.85
Refined petroleum products (19)	7339	269501	2.1	10.9	187072	7555128	1.15	4.91
Chemical products and pharmaceuticals (20, 21)	23971	463025	7.0	18.8	1645592	27787238	10.11	18.07
Rubber and plastics products (22)	30368	279923	8.9	11.4	813489	6265571	5.00	4.07
Other non-metallic mineral products (23)	20181	154984	5.9	6.3	1045868	8447185	6.42	5.49
Basic metals (24)	5115	32323	1.5	1.3	1149215	16914048	7.06	11.00
Fabricated metal products (25)	7199	37521	2.1	1.5	681921	4635914	4.19	3.01
Electronic, computer and optical Products (26)	10028	86111	2.9	3.5	255847	3499002	1.57	2.28
Electrical Equipment (27)	6096	40266	1.8	1.6	607944	5769254	3.73	3.75
Machinery and equipment (28)	3532	21630	1.0	0.9	934103	9451069	5.74	6.14
Motor vehicles (29)	624	1815	0.2	0.1	1095138	12646577	6.73	8.22
Other transport equipment ships and boats (30)	5912	102563	1.7	4.2	370776	4785274	2.28	3.11
Furniture, jewellery, medical and dental instruments, toys (31, 32)	7005	99893	2.0	4.1	505390	2888066	3.10	1.88
Repair and installation of machinery and equipment (33)	1381	4349	0.4	0.2	38267	288390	0.24	0.19
Waste Collection, treatment and disposal activities; materials recovery (38)	58	1524	0.0	0.1	21425	191726	0.13	0.12
Publishing activities (58)	2182	27120	0.6	1.1	24001	228511	0.15	0.15
Others	32857	146344	9.6	5.9	597572	9313962	3.67	6.06
All Industries	342468	2465888	100.0	100.0	16280212	153801927	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 2018-19, MOSPI, GoI and Annual Survey of Industries Kerala 2018-19, DES, GoK

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 2,930 only in 2012-13 to 7,806 by 2018-19. Workers engaged in the manufacture of medical and dental instruments and supplies increased from 1,023 only in 2012-13 to 3,265 in 2018-19. Details regarding employment in some major industries are provided in **Table 4.1.2**.

Table 4.1.2 Employment in selected major industries, Kerala and India, 2018-19

Industries	Kerala	India
Rubber products (221)	18,045	2,52,741
Refined petroleum products (192)	6,851	1,37,937
Chemical products (201, 202)	12,842	8,05,397
Manufacture of electronic components (261)	7,806	84,934
Pharmaceuticals, medicinal chemical and botanical products (210)	11,128	7,58,352
Footwear (152)	7,779	2,79,870
Garments (141)	9,647	8,15,867
Plastic products (222)	12,323	5,60,748
Printing and services related to printing (181)	7,927	1,51,749
Ships and boats (301)	5,046	13,940
Electric motors, transformers and generators (271)	4,664	2,26,867
Medical and dental instruments and supplies (325)	3,265	65,823
Furniture (310)	2,839	86,623

Source: Annual Survey of Industries India 2018-19, MOSPI, GoI and Annual Survey of Industries Kerala 2018-19, DES, GoK

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 is 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 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 draft of the new Kerala Industrial and Commercial Policy 2022. Among others, the draft has initiatives and incentives for fostering entrepreneurship, developing, enabling infrastructure, developing high tech industries, building futuristic employment skill sets 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. In order to strengthen the sector, the Government of Kerala has come up with the Kerala Investment Promotion and Facilitation Act, 2018 which envisages mandatory approval within a period of 30 days if applications are submitted with necessary documents. 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 January 6, 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 which are revamped single window Board at State, District and Industrial Parks.

Industrial promotion and investment facilitation activities of the State have started showing encouraging results. Given the unique situation in Kerala, the park model of industrial development is being pursued by the State Government. At the forefront of these activities is the Kerala Industrial Infrastructure Development Corporation (KINFRA). KINFRA 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. All KINFRA parks have developed a single window clearance mechanism. Simplified time-bound procedures and better infrastructure such as transportation, electricity, water and connectivity have enhanced the acceptance of KINFRA parks among entrepreneurs. As a result, within a span of 18 months (from April 1, 2021 till October 2022) the agency has been instrumental in starting around 250 units with an investment of about ₹1,800 crore generating employment for about 23,000 people. More than 150 acres of land and about 2.92 lakh sq ft of built up space has been allotted. TCS, Tata Elxsi, V Guard, Agape Diagnostics, Hykon, Vinvish Technologies, Trans Asian Shipping Co, Jolly Coates, Gen Robotics Innovations, M/s Malabar Natural Foods Pvt. Ltd. etc are some of the major companies provided allotment via KINFRA. Major upcoming projects include Kochi-Bengaluru Industrial corridor, Petrochemical Park-Kochi, Spices Park-Idukki, Electronic manufacturing cluster (EMC)-Kochi, SDF-Phase-II KINFRA Film and Video Park, Trivandrum, International Exhibition cum Convention Centre (IECC) – Kochi, Mini food park projects in Kerala, Landbank at Kannur and the Integrated Rice Technology parks.

4.2 MANUFACTURING SECTOR

Manufacturing Sector in India

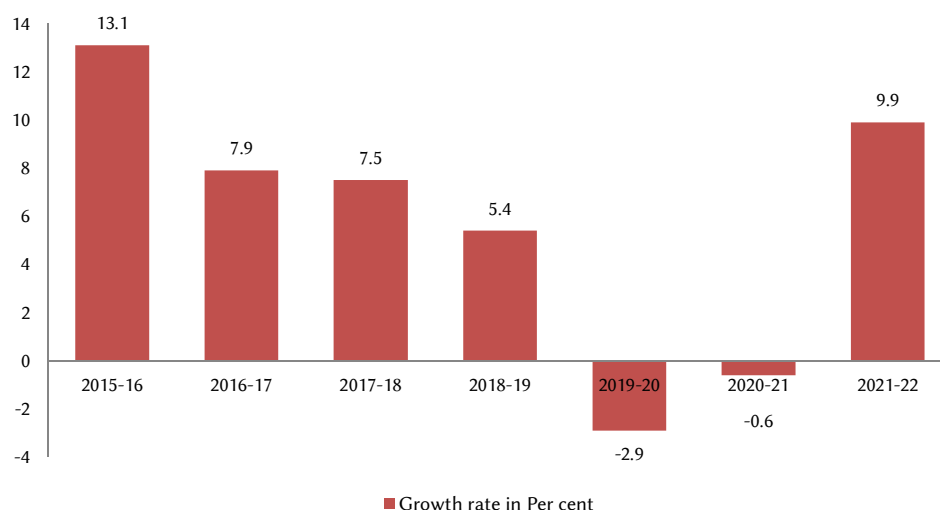
A globally competitive manufacturing sector is India's greatest potential to drive economic growth and job creation this decade. Due to factors like availability of large number of skilled workforce, natural resources, and domestic demand, India has a significant potential to grow its manufacturing sector. Several factors including changes in global supply chains facilitate India's potential in international markets. These value chains are well positioned to benefit from India's advantages in terms of raw materials, industrial expertise and entrepreneurship.

With digital transformation being a crucial component in achieving an advantage in this

fiercely competitive industry, technology has today sparked creativity. Manufacturing sector in India is gradually shifting to more automated and process driven manufacturing which is expected to increase efficiency and boost production of the manufacturing industry.

Provisional data from the Central Statistics Office (CSO) indicates that the growth of India's manufacturing sector has been estimated at 9.9 per cent in 2021-22 as against the previous year's growth rate of (-)0.60 per cent. The annual growth of Gross Value Added (GVA) by the manufacturing sector in India as per advance estimates, at constant prices from 2015-16 to 2021-22 is exhibited in **Figure 4.2.1**.

Figure 4.2.1 Growth rate of Gross Value Added by the Manufacturing Sector in India, at constant prices, in per cent



Source: Central Statistics Office

Manufacturing Sector in Kerala

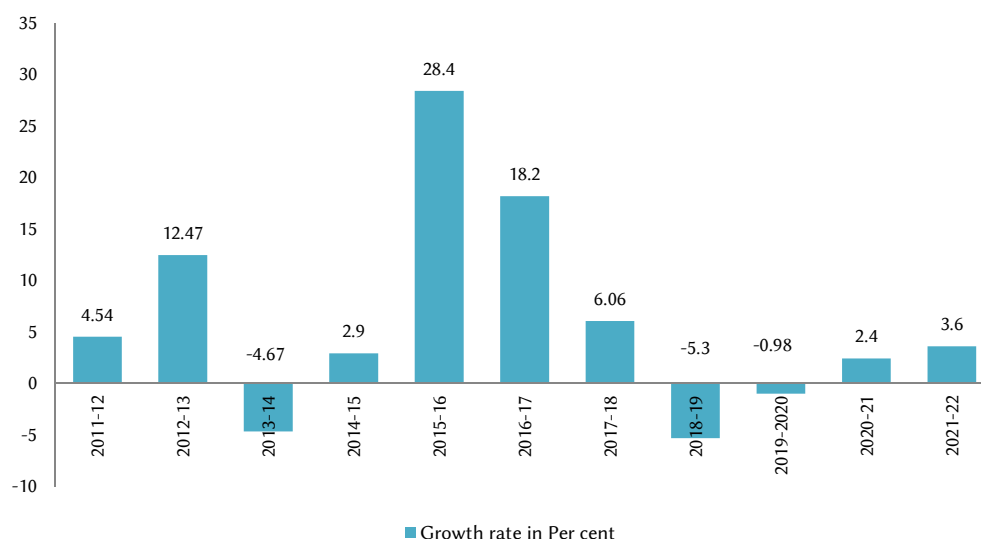
There has been a steady increase in the size of Kerala's manufacturing sector, in nominal terms, especially over the last four years. More importantly, Kerala has achieved substantial progress with respect to modernising and diversifying its industrial sector.

According to quick estimates of Kerala's Gross State Value Added (GSVA) for 2021-22 by Department of Economics and Statistics, the manufacturing sector of Kerala shows an increase of 3.6 per cent at

constant prices (2011-12) in 2021-22. The shares of manufacturing sector to GSVA in Kerala at constant and current prices in 2021-22 were 12.1 per cent and 9.8 per cent respectively. The growth of manufacturing sector in Kerala from 2015-16 to 2021-22 is given in **Appendix 4.2.1**.

The trend in growth rate of GSVA of manufacturing sector in Kerala (at constant prices) for the period from 2011-12 to 2021-22 is shown in **Figure 4.2.2**.

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

Mining Sector in Kerala

Kerala State is endowed with a number of 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 mainly to a few minerals. Heavy mineral sands, China clay and to a lesser extent Limestone/Limeshell, Silica sand and Granite.

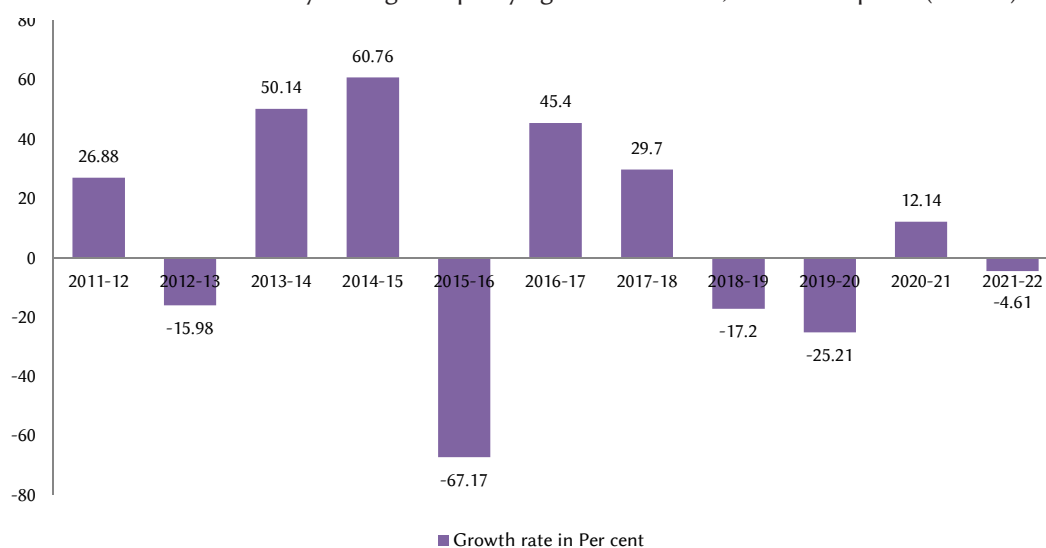
The contribution of mining and quarrying sector to Gross State Value Added (GSVA) of Kerala at constant prices is estimated at ₹2217.01 (QE) crore in 2021-22. It shows a decline of 4.6 per cent compared to the previous year.

The growth of income from the mining and quarrying sector in Kerala at constant prices from 2011-12 to 2021-22 is depicted in **Figure 4.2.3**.

Mineral wise Production and Revenue Collection 2021-22

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 2020-21, an amount of ₹192.2 crore was received as revenue from minerals. It increased to ₹207.6 crore (increase of 8 per cent) in 2021-22. Of this, ₹10.8 crore was received from major minerals and ₹196.8 crore from minor minerals. In 2021-22, the highest revenue received among major minerals was from Ilmenite (₹4.1 crore) and Zircon (₹0.8 crore). Among minor minerals, Granite Building Stone (₹78.8 crore) and Laterite (building) (₹0.7 crore) contributes the highest in 2021-22. The revenue from minerals from 2016-17 to 2021-22 is shown in **Table 4.2.1**.

Figure 4.2.3 Growth rate of GVA by mining and quarrying sector in Kerala, at constant prices (2011-12) in per cent



Source: Directorate of Economics and Statistics

Table 4.2.1 Revenue from Minerals ₹ in crore

Sl No	Year	Major Minerals	Minor Minerals	Total
1	2016-17	6.4	132.3	138.7
2	2017-18	8.5	143.5	152.0
3	2018-19	5.4	165.9	171.3
4	2019-20	8.8	151.3	160.1
5	2020-21	8.4	183.8	192.2
6	2021-22	10.8	196.8	207.6

Source: Department of Mining and Geology

In 2021-22, 449.5 lakh tonnes of major and minor minerals were produced in Kerala. Among major minerals, limestone topped the list with 3.0 lakh tonnes followed by Ilmanite (0.9 lakh tonnes). Among minor minerals, the highest production was from Granite Building Stone (328.5 lakh tonnes) followed by Ordinary Earth (107.1 lakh tonnes). The production and royalty received from minerals in the State in 2021-22 is given in **Appendix 4.2.2**.

District Wise Analysis of Revenue Collected from Major/Minor Minerals

District-wise analysis of revenue collection in 2021-22 shows that Ernakulam District had the highest collection of ₹25.1 crore followed by Kollam (₹25.02 crore), Thiruvananthapuram (₹23.8 crore) and Palakkad (₹22.6 crore). The lowest revenue collection was from Wayanad (₹2.3 crore). The District-wise collection of revenue from major and minor minerals is furnished in **Appendix 4.2.3**.

The Plan outlay and expenditure of Mining Department from 2016-17 to 2021-22 is shown in **Table 4.2.2**.

Table 4.2.2 Plan Outlay and Expenditure of Mining Department ₹ 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	*60.57

Source: Budget Estimates

*As on November 2022

Implementation of e-governance Projects

The Kerala Online Mining Permit Awarding Services (KOMPAS) is an online system which is implemented through the National Informatics Centre and is implemented in all districts.

Mineral Based Industries in Kerala

Some of the industries based on major minerals are 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. The

major industries based on minor minerals are stone crushers, units of production of manufactured sand, brick factories as well as tile factories. Due to recent spurt in infrastructure development, a number of granite building stone crushers as well as sand production units have come up in the State.

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.

4.3 PUBLIC SECTOR UNDERTAKINGS

The Government of Kerala aims to strengthen the public sectors, run PSUs professionally, and help them to earn profits and contribute to the larger development of the industrial sector and the economy. The progress that Kerala industrial sector has achieved with respect to modernisation over the last few years has been partly on account of the improved performance of Public Sector Units, especially State Public Sector Units. Kerala has a number of State and Central Public Sector Units engaged in diverse areas of manufacturing mainly Chemicals, engineering and electronics. Some of the PSU's in the State such as Travancore Cochin Chemicals (TCC) and Keltron have been pioneers in the country in their respective fields of production. In addition to State PSU's, Kerala also has a number of Central PSU's. They include Fertilisers 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, 2021, there were 389 PSUs under the administrative control of various ministries/departments of the Government of India (GoI). In 2020-21, CPSEs generated a combined net profit of ₹1.58 lakh crore as against ₹0.93 lakh crore in 2019-20 showing an increase of 69.48 per cent. Net profit of profit making CPSEs was ₹1.89 lakh crore in 2020-21 as compared to ₹1.38 Lakh crore in 2019-20 showing an increase in profit by 37.5 per cent. Loss making CPSEs incurred a loss of ₹0.31 lakh crore in 2020-2021 as compared to 0.44 lakh crore in 2019-20, showing a decrease in loss by 29.86 per cent (Public Enterprises Survey 2020-21).

Central Sector Investment

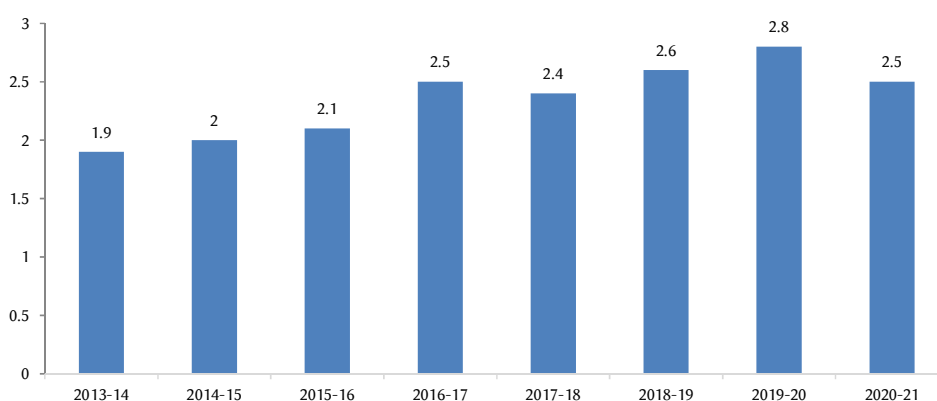
The aggregate investment in Central PSUs in India increased from ₹21.28 lakh crore in 2019-20 to ₹21.67 lakh crore in 2020-21, registering a growth of 1.8 per cent over the previous year. The investment by Central PSUs in Kerala in terms of gross block declined by 1.8 per cent from ₹67,710 crore in 2019-20 to ₹66,493 crore in 2020-21. The share of investments in Central PSUs in the State decreased marginally from 2.6 per cent in 2019-20 to 2.5 per cent in 2020-21. The investment by Central PSUs as on March 31, 2021 is highest in Maharashtra (7.9 per cent of investment), followed by Uttar Pradesh (7.1 per cent of investment) and Tamil Nadu (6.2 per cent of investment). (Public Enterprises Survey 2020-21). Details of Central sector investment in Kerala from 2013-14 to 2020-2021 are given in **Appendix 4.3.1** and Central sector investment in selected States as on March 31, 2021 are given in **Appendix 4.3.2**.

The share of investment by Central PSUs in Kerala from 2013-14 to 2020-21 is shown in **Figure 4.3.1**.

Joint Stock Companies

There were 43,697 Joint Stock Companies in Kerala as on March 2022, of which 41,114 (94.1 per cent) were private limited companies and 2,583 (5.9 per cent) were public limited companies. Compared to March 2021, the number of joint stock companies has increased by 4,236 by March 2022. In 2021-22, a number of 6,417 companies were newly registered (6,106 private limited and 311 public limited). 23 companies were transferred from other states and five companies were transferred to other states in 2021-22. Number of companies wound up dissolved/struck off/amalgamated in 2021-22 were 2,199.

Figure 4.3.1 Share of Investment by Central PSUs, in Kerala in per cent



Source: Public Enterprises Survey 2020-21

Seven public limited companies were converted to private limited companies and four private limited companies were converted to public limited companies. Total number of Government companies registered as on March 2022 was 175 (Registrar of Companies, Kerala and Lakshadweep). Details of joint stock companies working in Kerala are given in **Appendix 4.3.3**.

State Public Sector Undertakings Under Industries Department

There are 42 Public Sector Units under the Department of Industries and Commerce including eight cooperative Spinning Mills, spread across seven sectors.

In the financial year 2021-22 there is significant improvement in the performance of PSUs. The PSUs under industries Department reported a turnover of ₹3,892.14 crore with a operating profit of ₹386.05 crore. The turnover has increased 17.8 per cent from that of the previous year. The major profit making PSUs during the year include Kerala Minerals and Metals Ltd (KMML), Travancore Cochin Chemicals Ltd (TCC), Kerala State Electronics Development Corporation Ltd and Travancore Titanium products (TTP). Out of the 17 Textile Mills, 5 mills recorded operating profit and the remaining reduced their loss substantially.

In the year 2021-22 Government has allocated ₹248.79 crore to the PSUs under Industries Department. Out of which ₹218.79 crore was towards capital expenditure projects for completing the projects already initiated and new projects proposed in 2021-22, ₹30 crore was allocating for working capital support including co-operative

spinning mills

Major achievements of the PSUs

- In order to streamline the operations of PSUs with a long term perspective for their overall performance improvements, master plan of each PSU as short, medium and long term has been prepared
- Selected projects included under the short term plan
 - ♦ ARP technology modification for saleable iron oxide (IO), DCS and IO godown facility ₹46 crore – Kerala Minerals and Metal Ltd.
 - ♦ Bulk Cement Terminal and Logistics HUB at CPT Leased Land – ₹166.55 crore – Malabar Cements Ltd.
 - ♦ New Diversified projects – Travancore Titanium Products Ltd – 234.52 crore.
 - ♦ New 150 TPD caustic soda plant – Travancore-Cochin Chemicals Ltd ₹80 crore.
 - ♦ 400 TPD Grey Cement grinding Unit- Travancore Cements Ltd – ₹10 crore.
 - ♦ Doubling the capacity of production of house wiring cable at Pinaryi Traco Cable company Ltd – ₹4.75 crore.
 - ♦ Augmentation of shornur machining unit – Steel and Industrials Forgings Ltd – ₹5 crore.
 - ♦ Contribution of High – tech Fabrication shop at SFU cherthala – steel industrials Kerala Ltd – ₹4 crore.
 - ♦ Foundry Modernisation Phase-I – Autokast Ltd – ₹10 crore.
 - ♦ Diversification of R&D and new proposal defence electronics – Keltron-₹62 crore.

- ♦ Modernisation of Textile Mills.
- ♦ Stabilisation of plant capacity at 18,000 TPA by de-bottlenecking process stream – The Kerala Ceramics Ltd – ₹7 crore.
- A project management unit (PMU) under RIAB has been set up at Kochi for evaluation, appraisal, fund sourcing and timely execution of the projects.
- In order to Protect the CPSUs under the public sector, GoK has taken over the Hindustan News Prints Ltd (HNL) Vellore and BHEL – EML, Kasaragod and converted as State PSUs and resumed production.
- Initiatives have been taken to launch an E-commerce portal for traditional sector PSUs in order to widen their marketing networks
- An online project management and activity monitoring system has been implemented for monitoring and evaluating the project implementation of PSUs.
- Kerala Public Enterprises selection and recruitment board has been set up to ensure more transparency in the recruitment of PSUs except the post referred to PSC.
- Effective utilisation of unutilised land in PSUs for the Industrial Development of the State with the support of KINFRA.

The industrial performance of State PSUs under Industries Department during the last 6 years is given in **Appendix 4.3.4**.

The sector-wise financial performance of State PSUs under Industries department during the last Six years is shown in **Table 4.3.1**.

PSUs under chemical and electronic sectors contributed to the better performance of State PSUs in the industrial sector in 2020-21. At the same time, PSUs in the textile sector recorded losses, 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 turnover of State PSUs increased by 17.8 per cent in 2021-22 as compared to 2020-21. Details of PSU-wise turnover and profit/loss in 2021-22 and 2022-23 (as on August 2022) are shown in **Appendix 4.3.5**.

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 will 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.

Public Sector Restructuring and Internal Audit Board (RIAB)

RIAB, which is functioning under the Industries department, is the agency for undertaking reform initiatives in State PSUs. RIAB 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, recruitments in PSUs, 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. KINFRA has been 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

Table 4.3.1 State PSUs under Industries Department: Plan fund allocation, Turnover and Net profit (₹ in crore)

	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23 upto 31-08-2022
Chemical Sector						
Total Units (nos)	7	7	7	7	7	7
Plan Fund Release in crore	19.5	28.22	21.07	43.24	26.62	1
Turnover in crore	1404.93	1599.10	1412.35	1537.18	1912.44	
Operating Profit in crore	268.03	232.24	62.5	120.89	423.57	120.26
Net Profit in crore	221.62	182.53	58.9	58.07	346.92	85.23
Electrical Sector						
Total Units (nos)	4	4	4	4	4	4
Plan Fund Release in crore	17.86	32.95	7.43	29	44	11.75
Turnover in crore	367.06	564.28	492.89	474.28	356.91	111.81
Operating Profit in crore	1.28	20.01	25.79	-37.93	-51.23	-21.29
Net Profit in crore	-34.17	-19.92	-8.05	-78.38	-92.58	.39.72
Engineering Sector						
Total Units (nos)	6	6	6	6	6	6
Plan Fund Release in crore	25.86	30.45	16	40.49	38.27	3.5
Turnover in crore	125.78	149.31	153.38	182.52	225.87	94.09
Operating Profit in crore	-16.35	-25.65	-13.08	-12.67	-13.62	-6.2
Net Profit in crore	-45.70	-54.53	-38.84	-41.86	-45.68	-22.64
Electronics						
Total Units (nos)	3	3	3	3	3	3
Plan Fund Release in crore	2.68	10.57	2.51	7.96	14.72	5.25
Turnover in crore	474.68	542.28	522.45	533.94	615.85	140.18
Operating Profit in crore	22.71	21.19	19.04	27.36	50.01	-2.74
Net Profit in crore	4.77	8.72	4.07	10.46	32.01	-10.84
Textiles						
Total Units (nos)	10	11	11	11	11	11
Plan Fund Release in crore	23.81	22.20	19.40	40.91	22.99	12.85
Turnover in crore	134.00	154.83	158.56	181.18	322.26	152.06
Operating Profit in crore	-49.93	-44.00	-51.77	-15.57	-1.25	-21.27
Net Profit in crore	-92.43	-95.93	-115.24	-88.31	-86.65	-58.70
Ceramics and Refractories						
Total Units (nos)	2	2	2	2	2	2
Plan Fund Release in crore	4.94	16.20	3.02	14.48	7.50	1.50
Turnover in crore	4.98	7.46	9.62	36.32	59.75	28.23
Operating Profit in crore	-9.50	-1.32	1.18	1.17	1.57	1.05
Net Profit in crore	15.36	-6.96	-10.45	-13.45	-9.91	-5.64
Traditional and wood based Industries						
Total Units (nos)	7	7	7	7	7	7

Plan Fund Release in crore	7.10	7.45	5.08	15.00	21.22	2.29
Turnover in crore	121.54	123.48	109.65	66.82	98.49	43.42
Operating Profit in crore	-19.60	-19.36	-15.45	-25.01	-20.89	-5.80
Net Profit in crore	-30.69	-25.95	-26.67	-35.76	-27.77	-9.92
Development and Infrastructural agencies						
Total Units (nos)	2	2	2	2	2	2
Plan Fund Release in crore			1.10	17.10	9.50	1.48
Turnover in crore	246.50	274.92	209.48	291.71	300.57	71.85
Operating Profit in crore	-7.98	-0.82	2.12	-8.91	-2.13	-3.84
Net Profit in crore	-14.56	-4.18	-1.15	-17.44	-12.79	-8.71
Overall						
Total Units (nos)	41	42	42	42	42	42
Plan Fund Release in crore	101.75	148.04	75.61	208.18	184.82	39.62
Turnover in crore	2879.47	3415.76	3068.38	3303.95	3892.14	1343.08
Operating Profit in crore	188.66	182.29	27.97	46.99	386.03	60.17
Net Profit in crore	-6.52	-46.22	-137.43	-206.63	103.55	-70.94

Source: RIAB

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 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.

KSIDC acts as the single point of contact for investors setting up enterprise in the State. KSIDC offers a comprehensive set of services from support in developing business ideas into viable projects, assistance in conducting feasibility studies, providing developed infrastructure facilities, facilitating timely approvals and clearances to handholding the investor from project conceptualisation to commissioning. KSIDC has strived to create an enabling ecosystem for start-ups through setting up Business Incubation Centres, providing mentoring sessions and extending seed funding for startup.

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 ₹26.6 crore in 2020-21. Certain key financial parameters of KSIDC for the past three years are given in **Table 4.3.2**.

Table: 4.3.2 Key Financial Parameters of KSIDC (₹ in crore)

Particulars	2018-19	2019-20	2020-21
Net Worth	725.1	643.2	810.9
Total expenditure	14.4	14.6	18.4
Employee Expenses	8.9	10.7	10.7
Net Profit/Loss (+/-)	33.8	39.6	26.6
Audit Status	Audit up-to-date		Not completed

Source: BPE Review 2020-21

Industrial Financing by KSIDC

In 2021-22, KSIDC sanctioned projects worth of ₹428.02 crore. The Corporation achieved ₹287.24 crore of disbursements, and a total amount of ₹148.27 crore was recovered by way of principal and interest. There are 13 projects under various stages of implementation with a total investment of ₹569.69 crore, which would create employment for around 2350 persons. The physical and financial performance of KSIDC in 2021-22 and 2022-23 (as on August 2022) is given in **Appendix 4.3.6**.

Box 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

The Plan outlay and expenditure of KSIDC from 2016-17 to 2022-23 are shown in **Table 4.3.3**.

Major Promotional Activities of KSIDC**Ease of Doing Business (EoDB)**

The Department of Industrial Policy and Promotion (DIPP), Government of India, has been ranking States annually based on the reform measures taken to improve EoDB. KSIDC carried out a study on the reforms needed to improve EoDB in Kerala, especially reforms in the existing Rules and Acts relating to clearance procedures for starting an industrial unit in Kerala. Based on the recommendation of the study report, amendments to seven Acts were approved by the State Cabinet. The State Legislature passed the Kerala Investment Promotion and Facilitation Act 2018.

The Kerala Micro Small Medium Enterprises Facilitation Act 2019 was enacted to implement an

automated approval route exempting all projects having capital investments up to ₹10 crore and not falling under red category as notified by the Pollution Control Board from licences, approvals, permits etc. under State Rule for the first three years. As on today more than 13,863 MSMEs have availed the exemptions under the legislation for setting up MSME units across the State.

Kerala Single Window Interface for Fast and Transparent Clearance (KSWIFT)

State Government has introduced the 'Single Window Clearance System' to ease the setting up of industrial projects in the State. KSIDC is the nodal agency for the scheme and National Informatics Centre (NIC) has been engaged for the development of online clearance mechanism and online common application form. KSWIFT will be the platform for all future transactions with the Government on the issue of granting licences and approvals in a time bound manner. As on October 20, 2021, a total

Table 4.3.3 Plan Outlay and Expenditure, KSIDC, ₹ in crore

Sl. No	Year	Outlay	Expenditure	%
1	2016-17	87.5	75.50	86.30
2	2017-18	96.3	171.70	178.40
3	2018-19	134.4	77.50	57.70
4	2019-20	116.0	15.90	13.70
5	2020-21	109.0	84.32	77.36
6	2021-22	109.0	48.74	44.72
7	2022-23	113.0	*15.89	14.06

Source: Budget Estimate

*As on November 2022

of 27,776 registered entrepreneurs have used the KSWIFT system and availed 75 plus services of 21 departments.

Financial Assistance

KSIDC launched several financial assistance and support programme for medium and large scale industries in the State. KSIDC's term loan assistance is limited up to a maximum of ₹100 crore in a project. The various kinds of loans provided by KSIDC are term loan, short term loans, equipment purchase loans, working capital term loans, corporate loans and equity/preference share investments. KSIDC has been supporting young entrepreneurs by various initiatives such as seed fund assistance, incubation facility and mentoring support. Innovative ventures are given seed fund by way of soft loan on equity share capital at 90 per cent of the project cost of ₹25 lakh whichever is lower. This programme has sanctioned over ₹22 crore to more than 100 companies since its launch.

KSIDC has identified encouraging women entrepreneurs as one of the key areas of growth for Kerala economy. The Women Entrepreneurship Mission of KSIDC was another initiative launched to identify, promote, and provide support to existing women entrepreneurs for scaling up their business ventures. The quantum of assistance under this programme is limited to 80 per cent of the fund requirements or a maximum of ₹25 lakh, whichever is less.

Relief Package of KSIDC

In the wake of COVID-19 pandemic, KSIDC introduced a package of relief measures for its clients as part of the 'Vyavasaya Bhadratha' package in 2020. The details of the package are as follows.

- New Land Premium Payment Policy. New allottees shall be allotted land by collecting upfront lease premium of only 20 per cent.
- Freezing of land premium for one year.
- The land premium to be paid from April 2020 to March 31, 2021 in KSIDC and KINFRA parks will be frozen.
- The rental charges for the Standard Design Factories presently occupied by the investors in KSIDC/KINFRA parks for a period of three months from March 2020 to May 2020 will be waived off.
- Waiving off common facility charges for 3 months from March 2020 to May 2020.
- Moratorium for payment of principal and

interest for all operating units of KSIDC for a period of three months.

- Top up loans in KSIDC.
- Support to existing standard client of KSIDC to meet immediate working capital and asset creation needs.
- Waiver of penal interest for existing customers of KSIDC.
- One time settlement policy for settling the loans given by KSIDC.
- Special loans for asset creation for MSMEs.

As part of COVID-19 Samashwasa Padhathi the following schemes were implemented by KSIDC.

- All KSIDC customers who have availed loan and are unable to repay the same due to COVID-19 related restrictions can now avail the scheme of restructuring without the account getting labelled as a bad debt.
- Moratorium on repayment of top-up loan for six months from October 1, 2020 to March 31, 2021.
- Waive all penal interest for its customers for one year from April 2021 for the entire financial year.
- KSIDC will sanction ₹100 crore as soft loan for MSMEs with 5 per cent interest rate.
- KSIDC will be sanction ₹100 crore as soft loan for returnee migrants selected by NORKA Roots with 5 per cent interest.
- KSIDC has earmarked ₹100 crore towards extending special loan for industries coming under COVID-19 related healthcare activities at 5 per cent rate.

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 provides a readymade manufacturing environment for entrepreneurs, and help them reduce the time and cost involved in setting up a unit.

Table 4.3.4 Major Companies, Investment and Employment in KINFRA Parks in 2021-22

Sl No	Companies	Area allotted (in acres)	Area Alloted (In Sq.Ft)	Investment (in crore)	Emplyment (Nos)
1	TCS	36.83		600	10000
2	Tata Elxci		92914	75	2500
3	V-Guard	3.00	-	Phase I-50 Phase II-70	800
4	Aggappe Diagnostics	2.10	-	9.30	200
5	Trans Asia Shipping Company	2.00	-	29.03	80
6	HYkon	5.00	-	40.00	100
7	Winwish Technologies	2.00	-	155.00	1000
8	Jolly coates	3.50	--	38.00	130
9	Deens Construction	1.50	-	5	20
Total		55.93	92914	1071.33	14830

Source: KINFRA

KINFRA has been playing a pivotal role in implementing the concept of Investment Friendly Kerala and boosting Kerala's Industrial Growth to the path of excellence. Stated objective of KINFRA is to develop infrastructure and bring in investment to the State by allotting land/built up space.

Some of the leading companies outside/inside Kerala have come up with their business units at various KINFRA parks in 2021-22. A list of the few major companies and the details of investment and employment generation is shown in **Table 4.3.4**.

Financial Status

The Corporation reported a net profit of ₹15.5 crore in 2020-21. Certain key financial parameters for the past three years are shown in **Table 4.3.5**.

Table 4.3.5 Key Financial Parameters of KINFRA ₹ in crore

Particulars	2018-19	2019-20	2020-21
Net Worth	1230.2	1427.4	1471.1
Total expenditure	43.4	505.4	333.3*
Net Profit/Loss (+/-)	6.4	2.3	15.5
Audit Status	Complete and up to date		Not completed

Source: BPE Review 2020-21

*Cost of land on long lease.

The Plan outlay and expenditure of KINFRA from 2018-19 to 2022-23 are shown in **Table 4.3.6**.

Table 4.3.6 Plan Outlay and Expenditure, KINFRA ₹ in crore

Sl. No	Year	Outlay	Expenditure	Expenditure as per cent of outlay
1	2018-19	96.00	47.00	49.00
2	2019-20	107.00	31.00	17.40
3	2020-21	92.53	85.14	92.00
4	2021-22	302.53	177.88	58.80
5	2022-23	332.53	*55.28	16.62

Source: Budget Estimate

*As on November 2022

Land Available with KINFRA

Land available with KINFRA for industrial development purposes is 3,750.43 acres, of which 2,015.9 acres have already been allotted to industrial units. The remaining land (1,734.5 acres) is still available with KINFRA for allotment to industrial units. The details of allotments in KINFRA industrial parks as on 31 August 2022 are given in **Appendix 4.3.7**.

KINFRA has promoted investments in the State and created investment friendly climate within its parks, contributing significantly to the State's 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.

Box 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, Kazhakkuttam, 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

KINFRA has developed Small Industries Park at Thiruvananthapuram, Pathanamthitta, Ernakulam, 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 promoted investments in the State and created investment friendly climate within its parks, contributing significantly to the State's economy. In this regard, 1,210 industrial units have been allotted land in the various industrial parks of KINFRA with total committed investment of ₹4,590.9 crore with direct employment of 65,907. KINFRA has also successfully implemented single window clearance system in all the 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 emerged among the top performing parks in the South region in terms of excellence as per the four growth pillars of IPRS introduced by Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce

- KINFRA High Tech Park, Kochi
- KINFRA Mega Food park, Palakkad

- KINFRA Film and Video park, Kazhakoottam
- KINFRA Small Industries park, Mazhuvanoor
- KINFRA Integrated Industrial Park, Kanjikode

Kerala Financial Corporation (KFC) (Industrial Financing)

KFC is a Government owned non-banking financial company in the State. KFC has been playing a major role in the industrialisation of Kerala. The main objective of KFC is to extend financial assistance to micro, small and medium enterprises (MSMEs) in the manufacturing and services sectors. 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.
- Special schemes for financial assistance to civil contractors.
- Special scheme for financial assistance for

- producing feature film and TV serials.
- Special scheme for modernisation, upgradation 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.

The Corporation sanctioned financial assistance amounting to ₹2,876.8 crore in 2021-22 as against ₹4,146.5 crore in the previous year. An amount of ₹2,175.2 crore was disbursed in 2021-22 as against ₹3,709.2 crore in 2020-21. The changes in the Government policies and other external factors affected business in certain sectors. Performance of KFC during the last five years is given in **Appendix 4.3.8**. The details of loan operations and industry-wise classification of loans in 2021-22 of KFC are shown in **Appendix 4.3.9** and **Appendix 4.3.10** respectively.

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. 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.
- 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 sector and the Government both at the National and State levels through consultancy, project management, Monitoring and Evaluation, Human Resource Management, Training, Education and Research and Public Private Partnership (PPPs).

Major Projects Undertaken In 2021-22 are

- National level Institutional Monitoring.
- Consulting and project management support to KIIFB.
- Project Management and manpower support to K-DISC.
- Project Management support for implementation of the NDPREM.
- Sustainable Livelihood generation programme for scheduled Tribe Community.
- Social Impact Assessment studies.
- Socio Economic Survey of Transgender persons in Kerala.

New Initiatives

- Meet the minister: An initiative to solve the problems faced by investors in the industrial sector by meeting the minister directly. It is proposed to conduct the programme in all the 14 districts. Meetings are completed in 13 districts. Out of 1,490 complaints received 1,131 were solved.
- Meet the Investor: A programme where the Minister meets the investors who propose to invest more than ₹100 crore in the industrial sector. Proposal of ₹6,480 crore were received in this programme.
- Land acquisition process was progressing for Kochi Palakkad High Tech Industrial corridor. 85percent of land was acquired so far. It is expected to attract an investment of ₹10,000 crore and is expected to generate 22,000 direct employment and 80,000 indirect employment in five years.
- Kerala Paper Products Ltd: Kerala Paper Products Ltd was inaugurated by the Hon'ble Chief Minister on January 1, 2022 and the production was started on November 1, 2022.
- Kerala Rubber Ltd: Foundation stone was laid for Kerala Rubber Limited on May 9, 2022.

Way Forward

There has been a steady increase in the size of Kerala's manufacturing sector in value terms, especially over the last four years. More importantly Kerala has achieved substantial progress with respect to modernising and diversifying its industrial sector. It is worth highlighting that a new set of modern industries is growing in size in Kerala.

The Government aims to support entrepreneurs by setting up industrial parks with good infrastructure, by providing assistance in marketing, and by encouraging the use of local resources. There has been a growing focus on food and agro-based industries and technologically advanced industries.

The vision of the Government is to achieve an industrial transformation in Kerala that is socially and environmentally sustainable. Adoption of new technologies in various stages of production, design and marketing will be an important component of this transformation.

4.4 MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs)

Micro, Small and Medium Enterprises (MSME) play a significant role in the economic development of a country. MSMEs are strong drivers of employment generation and economic development in India. The Government of Kerala assigns priority to the sector realising its potential to generate employment, and thereby contribute to economic growth. In addition, the sector can add to export growth. The sector plays a critical role in promoting innovation and ensuring sustainable development, equitable growth, and the utilisation of natural resources.

The 73rd round of NSS reported 633.88 lakh unincorporated non-agricultural MSMEs engaged in different activities in India, of which, 31 per cent 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 country. 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 1st January 2021, a total number of 65,23,067 entrepreneurs were registered in Udyam Registration online portal as classified, consisting of 21,13,233 enterprises registered under Manufacturing category and 44,09,834 enterprises registered under Service sector (Government of India, 2022). This is the second largest employing sector after Agriculture. The sector is diverse

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 < ₹1 crore	Investment < ₹10 crore	Investment < ₹50 crore
	Turn over < ₹5 crore	Turn over < ₹50 crore	Turn over < ₹250 crore

Source: Ministry of MSME, Government of India

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**.

MSME Sector in Kerala

The Micro, Small and Medium Enterprises (MSME) sector is emerging as a major income

generating and employment providing sector in Kerala. At the same time, the level of investment is relatively lower in the sector. As per the MSME Survey and Quick Results of 4th Census, 5.62 cent of MSME enterprises in India are in Kerala. The MSME sector helps in industrialisation of rural and backward areas, and provides employment to youth and socially disadvantaged groups such as SC, ST, women and persons with physical disabilities.

Table 4.4.2 Plan Outlay and Expenditure of Directorate of Industries and Commerce, 2020-21 to 2022-23*, ₹ in lakh

Sector	2020-21		2021-22		2022-23 (upto 15/11/2022)	
	Outlay	Exp	Outlay	Exp*	Outlay	Exp
Small Scale Industries	13469.00	10668.00	13894.00	13680.47	20040.00	7932.57
Commerce	1600.00	864.00	1200.00	1193.00	700.00	341.78
Handicrafts	465.00	1208.40	385.00	321.53	350.00	185.90
Total	15479.00	12740.40	15479.00	15195.00	21090.00	8460.25

* as on 15.11.2022

Source: Plan space Kerala

Box 4.4.1 Year of Enterprises 2022-23

The Government of Kerala decided to celebrate 2022-23 as the 'Year of Enterprises' to encourage and promote Micro, Small and Medium level entrepreneurs in the State. The Directorate of Industries and Commerce is entrusted with the initiative of "Setting up of One Lakh Enterprises in 2022-23". The objective is to establish one lakh enterprises through joint efforts of various departments and to create three lakh employments in the year 2022. The broad strategy adopted encompasses the creation of enterprise facilitation systems at the grass root level, the convergence of activities of various industrial stakeholders, the introduction of new incentive schemes and policies, and thereby creating 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 four 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 Government was able to achieve the ambitious target of commencing one lakh new enterprises within a remarkable period of 250 days from 1st of April to 7th of December 2022. As part of this achievement, an investment of ₹6,274 crore and 2,20,285 new employment opportunities were created 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 and food processing, garments and textile, and service activities.

Source: Directorate of Industries and Commerce

¹Report of the expert committee on Micro, Small and Medium Enterprises, RBI, 2019, Annual Report 2021-22, Ministry of Micro, Small and Medium Enterprises, Government of India, 2022.

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/clay products. MSMEs produce over 8,000 various MSME products ranging from traditional to high-tech items are manufactured by MSMEs.

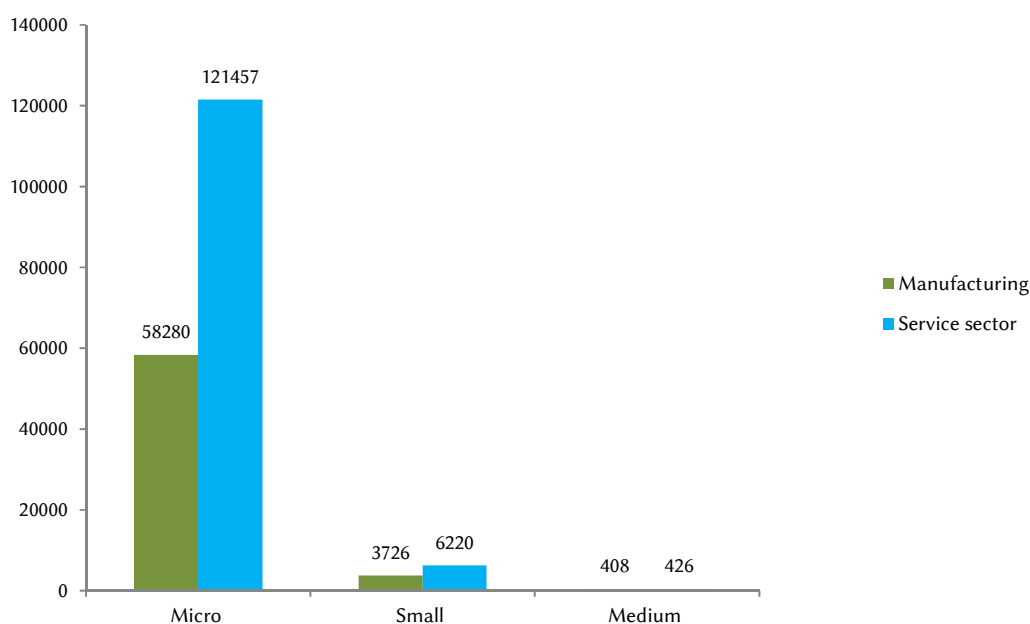
MSMEs are facilitated and supported in the State by the Government and banks. The District Industries Centres (DIC) act as a facilitator for the growth of the MSME and traditional industrial sectors in Kerala. DIC implements various schemes to develop entrepreneurial culture in the State. Industries Department provides financial assistance to start Entrepreneurship Development clubs at school and college level to develop entrepreneurial culture among the youth and to organise entrepreneurship development programmes for them. In addition, the Department has made it a priority to provide services to Start-ups and to set up 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: Directorate of Handloom and Textiles, which aims at evolving policies for the promotion and development of handloom and textile sector in the State; Directorate of Coir Development is the implementing agency for all policy decisions of the Government of Kerala related to coir industry; Khadi and Village Industries Board is vested with the responsibility of organising and promoting Khadi and Village Industries in the State, and 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, 2022, there were, 1,90,517 UAMs filed which include 62,414 manufacturing units and 1,28,103 units in the Service Sector. Manufacturing units comprised of 58,280 micro units, 3,726 small units and 408 medium units. Out of 1,28,103 UAMs

Figure 4.4.1. Number of Micro, Small and Medium units registered under Manufacturing and Service Sectors in Kerala, 2021-22



Source: Directorate of Industries and Commerce

in the service sector, micro 1,21,457 are micro, 6,220 small and 426 medium units. The District-wise number of Micro, Small and Medium units registered under manufacturing and service sectors in 2021-22 is given in **Appendix 4.4.1**.

Performance of the Sector

In 2021-22, 15,285 (32 per cent more than the previous year) new MSME units started in the State with an investment of ₹1,535.09 crore (26 per cent more than the previous year), employing 56,233 persons (25 per cent more than the previous year). There is a substantial increase in 2022-23. One lakh new units employing 2,20,285 persons were started up to December 7, 2022.

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**.

Table 4.4.3 Achievement in MSME sector, 2017-18 to 2021-22

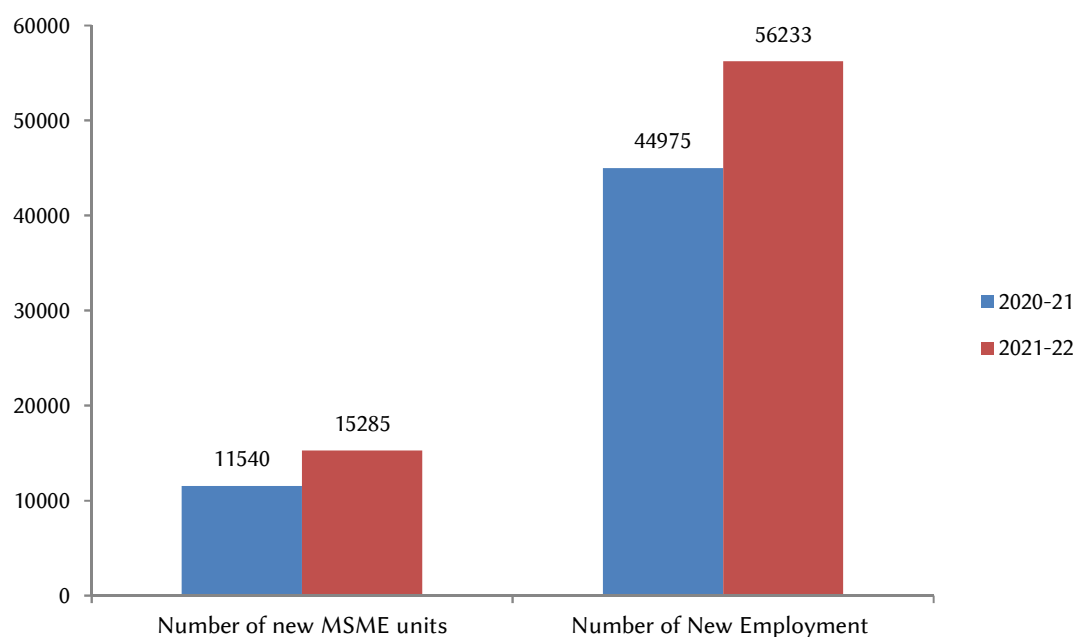
Year	No. of MSME units	Investment (in ₹ crore)	Employment (in number)
2017-18	15,468	1,249.61	51,244
2018-19	13,826	1,321.94	49,068
2019-20	13,695	1,338.65	46,081
2020-21	11,540	1,221.86	44,975
2021-22	15,285	1,535.09	56,233
2022-23 [^]	100000	6274.00	2,20,285
Total	169,814	12,941.15	4,67,886

[^]As on December 7th 2022

Source: Directorate of Industries and Commerce

In 2021-22, the District with the largest numbers of new MSME units was Thrissur (1,789 units) with an investment of ₹121.15 crore, generating 5,200 employment opportunities, followed by Kozhikode (1,455 units) with an investment of ₹134.38 crore generating 4,738 employment

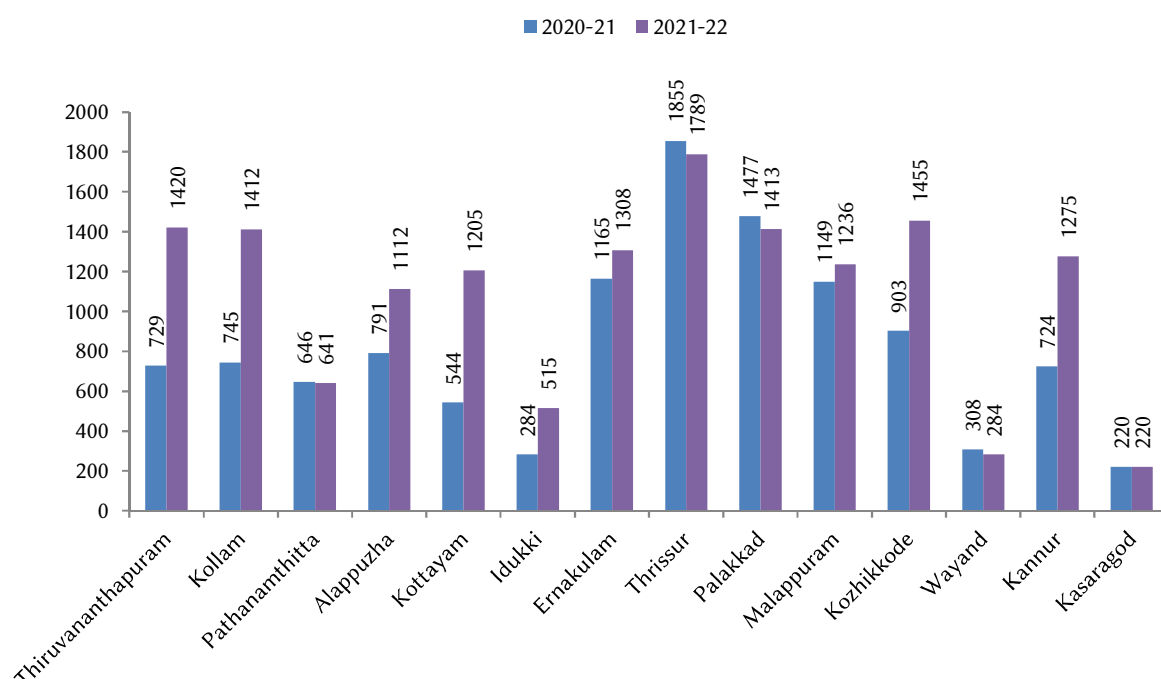
Figure 4.4.2 Number of new Micro, Small and Medium units and employment created in MSMEs in 2020-21 and 2021-22



Source: Directorate of Industries and Commerce

¹Directorate of Industries and Commerce, Government of Kerala

Figure 4.4.3 District-wise new MSME units in Kerala in 2020-21 and 2021-22



Source: Directorate of Industries and Commerce

opportunities and Palakkad (1,413 units) with an investment of ₹207.49 crore providing employment to 5,850 persons. Kasaragod (220 units) had the lowest number with an investment of 17.09 crore generating employment for 959 persons. The District-wise details of new MSME units started in Kerala in 2021-22 is given in **Appendix 4.4.2**

In 2020-21, Thrissur was the District with

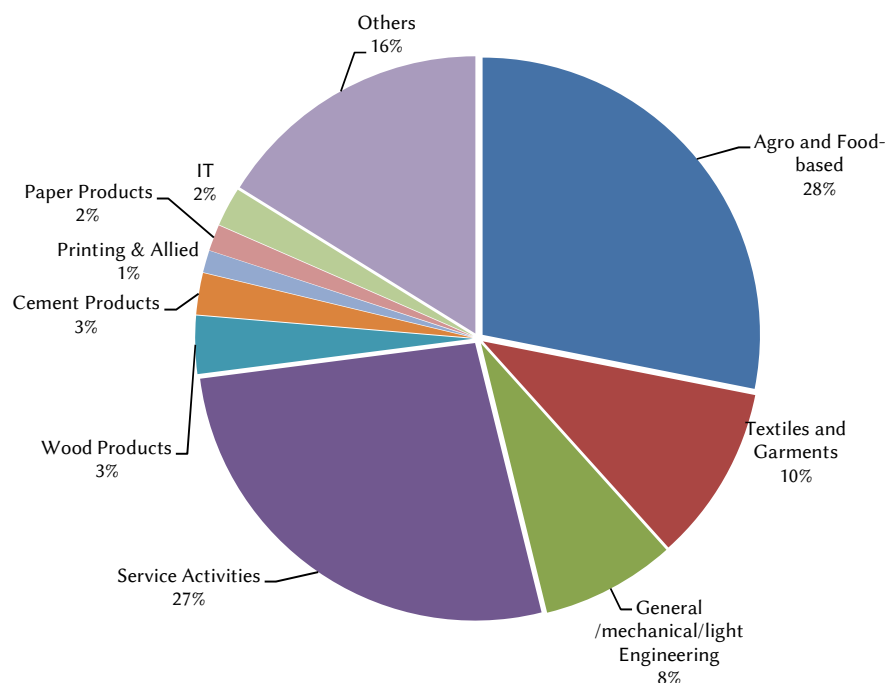
the largest number of new units (1,855 units) generating 6,118 jobs, followed by Palakkad with 1,477 units generating 6,300 jobs and Ernakulam with 1,165 MSME units with 4,729 jobs. Although the number of new units in Kasaragod remains the same, there is an additional investment of ₹1.03 crore and 116 persons employed. **Figure 4.4.3** shows District-wise details of new MSME units in the State in 2020-21 and 2021-22.

Table 4.4.4 Sub-sector-wise details of new MSME units started in Kerala

Sl. No.	Name of Subsector	2017-18	2018-19	2019-20	2020-21	2021-22
1	Agro and Food-based	2,553	2712	2,582	3,359	4,297
2	Textiles and Garments	1,947	1858	1,904	1,276	1,564
3	General/mechanical/light Engineering	2,001	1533	1,334	959	1,193
4	Service Activities	3,679	3259	4,036	2,725	4,097
5	Wood Products	871	644	5,32	436	517
6	Cement Products	469	329	3,09	233	368
7	Printing and Allied	392	348	2,80	188	198
8	Paper Products	163	192	1,88	198	234
9	Information Technology	316	294	2,40	187	348
10	Others	3,077	2657	2,290	1,949	2,469
Total		15,468	13,826	13,695	11,540	15,285

Source: Directorate of Industries and commerce

Figure 4.4.4. Number of MSME units were started in 2021-22



Source: Directorate of Industries and commerce

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 2,553 in 2017-18 to 4,297 in 2021-22. The number of service related MSME units has increased from 3,679 in 2017-18 to 4,097 in 2021-22. The sub-sector-wise details of MSME units started during the last five years is given in **Table 4.4.4**.

The top five subsectors together consist of over 85 per cent of the MSME units in the last five years. Agro and food based (28 per cent) units and Service Activities (27 per cent) dominate in MSMEs. Units making plastic containers, gold ornaments, rubber products, handicrafts products are classified as “Others” (16 per cent). Textiles and garments (10 per cent) and General/Mechanical/Light Engineering (8 per cent) are the other two leading subsectors. The share of each subsector is given in **Figure 4.4.4**.

Industrial Co-operative Societies

There were 475 working industrial co-operative societies as on March 31, 2022 in the State of which 73 are women cooperative societies. 43 societies were registered in 2021-22. Thiruvananthapuram has the larger number of working societies (167). The District-wise number

of Industrial Cooperative Societies in the State is given in **Appendix 4.4.3**.

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 2,525.20 acre. A total of 2,627 units employing 38,225 persons generating an income of ₹2,22,078 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, 2022 is given in **Table 4.4.5**.

Table 4.4.5 Industrial Estates in Kerala, 2021-22

Sl No	Agency	No. of Industrial Estates	
		Major Estates	Mini Estates
1	District Industries Centre		91
2	SIDCO	17	36
Total		17	127

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 91 mini-industrial estates under District Industries Centre with 879 Small Scale Industrial units as on March 31, 2022. There are 762 working units in these estates employing 3,355 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. 194.90 acre have been allotted to 875 working units employing 7,456 workers (as on March 31, 2022). 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 2021-22 was ₹32.86 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 25 trainings/courses in 2021-22, benefitting 1,822 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 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 under the Scheme Micro Small Enterprises Cluster Development Programme (MSE-CDP) is assisting 19 Cluster CFC in Kerala. Kerala is among the top 5 States effectively implementing the MSE-CDP (Common Facility Centres and Infrastructure Development) scheme. ₹193.7 crore have been sanctioned to Kerala under the programme in which ₹113.81 crore have already been disbursed as Government of India grant. 11 CFCs are already commissioned and eight Industrial Parks developed utilising these funds. Four CFCs and three ID projects are under various stages of implementation in the State.

K-Bip is the implementing agency of Common Facility Centre (CFC) projects in industrial cluster under Micro Small Enterprises-Cluster Development Programme (MSE-CDP) scheme of the Ministry of Micro Small and Medium Enterprises (MSME), Government of India. The projects are implemented in association with Directorate of Industries and Commerce/District Industries Centres of the State. The Ministry of MSME, under the MSE-CDP scheme is provides a maximum of 70 per cent financial assistance for setting up of CFC in various clusters. 20 per cent of the total project is the matching State

contribution and the balance 10 per cent is the SPV (consortium) contribution.

KBIP 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.

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 rural as well as urban areas. In 2021-22, the banks sanctioned 2,080 projects and provided margin money of ₹4,921.95 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 in March 2022 was ₹64,956.92 crore, an increase of eight per cent compared to ₹59,970.70 crore in March 2021. 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. RBI allocated ₹6,990.00 crore to SIDBI to support the State Governments/ State Government sponsored organisations to

create infrastructure towards development of MSME clusters. Till March 31, 2022, SIDBI disbursed aggregate loans of ₹1,43,758 crore to MSMEs, under various schemes. SIDBI introduced COVID-19 Start up Assistance Scheme (CSAS) to provide financial assistance to startups affected by COVID-19. During the second wave of the COVID-19 pandemic, SIDBI launched assistance to MSMEs for Recovery and Organic Growth during COVID-19 pandemic (AROG) to provide financial support to all MSMEs which are manufacturing products or providing services that are directly related to fighting the corona virus at a subsidised interest rate of 5.50 per cent. ₹406 crore was sanctioned to 329 customers as on March 31, 2022 under this scheme.

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/MSMEs to meet additional term loan/additional working capital requirements.

As per statistics provided by SLBC, in Kerala as on September 30, 2022, emergency credit has been sanctioned 1,59,447 eligible cases out of 2,51,283 eligible borrowers across the State. The total amount sanctioned is ₹8,970.26 crore. An amount of ₹7,987.37 crore is already disbursed as credit to 1,34,714 borrowers. Details are given in the **Table 4.4.6**.

One lakh new units employing 2,20,885 persons were started up to December 7, 2022.

Major Achievements

- One lakh enterprises are registered as part of the One lakh enterprise campaign, as on December 7th, 2022.
- 15,285 MSME units were started using ₹1535.09 crore capital investment and 56,233 employment opportunities generated in 2021-22.
- Convened awareness campaign and seminar relating to various schemes of Industries department
- Conducted 73 ease of doing awareness campaign for local bodies
- Collected information about more than 1,50,000

⁴SIDBI, Working Report 2022

Table 4.4.6. Emergency Credit Line Facility sanctioned and disbursed to eligible MSME Borrowers in Kerala as on September 30, 2022

Bank	No of eligible borrowers	Sanctioned		Disbursed	
		A/c s	Amount (in crore)	A/c s	Amount (in crore)
Total Public Sector Commercial Bank	1,67,615	1,32,123	3,349.46	1,10,774	2,837.97
RRB-Kerala Gramin bank	35,568	2,515	27.69	2,515	27.69
Total – Private Sector Commercial Bank	48,100	24,809	5,593.11	21,425	5,121.75
Total – Banking Sector	2,51,283	1,59,447	8,970.26	1,34,714	7,987.37

Source: State Level Bankers Committee

entrepreneurs and designed the industrial map through the Kerala MSME geo portal.

- Set up “Central Inspection Framework” and “Kerala – Central Inspection System (K-CIS)” to carry out all inspections in a single platform.
- Formed Commerce Mission to encourage and develop trade and commerce in the State and to market indigenous products in domestic and global markets.
- Kerala Institute for Entrepreneurship Development (KIED) as a Centre of Excellence in entrepreneurship development.
- Launched www.keralamsme.org and www.keralamsme.com for accessing national and international markets and E-Market web portal to provide better marketing facilities to MSMEs and PSUs.
- Set up 489 Entrepreneurship Development Clubs in educational institutions in 2021-22 to promote entrepreneurship among students.
- 1,357 industrial units received assistance of an amount of ₹7,093.97 lakh under Entrepreneur Support Scheme.
- Kerala become the first Indian State to adopt ‘Responsible Investment, Responsible Industry’ programme as part of industrial growth.

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:

- *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.
- *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.
- *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.

4.5 FOOD PROCESSING

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 seven have female promoters. 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. More than two lakh women workers are directly employed in registered food processing units and more than 12 lakh women workers are engaged in unincorporated non-agricultural enterprises in the food processing sector.

Over the years, agricultural production in India has recorded higher output. According to World Agriculture in 2018, India ranks third in cereals, first in pulses, second in vegetable primary, second in fruit primary, first in milk, third in eggs primary. An abundant supply of raw materials, increase in demand for food products and incentives offered by the Government has impacted food processing sector positively. During the last five years till 2019-20, food processing sector grew at an Average Annual Growth Rate (AAGR) of around 11.18 per cent as compared to

around 4.19 per cent in agriculture (at 2011-12 prices). 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 9.87 per cent and 11.38 per cent of GVA in manufacturing and agriculture sector respectively in 2019-20 (at 2011-12 prices).

Food products industry figures among the top five sectors with respect to fixed capital, gross value added and output. According to the latest Annual Survey of Industries (ASI) for 2018-19, the total number of persons engaged in registered food processing sector was 20.05 lakh. Unregistered food processing sector supported employment of 51.11 lakh workers 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 2020-21 was of the order of US \$38.32 billion accounting for about 13.2 per cent of India's total exports (total exports US \$291.17 billion). The value of import of agri-food items including processed food in 2020-21 was US \$20.99 billion which was 5.3 per cent of India's total imports (total imports US \$393.61 billion).

¹Annual Report 2021-22, Ministry of Food processing Industries, Government of India

Food Processing Industry in Kerala

Kerala is a very fertile land with a diverse range of crops providing numerous opportunities for value addition. Coconut is the most important cash crop, cultivated in 7.81 lakh ha with a production of 5,384 million nuts – scope exists in value addition in the form of packed tender coconut water, virgin coconut oil and desiccated coconut powder, coconut jaggery, palm sugar, chips, jelly, vinegar etc. Kerala has earned a reputation for its ‘Nendran’ variety. Substantial quantity is being exported in the fresh form, however, opportunities exist in the processing of milkshake powder, banana-based baby food, banana pulp etc. Kerala accounts for 75 per cent of spices exports from India and is a major producer of coir and coconut. Kerala accounts for handsome contribution in the country’s total food exports. Kerala has been traditionally strong in spices, marine products, cashews, coconuts, cocoa, coffee and tea and fruits like banana and pine apple.

Food processing is a sunrise sector, which besides having huge market prospects, also has tremendous potential for contributing to the growth of the agriculture and allied sectors including horticulture, animal husbandry, fisheries. ‘Food Processing’ is accorded priority sector status by the Government of Kerala.

Kerala Industrial Infrastructure Development Corporation (KINFRA) has been playing a proactive role for the promotion of food processing industry in the State. KINFRA being the nodal agency for the Ministry of Food Processing Industries, Government of India is also 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 2021-22, the park attracted an investment of ₹14,977.53 lakh and created 1,479 number of jobs.

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 ₹119.02 crore. The assistance provided by the Ministry of Food processing Industries is ₹50 crore. In 2021-22, the park attracted an investment of ₹24,026.23 lakh and created 1,266 jobs.

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 2021-22, the park has attracted investment of ₹6,831.22 lakh and created 796 jobs.

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 ₹12.5 crore, out of which ₹6 crore will be the assistance from Government of India.

KSIDC Mega Food Park, Alappuzha

KSIDC is developing a Mega Food Park at Industrial Growth Centre Pallippuram, Cherthala, focusing on 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.

The project is expected to bring an investment of ₹350 crore within three years. Approximately 42 acres has been allotted to different seafood/food processing and allied units at the park. Balance available land at Mega Food Park comes to about

three acres. Land will be allotted to sea food/food processing units and industrial units in allied sectors for a 30 year lease period.

Implementation of Food safety system through NCHC

National Centre for HACCP Certification (NCHC) in association with 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.

to the market by bringing together the farmers, processors and retailers. Proper marketing, latest technology adoption and steady flow of raw materials from the farmers at stable prices, which meet specific quality standards, will result in better development of the agriculture sector and farmers' incomes.

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.

Way forward

Food processing sector faces a set of unique problems which have a direct bearing on the strategy and required intervention. As the sector mainly consists of micro and small units which are neither able to generate adequate surplus for their expansion nor invest in supporting infrastructure. Therefore, the sector needs support for creation of infrastructure and targeted incentives to attract investment for creation of processing capacity. To address these issues, considerable investment is required in different components of the supply chain by way of grading and packing centres, controlled atmosphere facilities, reefer vans, cold storage for perishable cargo at port/airport/railway stations, testing laboratories and other supporting infrastructure and services such as setting up of testing laboratories, research and development, imparting skill training and marketing support.

There is immense export potential and considerable domestic demand for processed food items. Agricultural production should be linked

²www.ksidc.org

4.6 TRADITIONAL INDUSTRIES

Handicraft Sector

The handicrafts sector plays a significant role in the country's economy. It provides employment to a vast segment of craft persons in rural and semi urban areas and generates substantial foreign exchange for the country, while preserving its cultural heritage. Handicrafts have great potential, as they hold the key for sustaining not only the existing set of millions of artisans spread over the country, but also the increasingly large number of new entrants in the crafts activity. The handicrafts sector employs 68.86 lakh artisans; out of which 38.61 lakh are female artisans. The export of handicrafts, including handmade carpet, in 2021-22, up to October 2021 has been ₹29,020.94 crore (*Source: Annual Report 2021-22, Ministry of Textiles, Government of India*).

The sector suffers from weaknesses such as the unorganised nature of the industry, low levels of education of workers, low capital base, poor exposure to new technologies, absence of market intelligence, and poor institutional framework. The Government implements various schemes for promotion and development of handicrafts sector under National Handicraft Development Programme (NHDP) and Comprehensive Handicrafts Cluster Development Scheme (CHCDS).

Handicraft industry in Kerala

Kerala has the tradition of making beautiful handicrafts with ivory, bamboo, palm leaves, seashells, wood, coconut shells, clay, cloth, coir, metals, stone, lacquer ware, and so on. Many old

handicraft classics can be seen in palaces, old heritage homes and museums across the State.

There are 32 different crafts in Kerala of which ivory carving, wood and horn carving, bell metal casting, hand embroidery, coconut shell carving are important commercial items. The vast majority of traditional artisans need social and economic support. The schemes implemented by the Government of Kerala intend to eliminate intermediaries, improve the skill of artisans, enhance productivity, increase market opportunities and strengthen co-operatives in the sector.

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 38 Co-operative societies under SURABHI and nine showrooms under SURABHI inside and outside the State. The turnover of the society in 2021-22 was ₹63.36 lakh. The apex society received an amount of ₹40.00 lakh

in 2021-22 as assistance from the Government of Kerala. The total employment provided in 2021-22 was 30,000. Details are given in **Appendix 4.6.1.**

Handicrafts Development Corporation of Kerala (HDCK)

Handicrafts Development Corporation of Kerala (HDCK) is engaged in procuring and marketing of handicraft products, and thereby ensuring fair returns to artisans. 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 implements welfare schemes for artisans, conducting training programmes, setting up CFCs, 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 2021-22, Corporation has targeted a sales turnover of ₹1,200 lakh, but achieved only a total sale of ₹536.92 lakh due to continued impact of COVID-19 pandemic. Sales of the Corporation mainly depend on domestic and foreign tourists and on fairs and exhibitions. Details are given in **Appendix 4.6.2.**

The Kerala Artisans Development Corporation (KADCO)

Kerala State Artisans Development Corporation Ltd (KADCO) was incorporated in 1981 as a fully owned Government of Kerala company registered under Companies Act, 1956. The primary objective of the Corporation is the upliftment of indigenous artisans in Kerala including carpenters, goldsmiths, blacksmiths and those engaged in pottery, masonry, work using copper/bronze and other handicraft work. KADCO identifies different types of artisans

and promotes their craft. KADCO is successfully running Common Facility Centres for Carpentry in Mini Industrial Estate at Nadavannur, Kozhikode and Umayanallore, Kollam. KADCO introduced a registration-based online labour data bank as the first step to organise the real beneficiaries for facilitating and empowering them for their livelihood in a scientific manner. The data bank will help understand and utilise hidden capabilities, provide proper training in respective domains as well as in general aspects of doing business and commercial activities.

KADCO is a State Channelling Agency (SCA) for National Backward Classes Finance and Development Corporation (NBCFDC), for disbursing short term loans upto one lakh with a nominal interest rate of five per cent for women who belong to backward classes and living below poverty line to start various income generating activities. Loans up to ₹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 a highly useful renewable and eco-friendly resource which has several applications. It is widely used in environment protection, as a nutrient food, high-value construction material, and in about 1,500 other applications. It is estimated that about 2.5 billion people use bamboo in one form or the other at the global level. Advanced research activities are being taken up to utilise bamboo for efficient fuel generating system.

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. A unique feature of Kerala is that 67.3 per cent of the extracted bamboo comes from home gardens rather than from forests. Data from the Panchayats 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 2021-22 include implementing National Bamboo Mission (Government of India) Projects in the State, participation in Exhibitions/Trade Fairs, skill development/training programmes (5 nos.) benefiting 75 participants, and promotional activities in Bamboo sector. (*Source: K-bip*).

Bamboo Fest 2021

On behalf of Department of Industries and Commerce, Government of Kerala, Kerala State Bamboo Mission organised the 18 th edition of 'Kerala Bamboo Fest' from December 19 to 23, 2021 at Marine Drive, Ernakulum. 211 bamboo artisans from within the State displayed their bamboo products in 150 stalls at the fest. It was organised to promote and develop the sector. The fest provided opportunity for the participation of bamboo cultivators, artisans, entrepreneurs, public and private agencies/institutions, technology providers etc within the State.

The list of projects completed with the assistance from National Bamboo Mission include:

- Bamboo Nursery at Thrikkaipetta, Wayanad.
- Bamboo Bazars 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: Kerala State Bamboo Mission*).

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 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 for manufacturing value added products like toothpick, curtain blinds, and bamboo curtains and incense sticks .

Problems/Issues in the Sector

The major issues that the sector faces are:

- 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, Chinese products in particular.
- 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.
- 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 sixth largest exporter of textiles and apparel in the world. This sector contributes about 11.4 per cent to India's total exports in 2020-21. However, India has a share of 4 per cent of the global trade in textiles and apparel. The uniqueness of the industry lies in its strength both in the hand-woven sector as well as in the capital intensive mill sector. The mill sector is the second largest in the world. Traditional sectors like handloom, handicrafts and small scale powerloom units are the biggest source of employment for millions of people in rural and semi urban areas. It provides direct employment of over 4.5 crore people and source of livelihood for over 10 crore people indirectly, including a large number of women and rural population (National Investment Promotion and Facilitation Agency)

Handloom and Power loom Industry in India

Handloom industry is the largest cottage industry in the country with about 23.77 lakh looms. According to the Annual Report 2021-22 of the Ministry of Textiles, handloom weaving is one of the largest economic activities after agriculture providing direct and indirect employment to 35.22 lakh weavers and allied workers. 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 2019-20 was ₹2,248.33 crore and in 2020-21 was ₹1,644.78 crore (Annual Report, Ministry of Textiles, 2021-22)

Products from the handloom industry include fabrics, bed linen, table linen, toilet and kitchen linen, towels, curtains, cushions and pads, tapestries and upholstery, carpets, floor coverings and

embroidered textile materials which also have a good export market. Karur, Panipat, Varanasi and Kannur are some of the prominent handloom export centres in the country. According to Handloom Export Promotion Council (HEPC), the nodal agency constituted under the Ministry of Textiles, Government of India to promote exports of handloom products, the major export destinations of handloom products from India are USA, UK, Spain, Italy, UAE, Germany, France, Japan, Saudi Arabia, Australia, and Netherlands.

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/attachments. However, upgradation of technology in the power loom sector has picked up during the last 8-9 years.

Textile Sector in Kerala

The textile sector in Kerala includes areas like 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. Since the onset of the COVID-19 pandemic, the Central PSUs have not been able to function. The spinning sector includes 26 mills with total spindle capacity of 7.03 lakh, employing about 7,600 people. 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 State Government is setting up a Textile Processing Centre at Nadukani, which will be an important step towards localisation of textile processing in the State. The total State Plan outlay for the textile sector (excluding State PSUs and Khadi) in the Annual Plan 2021-22 was ₹5,139 lakh and amount spent was ₹6,966.26 lakh (135.55 per cent). The total Plan outlay for the sector in the Annual Plan 2022-23 is ₹5,640 lakh and amount spent till October 2022 is ₹1,580.57 lakh (28.02 per cent). Details are provided in **Table 4.6.1**.

Handloom Sector in Kerala

The handloom sector is a major source of employment in Kerala. In fact, among the traditional industries in the State, the handloom sector is second only to the coir sector with respect to employment. The handloom industry in the State

Table 4.6.1 State Plan Outlay and Expenditure for Textile sector (excluding PSUs and Khadi), in ₹ lakh

Sub-Sector	2021-22			2022-23 (till October 2022)		
	Outlay	Expenditure	%	Outlay	Expenditure	%
Handloom	2,192	3,557.94	162.29	2,565	547.57	21.35
Powerloom	197	62.24	31.59	184	3.00	1.63
Spinning Mills	1,750	2,846.08	162.63	1,500	1,030.00	68.67
Textile Processing Centre-Nadukani	1,000	500.00	50.00	1,391	0.00	0.00
Total	5,139	6,966.26	135.55	5,640	1,580.57	28.02

Source: Plan Space, Kerala State Planning Board

is mainly concentrated in Thiruvananthapuram and Kannur District and in some parts of Kozhikode, Palakkad, Thrissur, Ernakulam, Kollam and Kasaragod districts. The industry is dominated by the co-operative sector covering 98.4 per cent of total looms. The rest of the industry is owned by private sector firms.

The total number of handlooms in the State in 2021-22 was 16,324. They produced about 62.7 lakh metres of handloom cloth. The total value of production in 2021-22 was ₹107.32 crore while the turnover was ₹120.72 crore. The total number of weavers in handloom sector in 2021-22 was 14,456. The number of women weavers was 11,317. Total employment generated in 2021-22 was 10.36 lakh person days. Compared to 2020-21, the total number of looms, production, total turnover, and person days of work generated have fallen in 2021-22. The fall is a result of the continuing impact of COVID-19 pandemic, and is seen more in the co-operative sector. Inadequate sales and loss of festive seasons (which usually bring in good sales) have also had an impact in the handloom sector. Details are provided in **Appendix 4.6.3**.

The major varieties produced in the handloom sector of the State are dhotis, furnishing material, bed sheets, shirting, sari and lungi. The following products of the State are registered under the Geo Indication Act of India.

1. Balaramapuram saree and fine cotton fabrics.
2. Kasaragod saree
3. Kuthampully saree
4. Chendamangalam dhoti
5. Cannannore home furnishings

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 the principal arm of the State Government in implementation of schemes for the development of the sector. It has the overall responsibility to support the sector in areas of infrastructure, marketing, human resource development, conservation and preservation of traditional skills and products, finance, design input, raw materials supply, modernisation, welfare programmes, price stability to equip the segment to compete with the global environment. The Government 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 NCDC, NABARD and 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)

HANTEX was registered in 1961, as the apex body of primary handloom weaver's co-operative societies in Kerala. The main objectives of HANTEX are to market the products of member societies, provide them institutional support and inputs for production. Currently, HANTEX has about 380 primary co-operative societies registered with it engaging about 10,000 weavers. HANTEX societies are engaged in production with modern infrastructure to produce handcrafted fabrics, garments, furnishings, made-ups, sarees and traditional weaves in tune and harmony with eco-

friendly norms for internal and export market. HANTEX collects yarn, chemicals and dyes from NHDC with Government subsidy and distributes among the members.

HANTEX is also involved in the marketing and sales of the produce from its members. Currently, there are 89 functional showrooms. All production and procurement activities are covered by four regional offices and five functional production centres. HANTEX has a process house at Thiruvananthapuram which has all facilities for dyeing and printing of fabrics. It also owns two weaving factories and an international garment unit with modern machinery. The modern garment unit has a production capacity of 500 shirts per day.

HANTEX achieved a sale of ₹1,800.77 lakh in 2021-22 of which, ₹1,705 lakh is showroom sale and ₹95.77 lakh is department sale. Sale in 2020-21 was ₹1,681.02 lakh. It procured fabric worth ₹1,028.11 lakh in 2020-21. The paid up capital at the end of the year 2020-21 was ₹6,656.44 lakh. The agency has reported losses since 2017-18. As a result, the accumulated loss of HANTEX is increasing on a yearly basis and has reached about ₹21,265.22 lakh by the end of 2020-21. Details are given in **Appendix 4.6.5**.

It has renovated four showrooms at Thiruvananthapuram, North Paravoor, Kanjangad and Kannur. To overcome issues due to the COVID-19 pandemic, the agency implemented the Kaithari Suraksha Scheme as a support to weavers. The agency has also launched an 'E-credit card scheme' to attract employees in the Government/banking sector as its customers and four mobile sales units to leverage the door step sales.

Kerala State Handloom Development Corporation (Hanveev)

Hanveev, was incorporated in 1968, for the welfare and development of traditional weavers in the unorganised sector. It is engaged in the manufacturing and marketing of a wide range of handloom products. At present Hanveev provides employment to 1950 individual weavers. It has 36 own showrooms, 2 exclusive agency showrooms and 32 production centres. The corporation conducts exhibitions during festival seasons and participates in expos conducted at national and international level.

The COVID-19 pandemic had adversely affected Hanveev. Sales turnover (provisional figures) of

Hanveev in 2021-22 was ₹997.97 lakh. This is only little over half the sales turnover in 2020-21. The value of cloth and other items produced has fallen from ₹1,133.61 lakh in 2020-21 to ₹1,090.10 lakh in 2021-22. The value of yarn and other inputs purchased and distributed was ₹291.90 lakh in 2020-21. It has increased to ₹465.20 lakh in 2021-22. Details are provided in **Appendix 4.6.6**. The paid up capital of Hanveev at the end of 2021-22 was ₹4,966 lakh. Significant reduction is noted in income through sales, while the expenditure on yarn has increased drastically. The net loss of Hanveev in 2021-22 was ₹1,423.82 lakh (provisional figures). This is close to three times the losses in 2020-21. The accumulated loss of the agency are increasing over the years. 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 was established in 1987 in the name of Institute of Handloom and Textile Technology (IHTT). Subsequently, the IHTTs were amalgamated to form the Indian Institute of Handloom Technology. It functions according to the guidelines of Ministry of Textiles, Government of India. IIHT's technical support system has improved quality control in the handloom sector. The institute initially had an area of 4.13 acres. The institute recently purchased 5.64 acres of land from ESI Corporation taking the total area of the facility to 9.77 acres.

Co-operative Sector

The co-operative sector in Textiles sector is involved in spinning and weaving activity (both power loom and handloom) in the State. There are 8 spinning mills in the co-operative sector. They are the Quilon Co-operative Spinning Mills Ltd, Alleppey Co-operative Spinning Mills Ltd, The Priyadarshini Co-operative Spinning Mills Ltd, The Trichur Co-operative Spinning Mills Ltd, The Malabar Co-operative Textiles Ltd, The Malappuram Co-operative Spinning Mills Ltd, The Cannanore Co-operative Spinning Mills Ltd, and the Karunakaran Memorial Co-operative Spinning Mills Ltd. There are 562 conventional power looms in five co-operative societies under TEXTFED in the State. The total number of power looms in the co-operative sector is estimated to be about 637. The co-operative units form about 38 per cent of total number of power looms in the State. There are 21 power loom co-operative societies in the State.

The co-operative sector in handloom sector consists of factory type and cottage type societies. In 2021-22, there were 526 registered Primary Handloom Weavers Co-operative Societies (PHWCS) in the State of which 199 were factory type and 327 were cottage type societies. Out of 526 registered Primary Handloom Weavers Co-operative Societies, 311 were operational. Out of the 311 working societies in 2021-22, only 98 were profitable and 213 were in loss. Number of profit making societies and number of loss making societies has fallen compared to previous year. Number of dormant societies has increased. Details of hand loom societies in the State are given in **Appendix 4.6.8**.

The production of handloom cloth by co-operative sector in 2021-22 was 5.41 million metres valued at ₹95.42 crore. While the production of cloth has fallen, the value of production has increased. Total turnover which was ₹156.94 lakh in 2020-21, has reduced by 31.24 per cent to ₹107.91 lakh in 2021-22. Number of looms has fallen from 15,405 in 2020-21 to 13,715 in 2021-22. The number of weavers has decreased to 11,857 in 2021-22 from 12,458 in 2020-21. Employment generated was 9.33 lakh person days. The number of women weavers has increased, compared to the past two years. Details can be found in **Appendix 4.6.3** mentioned earlier.

Power loom Sector

There are 1680 power looms in the State of which 37.92 per cent (637) are in the co-operative sector. In the power loom sector, production of cloth in 2021-22 was 91.09 lakh meters valued at ₹8,449.67 lakh. Productivity was 5422.02 meters per loom and the total turnover through sale of goods was ₹7,980.66 lakh. Details are given in **Appendix 4.6.9**.

There are five integrated Power loom Co-operative societies under TEXTFED – 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). Total employment is 283 and total Government investment in these units so far has been ₹43 crore.

Spinning Mills

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 about 7600 people. There are 9 spinning mills under the three State PSUs namely Kerala State Textile Corporation Limited (7 mills), Sitaram Textiles Limited and Trivandrum Spinning Mills Limited. There are eight co-operative spinning mills in Kerala. They are part of Kerala State Co-operative Textile Federation Limited (TEXTFED). Together under State PSUs and co-operative sector, there are 17 spinning mills having 2.87 lakh spindle capacity and employing about 3,500 people. The Central PSU National Textile Corporation Limited has five mills with a total spindle capacity of 1.99 lakh. It employed about 1900 people. COVID-19 pandemic has adversely affected the functioning of the Central PSUs. They are not currently functional. In addition, there are two major private sector enterprises with a total of four mills. They have a spindle capacity of 2.16 lakh and employ about 2200 people.

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 RIAB, TEXTFED, 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 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 was established in 1992 as a body to plan, assist and supervise the setting up and management of co-operative textile units in Kerala. TEXTFED is the apex body of co-operative spinning mills and integrated powerloom co-operative societies in the State. It integrates all the segments of the textile industry including spinning, weaving, processing and garmenting. There are eight co-operative spinning mills as members of TEXTFED. Six of them are administered by the State Government and two

by elected boards. Government administered Mills include The Quilon Co-operative Spinning Mills Ltd, Alleppey Co-operative Spinning Mills Ltd, The Thrichur Co-operative Spinning Mills Ltd, The Malappuram Co-operative Spinning Mills Ltd, The Malabar Co-operative Spinning Mills Ltd and The Cannanore Co-operative Spinning Mills Ltd. The spinning mills administered by elected Boards includes The Priyadarshini Co-operative Spinning Mills Ltd, and K Karunakaran Memorial Co-operative Spinning Mills Ltd.

These eight co-operative spinning mills have a total capacity of 1,58,248 spindles and directly employ 2,050 workmen. The annual production is about 52 lakh kilograms of grey yarn and annual sales turnover is around ₹112 crore.

In 2021-22, for the renovation of spinning mills under TEXTFED, an amount of ₹1,750 lakh assistance was provided. Government had considered the completion of modernisation of Thrissur, Alleppey, Malabar, Malappuram, Kannur, Priyadarshini, Karunakaran and Quilon Co-operative Spinning Mills with Plan assistance in 2021-22. All the eight mills have completed 70 per cent of the modernisation and the performance is improved to a great extent through better productivity and quality. Out of eight mills, five were recorded operating profit in the year 2021-22.

Kerala State Textile Corporation Limited (KSTC)

KSTC, a Government of Kerala undertaking, was incorporated in 1972 with the main objective of 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, Corporation has under its fold a research and testing division (CARDT – Centre for Applied Research and Development in Textiles), located at Balaramapuram, Thiruvananthapuram. The corporation (along with mills and CARDT) has managerial staff strength of 130. The number of workers is 1,711. The agency is setting up a new Printing cum dyeing unit at Nadukani KINFRA Park, Kannur.

The value of production of the corporation has increased to ₹135.38 crore in 2021-22 from ₹83.63 crore in 2020-21. Simultaneously, income from sales has also increased to ₹132.29 crore in 2021-22 from ₹78.77 crore in 2020-21. KSTC has reported net loss in the last five years. The accumulated loss of the corporation at the end of 2021-22 is estimated to be about ₹484.78 crore. Details regarding the performance of KSTC are provided in **Appendix 4.6.10**.

Sitaram Textiles Limited was started in the year 1903 with weaving and gradually developed spinning and processing. Due to labour and other financial problems, in 1972, Government of Kerala by public auction took over the unit and there after the unit was functioning as fully owned Government of Kerala Undertaking under the administrative control of Industries Department. Total man power is 190. Only the Spinning Section is functioning now and it has a capacity of 25,000 spindles. Income from sales has increased from ₹7.28 crore in 2020-21 to 10.03 crore in 2021-22. 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 one of the largest handloom centres in the State. It was set up in 1957. 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 64 employees in the unit and accumulated loss is ₹28.04 crore. Details regarding the performance of Trivandrum Spinning Mills Ltd are provided in **Appendix 4.6.12**.

Achievements in Textile sector 2021-22

Government Share Participation was given to 340 Primary Handloom Weaver Co-operative Societies in 2021-22. About 2,119 weavers benefitted from the Production Incentive Scheme. Contributory Thrift Fund Scheme covered 2,119 weaver beneficiaries in the year 2021-22 and ₹2.50 crore was utilised out of which 50 per cent was expended for the benefit of women weavers. Government share participation assistance was also provided to

HANTEX and Hanveev. An amount of ₹28.46 crore was released to eight co-operative spinning mills, under TEXTFED for modernising their infrastructure. KSTC is setting up a new printing cum dyeing unit at Nadukani KINFRA Park, Kannur.

Issues and Challenges

Shortage of working capital, high cost of raw materials and difficulty in procuring raw materials are the major challenges faced by the sector. Mills involved in spinning and weaving in Kerala have been facing problems of both demand and supply. Out-dated machinery, 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 obsolete technologies and equipment. Partial modernisation 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. The sector is yet to come out of issues created by COVID-19 pandemic.

Way Forward

Kerala has a large market for clothing and the State has 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 induced lockdown 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 and 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 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 and development, and marketing.

Table 4.6.2 Production, Sales and Employment generation in Khadi and Village Industries Sector in India, During 2017-18 to 2021-22.

Year	Production (₹ in crore)	Sales (₹ in crore)	Employment (in crore)
2017-18	48,081.41	59,182.43	1.40
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 (upto 31/12/2021)	62,504.29	84,405.16	1.64

Source: Annual Report 2021-22, Ministry of Micro, Small and Medium Enterprises, Government of India

There are a total of 2,863 Khadi institutions in the country, which employ a total of 4.97 lakh artisans, a majority of whom (over 80 per cent) are women. The production in khadi and village industries (including polyvasthra and solar vasthra) in India have grown from ₹67,667.31 crore in 2019-20 to ₹72,235.15 crore in 2020-21. Similarly, sales of khadi goods have shown growth from ₹88,875 crore in 2019-20 to ₹95,741.36 crore in 2020-21. Employment generation in khadi and village industries sector increased from 1.52 crore in 2019-20 to 1.59 crore in 2020-21. 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

Khadi sector in Kerala has a strong base with its historical significance and social and political patronage. 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 2021-22, khadi sector in Kerala provided employment to 12,706 artisans and showed an overall cloth and yarn production of ₹27,94.32 lakh. The total wages paid to khadi artisans was ₹3,318.12 lakh in 2021-22. The Khadi and Village Industries Board generated 7,026 new employment opportunities through the village industries programme in 2021-22. Production and sales details of these institutions from 2018-19 to 2021-22 and employment in 2021-22 are given in **Appendix 4.6.13** and **Appendix 4.6.14**.

Budget provision and expenditure of the sector for the last three years are provided in **Table 4.6.3**.

Table 4. 6.3 Outlay and Expenditure of Khadi and Village Industries Sector in Kerala (₹ in lakh)

Year	Outlay	Expenditure	% of Exp
2019-20	1,443.00	667.15	46.22
2020-21	1,610.00	1,248.45	77.54
2021-22	1,610.00	630.59	39.16
2022-23 (as on November 15, 2022)	1,610.00	584.85	36.32

Source: Plan Space Kerala

Kerala Khadi and Village Industries Board (KKVIB)

KKVIB is a statutory body under the Department of Industries and Commerce vested with the responsibility of 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**.

The allocation of funds from various sources to KVIB and the expenditure incurred by the Board during 2020-21 and 2021-22 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 2021-22, 155 village industries units were established and it helped the creation of 486 new employment opportunities. District-wise details of achievements under self-employment generation programme in 2021-22 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 Minister's Employment Generation Programme (PMEGP), the

Table 4.6.4 Production, Sales and Employment in Khadi and Village Industries in Kerala in 2020-21 and 2021-22

Sector/sub sector	Value of Production (₹ in crore)		Value of sales (₹ in crore)		Employment (in numbers)	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
Khadi sector	79.81	60.01	92.19	115.61	12,507	12,706
Village industries Sector	106.17	101.36	112.71	104.51	83,395	40,862
Total	185.98	161.37	204.90	220.12	95,902	53,568

Source: Kerala Khadi and Village Industries Board

Table 4.6.5 Fund allocated to and Expenditure incurred by Khadi and Village Industries Board in Kerala, ₹ in lakh

Particulars	2020-21		2021-22	
	Receipt	Expenditure	Receipt	Expenditure
State Government Grant – PLAN				
1. Administrative Expenses (Budget provision)	1,248.45	1,248.45	1,351.48	1,320.83
2. Income Support Scheme (Fund through DIC)	3,000.00	2,100.00	3,300.00	4,635.75
State Government Grant – NON-PLAN				
1. Non-Plan – Administrative Expenses	4,650.00	4,656.24	4,599.45	4,635.75
2. Non-Plan – Special Rebate	1,500.00	1,500.00	1,400.00	1,400.00
KVIC Grant				
1. PMEGP – Margin Money	1,329.22	723.03	1,655.75	806.08

Source: Khadi and Village Industries Board, Government of Kerala.

board created capital investment of ₹1,976.06 lakh for 261 units and number of jobs created were 2,516. Achievements under the programme in 2021-22 are 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 Panchayats on a cluster mode providing employment to 5,000 people, mostly women or those belonging to disadvantaged sections.

Marketing

The KKVIB has 183 sales outlets for khadi and village goods. District-wise details of departmental sales outlets and sales under KKVIB Board for 2020-21 and 2021-22 is given in **Appendix 4.6.16** and **4.6.17**.

Issues and Challenges of Khadi and Village Industries in Kerala

- There is a huge 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.
- Low productivity is a major issue in khadi

sector. Low productivity leads to low wages.

- There is huge dependence on other States for high quality muslin and silk fabrics.
- Khadi institutions need to improve the professional management and professional competency to cope up with present day challenges.
- Khadi sector involving traditional mode of production faces big challenges in adapting to the fast 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. High competition, low publicity and advertisement and lack of technology are the main reasons.
- Impact of GST on khadi: Khadi Institutions are now mandated to obtain registration under GST and also pay five per cent GST on various Khadi products.
- Slow trickle-down of research and development works.

Way Forward

Innovation in production and marketing of products is necessary for survival of any industry. Khadi sector being traditional industry depends upon Government support for survival. It is necessary to make the sector self-sufficient and adapt to

Table 4.6.6 Achievements under Prime Minister's Employment Generation Programme (PMEGP) in 2021-22

Sl. No.	Programme	No. of Units	Production (₹ in lakh)	Sales (₹ in lakh)	Employment (in number)	Wages (₹ in lakh)
1	PMEGP	261	3165	3545	2516	906.00

Source: Khadi and Village Industries Board, Government of Kerala.

changing economic environment. Promotion and ensuring sustainability of enterprises in the sector can make the State a global leader in sustainable fashion. Kerala's youth have immense potential to contribute in the sector, with innovative solutions and ventures to enhance the position of khadi. With immense support from the Government and national institutes, the avenues of entrepreneurship are at an all-time high, which, if utilised with devotion and determination can make State a global leader of sustainable fashion.

COIR INDUSTRY

Coir Industry in India

The coir industry in India contributes significantly to the economy at large and employment particularly in States like Kerala, Tamil Nadu, Andhra Pradesh, Karnataka, Maharashtra, Goa, Odisha, Assam, Andaman and Nicobar, Lakshadweep and Puducherry. This sector provides both direct and indirect employment to about seven lakh persons. It is estimated that about 80 per cent of workforce in the industry are women. In 2021-22, India exported an all-time record of 12,34,855 MTs coir and coir products, earning ₹4,340.05 crore in export revenues as against export of 11,63,213 MTs valued at ₹3,778.98 crore in 2020-21. Export of coir in 2021-22, increased by 14.8 per cent in terms of value and 6.2 per cent in terms of quantity, over the preceding year. In the year 2021-22, 103 countries have imported coir and coir products from India. USA is the largest importer of coir products from India with a share of 29.79 per cent in value and 17

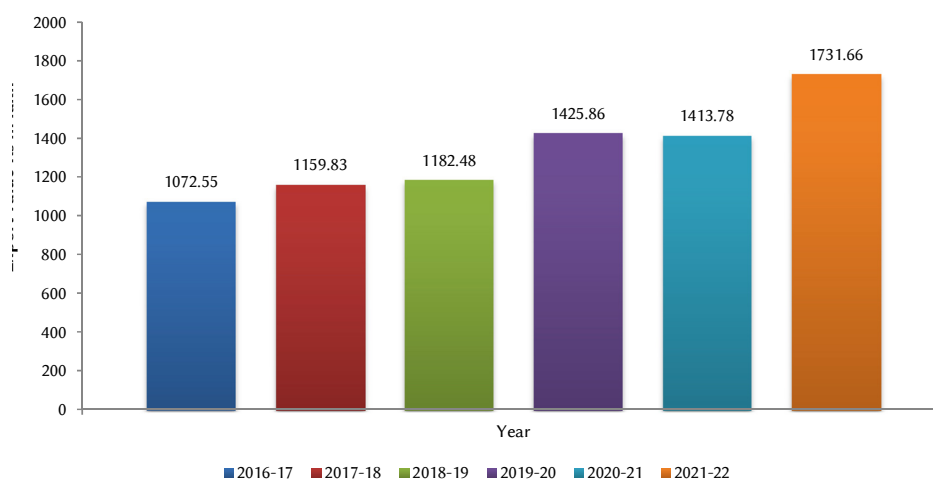
per cent in quantity. The domestic revenue earned is double the export revenue. India accounts for more than two-thirds of the global production of coir and coir products including 60 per cent of the total global supply of white fibre. Sri Lanka is the second largest producer accounting for 36 per cent of the total global supply of the golden fibre. (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

Figure 4.6.1 Export of Coir and Coir products by Kerala State PSUs and Coirfed, in ₹ lakh



Source: Directorate of Coir Development, Government of Kerala

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 Mattings (India) Limited along with Coirfed are engaged in export of coir products. Export from these agencies has been increasing continuously since 2015-16. From ₹1,413.78 lakh in 2020-21, exports had increased to ₹1,731.66 lakh in 2021-22. Details are provided in **Figure 4.6.1** and **Appendix 4.6.18**.

Performance Under Schemes and Programmes in Coir Sector

Much of the efforts of State Government in the sector are done through the Coir Development Department and the Directorate of Coir Development. During the Thirteenth Five-Year Plan, State Government allocated an outlay of ₹636.19 crore for the sector through Annual Plans. This excludes outlay to PSUs. The expenditure reported is ₹658.72 crore (103.54 per cent). As a whole, it is seen that the percentage of expenditure has remained high. Details are provided in **Table 4.6.7**.

Being an agro-based rural industry providing sustenance to lakh of families in the State, revitalising the coir sector is crucial. Directorate of Coir Development, Government of Kerala is implementing a comprehensive revival and transformational package for coir industry in the State as part of the '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 total outlay of the package is around ₹1,444.44 crore which includes State funds and NCDC fund to the tune of ₹200 crore. State funds include Plan and non-Plan allocation. Since 2017, an amount of ₹1,233 crore (including ₹110 crore NCDC fund) has been spent on the programme. 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.

Table 4.6.7 State Plan Outlay and Expenditure for Coir sector (excluding PSUs), in ₹ lakh

Year	Outlay	Expenditure	Percentage of expenditure
2017-18	12,812	9,872.89	77.06
2018-19	14,108	12,766.13	90.49
2019-20	14,151	8,247.06	58.28
2020-21	11,274	21,913.40	194.37
2021-22	11,274	13,072.26	115.95
Total	63,619	65,871.74	103.54
2022-23*	11,700	5,457.07	46.64
Total	75,319	71,329.00	94.70

Source: Budget Programme Book various years and Plan Space Kerala.

*Expenditure as on 18/10/2022

The push for reorganisation also including among others, modernisation and mechanisation, is starting to benefit the sector. Around 130 new defibring units (DF) 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 were discovered. As a result the value of raw coir pith has risen from ₹0.50 per kg to ₹6 per kg. A coir composite manufacturing plant has been established. The State has also initiated the process of establishing a pilot unit to manufacture binderless board.

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 tons in 2016 to 18,662 tons in 2022. Yearly income of coir workers in traditional spinning sector have increased to ₹50,000 in 2022 from 13,000 in 2016. The daily wage of ASM workers has increased to about ₹500 per day. It is estimated that the current resources have a potential capacity to produce 1,26,000 tons yarn from 28,000 ratts and 3,000 tons yarn from 1500 ASMs. Efforts are under way to introduce ASMs fitted with auto synchronous feed. Government has decided to focus on the weaving sector as the next stage in order to utilise fibre and yarn produced. It is proposed to introduce power looms and automatic power looms. In 2021-22, order for coir geotextiles worth ₹121 crore was received, out of which geotextiles worth

₹50 crore have been supplied to various Grama Panchayats of the State.

As part of on-going schemes, an amount of ₹117.43 lakh was given to 506 societies as 'Production and Marketing Incentives'. 'Market Development Assistance' was given to 25 coir mat societies, Coirfed, Fomil and KSCCA. Under the Coir Geo Textile Development Programme order worth ₹103 crore was obtained. Large capacity heavy duty DF mills with rotary crushers were installed at unit in Anjarakkandy Farmer's Service Bank. Investment subsidy was given to four private DF units. A total of 1200 coir workers in 92 batches were provided training on spinning of coir yarn. Assistance of ₹38 crore was provided to Coirfed and Coir Corporation for the implementation of Purchase Price Stabilisation Scheme. An amount of ₹15.5 crore was provided as assistance to coir workers under Income Support Scheme. Mechanisation assistance was given to 46 institutions mainly Co-operative Societies, PSUs, Apex Society and R&D institutes under the scheme 'Regulated Mechanisation of coir industry'. Pension was given to 75,667 members and COVID benefit assistance was given to 1,01,269 members of the Kerala Coir Workers welfare fund board.

The ninth edition of the international event on coir and natural fibre products, Coir Kerala 2021 was held from 16 to 21 February, 2021. With Alappuzha as the nerve centre, the event was held virtually in an online platform. An International Expo with about two-hundred virtual stalls from across the country was arranged. Buyers and sellers meet, seminars, discussions and cultural programmes were also held as part of the event. About five lakh viewers and 527 buyers visited the event online. The event garnered orders worth ₹616.73 crore for exhibitors, of which orders for about ₹448.73 crore was for exhibitors from the State and orders for ₹121.00 crore was for exhibitors from outside the State. One of the key factors for increase in production in coir sector has been the popularisation of Coir Geo-textiles. This eco-friendly product has a host of applications in construction including roads and activities related to soil and water conservation. Coir Geo-textiles worth about ₹100 crore are already distributed to LSGIs in the State. Agreement to supply Coir Geo-textiles worth ₹121 crore has also been made during Coir Kerala 2021.

Directorate of Coir Development and Agencies in Kerala Coir Sector

The Directorate of Coir Development acts as a

facilitator for the promotion of coir industry in the State. 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, defibering, 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 slightly declined from 1,122 in 2020-21 to 1,096 in 2021-22. During this period, the number of working societies (568 nos.) has remained more or less same. Among the working societies, the number of profitable societies has reduced from 437 in 2020-21 to 290 in 2021-22. The number of societies under liquidation has reduced from 272 to 257.

Almost half of the total number of working societies are primary co-operative societies engaged in the yarn sector. The total number of primary co-operative societies in yarn sector has increased marginally to 519 in 2021-22 from 514 in 2020-21. Among these societies, the number of loss making societies has increased from 71 in 2020-21 to 190 in 2021-22.

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 increased from 38,500 in 2020-21 to 39,256 in 2021-22 (1.9 per cent). As a result, the amount of wages paid in the sector increased from ₹46.56 crore in 2020-21 to ₹48.54 crore in 2021-22. Compared to 2020-21, the value of husk procured has slightly increased in 2021-22. Similarly, the value of fibre purchased and the value of yarn produced have increased. The number of workers in the co-operative societies in the product sector

has increased in 2021-22 compared to the previous year. However, the value of production and wages paid has decreased in 2021-22 as the number of days of work was less due to the continuing impact of COVID-19. 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. 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 four defibring units. Coirfed has witnessed increase in income from sales since 2017. Income from sales has increased from ₹109.22 crore in 2017-18 to 125.35 crore in 2021-22. As a whole, the annual net loss of the agency has decreased from 2017-18 to 2021-22. 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. During the COVID-19 pandemic, the corporation was able to sell its unique product 'Sani mat' (sanitising coir mats) worth around ₹2 crore. The agency has recently entered the coir mattress business and proposes to open a new manufacturing unit for the same. 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 ₹99.83 crore in 2017-18 to ₹213.85 crore in

2020-21. However, it has decreased marginally to ₹202.98 crore in 2021-22. Total procurement value under PPSS from 2017-18 to 2021-22 is ₹839.93 crore. The income from sales of the corporation has increased from ₹112.44 crore in 2017-18 to ₹231.65 crore in 2020-21 and ₹226.38 crore in 2021-22. Total income from sales from 2017-18 to 2021-22 is ₹932.84 crore. Total income and total expenditure of the State PSU has been increasing in 2017-18, 2018-19, 2019-20 and 2020-21. The PSU has also continuously reported net profit. Its net profit has increased from ₹14.77 lakh in 2017-18 to ₹1.42 crore (Provisional) in 2021-22. 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 2021-22 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 mulch, 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 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)

FOMIL was established in 1979 with an authorised capital of ₹800 lakh and paid up capital of ₹666.73 lakh. It is an entity functioning for the promotion, manufacture and marketing of a wide range of environment friendly products made from coir, jute and sisal. The products include door mats, mattings, carpets, rugs, coir geo-textiles and car mats which are sold in domestic and overseas markets. It is also engaged in trading of coir mattress all over the State. The company has state-of-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 sales worth ₹19.37 lakh has been achieved.

The State PSU has reported losses during the last 5 years and the accumulated loss of the PSU was about ₹15.46 crore at the end of 2021-22. Income from the sale of products had been indicating an increasing trend till 2018-19 (₹12.05 crore), thereafter shown declining trend. Details are provided in **Appendix 4.6.23**.

Kerala State Coir Machinery Manufacturing Company Ltd (KSCMMC)

KSCMMC was started in February 2014, in Alappuzha, to provide the machinery needed for the coir sector in Kerala. The company provides coir machinery such as electronic ratts, automated spinning machines, defibering machines, integrated coir processing units, willowing machines and allied machines required for the coir industry. Apart from producing machines, the company is also involved in the development of basic infrastructure in the coir societies involving activities like civil works and electrification works associated with mechanisation. The company installs machines and also provides after sales service. The company is playing a crucial role in the on-going mechanisation drive in coir

sector. During the past five years the company has produced and distributed machines worth ₹86 crore. In the last four years the company has distributed about 24,000 electronic ratts. About 155 defibering machines have been installed by KSCMMC. The company has been instrumental in starting 150 factories with about 1,400 automatic spinning mills. Around 500 machines have been provided to co-operative societies for cleaning coir fibre.

The sales revenue of KSCMMC has increased from ₹4.71 crore in 2017-18 to 10.02 crore in 2021-22. Sales revenue had peaked to ₹32.87 crore in 2020-21. After two years of net loss, the company reported a net profit of ₹1.11 crore in 2019-20 and ₹3.11 crore in 2020-21. However, the unaudited figures of the company show a loss of ₹1.94 crore in 2021-22. 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 is the nodal agency to implement these schemes in the sector. Coir Board at Cochin is an autonomous body established by the Government of India under the Coir Industry Act (45), in 1953 for the development of coir industry. The umbrella scheme Coir Vikas Yojana comprises components like Coir Industry Technology Upgradation Scheme (CITUS), Science and Technology (S&T), Skill Upgradation and Mahila Coir Yojana, Export Market Promotion (EMP), Domestic Market Promotion (DMP), Trade and Industry Related Functional Support Services (TIRFSS) and Welfare Measures. Collaborative projects undertaken in Kerala (2021-22) includes – a) ‘Product Design and Development of value added Bit Coir Fibre Reinforced “Fully Green” Polymer Composites for Automotive and Domestic application’, with Centre for Biopolymer Science and Technology, Ernakulum; and b) ‘Studies on the performance of coir geotextiles reinforced embankments’, with IIT, Palakkad. In the years 2019-20 and 2020-21, a total of 62 beneficiaries from Kerala have received export market development assistance worth ₹126.04 lakh. In 2021-22, a sum of ₹672.00 lakh was provided to Kerala for domestic market development assistance.

The sector also benefits from the schemes implemented by the Ministry of Micro, Small and Medium Enterprises (MSME) like ‘Scheme of Funds for Regeneration of Traditional Industries’ (SFURTI) and ‘A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship’

(ASPIRE). A total of 40 coir clusters have been approved under SFURTI, with outlay of ₹141.15 crore, where Government of India grant is ₹117.05 crore. Out of these, four are in Kerala. The sector has also benefitted from the Prime Ministers Employment Generation Programme (PMEGP), a Central Sector Scheme administered by the Ministry of Micro, Small and Medium Enterprises (MSME). In the three years since 2019-20, a total of 208 units have been established in Kerala under PMEGP and subsidy of ₹296.02 lakh has been released for them.

Challenges and the Way Forward

The relatively low wages in traditional coir sector and the shortage of raw material are challenges facing the industry. The industry requires effective models for procurement of raw material, modernisation of its production and organisation. Mechanisation and modernisation efforts initiated by the State Government have started showing positive results in Kerala. However, the modernisation process has to pick up speed. 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. With emphasis on innovations, competitiveness, diversification of products and tapping of new markets, the sector is expected to do well over the coming years.

CASHEW INDUSTRY

Cashew, considered the wonder nut in the international market, occupies the fourth position after almond, walnut and pistachios in global tree nut production and consumption in 2021-22. India is a major producer (of raw cashew nut and kernels), consumer and exporter (shelled) of cashew nut. As per the Nuts and Dried Fruits Statistical Yearbook 2021-22 published by the INC International Nut and Dried Fruit Council, global production of raw cashew nuts in 2021-22 was around 41.1 lakh tons. Global production of cashew kernels in 2021-22 reached 8.94 lakh metric tons. Cote d'Ivoire (2.00 lakh tons) was the largest producer of cashew kernels followed by India (1.77 lakh tons), Vietnam (0.92 lakh tons), Cambodia (0.69 lakh tons) and Tanzania (0.48 lakh tons). India's share in global cashew kernel production is 20 per cent. Western Africa, with 48 per cent share in world cashew production (kernel basis), was the biggest cashew producing region.

India is a major importer of raw cashew nut for processing. Global imports of raw cashew nut in 2020, was about 21 lakh metric tonnes of which India imported about 8.83 lakh MT and Vietnam, about 12 lakh MT. In 2020, global exports of cashew (shelled) were 6.62 lakh MT. India with an export of 51,600 MT accounted for a share of eight per cent of exports. It was second to Vietnam which had an export of 4.61 lakh MT and share of 70 per cent of exports. Global consumption of cashew nut kernel in 2020 was 8.47 lakh MT. USA with a consumption of 1.67 lakh MT of cashew kernels, was the largest consumer of cashew and had a share of 19.71 per cent in global cashew consumption. India with a consumption of 1.66 lakh MT of cashew kernels was the second largest consumer of cashew and had a share of 19.64 per cent in global cashew consumption. China, Netherlands and Germany are other leading consumers of cashew nut.

Some interesting observations can be noted about the cashew sector at the global level. Some of the major producers of raw cashew (especially those in Africa) consume very less and are mainly engaged in exports. Value addition in such countries is low. Countries like Vietnam, which produce raw cashew nut in significant quantities, specialise in value addition. It imports large volumes of raw cashew nut and exports large volumes of processed cashew nut, while its domestic consumption is low. India is a major player in all stages of the value chain involving production, import, value addition, export and consumption.

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 Odisha 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 2021-22, cashew was grown in an area of 11.84 lakh hectares in India with a total production of 7.52 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

among the producing States. The largest area under cashew nut production in India is in the State of Odisha (2.23 lakh ha) followed by Andhra Pradesh (1.98 lakh ha) and Maharashtra (1.91 lakh ha). Kerala has an area of 1.07 lakh ha 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 graded into white/scorched wholes, pieces, splits, and butts depending on the shape, size and colour of the kernel. The Export (Quality Control and Inspection) Act 1963 of Government of India, prescribes 33 different grades of cashew kernels. Only 26 grades are commercially available and exported. W-180, W-210, W-240, W-320 and W-450 are some of the popular grades of cashew produced in India.

The quantity and value of export of cashew kernels from India was falling since 2017-18. However, it has increased in 2021-22. According to the Cashew Export Promotion Council of India (CEPCI), the export of cashew kernels from India has further increased from 49,993 MT in 2020-21 to 53,769.88 MT in 2021-22. Similarly the export earnings have increased from ₹2,906.99 crore in 2020-21 to ₹3,175.25 crore in 2021-22. India exports cashew kernels to more than 60 countries. Of the total exports, the largest exports were to UAE followed by Japan and Netherlands.

The domestic production of cashew nut in India is not sufficient to cater to the industry's current requirement/installed processing capacity of about 20 lakh MT. Hence India imports raw cashew nut from other producing countries. India imported 9.36 lakh MT of raw cashew nut in 2021-22.

Cashew Sector in Kerala

The cashew industry is a major traditional agro-based industry in Kerala. There are several cashew processing units in Kollam District, which has earned the title 'cashew capital of the world'. It is estimated that 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 are about 100 where approximately 1 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, cashew kernel export from Kerala was 24,929 MT valued at ₹1,461.27 crore. 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. At the same time, India's export of cashew kernel in 2021-22 was 53,769.88 MT valued at ₹3,175.20 crore. According to Cochin Port Trust, the quantity of cashew kernels exported from Cochin Port in 2021-22 was 24,299 MT valued at ₹1,441.03 crore. This is around 45 per cent of total cashew kernel export from India in quantity and around 45.38 per cent in terms of value.

In Kerala the production of raw cashew nut increased marginally from 80,000 MT in 2014-15 to 88,180 MT in 2017-18. However, the production has subsequently fallen to 71,760 MT in 2021-22. However, the area under cultivation has increased from 84,500 hectares in 2014-15 to 1,06,520 hectares in 2021-22, with significant gains since 2015-16. Mismatch between area and production is attributed to replantation and gestation period for production. Details are provided in **Table 4.6.8**.

The challenges to expansion of cashew cultivation in Kerala include the pressure on land in the State, existing land ceiling laws, 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 shift to cashew from other cash crops is not possible. During 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 change effects such as the

Table 4.6.8 Production of raw cashew nut in Kerala – 2014-15 to 2021-22, in ha and MT

Year	Area (in 000 ha)	Annual growth, %	Quantity (in MT)	Annual growth, %
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	-6.1
2019-20	98.82	2.3	69,624	-16.1
2020-21	99.87	1	73,105	5.0
2021-22	106.52	6.7	71,760	-1.8

Source Directorate of Cashew and Cocoa Development (DCCD), Government of India

coincidence of excessive rainfall and high relative humidity have also 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 during 13th Five-Year Plan and 2022-23 are provided in **Table 4.6.9**.

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. Partial mechanisation and the introduction of cutting machines have increased the processing of RCN per day from 100 MT to around 125 MT. The installation of 1250 cutting machines in recent years has resulted in enhanced productivity of about 56 per cent. KSCDC currently operates 30 factories, of which 20 are private factories run by KSCDC based on agreement. The process has enhanced livelihood opportunities to those engaged in the sector. However COVID-19 pandemic has had an impact on the functioning of the Corporation.

Number of working days and turnover has fallen in 2020-21 and 2021-22 when compared to 2019-20. In 2021-22, KSCDC provided employment to 12,518 people. The number of working days in factories was 96 days. KSCDC processed about 6987 MT of raw cashew nuts and produced around 1,701 MT of cashew kernels in 2021-22. Income from sales of KSCDC in 2021-22 was ₹110.58 crore. The agency has been reporting loss during recent years. Details are given in **Table 4.6.10** and **Appendix 4.6.26**.

Table 4.6.9 Plan outlay and expenditure of State Government agencies in cashew sector, 13th Five-Year Plan and 2022-23 (in ₹ crore)

Sl No.	Agency	13th Five-Year Plan			2022-23		
		Outlay	Exp	%	Outlay	Exp	%
1	Kerala Cashew Board Ltd	115.20	115.10	99.91	40.85	40.85	100.00
2	Kerala State Cashew Development Corporation	98.00	173.25	176.79	6.00	0.17	2.83
3	Kerala State Agency for the expansion of Cashew Cultivation	30.80	13.40	43.49	7.15	0.00	0.00
4	CAPEX	25.00	54.05	216.20	4.00	.19	4.75
Total		269.00	355.80	132.27	58.00	41.21	71.05

Source: Plan Space, State Planning Board

Table 4.6.10 Sales turnover of KSCDC, in ₹ crore

Period	Turnover	Profit/Loss
2015-16	38.66	-23.88
2016-17	84.99	-19.44
2017-18	173.09	-92.26
2018-19	132.33	-100.27
2019-20	173.13	-44.56
2020-21*	87.44	-85.15
2021-22*	110.58	-50.76

Source: KSCDC, Kollam

Note: * Subject to audit

KSCDC is marketing its own 'value added products' which has given 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. As a step towards backward linkage, KSCDC has taken steps to propagate cultivation of cashew. It supplies grafts in grow bags, at a discounted price. In 2021-22, KSCDC undertook modernisation and technological upgradation activities. 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. 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 2021-22, CAPEX provided employment to 4,100 workers for 179 working days. Total sales turnover in 2021-22 was ₹63.15 crore. 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 4.6.11**.

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' from 2007-08. In 2021-22, the agency distributed 8,16,000 number of grafts among farmers and institutions. It is estimated to cover a total area of 3,498 ha. It includes an area of 582 ha brought under high density planting and an area of 2,500 ha brought under normal planting. 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**.

Cashew graft production in Government nurseries was adversely affected due to incessant and irregular rain, and unfavourable climate. Shortage of labour in planting and harvesting sector and marketing of the produce are other issues faced by the agency.

Table 4.6.11 Sales turnover of CAPEX, in ₹ crore

Year	Domestic Sales	Export	Total Sales Turnover	Profit/Loss
2014-15	59.46	14.4	73.86	-14.46
2015-16	59.07	14.65	73.72	-16.41
2016-17	26.27	19.58	45.85	-9.82
2017-18	81.55	5.32	86.87	-12.59
2018-19	76.51	0	76.51	-19.81
2019-20	85.19	0	85.19	-16.95
2020-21	46.89	0	46.89	-17.56
2021-22*	63.15	0	63.15	-

*Subject to audit

Source: CAPEX

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. In 2021-22, Kerala Cashew Board procured 10,694.118 MT of RCN for a value of ₹115 crore, which was utilised by 40 processing units under Kerala State Cashew Development Corporation (KSCDC) and Kerala State Cashew Workers Apex Co-operative Society (CAPEX). KCB ensured both KSCDC and CAPEX had sufficient stock in their factories and also benefitted from most competitive purchase prices of RCN.

KSCDC and CAPEX, the agencies which use cashew imported by KCB, have not been able to give KCB the value of cashew imports. It has led to accumulation of receivables for KCB. It is reported that the agency has to receive about ₹156.17 crore of which ₹108.20 crore is from KSCDC, and ₹47.97 crore is from CAPEX. Consequently, KCB encounters difficulty in repayment of loans availed towards its working capital requirement and in repayment of its debts.

Cashew Export Promotion Council of India (CEPCI)

CEPCI established by Government of India in 1955, aims to promote the export of cashew kernels and cashew nut shell liquid. The Council serves as an intermediary between importers of cashew kernels and domestic exporters who are members of the council.

Export of cashew nut shell liquid from the country in 2021-22 was 4,944 MT (valued at ₹32.50 crore). The export of raw cashew nut from India in 2020-21 was 19,832 MT, which was valued at ₹199.75 crore. Kerala has not exported raw cashew nut since 2012-13. The exception was 2017-18 when 92 MT of raw cashew nut valued at ₹1.12 crore was exported. It was exported for processing in other countries. In 2021-22, import of raw cashew nut (RCN) in India was 9.36 lakh MT valued at ₹9,145.16 crore. Import of RCN to Kerala in 2020-21 was 18,424 MT, valued at ₹166.28 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. Therefore, market conditions in other processing countries also affect international trade.

Directorate of Cashew Nut and Cocoa Development (DCCD)

DCCD 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 2021-22, as a result of the combined efforts of Central and State Governments, an additional area of 22,744 Ha has been brought under cashew cultivation with high yielding varieties. Replantation and rejuvenation was undertaken in an area of 2,404 hectares with senile and unproductive plantations. For ensuring the production of quality planting materials 48 cashew nurseries having production capacity of 86.00 lakh grafts were accredited. A total of 3,56,000 cashew grafts were distributed for developmental programmes. In association with SAU and ICAR institutes, 23 farmer level training programmes were conducted which benefitted about 800 people. Under skill development programme, training was provided to 17 batches and 425 unemployed women on preparation of value added products.

Challenges and the Way Forward

The challenges to cashew cultivation in Kerala include the pressure on land, restrictions because of land ceiling laws, incidence of fungal 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/regions. Given such challenges, the focus of the State Government has been to restart the operations of private sector factories that had been closed and thereby ensure greater number of working days for workers who depend on this industry for their livelihoods. Accordingly, units in cashew sector are included in schemes for 'Revival and rehabilitation of MSME units' and interest subvention to enable MSMEs to avail loans at low interest rate.

Given the changes agriculture in Kerala is witnessing, cashew cultivation is turning out to be a profitable venture. 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. 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 are focus areas for the development of the cashew sector in Kerala. Greater efforts to develop new markets and marketing strategies which can retain the identity of 'Kerala Cashew' can help the industry prosper in future.

CHAPTER

05

SERVICE SECTOR

SERVICE SECTOR

5.1 INFORMATION TECHNOLOGY

The Information Technology (IT) sector in Kerala has been playing an important role in the development of the State. In recognition of the sector's potential and critical importance, the State Government has made earnest efforts to create a sound and world class infrastructure for the sector and to develop the State's digital technology capacities and resources. This has enabled the State to be at the forefront in implementing information and communication technology projects, e-Governance initiatives, e-literacy programmes, and in the creation of basic IT infrastructure facilities.

Kerala possesses some very significant advantages. The State has a remarkable level of mobile/telephone penetration. Internet penetration through broadband and mobile is also very high. Kerala's achievements in literacy and school education have clearly stood the State in good stead in achieving computer literacy. Currently, Kerala's IT footprint in the national IT sector is reasonably significant given the relative size of the State's economy.

One very positive sign for the future is the active start-up ecosystem in the State that has been recognised internationally for its efforts. The extent to which such investment in the IT industrial sector can be regionally or spatially decentralised remains open, despite the State's commitment in recent years to a hub and spoke model that sought to facilitate

more decentralised investment. As start-ups play a key role in the development of the Electronics and IT sectors of the country, the State's focus on supporting fast growing start-ups through multiple policy interventions will be significant in creating a vibrant and inclusive start-up ecosystem.

Among the States of India, Kerala stands out as among the highest with respect to mobile penetration. Through the ambitious KFON project Kerala is becoming the State with highest coverage of high speed fiber connectivity. The early implementation of the KFON project has the potential to raise the level of economic development of the State to a higher level. The project itself is an innovative collaboration through the pooling of the resources of the Kerala State Electricity Board (KSEB) and Kerala State Information Technology Infrastructure Ltd (KSITIL).

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, 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

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 have 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 ₹525.25 crore in the Budget (2021-22), for the development of core IT infrastructure, ITeS, e-governance activities and incentivising investment in the sector and the expenditure incurred was ₹334.59 crore (63.70 per cent). In 2022-23, the outlay earmarked for the sector was ₹559 crore. The details of Plan outlay and expenditure for the last three years (2020-2023) are given in **Table 5.1.1**.

Kerala State Information Technology Mission (KSITM)

Kerala State IT Mission is an autonomous nodal IT implementation agency of the Department of Information Technology, Government of Kerala, which provides managerial and technical support to various initiatives of the Department. KSITM performs diverse roles including, enactment of ICT related policies, development of guidelines and standards for e-governance, ICT facilitation for the Government entities, provides end to end support

and guidance to State Departments in digitisation efforts, act as a bridge between Government and industry, undertakes capacity building initiatives and bridges the digital divide, establishes and sustains common IT Infrastructure and takes up various e-Governance initiatives. The main activity is delivering the best of the digital services to the citizens keeping in mind “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 established 2023 Wi-Fi hotspots across the State to provide free internet to the citizens of the State. The hotspots locations have been identified by the District administration which includes bus stands, tourist places, parks, public places, janasevanakendras and Government offices.

e-Office aims to conduct office procedures electronically thereby transforming Government offices to paperless offices and bringing out the benefits of digital communication that ultimately leads to faster decision making. e-office has been implemented in all departments in Secretariat, 119 Directorates/Commissionerate/other Government

Box 5.1.1 Major highlights of IT sector

- KFON a Statewide optical fibre network capable of providing highspeed internet connectivity to about 30,000 Government and educational institutions offer free internet to 20 lakh economically backward families and internet services at a lower rate for others
- 2,734 Akshaya Centres are functioning across the State giving employment to 9017 persons.
- Completed installation of second phase of 1,000 Wi-Fi hotspots and nearly 15 lakh unique mobile users are availing the facility. Per day data consumption is up to eight TB.
- Cyberpark in association with Internet and Mobile Association of India (IAMA) has developed app incubation hub, first of its kind in Kerala.
- Presently there are about 900 permanent Enrolment Centres and 1,500 Child Enrolment Centres by Akshaya CSCs to facilitate Aadhar enrolment and modification in Aadhar details.
- Technopark 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, 9.7 million square feet built-up area.
- The number of tech start-ups eco system in 2021-22 is 3,650 as compared to 3,143 in 2020-21.

Table 5.1.1 Plan outlay and expenditure, in ₹ crore

Sl No	Name of Department/Scheme	Annual Plan 2020-21		Annual Plan 2021-22		Annual Plan 2022-23	
		Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure (upto November 2022)
1	Kerala State IT Mission, Akshaya, IT Cell	124.14	87.43	125.13	91.17	131.62	31.92
2	Technopark	2	1.75	24.05	21	26.6	12.00
3	Infopark	10	6	35.55	34.55	35.75	0
4	Cyber Park	0.01	0	12.37	0	12.83	0
5	Indian Institute of Information Technology and Management- Kerala (IIITM-K)	64.2	64.19	20	20	20.6	10.92
6	Kerala Startup Mission	73.5	52.19	68.75	55.77	90.52	31.75
7	Kerala State IT Infrastructure Ltd	212.75	102.29	201.9	87.5	201.09	96.59
8	C-DIT	6	6.43	6	4.6	6	2.69
9	International Centre for Free and Open Source Software	7.5	4.75	7.5	6	7.99	3
10	Kerala University of Digital Sciences Innovation and Technology	0	0	24	14	26	12.68
Total		500.1	325.03	525.25	334.59	559	201.55

Source: Annual Plan of corresponding years; Planspace

offices, all Collectorates, 22 Sub-Collectorates/RDOs. The Government has decided to roll out e-office up to grass root level in Taluks and Village Offices in the coming years.

Core Infrastructure for e-Governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network (SECWAN), State Data Centre, and State Service Delivery Gate way (SSDG).

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 OFC 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.

•

e-District is a State Mission Mode project under National e-Governance Plan. It targets delivery of high volume services at the District-level and back-end computerisation to enable the delivery of online availability of these services through Akshaya. In 2021, 1,06,22,604 applications were received. Of this, 95,48,327 applications were approved.

At present e-District has made 23 revenue certificate services online across the State. The facility enables citizens to apply for certificates with the help of Akshaya Centres or through public portal and obtain digitally signed certificates. More than six crore digital certificates were issued through the e-District portal.

e-Government Procurement (e-GP) has been rolled out in the State. All Government department/boards/universities/organisations were directed to adopt e-tendering for all tenders with the value above ₹5 lakh.

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. A 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 enrolment agency. Aadhaar enrolment is conducted through the Akshaya centres. In 2021-22, a total of 2,734 Akshaya centres are functioning across the State giving employment to 9,017 persons. The details of Akshaya centres in Kerala are furnished in **Appendix 5.1.1**.

Aadhaar: Kerala has 100 per cent of Aadhar generation. 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 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 7,500 VCs every year.

Digi Locker service is currently integrated for the following services.

- e-District project – Revenue Certificates.
- Food and Civil Supplies Department – Ration Card.
- Pareeksha Bhavan – SSLC.
- Motor Vehicle Department – Driving Licence and Vehicle Registration.
- PSC – One Time Verification (OTV).
- Certificate of Kerala University.

e-SEVANAM and 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 addition to the consolidation of 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.

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 organisations 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 University of Digital Sciences, Innovation and Technology

In 2020, 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. The University inaugurated on February 20, 2021 and started functioning from Technocity 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.

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 metre. Construction of academic block, students hostel block, allied infrastructure like substation, sump and pump house are completed. KSEB power supply to the campus is ready to use with tested transformer and Time of the Day (TOD) metre. Final approval from Kerala Pollution Control Board for operating STP plants have been received.

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 in India with 375 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, the Kazhakuttam-Kovalam (NH 66) has become the first IT Corridor in Kerala. The Park is now home to nearly 465 companies, employing more than 64,000 IT/ITeS professionals. 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.

Table 5.1.2 Technopark's contribution to the State Economy

Particulars	Achievements 2019-20	Achievements 2020-21	Achievements 2021-22
Total turnover (in ₹ crore)	15000	15000	18000
Total export (in ₹ crore)	7890	8501	9300
Total investment (in ₹ crore)	4979	5309	5600
Total Employment (Nos)	62000	63000	64000
No of Companies (Nos)	450	460	465
Total land (acres)	659.87	659.87	766.86
Total built up space (lakh square feet)	101	106	106

Source: Technopark

Table 5.1.3 Land available with Technopark

Phases	Phase I	Phase II	Phase III	Technocity	Technopark, Kollam
Area, in acres	198.43	86	90.02	389.74	2.67

Source: Technopark

Land Available with Technopark

Technopark has five campuses which is spread over 766.86 acres under various phases of development. The details of extent of land in its five campuses are shown in **Table 5.1.3**.

Growth of Built up Space in Technopark

The built-up space in Technopark has increased from 85 lakh square feet in 2016-17 to 106 lakh square feet in 2021-22. The growth of built up space in the Technopark is shown in **Figure 5.1.1**.

Companies in Technopark

There has been an increase in the number of the companies working in Technopark during the last five years. In 2015-16, there were 358 companies in Technopark. It increased to 465 in 2021-22. The number of companies in Technopark from 2015-16 to 2021-22 is shown in **Figure 5.1.2**.

Growth in Export from Technopark

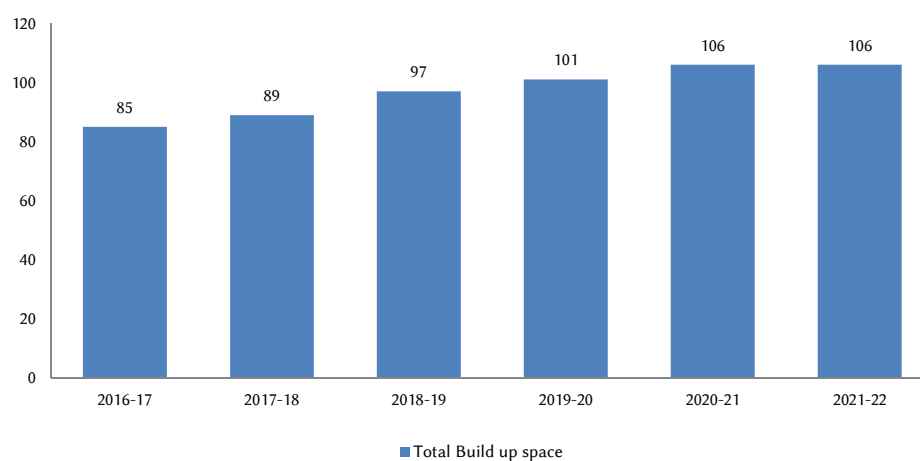
Export from Technopark increased from ₹5,000 crore in 2016-17 to ₹8501 crore in 2020-21. In 2021-22, it increased to ₹9300 crore which is 9.4 per cent increase over the previous year. The trend in export from Technopark during the last six years is depicted in **Figure 5.1.3**.

Growth of Employment in Technopark

The growth of Technopark can also be analysed in terms of employment generated during the last six years. The employment generated increased from 51860 in 2016-17 to 64,000 in 2021-22. The growth of employment generation for the last five years is shown in **Figure 5.1.4**.

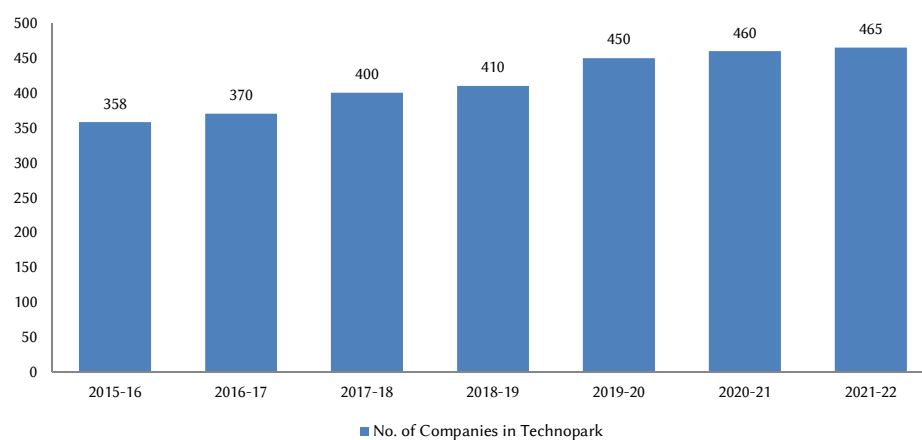
In Technopark Phase-III, Embassy Taurus project construction has started and is in full swing. It envisages to create a world-class business infrastructure in Technopark with a total investment of ₹1,500 crore in two phases. On completion, Taurus downtown is expected to generate 30,000 direct employment and about 70,000 indirect employment.

Figure 5.1.1 Growth of built-up space in Technopark, (in lakh square feet.)



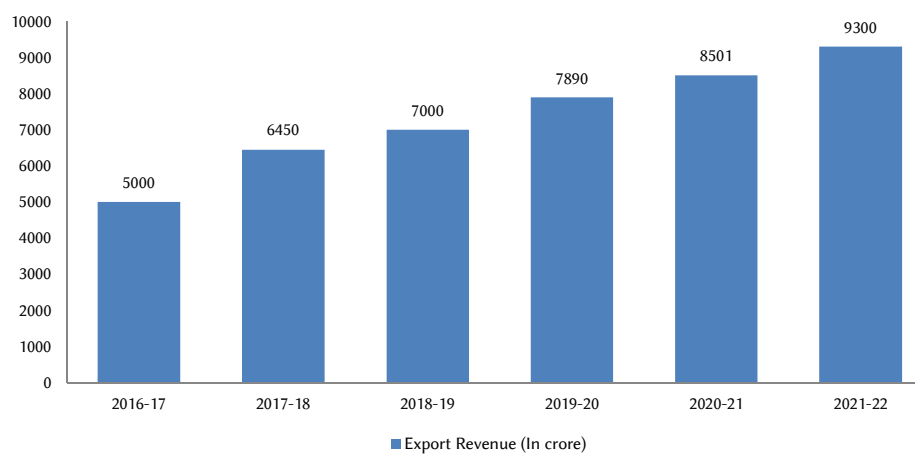
Source: Technopark

Figure 5.1.2 Number of companies in Technopark



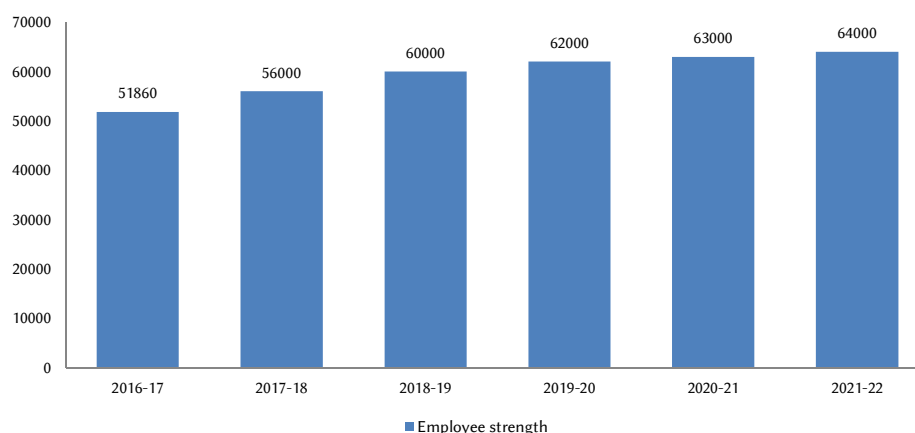
Source: Technopark

Figure 5.1.3 Export from Technopark



Source: Technopark

Figure 5.1.4 Number of people employed at Technopark



Source: Technopark

Technocity

Technocity project is a flagship project by Technopark launched in the year 2009. Technocity project is broadly divided into two, namely, IT Integrated Township and Knowledge City, which is designed to have six Centres of Excellence (CoEs) in emerging technologies. The CoEs were help to create a sustainable and healthy IT ecosystem in the State. CoEs will be based on emerging technologies in IT like 1) Cyber Security, Blockchain, 2) Fintech and blockchain, 3) Artificial Intelligence and Machine Learning, 4) Virtual/Augmented Reality, 5) e-Mobility, and 6) Space Science.

Nissan Digital India LLP at Knowledge City will be the CoE for Artificial Intelligence, Deep Machine Learning, Robotics and Electric/automated vehicles. Technopark has collaborated with VSSC for space mission programmes thus setting up Space Systems Complex with Nano Space Park Project.

Technopark has acquired 389.74 acres of land at Pallipuram for its Technocity project with 287.7 acres for IT Integrated Township and 102.04 acres for Knowledge City. Work on basic infrastructure has commenced and land allotted to TCS, Nissan, Suntech, KASE, and Digital University. Technocity project is envisaged as a ten-year project. The project will cater to one lakh direct employment in IT and about four lakh indirect employment. The total built office space will be about 10 million square feet with an estimated investment of ₹5,000 crore.

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 square feet IT building at Ashtamudi is completed. Water distribution system inside the campus including a pump house, overhead water tank and arterial road works are completed. The streetlights in the campus are fully solar based. The total leasable area is 58300 square feet and the leased area is 24180 square feet. It is expected to provide 800 employment opportunities by the next two years. Smart Business Centre is operational and 20 companies are working in the centre.

Infopark

Infopark, Kochi is the second largest IT hub in Kerala with spokes at Cherthala and Thrissur. The objective of Infopark is creation of state-of-the-art infrastructure facilities such as space for IT/ITeS companies, supply of power, water and connectivity. Since its inception in 2004, Infopark and its co-developers created 10 million square feet built up space and have provided employment to over 63,000 IT professionals through 546 IT companies who have taken space in its Parks. The export, in 2019-20 was ₹5200 crore, in 2020-21 it is ₹5,700 crore and in 2021-22 it is ₹8,500 crore.

Land Available with Infopark

Infopark has five campuses which is spread over 322.98 acres under various phases of development. The details of extent of land in its five 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 is given in **Table 5.1.5**.

Table 5.1.4 Land available with Infopark, in acre

Phases	Kochi Phase I	Kochi Phase II	Thrissur	Cherthala	TBC, Kaloor
Area	100.86	125.92	30	66.2	30000 square feet of built-up space under the lease of KSITM owned by GCDA.

Source: Infopark

Table 5.1.5 Major indicators of physical performance of Infopark

Particulars	Achievements 2019-20	Achievements 2020-21	Achievements 2021-22
Total Export (in ₹ crore.)	5,200	5700	8500
Total Employment (Nos)	47,000	51,000	63600
No of Companies (Nos)	427	420	546
Total land (Acres)	323	323	323
Total built up space (million square feet).	10	10	10

Source: Infopark

Major Achievements of Infopark in 2021-22

- The total employee strength increased to 63600 (from 51000 in 2020-21)
- Number of IT companies increased to 546 (from 420 in 2020-2021)
- Total export revenue increased to ₹8500 crore (from ₹5700 in 2020-21)
- Construction of 50000 square feet space by Sunya Ek (Media Systems completed)
- Cognizant Technology Solutions completed fit out of another three floors and 1000 new seats ready
- LAR liability settled fully as per court order thereby saving interest cost

Cyberpark

Cyberpark Kozhikode was established on the lines of Technopark in Trivandrum and Infopark in Kochi based on a hub and spoke model. 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 lakh square feet built up space with 62 percentage occupancy. Currently 52 companies are operational in SEZ.
- Earmarked a built up space of 12391 square feet for non-SEZ IT operations. Half of the space is currently allocated to start-up companies working under KSUM.
- Created around 1688 direct employments, in the Cyberpark campus.
- Export revenues have been reported to the tune of ₹55.70 crore in 2021-22 and approximately ₹19 crore till 30 the June2022.

The physical achievements of Cyberpark are given in **Appendix 5.1.5**. The major physical performance of cyberpark for the last three years are given **Table 5.1.6**.

Table 5.1.6 Physical performance of Cyberpark

Particulars	Achievements 2019-20	Achievements 2020-21	Achievements 2021-22
Total turnover (₹ crore)	14.75	26.16	55.70
Total export (₹ crore)	14.75	26.16	55.70
Total investment (₹ crore)	1.35	2.47	4.35
Total Employment (Nos)	607	764	1237
No of Companies (Operational)	27	58	67
Total land (acres)	42.5	42.5	42.5
Total built up space (lakh square feet)	3 lakh	3 lakh	3 lakh

Source: Cyberpark

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 company leverages the valuable land assets owned by the Government and through viable

financial models, generates funds for building the IT Infrastructure in the State in a Public Private Participation model.

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 of the highlighted projects of KSITIL are as follows:

Skill Delivery Project, Kerala: SDPK is a prestigious project assigned to KSITIL by Government of Kerala. The objective of the project is to bridge the gap between students and industry. SDPK consists of a virtual platform with teleconferencing system being installed in all the 150 engineering colleges and three studios, which are being setup as part of the project. The work completion status of SDPK project is as follows.

Table 5.1.7 SDPK work completion Status

Sl. No	Classroom/Studio	Number of colleges/ Institutions	Number of colleges/ Institutions Completed
1	First Phase Completed (Pvt)	23	23
2	Govt. Govt controlled engineering Colleges	39	39
3	Polytechnic Colleges	25	0
4	Private colleges in second phase	12	12
5	Others Completed (ICFOSS, KSITIL and Secretariat)	3	3
6	Studio	4	3

Source: KSITIL

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). Government has accorded Administrative Sanction for the implementation of K-FON project for an estimated cost of ₹1,028.20 crore. Later, revised Administrative Sanction was issued for an estimated cost of ₹1,548.08 crore.

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. The status of KFON project is given in **Table 5.1.8**.

Table 5.1.8 Status of KFON project

Work	Scope	Completed
OPGW (optical Ground Wire) cable laying	2624 km	2470 km
ADSS (all-dielectric self-supporting) Cable laying	27650 km	21221 km
Point of Presence (prefab shelter in KSEBL substation across (Kerala)	375 Nos	171 Nos
End office installation work	28616 Nos (current scope)	25729 Nos

Source: KSITIL

FOSTeRA

The term FOSTeRA means Fostering Technologies in Rural Areas. The scheme will provide financial support in the form of incentives to eligible selected companies. KSITIL intends to encourage IT, ITES and BPO companies to operate from low cost rural centres and there by create employment opportunities in rural areas. KSITIL decided to implement the scheme to incentivise establishment across rural Panchayats of Kerala

International Centre for Free and Open Source Software (ICFOSS)

Government of Kerala established ICFOSS as an international centre in collaboration with Free Software Organisations in India and abroad to promote development and application of free software and free knowledge. It is a nodal agency in all matters relating to free and open source software including consultancy, research and development, academics, studies and service, training, publishing, certification, international co-operation and collaboration. ICFOSS has carried out many FOSS-based training programmes, workshops, seminars, research programmes, projects, Malayalam computing activities, student internships and projects, summer camps, faculty development programmes, and fellowship programmes.

The Major Achievements of ICFOSS in 2021-22 are listed below.

- Braille Crossword Puzzle Device – official launch of the release grade version of AKSHI

Crossword Puzzle device Level was made by the Hon'ble Chief Minister of Kerala on November 1, 2021.

- Word Talkback Device – Assistive Technology Division of ICFOSS is working towards developing a first level proto type of the device
- Tactile map – completed the design of the device in June 2021.
- Braille Learning Device – completed first level prototype of the device in march 2022.
- Alpha Numeric Builder – A device which assists to build the letters and numbers by joining reusable geometric shapes. Completed a first level prototype of the device in march 2022.
- Writing Assist – Assistive Technology division is working on the development of a first level prototype.
- Language Computing – released Malayalam Portal.
- Hardware – Medium drone assembled and tested in lab.
- GIS/Mapping – Web scraping of GIS co-ordination of all the Govt schools in Kerala have been completed by ICFOSS team.

Kerala Start-up Mission (KSUM)

Kerala Start-up Mission (KSUM) is the nodal agency of Government of Kerala for implementing the entrepreneurship development and incubation activities in the State. Kerala Start-up Mission, formerly known as 'Technopark Technology Business Incubator' is India's first successful non-academic business incubator. It started operations in 2007.

The objective of the Mission is to identify and develop entrepreneurial talents among youth and students in Kerala, address the technology-based entrepreneurship development and to create the infrastructure and ecosystem required to support high-end technology-based start-up businesses. The mission inter alia focuses on building appropriate training programmes suitable for Kerala's socio-economic culture, identifying market niche for technology products and services, interfacing and networking among academic, R&D institutions, industries and financial institutions and establishing a platform for speedy commercialisation of the technologies developed in the institutes to reach the end-users.

The number of start-ups in Kerala has increased even during the COVID-19 period. This is because of the increase in the number of expatriates returning

to Kerala, the interest of youth in ventures and the quality of Government facilities offered for start-ups.

In January 2019, KSUM launched the Integrated Start up Complex in Kochi, a sprawling complex, spread over 1.80 lakh square feet with dedicated facilities for various tech sectors. It also hosts

1. Maker Village – India's largest electronic hardware incubator and Electronics system Design and Manufacturing (ESDM) facility.
2. Bionest – State of the art biotechnology instrumentation platform to promote and develop new entrepreneurs.
3. BRINC – India's first international accelerator for hardware start-ups.
4. Biomedical Research Innovation and Commercialisation in Cancer care (BRIC) – an incubator dedicated to developing solutions for cancer diagnosis and care.
5. Centre of Excellence established by UNITY and CERA.

The start-up companies at Maker Village, which is the largest exclusive hardware incubator in the country, are developing state-of-the-art hardware electronic products in divergent areas namely, automation, robotics, drones, Internet of Things, autonomous vehicles, biomedical instrumentation and energy management. Most of the start-ups are leveraging cutting edge technologies-machine learning, Artificial Intelligence, Augmented Reality/Virtual Reality to make their products innovative and globally competitive.

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 five lakh square feet facilities. The infrastructure for TIZ will be built in different phases. Currently Phase I is operational.

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 three years are given in **Table 5.1.9**.

Achievements of KSUM in 2021-22

- Organised the sixth edition of the Innovation and Entrepreneurship Development Centre (IEDC) Summit 2022.
- IGNITE 2022-Angel Investment – Workshop IGNITE is organised and a total of 151 attenders including HNIs Angel Investors and startup Founders.
- Investor Café – A special edition of Investor Café was organised as part of seeding Kerala. The Investor Café Programme had the participation of 20 investors from Angel Networks.
- Seeding Kerala 2022 – seeding Kerala 2022 was conducted on 2nd and 3rd February 2022. More Than 40 investors, 25 startup Foundation and around 10 professional partners who joined and contributed to the summit.
- Digital Hub was inaugurated by Honorable Chief Minister of Kerala on 18th September 2021.
- The Kerala Startup mission Rajiv Gandhi Centre for Biotechnology Innovation Bio Incubation Society is operating and managing the Biotechnology Incubation Centre, BioNest having a total of 42,000 square feet area.
- The construction of integrated Startup complex completed and the building has an area of 1.8 lakh square feet for startups.
- Furnishing Work at Electronic Accelerator for startups at C-DAC Technopark is finished and ready for startups.

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:

- C-DIT received the National Award 2021 – Digital Transformation in Cyber Security Initiative to C-DIT, instituted by Governance Now for the project Hologram embedded Security Registration Board to Augment Coastal Security.
- Revamping of the official portal of Government (www.kerala.gov.in) which was later selected as number one State Portal in India for the year 2022-23.
- Developed a Single Window Portal (*e-sevanam*) for aggregating all e-services application of various Government Departments. The portal was ranked on 6th in India in 2021.
- C-DIT has been manufacturing the Hologram embedded security tax labels for Kerala State Beverages Corporation successfully for the last 20 years preventing counterfeiting and forgery in sales and distribution. Supplied more than 90 crore of security tax labels.
- Prepared 50 numbers of videos for pre-primary students to telecast in VICTERS channel and produced 811 videos for various Government Department and institution.
- Technical solution for providing live video feeds TV of Niyama Sabha proceedings to Malayalam TV channels.
- Developed State level dashboard for all e-services in Kerala, which is available in www.dashboard.kerala.gov.in

Table 5.1.9 Major physical achievements of KSUM

Sl No	Particulars	Achievements 2019-20	Achievements 2020-21	Achievements 2021-22
1	Number of tech start-ups in Ecosystem	2500	3143	3650
2	Incubators/Accelerators (nos.)	13	19	67
3	Value creation (₹ crore)	100000	120000	200000
4	Employment creation (no)	25000	30,000	40000
5	External investment (₹ crore)	1500	1638	4252
6	Ranking of Ecosystem	Top performer	Top performer	Top performer
7	Start-ups from other parts of India (nos)	30	33	43
8	Incubation Space (lakh square feet)	3.29	3.78	5.77

Source: KSUM

- Digitalised 482 lakh pages of documents of various Government departments and institution. Achieved a scanning capacity of three lakh pages per year including two mobile scanning units.
- The State level agency, supported entire Election Department and printing of electoral rolls.
- Supplied RC/DL for the Motor Vehicle Department and entering into PVC Card Segment.
- Delivered IT&ITes courses through 350 plus education partners and conducted UNDP aided courses for tribal youth, Provided IT and Soft skill programmes for SC/ST Youth through the Cybersri Project.

Way Forward

To stay competitive as an IT destination, the IT sector in Kerala must attract investment in emerging areas in the IT sector and not rely solely on established IT/ITES activities. As the Indian IT sector as a whole grapples with issues of the changing focus and emerging issues within the global IT sector, Kerala must also keep pace with these changes. The advances that have been made in the digital empowerment of the population and the spread of IT awareness and use must be recognised as the State's real asset. These assets will be built upon with further investment in appropriate infrastructure.

5.2 SCIENTIFIC SERVICES AND RESEARCH

The use of Science and technology has become one of the most powerful instruments of growth and development, especially in the emerging competitive economy. Science, Technology, and Innovation (STI) are key drivers of economic growth and human development. Innovations based on S&T help in achieving resource efficiency. India was ranked 46th in Global Innovation Index 2021, an annual ranking of countries by their capacity for, and success in, innovation, published by the World Intellectual Property Organisation. India's innovation performance has improved as it bagged 40th rank in Global Innovation Index 2022.

The Department of Science and Technology (DST), GOI was established with the objective of promoting new areas of Science and Technology, and to play the role of a nodal department for organising, coordinating and promoting S&T activities in the country. The department has wide-ranging activities, from promoting high-end basic research, and the development of cutting edge technology, to servicing technological requirements of the common man through development of appropriate skills and technologies.

Science and Technology Sector in the State

Department of Science and Technology, Government of Kerala helps to identify and implement programmes to achieve excellence in Science and Technology, and to provide service to the society at large. 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 2018-19 to 2022-23 are 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 development centres. 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. The Council promotes and activates programmes for increasing the stock of knowledge in science, and fine-tunes policies which are significant for the sustained development of humanity.

Table 5.2.1 Outlay and Expenditure of agencies under Science and Technology Sector from 2018-19 to 2022-23 (₹ lakh)

Year	KSCSTE			RCC			IAV		
	Outlay	Expenditure	%	Outlay	Expenditure	%	Outlay	Expenditure	%
2018-19	10648	5007.00	47.02	7260	7890.90	108.69	1500	27.00	1.80
2019-20	10258	2002.00	19.51	7260	2777.00	38.25	5000	1435.00	28.70
2020-21	7664	5596.24	73.01	7100	3274.67	46.12	5000	2304.70	46.09
2021-22	8164	6033.55	73.90	7100	1630.56	22.97	5000	2400.00	48.00
2022-23	8977	3589.63*	39.98	8100	2536.23	31.31	5000	1322.12*	26.44

Source: Plan Space Kerala, Accounts

*Expenditure upto November 1, 2022

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.

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 R&D 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. It is established with the vision of conservation, evaluation, and sustainable utilisation of tropical plant resources. 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.

- In 2021-22, the institute has published 68 papers in refereed journals, 4 books, 14 chapters in books, 53 papers in conferences, produced 5 PhDs, organised 9 scientific meets/conferences, and trained 36 research staff and 154 technical staff.
- 113 pieces of information were documented in coastal areas (Perumbadappu Grama Panchayat, Malappuram), and 154 in tribal

areas (Kuttampuzha Grama Panchayat, Ernakulam District and Pothukallu Grama Panchayat, Malappuram District), as part of data decoding and data analysis of various Grama Panchayats. This was for systematic documentation and bio-prospering of ethno-medically important medicinal plants and tribal/traditional knowledge through molecular pharmacological approach.

- Conducted a two day training programme for 30 AYUSH doctors from Thiruvananthapuram, Kollam, Pathanamthitta, and Alappuzha Districts on 'Traditional and Folk Practices', and completed video documentation (2 episodes of 1 hour duration, in English) of selected traditional and folk practices from various Grama Panchayats.
- Implemented digital accession of germplasm collection, for the first time in the State.
- 14 new species and 21 new records of mushrooms were discovered as part of exploration of microbial diversity of the State.
- Two new foliicolous fungi and one new variety were discovered.
- Over 115 Lichen samples were collected, which includes 15 new records to India.
- Established mushroom herbarium with 18,761 collections, fungal herbarium with 7,100 collections, and Lichen herbarium with 3,770 collections.
- Seven edible mushrooms and 03 medicinal species were recorded.
- Identified i) anti-microbial and anti-biofilm property of Urdamycin A against human pathogen *Streptococcus pyogenes*, and ii) phytochemicals that worked as efficient anti-biofilm agents from selected plants of Kerala Western Ghats.

CWRDM-It provides research inputs for water resources development and management, especially in humid tropic areas, and has expertise in tackling different problems pertaining to watershed development, wetland management, water management for agriculture, forest and urban hydrology, estuarine management, groundwater development, water quality management, water-related environmental issues, and irrigation and drainage issues. Major achievements of CWRDM are as follows:

- Published 77 scientific reports, five popular articles, conducted 9 TV/radio programmes, and five (Water Resource Management and Training Programme (WRMTP) training courses.
- For the first time in Kerala, CWRDM estimated the carbon neutral status of one Legislative Assembly Constituency: Kattakkada.
- CWRDM HQ and Neyyattinkara sub-centre were awarded Green Office certification from Haritha Kerala Mission and Neyyattinkara Municipality.
- Received AMRUTAM Sustainable Awards-2022 (institutional category) by Sustainable India and Sri Aurobindo Foundation.
- Included in the core group for developing methodology on measurement of carbon credits generated out of carbon sequestration and carbon reduction in farming systems by NITI AAYOG, New Delhi.
- CWRDM has been recognised as an approved Study Centre for Ph.D by Kerala University of Fisheries and Ocean Sciences.
- Estimated water use efficiency of Kuttiyadi, Malampuzha, and Peechi irrigation projects.
- Developed one-dimensional flood model for Upper Kuttanad region, and formulated mitigation measures.
- WATER – Citizen Assessment Tool (WATER-CAT), a mobile application to empower citizens with tools to play an active role in water assessment and monitoring was launched.
- CWRDM is recognised as one of the knowledge partners in Wetland Management by MoEF&CC.
- NABL accreditation of CWRDM Water Quality Division Testing Laboratory as per ISO/IEC 17025:2017 in the field of chemical testing.
- Currently, 11 Ph.D scholars and two Post-docs are carrying out their research work in the Centre.
- Carried out quantitative determination of base flow component to the total stream flow of Shiriya River.
- Identified submarine groundwater discharge zones in the coastal stretch of Kozhikode to Kasaragod, and determination of water and nutrient fluxes.
- Quantification of major radio elements causing environmental radioactivity of Vamanapuram river basin was done.
- Studied the Integrated Management of Ecosystem Services of Kuttanad in Vembanad Wetland region, and the abundance and characterisation of microplastics in Ashtamudi, Kattampally, and Biyyam Wetlands.
- Analytical services were provided to various national and international agencies through the National Isotope Facility for Hydrology and Mobile Water Analysis Laboratory.
- Developed Poly (styrene-divinyl benzene) Cu-Ni Bimetallic nanocomposite for the removal of heavy metals from water.
- Determined the ecosystem health score (as per MoEF CC guidelines) of Kattampally and Biyyam Wetlands of Kerala.

KFRI – KFRI was established to undertake multidisciplinary research on ecosystem services, ecosystem dynamics, and biodiversity conservation, and to develop policies and technologies for sustainable and equitable use of natural resources. It was envisioned as a world-class Centre of excellence in Tropical Forests in service of society, environment and education. 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. The institute works in collaboration with the forest department and other stakeholders, and continues to play a key role in improving the scientific foundation of forest management. KFRI's central nursery is a sustainable and profit-making model in the forestry sector. It has 18,000 specimens demonstrating more than 2,140 species from 203 families, and is one of the major reference herbaria of forest plants. The institute is a resource centre for tropical forestry as well as a repository of publications on teak, bamboo, rattan, mangroves, invasive species, human-wildlife conflict and climate change. KFRI holds more than 18,000 books and 2,000 back-volumes along with online access to journals devoted to forestry and related fields.

Major achievements of KFRI in 2021-22 are:

- The institute is part of four major global networks: i)International Tree Mortality

Network, an initiative of the IUFRO task force, ii) ForestPlots.NET, iii) Bio Time, iv) TreeWatch.net.

- Modelling Forest Phenological Parameters from Time Series Remote Sensing Data for ISRO Geosphere Biosphere Programme (IGBP).
- Conducted case study in *Tectona grandis* at KFRI Peechi campus.
- Carried out assessment of socio-economic and cultural uses, and potential for popularisation of *Dendrocalamus stocksii* and *Munrochloa ritchiei*, two bamboo species endemic to the Western Ghats.
- Prepared tri-party action plan for the reintroduction of Red plants of Kerala, Micro Plastics and Phthalate Esters in Urban Water Bodies Occurrence, Distribution and Seasonal Variation in Selected Urban Areas of Kerala.
- Developed the Institute as an ex-situ plant conservation area and an important nature education and ecotourism hub in Kerala.

NATPAC – NATPAC conducts research and development (R&D) activities in transportation and allied fields, as well as conducts studies to improve operating efficiency, safety, and economy in transportation. The activities of the centre include Transport Infrastructure Development, Traffic Safety, Intelligent Transport 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. NATPAC is one of the R&D Centres in the country which works on a multi-modal system of transportation covering road, rail, water, and air.

In 2021-22, the following were the main achievements by the organisation:

- Carried out 24 research projects, 14 consultancy projects, and conducted various Road Safety Awareness activities and Road Safety Training Programmes for different target groups such as students from schools and colleges and the general public from the 14 districts in Kerala as well as from other States.
- Evaluated i) performance of the Indo-HCM adjustment factors in estimation of saturation flow for signalised intersections in Kerala using field-data, ii) use of cold mix asphalt design in context to Kerala road conditions.
- Conducted study on i) development of an integrated land use transport model for

Thiruvananthapuram. ii) framework for performance evaluation of water metro project in Kochi.

- NATPAC is in the process of mapping available aggregate resources in the selected districts of Kerala subject to availability, and is conducting a qualitative assessment of these materials to ensure their usability as pavement or building construction material.
- Created a Road Asset Management System (RAM) for the selected network of roads which includes National Highways (NHs), State Highways (SHs) and Major District Roads (MDRs).
- Developed a Road Crash Information System (RCIS) in GIS environment using Geospatial tools for Kerala, and a crash prediction model for the NH-66 road stretch connecting Cherthala and Kazhakootam.
- Produced two short films on road safety with the theme 'Distraction is Extraction', and 'Hands-free is not Risk-free', and were shortlisted in the Global Road Safety Film Festival organised by the Laser International Foundation (LIFE), in collaboration with the UN Road Safety Fund (UNRSF) and the United Nations Economic Commission for Europe (UNECE).
- Prepared Road Safety Training Materials including books, booklets, calendars, leaflets, stickers, display boards etc., and translated all the publications into regional languages.
- **KSoM** – This is 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
- KSoM has published around 10 research articles in respected journals.
- KSoM has renewed its MoU with the Chennai Mathematical Institute.
- The first batch of Integrated MSc-Ph.D programme has graduated, and six students are studying MSc in the second batch. Five students have joined the Integrated MSc-Ph.D programme.
- Currently organising international conferences along with the support of universities/institutions abroad.

MBGIPS – An institution dedicated to the conservation and research on aquatic plant diversity, lower group plants, endangered plants of the erstwhile Malabar Region, as well as

disseminating knowledge on various facets of plant sciences.

- Collected endemic aquatic plants from Wayanad District, Agasthyamala, and Laterite plateau of northern Kerala
- Started phenological and pollination studies on *C. malabaricum*, and collected tubers, saplings and established plantlets for ex-situ conservation of *C. malabaricum* in MBGIPS. Also studied physiological and biochemical aspects of seed germination in *C. malabaricum*.
- Established in-vitro seed germination of *Crinum malabaricum*.
- Addressed Systematics and nomenclatural issues of two aquatic genus, *Hygrophila* and *Limnophila*.
- Studies on the reproductive biology, systematics, and conservation of 7 species of Nymphoides were successfully completed.
- 25,000 Vegetable seedlings were propagated and distributed.
- Completed biochemical analyses like total soluble sugars, total proteins, phenols, starch in *cassia fistula* L.
- Successful germination of the seeds of *Vatica chinensis* L., *Hopea parviflora* Bedd., and *Cassia fistula* L. was standardised.
- Established a Lichen House with 80 species, the first of its kind to serve as a platform for Life Science students to understand the forest types, habitats and habit of lichen.
- Completed setting up of Malabar Aquatic Biopark Interpretation Centre.

SRIBS – SRIBS has 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.

- Organised six webinars with the participation of eminent scientists from various institutions benefitting around 360 students, researchers, and junior teachers in basic sciences.
- In connection with the golden jubilee celebrations of science and technology sector in Kerala, the Centre organised a lecture series in strategies for conservation of biodiversity options and achievements, transparent sustainability, exciting world electronic materials, scientific validation of traditional knowledge for future technological development in food and health security in India and organic synthesis – the art of creating molecules.

II. Schemes and Programmes of KSCSTE

Department of Science and Technology, Government of Kerala plays a key role in the promotion of science and technology in the State, and provides research and development support to scientists of various institutions and disciplines. 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 major achievements of KSCSTE from supported projects under schemes and programmes of KSCSTE in 2021-22 is given in **Figure 5.2.1**.

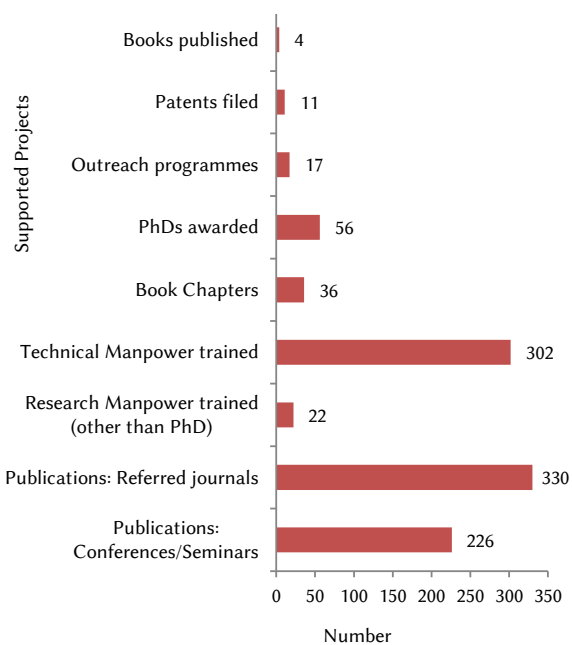
Achievements of Schemes and Programmes of KSCSTE

1. Human Resource Development in Science and Technology

i. Science Research Scheme (SRS)

Science Research Scheme is the foremost programme of the Council, and aims towards promotion of R&D activities in the State

Figure 5.2.1: Major achievements of KSCSTE from supported projects under schemes and programmes



Source: KSCSTE

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. In 2021-22, grants for eight new projects and 13 ongoing projects were released, two books published, 58 papers in refereed journals and 24 papers in conferences were published, and one patent was granted. 12 Ph.D scholars and 40 others were trained under this 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, in 2021-22, 26 conferences/seminars were conducted, 13 papers were published in refereed journals from supported projects, six Ph.Ds produced, and eight new findings/technologies generated. In 2022-23, as of September 2022, 12 papers were published in refereed journals and 3 conferences/seminars were conducted. One Ph.D was completed and three new findings were generated in the subject of magnetic nano-material synthesis and its application.

iii) Scheme for Promotion of Young Talents in Science (SPYTis)

The programme is for awards for the students of Classes VIII-IX for doing a science project (SPYTis I), and for financial assistance to students who have innovative ideas in science and technology and are enrolled in polytechnic colleges and undergraduate courses in colleges for conducting projects (SPYTis II). Webinars were conducted to encourage students to pursue career in S&T.

iv) Student Project

The scheme provides financial support to post-graduate and professional course students of University Departments and Colleges in Kerala, to conduct scientific projects. In 2021-22, 500 projects were selected for financial assistance of ₹10,000 per project. An amount of ₹17,51,230 was released as grant for the projects completed.

v) KSCSTE Research Fellowship programme

This scheme is to support bright students in research leading to Ph.D. In 2021-22, 50 fellowships were awarded and 75 papers were published under the programme.

vi) 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, 24 papers in refereed journals and 12 chapters in books were published, and 3 conference/seminars were conducted in 2021-22. As on 30 September 2022, three new findings were generated under the scheme in the subject of development of a dual reporter cell for NRF2, NF-KB signaling; potential evaluation of natural products activity.

vii) Partnering Academic Industrial Research Programme (PAIR)

Partnering Academic Industrial Research (PAIR) Programme is a novel initiative of KSCSTE for establishing partnership in research between industries and academic/research institutions, and to inculcate translational research in Kerala. KSCSTE-VINVISH, CSIR-NIIST Joint research programme was completed in 2021. CSIR-National Institute for Interdisciplinary Science and Technology won the prestigious CSIR-Technology Award for the best innovation for the year 2020, for the Development of a handheld Raman spectrometer and its demonstrated applications. The team was led by Dr. Yoosaf Karuvath of the Photosciences and Photonics Section under KSCSTE-VINVISH, CSIR-NIIST Joint research programme. Two publications in internationally peer reviewed journals, three presentations in conferences, and two software copyrights were achieved under this programme.

2. Ecology and Environmental Programmes

The programmes on ecology and environment focus on environmental conservation, pollution mitigation, and awareness creation. KSCSTE is the State's Nodal agency for implementing National Green Corps (NGC), an Environment Education Programme in schools by the Ministry of Environment, Forests and Climate change (MoEF&CC). The programme aims at spreading

environmental awareness among school children, and to involve them in environment related activities. In 2021-22, webinars, trainings, and orientation programmes were organised under this scheme.

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. KSYSA research grant for 7 ongoing projects were released in 2021-22. Seven science literature awards were presented in five categories.

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. SARD is envisaged to create facilities in colleges and universities for augmenting research in specified areas. Under this 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.

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. Under this programme, in 2021-22, five patents were granted, 116 IPR awareness programmes in association with various Institutions/Organisations were organised, and around 15,000 people were sensitized. 51 Patent Facilitation applications were processed. As on 30 September 2022, 17 IPR awareness programmes were organised, 25 patent facilitation applications were processed, two Patents were granted, and IPR Cells were established in two Institutions.

ii). Engineering and Technology Programme (ETP)

ETP intends to encourage and promote research talents for the implementation of high-quality research projects in the emerging areas of engineering and technology. The scheme is instituted for the faculty of engineering colleges and scientists of R&D institutions in the State. In 2021-22, 11 research papers, 11 conference papers, and one book chapter were produced under the programme.

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 2021-22, financial grant was released to two ongoing projects.

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.

6. Support for Women in Science

Despite the high number of literate women in Kerala, there is still scope for improving women's participation in science. 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 – 10 back-to-lab projects were sanctioned under the programme in 2020-21. 36 projects are under operation, of which 27 are post-doctoral fellowships and nine are research fellowship projects. Out of 36 projects, 16 have been completed. The total number of research publications from the supported projects was 28. There were 14 conference/seminar/workshop papers, of which 12 were at International level. Three book chapters, six best paper awards, five gene bank submissions, and one new species recording was achieved in 2021-22.
- ii. Project on preparation of database of 'Women in Science in Kerala'. – 3,168 registrations (as on March, 2022) 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 72 new registrations in 2021-22.

7. 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.

In 2021-22 Bioentrepreneurship certification programmes were launched in partnership with industries with the aim to equip young graduates

in biotechnology. KBC organised webinars on current topics in Biotechnology with the aim to equip young graduates. In 2021-22, 19 papers and two book chapters were published, and 28 paper presentations were conducted under this programme.

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 in 2021-22.

- Memorandum of Understanding (MoU) has been executed between Indian Institute of Technology Madras (IITM) and ICCS to develop academic and research collaboration.
- Installed a full-fledged Automatic Weather System (AWS) observatory with the help of Indian Meteorological Department (IMD).
- Established a Weather Research and Forecasting Model (WRF) based rainfall forecast over the State at spatial resolution of nine km.
- Developed a cloud microphysics-based experimental nowcasting technique for nowcasting Extreme Rainfall Events over the State.
- Prepared and issued climate statement of Kerala for the year 2021 for the first time at State level.
- A reconnaissance survey of Bharathapuzha River and extensive site visits for personal interactions with farmers were conducted to understand farming practices and its adaptation possibilities in the basin.

B. Institute of Advanced Virology

Kerala has had multiple outbreaks of infectious viral diseases in the last two decades. The Institute of Advanced Virology was established in 2019 in the Bio 360 Life Sciences Park, Thonnakkal, Thiruvananthapuram by the Government of Kerala, 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. The Institute has an Advanced Molecular Diagnostic Facility which has the capacity to conduct diagnosis of about 88 viral parameters which conducts viral antigen detection, viral serology and molecular diagnostic virology towards effective detection of viruses, control of emerging/existing viral infections, maintain surveillance support for the public health system, and outbreak investigation of viral diseases of regional and national importance.

The Institute particularly focuses on strengthening high-end research in the area of basic as well as translational virology, epidemic preparedness, rapid response, and risk communication to the public. Presently it has eight Bio Safety Level (BSL-II) laboratories equipped with state-of-the-art research infrastructure, and human resources to study the virus and viral infections in a multifarious approach. 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 Initiatives and Achievements

The timely detection, prevention of infection and right treatment protocols are required for pandemic preparedness. The Institute has conceived and implemented the following product-oriented research projects:

- New generation multiplex diagnostic platforms against viral syndromes.
- Monoclonal Antibodies (mAbs) against Emerging viruses.
- Nucleic acid-based vaccines against Emerging viruses.
- Viral Outbreaks Investigation.

Academic programmes: Masters and PhD programmes in affiliation with Kerala University of Health Sciences (KUHS), other virology subjects in affiliation with CUSAT, short term academic programmes for graduates/post-graduates in Medical/Dental/Veterinary/Laboratory Technician and other life sciences subjects, internship/project dissertation facility for the PG Students, collaborative research programmes, and implementation of Brain Gain Program of Higher Education Council.

In 2021-22, the Institute established six fully equipped BSL II-level research laboratories to carryout research in basic as well as translational research in the areas of Virology and Advanced Molecular Diagnostic Facility with the capacity to diagnose about 88 various viral parameters. This provides free diagnostic service to about 50 Government hospitals in the Thiruvananthapuram District, thereby reducing the State's dependence on external laboratories for detection of viral infections, sequencing of samples, etc. The Institute has initiated steps towards 'participatory R&D' to attract private investment in the R&D activities of the Institute, and several steps towards ensuring the pandemic preparedness.

C. Regional Cancer Centre (RCC), Thiruvananthapuram

According to World Health Organisation, cancer is a leading cause of death worldwide. 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. According to a report by the Indian Council for Medical Research on the 'Burden of cancers in India', seven cancers accounted for more than 40 per cent of the total disease burden: lung (10.6 per cent), breast (10.5 per cent), oesophagus (5.8 per cent), mouth (5.7 per cent), stomach (5.2 per cent), liver (4.6 per cent) and cervix uteri (4.3 per cent).

In Kerala, The Regional Cancer Centre (RCC), Thiruvananthapuram is one of the top-rated comprehensive cancer centres in the country offering diagnostic and treatment facilities for cancer, and catering to a population of more than 36 million people residing in Kerala and adjoining districts of Tamil Nadu and Karnataka. The cancer patient population and registration of new cases have increased alarmingly over the years. The incidences of female and paediatric cancers in the State of Kerala have been on a rise for the past several years. Over the last few years, RCC has evolved into a nationally recognised centre for teaching and training in oncology-related specialities. RCC is a major centre for cancer research with activities in the arenas of basic research, epidemiological studies, and clinical research, collaborating with national and international centres of repute. 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.

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. 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 is a tertiary-level referral hospital and admits patients referred from other Government and private hospitals.

RCC-Profile

In 2021-22, a total number of 14,183 new cases and 2,11,778 review cases were registered in RCC. The number of daily average patient visit was 705.

Appendix 5.2.1 provides the profile of the centre for the last three years. and hospital statistics is given in **Box 5.2.1**.

Box 5.2.1 Hospital statistics

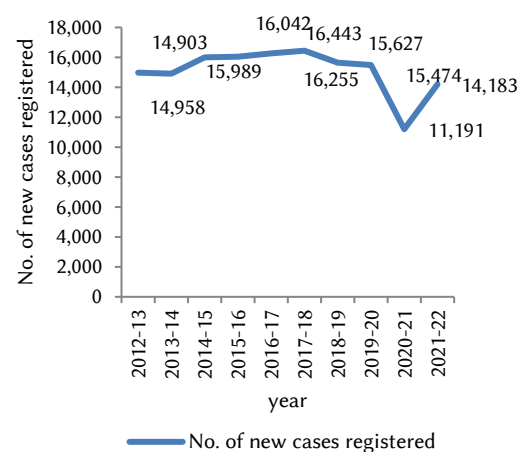
IP Bed strength	: 288
Operational bed	: 276
Average OP Per day	: 705
Average admissions per month	: 877
Bed occupancy rate	: 70 per cent

Source: RCC, Thiruvananthapuram

Cases Registered in RCC

The details regarding cases registered in RCC in the last 10 years show that the number of new cases increased every year, till 2017-18. In the three years since, the numbers decreased significantly. The total number of registered cases in the period 2015-16 to 2019-20 is 79,841. In 2020-21, a total number of 11,191 new cases were registered, which was 27.7 per cent lower than previous year. This may be attributed to COVID-19 pandemic. In 2021-22, the new cases registered were 14,183. New cases registered in RCC from 2012-13 to 2021-22 is given in **Figure 5.2.2**.

Figure 5.2.2 New cases registered in RCC from 2012-13 to 2021-22



Source: Regional Cancer Centre, Thiruvananthapuram

Out of the total 14,183 new cases registered in 2021-22, 12,890 cases (90.88 per cent) were reported from within the State, and rest were from other States and outside the country. As in the previous year, most of the cases in 2021-22 were referred from Thiruvananthapuram (31.2 per cent), followed by Kollam (24.1 per cent), and the least number of cases were referred from Wayanad (0.3 per cent). The number of cases referred from Thiruvananthapuram was 4,018 in 2020-21, and 4,423 in 2021-22. Details are given in **Appendix 5.2.2**.

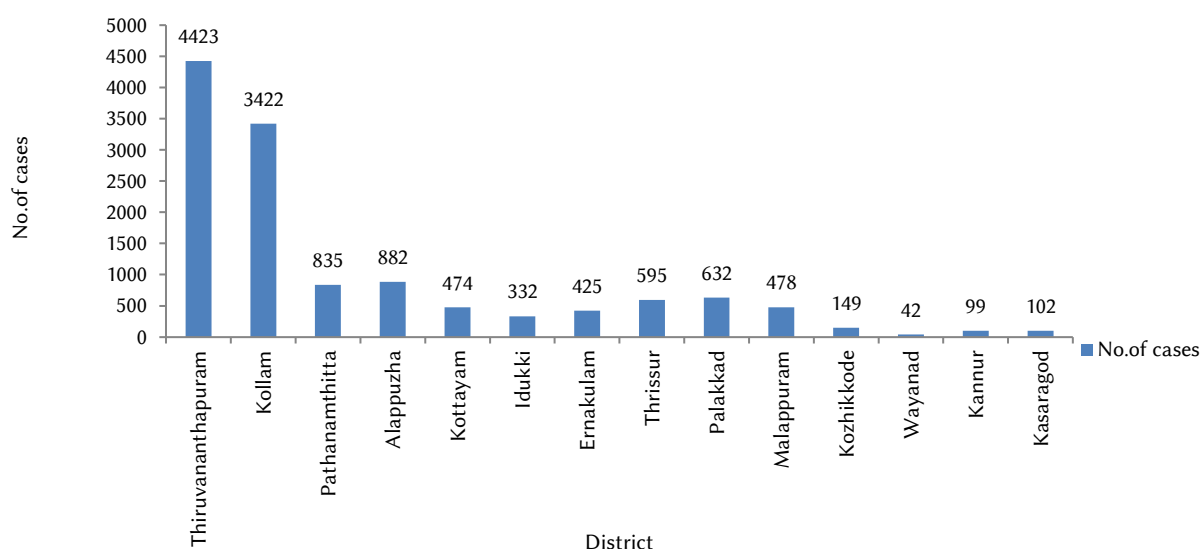
In addition to this, 1,155 cases in 2021-22 were referred from Tamil Nadu, 11 from Karnataka, 6 from Lakshadweep and 113 from other Indian States and 8 persons from Maldives were also referred.

Figure 5.2.3 represents number of new cases registered in the districts of Kerala.

Cases Registered in Speciality Clinics

The highest per cent of new cancer cases registered were Chest and Gastrointestinal clinics (3,490 cases) in 2021-22 followed by Gynaec, Genitourinary (2,514 cases) and others, Breast and Central Nervous System speciality clinic (2,387 cases). The lower number of cases was registered in Pediatric clinic (454 cases). **Figure 5.2.4** gives the incidence of cancer to human body parts detailed as per cent of new patients registered in speciality clinics in 2021-22.

Figure 5.2.3 Represents number of new cases registered in the districts of Kerala.



Source: Regional Cancer Centre, Thiruvananthapuram

The number of new cases registered in speciality clinics in 2019-2020, 2020-21 and 2021-22 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 2021-22 reveals that people in the age group of 55-64 are more prone to cancer diseases (27.9 per cent of male and 25.5 per cent of female). 65-74 age group also shows more number of male cancer patients (27.2 per cent) while in 45-54 age group shows the increased number of female patients (25 per cent) **Figure 5.2.5** illustrates age and sex-wise new cancer patients registered for treatment in RCC in 2021-22.

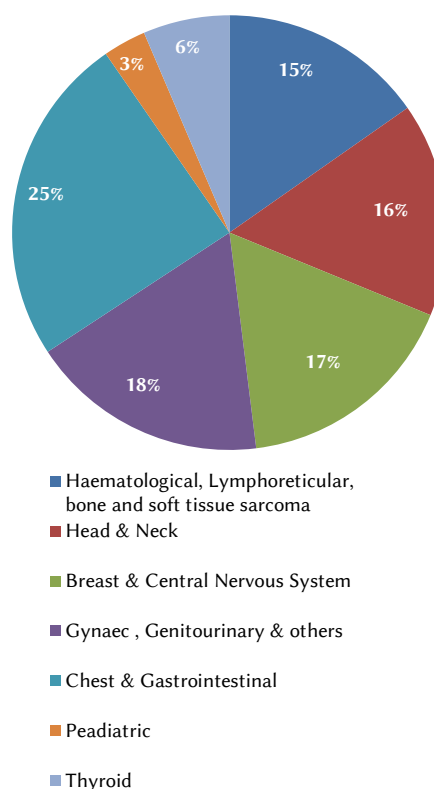
Central and State Government Schemes

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**.

Major Initiatives of RCC in 2021-22

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 1,307 patients in 2021-22. Under Free Food ('Akshayapathram'), free food was provided to 1,995 patients belonging to vulnerable

Figure 5.2.4 Speciality clinic-wise percentage of new patients registered in 2021-22



Source: Regional Cancer Centre, Thiruvananthapuram

Figure 5.2.5 Age and gender-wise new cases registered in 2021-22

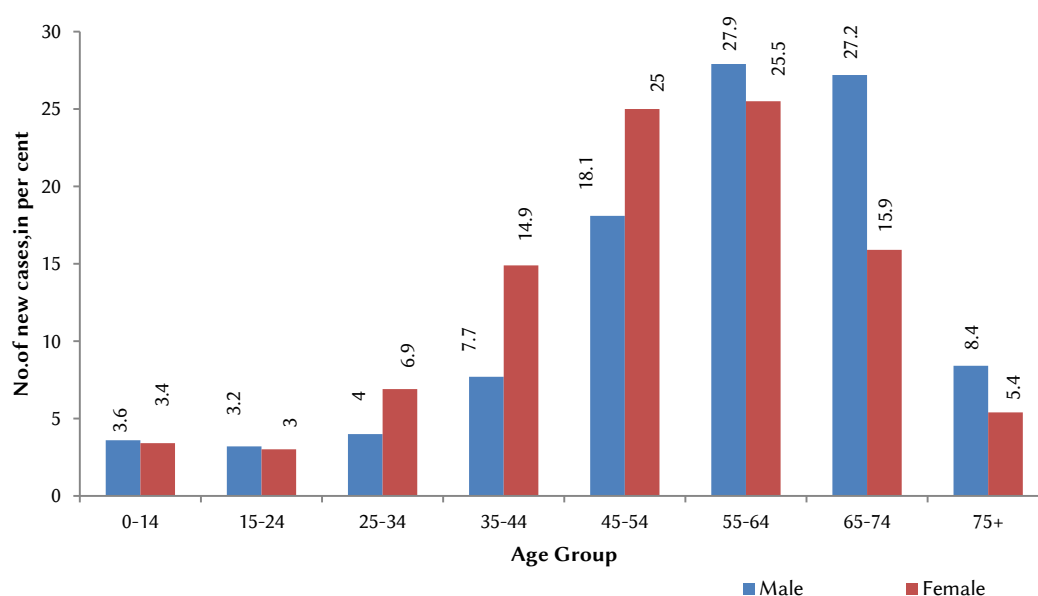


Table 5.2.2 Central and State Government schemes, 2020-21 and 2021-22

Scheme	Patients enrolled (new cases)	Total no. of people benefited	Total Amount spent (in crore)		
	2020-21	2021-22	2020-21	2021-22	Up to 31 March 2022
Central Government Schemes					
• Prime Minister's Relief Fund	37	37	2,362	2277	21.53
• Indian Cancer society	0	77	42	685	12.06
State Government Schemes					
• Cancer Suraksha Scheme	293	321	6,184	6505	61.07
• Karunya Benevolent Fund	862	682	37,927	3039	20.41
• Thalolam	8	4	125	131	0.40
• Scheduled Tribe Patient Fund	30	30	454	484	3.62
• Snehasanthwanam for Endosulfan Victims	1	1	62	63	0.47
• Karunya Arogya Suraksha Padhathi (KASP)	6,894	8855	19,652	34610	134.43

Source: Regional Cancer Centre, Thiruvananthapuram

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 2021-22, 77 new patients received support worth ₹48.69 lakh.

Cancer Detection Activities

In 2021-22, 3043 persons were examined in the early cancer detection clinic of RCC. As a result, 450 cancers and 199 pre-cancers were detected. There were 23 cancer detection programmes and 25 cancer awareness programmes conducted during the period. Of the 1,275 people screened,

two breast cancers, 65 oral pre-cancers, 64 cervical pre-cancers, and 157 benign breast lesions were detected and put under follow-up.

Other Activities

On World No-Tobacco Day, 2021, an exhibition on tobacco-related cancers, online training on 'Tobacco Cessation' for DISHA counsellors of the State Health Services Department and undergraduate dental students of Noorul Islam College of Dental Sciences, Neyyatinkara, and Azeezia Dental College, Kollam were organised.

Human Resource Development

In 2021-22, 1219 people were trained in cancer control including doctors (456), nurses (91), paramedicals (3), social workers (4), ASHA workers (153), and DISHA counsellors (512). While 24 doctors, 31 nurses, 4 medical social workers, and 3 paramedical staff were trained through in-house training programmes, 432 doctors, 60 nurses, 512 DISHA counsellors, and 153 ASHA workers were trained through online programmes conducted on World No-Tobacco Day, World Cancer Day, and during Breast Cancer Awareness Month.

As part of breast cancer awareness month, October 2021, free OPD services were conducted. Of the 252 people that attended the breast clinic, three cancers were detected. As part of the World Cancer Day (February 4, 2022), five interactive online training programmes were conducted for the frontline warriors of the Trivandrum District Cancer Control Programme, in collaboration with the State Health Services Department.

Research and Development Activities

RCC, as a pioneer research institution in cancer research, has produced several Ph.Ds in cancer research. In 2021-22, around 30 scholars were pursuing Ph.D., 45 residents undertook specialisation in medical, paediatric and surgical oncology super speciality courses, and 42 residents undertook postgraduate courses in Anaesthesia, Pathology and Radiotherapy in the centre. 14 residents undertook Fellowship programmes in Head and Neck Surgical Oncology, Gynaecologic Surgical Oncology, Breast Surgical Oncology, and Oncopathology. The number of on-going research projects is 241. RCC prepared a population-based cancer registry in Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta, and Kottayam districts.

Infrastructure Development in RCC

The preliminary work for construction of a state-of-the-art building of 14 floors with 2.75 lakh sq. feet built up area, costing ₹18,722 lakh has been started 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 structural work of the building was completed by the end of 2021-22.

Diagnostic and Treatment Facilities Added In 2021-22

- Anaesthesiology – Paediatric video bronchoscope and anaesthesia for radiofrequency ablation.
- Cancer Research – Minus 80 degree deep freezer and Cage changing station.
- Clinical Lab – Automated electrophoresis, Trinocular microscope with digital camera, ESR analyser and Binocular microscopes.
- Community Oncology – Binocular video colposcope.
- Medical Oncology – Minus 80 degree freezer, ICU ventilator.
- Microbiology – Lab refrigerator, Horizontal cylindrical autoclave, Hot air oven, Brushless centrifuge and Micro controller based spectrophotometer.
- Nuclear Medicine – Gallium scan and 177 Lu-Dotatate therapy (Peptide Receptor Radionuclide Therapy) for metastatic neuroendocrine tumours and prostate cancer.
- Pathology – Fully automated tissue processor, Fully motorised microtome, Tissue embedding cold plate, Rapid multifunctional microwave tissue processor, Microscope with DP74 camera, Automated stainer and Walk-in cold room.
- Paediatric Oncology – Paediatric autologous stem cell transplantation, Non-invasive ventilation, Platelet agitator/incubator, Patient warmer, Infusion pumps and Syringe pumps.
- Radiodiagnosis Upgradation of PACS.
- Surgical Services – Operation theatre table, Smoke evacuator, Colposcopy table with accessories, Table mounted abdominal retractor, Laparoscopic equipment and telescope, General surgical instruments, Teac recorder and Pneumatic sequential compression device.

- Transfusion Medicine – Fully automated grouping cross matching machines, Apheresis machines and Cryobath.

Way Forward

The science and technology sector in Kerala faces various challenges despite a high literacy rate and educational achievements. Special emphasis should be given to enhanced capacity building, skills development, and talent identification through various dedicated programmes and policies to address these issues. The exchange and networking of available talents is essential for improving the performance of research and technology development. KSCSTE plans to develop specific indices for assessing and monitoring the performance of institutions. 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. Developing academic-industry linkages and international cooperation in science and technology is essential for facilitating interaction between researchers, updating and refining the knowledge base, developing advanced technologies, and taking advantage of complementary scientific and technological capabilities. World-class infrastructure for cutting-edge R&D is also imperative for research, innovation and entrepreneurship development. Science and technology must be incorporated into economic planning in the agriculture, industry, and service sectors in order to maximise the benefit of limited resources. KSCSTE-affiliated research institutes should mobilise maximum resources by pursuing projects both within and outside the country.

5.3 TOURISM

Tourism has emerged as a key driver of economic growth and is one of the fastest-growing economic sectors and has a significant impact on trade, job creation, investment, infrastructure development and social inclusion. As part of the service sector, the tourism industry has become an important source of income for many regions and even for the entire country. This sector is interconnected with other spheres of development, creates employment, promotes traditional industries, brings in revenue and opens society to the rest of the world. World Tourism and Travel Council (WTTC)'s Economic Impact 2022 report shows Travel and Tourism's contribution to GDP increased by US \$1 trillion (+)21.7 per cent rise in 2021. In 2019, the Travel and Tourism sector contributed 10.3 per cent to global GDP; this share decreased to 5.3 per cent in 2020 as a result of continued restrictions on mobility. Tourism's contribution to global GDP increased to 6.1 per cent in 2021. In 2020, 62 million jobs were lost globally, representing a drop of 18.6 per cent, but in 2021 18.2 million jobs were recovered, representing an increase of 6.7 per cent year-on-year.

In 2021, tourism grew steadily on a global scale despite the COVID-19 prohibition. Tourism is now on the agenda of Governments and international organisations in every global region. In May 2022, for the first time, the United Nations General Assembly held a special debate on tourism, illustrating the historic relevance of the sector. This year's World Tourism Day (Sep 27) theme is "Rethinking Tourism". It aims to

inspire the debate around rethinking tourism for development, including through education and jobs, and tourism's impact on the planet and opportunities to grow sustainably. The core idea of this year's World Tourism Day is putting people and the planet first and bringing everyone from Governments and businesses to local communities together around a shared vision for a more sustainable, inclusive and resilient sector.

India is a large market for travel and tourism. It offers a diverse portfolio of niche tourism products – cruises, adventure, medical, wellness, sports, eco-tourism, film, rural and religious tourism. India has been recognised as a destination for spiritual tourism for domestic and international tourists.

India's global Travel and Tourism Development Index (TTDI) ranking is 54th in 2021. The tourism industry has emerged as one of the key drivers of growth in the services sector in India. Tourism in India has significant potential considering the rich cultural and historical heritage, variety in ecology, terrains and places of natural beauty spread across the country. Tourism is also a potentially large employment generator besides being a significant source of foreign exchange for the country.

Kerala is a treasure trove of tourism assets. Tourism continues to be significant for the State since it creates employment, generates income and opens cultures to the rest of the country and the world.

Kerala is an internationally recognised tourist destination and one of the most popular tourist destinations in India. Public spending in the State focuses on infrastructure development, marketing, human resource development, and hospitality. Hence tourism has continuing and promising potential in the State.

Tourism in India

Tourism plays an important role as a foreign exchange earner for the country. In 2021, foreign exchange earnings (FEE) from tourism were US \$8.797 billion compared to US \$6.958 billion in 2020, registering a positive growth of 26.43 per cent. According to United Nations World Tourism Organisation (UNWTO), India's share of international tourist arrivals is 1.64 per cent in 2021. India received 677.63 million domestic tourist visits in 2021, an increase of 11.05 per cent from 610.22 million in 2020. (India Tourism Statistics 2022).

Tourism in Kerala

Tourism has contributed significantly to the economy of Kerala for decades, with revenue of ₹12,285.91 crore to the sector in 2021. 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. Shopping malls and restaurants have resumed business as usual to allow more economic activity.

Growth of Foreign Tourist Arrivals (FTA) slipped to an all-time low figure of (-)82.25 per cent in 2021 compared to 2020. Domestic Tourist Arrivals (DTA) showed negative growth of (-)72.86 per cent in 2020; but emerged positively, recording 51.09 per cent in 2021, with the ease of restrictions on travel within India. (Department of Tourism, GoK)

Foreign Tourist Arrivals

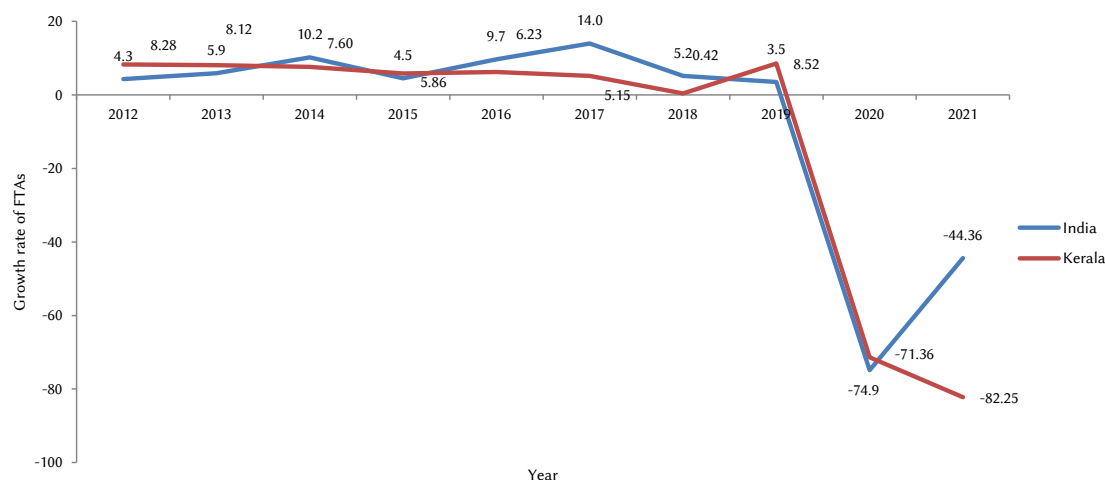
The number of foreign tourists who visited the country in 2021 was 15.27 lakh, 44.36 per cent lower than the tourist arrivals in 2020. Around 0.6 lakh foreign tourists visited the State in 2021, which is (-)82.25 per cent lower than (3.4 lakh) the previous year. The number of foreign tourists who visited Kerala in 2022 up to June was 1.05 lakh. **Figure 5.3.1** reveals the trends in the arrival of foreign tourists in India and Kerala during 2012 to 2021.

Box No 5.3.1 Kerala Tourism at a glance

Domestic Tourist Arrival (Nos) in 2020	49,88,972
Domestic Tourist Arrival (Nos) in 2021	75,37,617
International Tourist Arrival (Nos) in 2020	3,40,755
International Tourist Arrival (Nos) in 2021	60,487
Total arrivals (Nos) in 2020	53,29,727
Total arrivals (Nos) in 2021	75,98,104
Total Revenue Generated (crore) in 2020	₹11,335.96 crore
Total Revenue Generated (crore) in 2021	₹12,285.91 crore
Foreign Exchange Earnings (crore) in 2020	₹2799.85 crore
Foreign Exchange Earnings (crore) in 2021	₹461.50 crore
Earnings from Domestic Tourists (crore) in 2020	₹6025.68 crore
Earnings from Domestic Tourists (crore) in 2021	₹9103.93 crore

Source: Department of Tourism, GoK

Figure 5.3.1 Annual growth rates in the arrival of foreign tourists in India and Kerala from 2012 to 2021, in per cent



Source: Department of Tourism, GoK

From 2012 to 2013 and in 2015 and 2019, the growth rate in Kerala for foreign tourist arrivals was higher than that of India. It was lower than the national average in 2014, 2016, 2017 and 2018. The number of foreign tourists who visited Kerala in 2019 was 11,89,771 as against 10,96,407 foreign tourists in 2018, recording 8.52 per cent growth in foreign tourist arrivals in the State as compared to 2018. Due to the impact of the COVID-19 pandemic on the tourism industry, 2020 and 2021 are showing a negative growth rate in the arrival of foreign tourists. **Appendix 5.3.1** shows the foreign tourist arrivals in India and Kerala and the annual growth rate from 2012 onwards.

Month-wise foreign tourist arrival in India and Kerala in 2020 and 2021 is given in **Table 5.3.1**.

Source Market of Foreign Tourist Arrivals

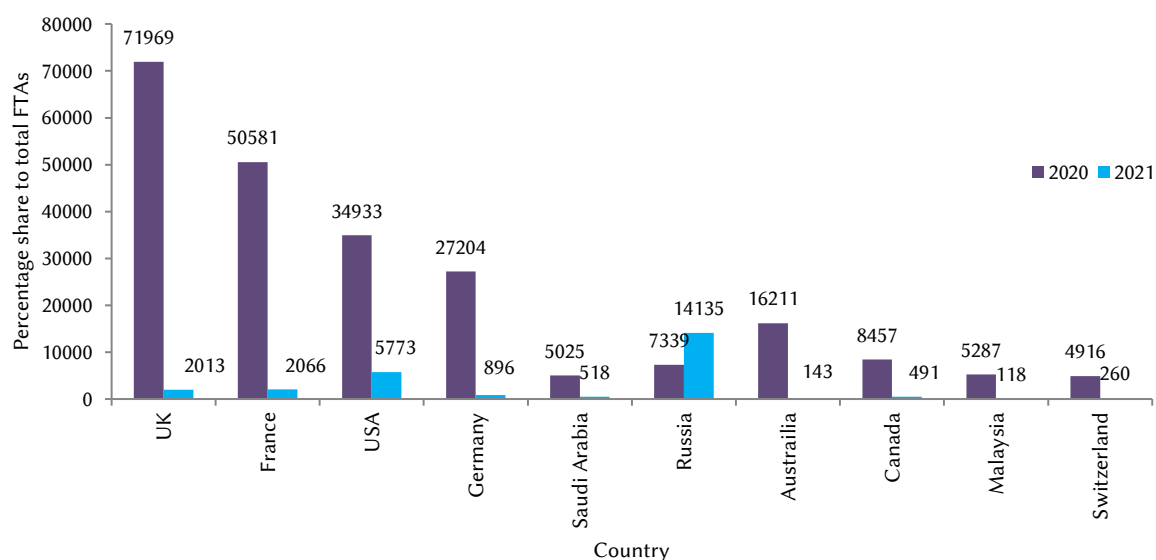
The majority of foreign tourists to the State in 2021 came from Russia. It was 23.36 per cent (**Figure 5.3.2**). The United States of America occupied the second position with a share of 9.54 per cent. The United Kingdom continued to hold the top position in 2019 and 2020. In 2021, the UK (3.33 per cent) and France (3.41 per cent) contributed the largest shares of foreign tourist arrivals. In **Appendix 5.3.2**, the share of major international source markets of Kerala tourism

Table 5.3.1 Month-wise foreign tourist arrivals in India and Kerala in 2020 and 2021, in number

Sl. No.	Month	No. of FTAs in 2020		No. of FTAs in 2021	
		India	Kerala	India	Kerala
1	January	1119250	174439	94662	4298
2	February	1018440	125523	110312	4167
3	March	328304	33245	133768	6024
4	April	2820	707	78718	987
5	May	3764	75	19765	169
6	June	8590	60	36070	298
7	July	12655	188	72501	4054
8	August	19761	373	92728	4349
9	September	28167	406	115661	5066
10	October	41494	1041	191415	7944
11	November	70977	2167	263867	10886
12	December	90544	2531	317647	12245
Total		2744766	340755	1527114	60487

Source: Department of Tourism, Kerala

Figure 5.3.2 Share of foreign tourist arrival from top ten countries of the world to Kerala during 2020 and 2021



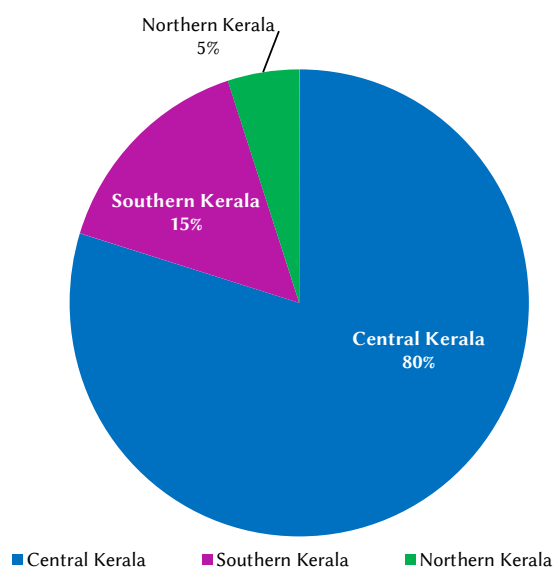
Source: Department of Tourism, GoK

is presented for the last three years and up to June 30, 2022. This figure illustrates the share of foreign tourists arriving in Kerala from the top ten countries between 2020 and 2021.

Foreign Tourist Arrival – District-Wise

For the last few years, the two Districts which

Figure 5.3.3 Region-wise foreign tourist visits in Kerala in 2021, in per cent



Source: Department of Tourism, GoK

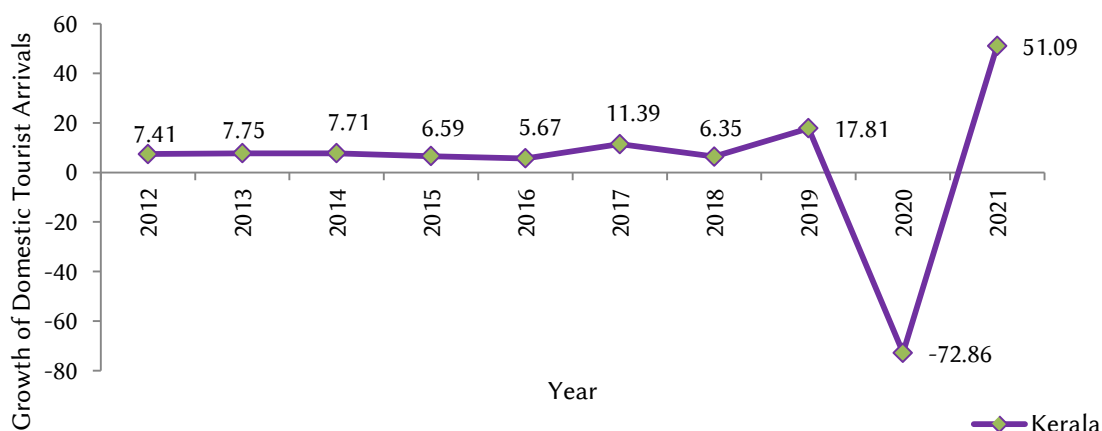
recorded largest foreign tourist arrivals in the State are Ernakulam and Thiruvananthapuram. In 2021, 46,821 foreign tourists visited Ernakulam whereas it was 1,34,952 in 2020. In the case of Thiruvananthapuram, 8262 foreign tourists visited the District in 2021 and 90,550 in 2020. The districts with least number of foreign tourist arrivals were Palakkad (41) and Pathanamthitta (72) in 2021. The scenario is the same in 2020 also. Details are given in **Appendix 5.3.3**.

Region-wise figures of foreign tourists visiting in the State shows that in 2021, about 79.82 per cent of the total foreign tourists visited central part of Kerala and only 4.98 per cent visited Northern part and 15.19 per cent visited southern part of Kerala. In 2020, about 52 per cent of the total foreign tourists visited central part of Kerala, 42 per cent visited southern part of the State and 6 per cent visited northern Kerala. **Figure 5.3.3** presents the region-wise arrival of foreign tourists in Kerala in 2021.

Domestic Tourists

The number of domestic tourist arrivals to Kerala in 2021 was 75,37,617 which is 51.09 per cent higher than the previous year. In 2020, the domestic tourist arrival to Kerala was 49,88,972. The number of domestic tourist arrivals up to June 30, 2022 is 88,95,593. **Appendix 5.3.4** gives the

Figure 5.3.4 Annual growth rates in the arrival of domestic tourists in Kerala from 2012 to 2021, in per cent



Source: Department of Tourism, GoK

details of domestic tourist arrivals to Kerala from 2012 to 2021. **Figure 5.3.4** reveals the trends in the arrival of domestic tourists in Kerala during the period 2012-2021.

The State had been witnessing a steady growth rate with respect to domestic tourist arrivals during 2012-2014. In 2015, the growth rate was 6.59 per cent, which dropped to 5.67 per cent in 2016. But the year 2017 recorded 11.39 per cent growth in the arrival of domestic tourists in the State which dropped again in 2018 and reached 6.35 per cent. But in 2019, the State witnessed 17.81 per cent growth in domestic tourist arrival. But in 2020, due to COVID-19 pandemic, domestic tourist arrivals has registered a negative growth of 72.86 per cent which recovered up to 51.09 per cent increase in 2021.

Domestic Tourists Arrivals

The month-wise data on the arrival of domestic tourists in Kerala in 2021 shows that the highest inflow of tourists was for the month of December and the lowest was in the month of May. Details are given in **Table 5.3.2**.

Source of Domestic Tourism

The statistics on the distribution of domestic tourist visits in Kerala by State of origin in 2021 reveals that about 81.42 per cent originated within the State. With respect to the distribution of other States, Tamil Nadu ranks top with a share of 5.99 per cent of domestic tourist visits. Karnataka (3.85 per cent) and Maharashtra (2.04 per cent) were the other important States. These States remained

as top source areas for domestic tourist arrivals in the State in the previous year also. **Appendix 5.3.5** gives the details of top 15 State-wise share of domestic tourist arrival in Kerala.

Table 5.3.2 Month-wise arrival of domestic tourists in Kerala for the last three years

Sl. No.	Month	No. of Domestic Tourists Arrival		
		2019	2020	2021
1	January	15,15,551	17,25,291	7,88,185
2	February	13,35,665	13,83,951	7,28,204
3	March	13,39,252	590,661	6,83,801
4	April	16,13,257	3,391	3,73,290
5	May	18,18,986	7,370	66,711
6	June	13,41,496	29,233	1,20,473
7	July	14,30,508	40,389	4,14,189
8	August	13,21,175	61,151	6,26,792
9	September	14,68,337	1,26,358	7,18,945
10	October	15,94,093	2,10,431	8,55,682
11	November	16,52,880	3,29,091	9,29,262
12	December	19,53,023	4,81,655	12,32,083
Total		1,83,84,233	49,88,972	75,37,617

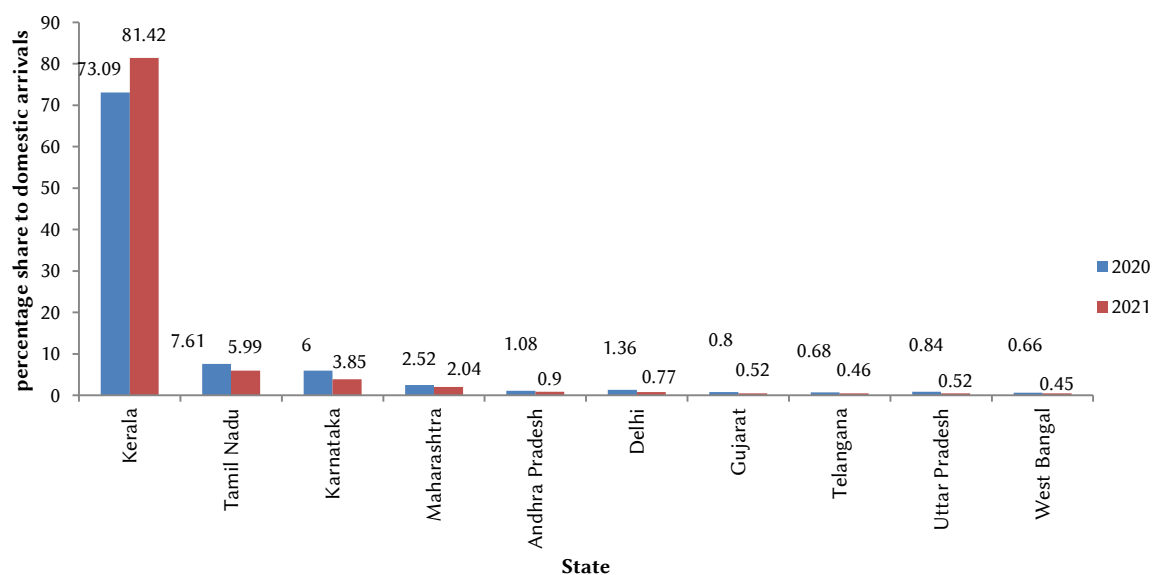
Source: Department of Tourism, GoK

Figure 5.3.5 shows State-wise share of domestic tourist arrivals to Kerala from top 10 States during 2020 and 2021.

District-wise Arrivals of Domestic Tourists

Regarding the District-wise domestic tourist arrivals in Kerala, Ernakulam and Thiruvananthapuram were the leading districts in 2021. In 2020 also these two districts were in the top position. Pathanamthitta attracts the lowest number of

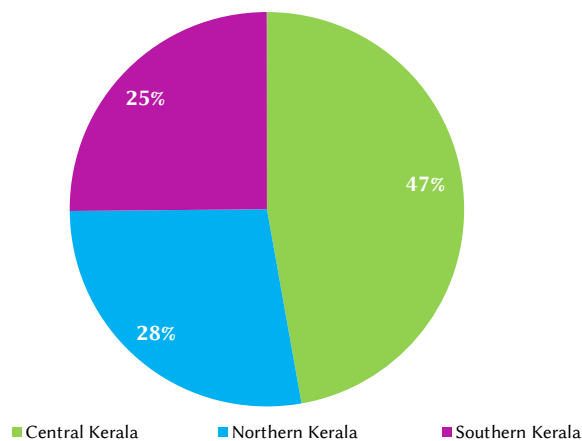
Figure 5.3.5 Share of domestic tourist arrival from top ten States to Kerala during 2020 and 2021, in per cent



Source: Department of Tourism, GoK

domestic tourists. 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 three years. **Figure 5.3.6** illustrates region-wise domestic tourist visits in Kerala in 2021.

Figure 5.3.6 Region-wise domestic tourist visits in Kerala in 2021, in per cent



Source: Department of Tourism, GoK

Impact on Tourism Earnings

Total earnings including direct and indirect means in 2021 was ₹12,285.91 crore showing an increase of 8.37 per cent over 2020. The foreign exchange earnings from tourism in the year 2021 was ₹461.50 crore and domestic tourist earnings was ₹9,103.93 crore. In 2020, the foreign exchange

earnings and domestic tourist earnings were ₹2,799.85 crore and ₹6,025.68 crore respectively. Details are given in **Appendix 5.3.7** Earnings from the industry in 2020 and 2021 decreased by (-)74.81 per cent and (-)72.70 per cent, respectively, compared to 2019. These declines in earnings indicate a slow post-COVID recovery in the tourism industry. Details are shown in **Table 5.3.3**.

Table 5.3.3 Total earnings from tourism (Direct and Indirect) in Kerala from 2012 to 2021 in ₹ crore

Year	Total Revenue generated (Direct and Indirect)	Percentage change
2012	20430.00	7.31
2013	22926.55	12.22
2014	24885.44	8.54
2015	26689.63	7.24
2016	29658.56	11.12
2017	33383.68	12.56
2018	36258.01	8.60
2019	45010.69	24.13
2020	11,335.96	-74.81
2021	12,285.91	8.37

Source: Department of Tourism, Government of Kerala

Figure 5.3.7 presents total revenue generated from tourism in Kerala from 2012 to 2021.

Accommodation Units in Kerala

The total number of tourist accommodation units in the State as on 30 June 2022 8,280 with 1,01719 numbers of rooms. Ernakulam is the District having highest number of accommodation units (1,343) and Kasaragod has the lowest number (114) of accommodation units. Details are shown in **Appendix 5.3.8**.

Awards and acknowledgments in 2021 and 2022

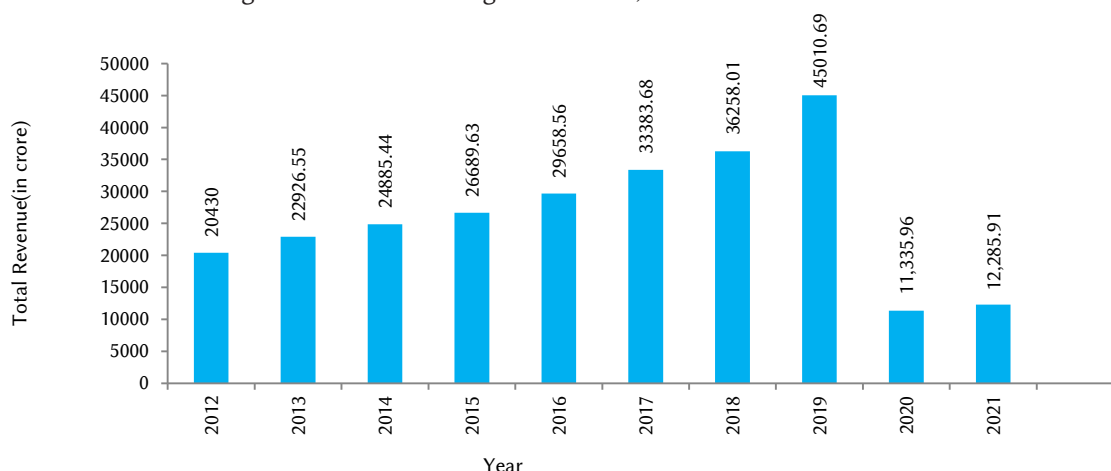
- The Water Street Project implemented by RT Mission for Kerala Tourism at Maravanthuruth, Kottayam District, has bagged World Travel Mart (WTM) award 2022 for the area of water conservation, integrating 13 rivers and 18 canals.
- Kerala has been voted as the best wedding destination State in India by readers of “Travel Plus Leisure” magazine.
- 38th Pacific Asia Travel Association (PATA) 2022 award in the print marketing campaign category.
- Four National awards announced by India Tourism for the period 2018-19, including the Hall of Fame honor for holistic development in the field of tourism in September 2022.
- In connection with the World Tourism Day 2022, the Tourism Club was launched in collaboration with the universities and youth which also spread internationally and a related announcement was made at London's Trinity Centre in World Travel Mart 2022.

- Four Gold awards for Responsible Tourism Mission in recognition of Kerala's popular tourism policy, the ICRT Indian Subcontinent Award conducted by World Travel Market, Government of Madhya Pradesh and ICRT International, has received in 2022 recognition in four categories – reducing plastic waste, conserving water (Water Street), increasing diversity in tourism and post-COVID destination building back better.
- Time Magazine's inclusion of Kerala in the list of 50 must-see tourism destinations in the world is a proud achievement for the Department of tourism. A special mention was given for Caravan Tourism and Caravan Parks implemented by Tourism Department in Kerala. 1,468 Caravans and 151 Caravan Parks have been registered so far under the scheme.
- US-based Travel and Leisure website's Global Vision Award for responsible tourism model. Kerala has topped as India's Most Welcoming Region category in a global survey conducted by booking.com, a leading travel platform.
- Aymanam Village Tourism selected as best Model RT village by WTM in November, 2021 and CNT (Conde-nast Traveller) selected Aymanam as one of the 30 must-see destinations in 2022.

Financial Performance

The details of Plan outlay and expenditure of tourism sector during the 2018-19 to 2022-23 period is given in **Table 5.3.4**.

Figure 5.3.7 Total earnings from tourism during 2012 to 2021, ₹ in crore



Source: Department of Tourism, GoK

Table 5.3.4 State Plan outlay and expenditure, ₹ in crore

Year	Outlay	Expenditure
2018-19	379.00	237.54 (62.7 %)
2019-20	372.37	177.698 (47.7%)
2020-21	320.14	325.63 (101.7%)
2021-22	320.14	244.49 (76.37%)
2022-23 (up to September 2022)	362.15	114.47 (31.6%)

Source: Plan Space Kerala,

Major Achievements of Infrastructure Development Projects

Building resilient quality infrastructure in destinations, launching new tourism products, upgradation of projects including capacity enhancement in the existing hotels etc is mainly entrusted to Kerala Tourism Infrastructure Limited (KTIL), Kerala Tourism development Corporation (KTDC), Bekal Resorts Development Corporation Ltd (BRDC) District Tourism Promotion Councils (DTPCs). Tourism in Kerala strives to provide world-class experiences to visitors through the development of tourist destinations, the provision of improved facilities, the launch of novel products, and the maintenance of existing products

- KTIL has prepared tourism plan for the entire coastal region of Kerala to incorporate in the Coastal Zone Management Plan, prepared DPR for Kadinamkulam-Anchuthengu Backwater Tourism Corridor, reports for exploring the potential of Baypore as a gateway to Malabar, reinventing the erstwhile capital of Venadu region, Travancore leisure corridor and Changanassery Kottayam region as the eastern gateway to Kuttanadu have been prepared.
- BRDC has executed the Ring Road development, beach road improvement and toilet block inside the beach park projects for the benefit of visiting tourists to Bekal.
- Completion of En Ooru Tribal tourism development project at Wayanad.
- Botanical Garden– Phase 2 with a permanent venue for flower show at Idukki.
- Restoration of Velliyanakallu Heritage Park at Palakkad.
- Upgradation of Kozhikkode beach.
- Renovation of tribal performance centre at Illathumoola Tharavadu, Mananthavady.

- Revitalisation of Nilayoram park at Kottakkal, Malappuram.
- Tourism development at Peruvannamuzhi-Kakkayam dam site, Kozhikkode.
- Bliss park at Bhatt road beach at Kozhikkode, rejuvenation of urban heritage core at Thali temple, Kozhikkode.
- Contribution to museum at AHP by Indian Navy as part of Muziris Heritage project.
- Completion of works for museum at Gundert Bunglow, Gundert St. Anglican Church, Thazhe Angadi Street, development of exhibition and market space at Valliyoorakkav, etc, as part of Thalassery Heritage project.
- Renovated Saraswati Mandapam at Pallikunn Mookambika temple dedicated to the nation as part of Pilgrim Tourism Circuit Project.
- The infrastructure achievements of KTDC in 2021-22 include completion of Phase-1 for Tea county at Munnar, completion of renovation of Lobby at Hotel Chaitram, Thiruvananthapuram, completion of renovation and upgradation of 40 cottages at waterscapes, Kumarakom, Motel Aram restaurants have been upgraded to KTDC Aahaar Restaurants at Parassala, Kayamkulam, Erumayoor, Vatakara, Sreekrishnapuram, Edakkunnam, Thodupuzha, Guruvayoor, upgradation of Food on Wheels restaurant at Vaikom, restaurant at Thiruvananthapuram Museum-Zoo Premises, Chennai Rain Drops – 10 rooms.

Human Resource Development

The major arms 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 quality academic services and training programmes to meet the current and future needs of the tourism industry. KITTS offers 2 year 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 2021-22 KITTS established Centre of Excellence in Transformative Tourism and Digital Innovation at Knowledge Park, Kozhikode supported by Kerala University of Digital Sciences, Innovation and Technology.

The SIHM provides training in the field of hospitality management and catering technology

to enable employees to acquire professional skills and knowledge. Construction of Boy's Hostel for SIHM Phase-II was completed.

Food Craft Institute offers training to promising young men and women in various trades within the hospitality and tourism sectors with the goal of building a highly skilled workforce within these sectors. The total students capacity in all 13 centres of the institute is 1,595. The percentage of students who passed out of the programme in the previous year was 86 per cent.

Marketing in Tourism

Among the Indian States, Kerala is a pioneer in marketing tourism through ICT (Information Communication Technology) both internationally and domestically. Kerala Tourism's Facebook page, Instagram account, and Twitter account are leading in India for social media marketing. Video channels with more than three crore subscribers, QR codes generated from mobile phones, Kerala tourism microsites based on specific themes, and pages for major tour operators and properties have all been developed to promote tourism. The introduction of Chat Box-Maya is an effective tourism marketing initiative.

Responsible Tourism (RT)

RT Mission is the nodal agency formed by the Government of Kerala to spread and implement the ideologies and initiatives of Responsible Tourism all over the State. Making tourism a tool for the development of village and local communities, eradicating poverty and giving emphasis to women empowerment are the main aims of the Responsible Tourism Mission.

Trainings and Skill Development: There are different domains in which the local community can get and generate income directly or indirectly from the tourism sector. RT Mission is identifying these possibilities, trains the local community and equips them to enter into the tourism sector directly or indirectly.

Experiential Tourism Packages: At present 140 packages are in operational and 1,500 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, Farming Experience Packages etc.

Sustainable, Tangible, Responsible, Experiential, Ethnic Tourism hubs (STREET)

Project: STREET is a participatory tourism development project being implemented by the Responsible Tourism Mission. Ten places were selected in the project and Maravanthuruthu in Kottayam District is the new destination arises through the project.

Peoples' Participation for Participatory Planning and Empowerment through Responsible Tourism (PEPPER) Project:

PEPPER is an initiative of RT Mission piloted at Vaikom Taluk in Kottayam. Vaikom and Ponnani developed as tourism destinations through PEPPER project and have been declared as new tourism destinations by the State Government. The project has been initiated at 35 places in the State and they are in different stages.

Model RT Village Project: This project aims to develop potential villages as responsible tourism destinations. Aymanam Model RT Village project has already been acclaimed nationally and internationally and the project is in progress at 15 other LSGs.

Kerala Agri Tourism Network: Kerala Agri Tourism Network is another important project of RT Mission to link the farmers and farming activity with tourism and generate additional income through tourism.

Experience Ethnic Cuisine Project: Experience Ethnic/Local Cuisine Network is a project to support and promote the women folk in the local community to be involved in tourism without any additional investment

At present there are 23,786 individual/group units, out of which 16,660 women owned/leading units, are registered with RT Mission under various categories like cloth bag making units, paper bag making units, handicraft making units, farm units(Farming, farm visit units,farm stay unit), artists, artisans, RT chauffeurs, community tour leaders, home stays, tended accommodation units, ethnic cuisine units and so on As of now, 46,815 individuals are directly and indirectly involved in responsible tourism activities. The income from tourism activities is the primary source of income of 1,30,779 families. In 2021-22 and 2022-23 (to October 2022) the RT Mission units generated

revenue of 5.30 crore and 5.50 crore, respectively. So far, the RT Mission has generated an revenue of 48.29 crore.

Sustainable Eco-tourism

Considering the rapid socio-economic changes, in particular urbanisation, the demand for eco-tourism is expanding rapidly. Ecotourism is about being sensitive to one's surroundings and the need to preserve nature. Ecotourism in the State aims to develop new eco-tourism destinations, strengthen existing destinations, and develop eco-tourism products in forest and wildlife sanctuaries.

The greenery that abounds in Kerala forests is not only relaxing but also refreshing. The green patches of Kerala offers shelter to some of the rare plant, bird, mammal, reptile, and amphibian species. If managed sustainably, ecotourism could become a major source of employment and income, surpassing the revenue from wood production. Scientific strategies need to be developed and implemented to promote forest-based ecotourism which ensures a major share of the benefits accrues to local communities.

Ecotourism in Kerala was developed as part of the Participatory Forest Management for the benefit of the forest dependent communities. There are 60 approved ecotourism destinations including Wildlife Sanctuaries and National Parks in the State. In 2021-22, the number of tourists' arrival in these destinations was 35 lakh. 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. Eco-tourism in and around forest areas helps in environmental conservation by promoting awareness amongst various groups.

An assessment of the carrying capacity of selected eco-tourism sites in Kerala, including Eravikulam National Park, Chinnar Sanctuary, Shola National Park, and Periyar Tiger Reserve, was conducted in the first phase of the programme. In the second phase, four sites were selected by the South Wayanad Forest Development Agency. South Wayanad Forest Development agencies have also taken steps to complete studies in 17 other eco-tourism sites. Modernisation and improvement

of the amphitheatre at Thenmala, modernisation and improvement of the tourism facilities at Eravikulam National Park, and improvement of the tourism facilities at Muttara Mrithimala in Kollam have also been completed. A total of 18 projects have been completed by the Ecotourism Directorate since 2016-17.

The major initiatives of Ecotourism in 2021-22 are cafeteria cum entertainment centre at Thekkady – Phase-II, Training programme for EDC/VSS members – Naturalists/Interpreters, Carrying Capacity Study – Phase-II

Ecotourism was implemented based on the micro plans prepared by the VSS and EDC on spots like rivers, waterfalls, grasslands and places which are largely visited by people from time to time. In every centre, an eco-shop for selling NTFP and Minor Forest Produces (MFP) was set up, which provides employment to the local forest dependent communities. Creating such employment opportunities is anticipated to reduce dependency of the local people over forests and help conserve the natural eco system. In addition to the direct engagement of VSS members, it is estimated that more than 5,000 people are indirectly benefited through the ecotourism programmes. Improvement of livelihood of the forest dependent communities is one of the main objectives. In each centre, 10 to 25 members of VSSs/EDCs are working as guides and efforts are taken to include maximum number of women. About 1,200 VSS and EDC members are engaged as guides in these ecotourism centres.

Other Initiatives of Tourism

- Bepore River Festival – a successful event which paved the revival tourism at Malabar further to aftermath of COVID-19.
- “Lokame Thravadu 2021” at Alappuzha which paved the revival of tourism at Central Kerala further to aftermath of COVID-19.
- Development of 25 tourism hubs in the State through a comprehensive master plan development.
- Heli-tourism projects at Wayanad and Idukki.
- MUZIRIS – Ongoing conservation projects at MHP and AHP under State scheme are set to be completed.
- Onam Celebrations 2022 including lighting and pageantry for revival of the festival atmosphere of Kerala including support to folk arts, supporting business.

Box 5.3.2 Draft National Tourism Policy 2021

The Ministry of Tourism has released the draft policy on Tourism. Five key areas would be given significant focus in next 10 years including – green tourism, digital tourism, destination management, skilling the hospitality sector and supporting tourism-related MSMEs. The National Tourism Policy 2021 is a holistic framework for sustainable and responsible growth of tourism sector in the country. Most of the provisions of the policy would require concurrent and coordinated action by the Central Government, State Governments and Local Governments in partnership with Industry Stakeholders. Specific roles and responsibilities of different stakeholders will further be spelt out in the detailed strategies and action plans, schemes and guidelines to be prepared for the implementation of the Policy from time to time.

- Cinema Tourism Project at Bekal as well as well-known destinations where shooting of regional language films were done.
- Preparation of Bio-diversity Tourism Circuit in Kollam District co-ordinated by KTIL.

Muziris Heritage Project

This heritage project envisages 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 by promoting sustainable and responsible tourism.

During the past few years, the conservation of Holy cross church, Palium Oottupura, Benglakadavu at Mathilakam, Kodungalloor Jewish Synagogue at Mala, and Cheraman Juma Masjid at Kodungalloor was completed. Muziris International Research and Convention Centre, visitors centre and bus stand, two restaurants, toilet blocks, six pathways, and 12 boat jetties were constructed under the same project. A major part of the excavations is carried out by the Kerala Council for Historical Research (KCHR) at Pattanam and by the department of archaeology of the Kerala Government at Kottappuram. The work was also completed at the Paliam Kovilakam Museum, the Paliam Nalukettu Museum, the Paravur Synagogue Museum, the Mohammed Abdul Rahiman Sahib Museum, the Sahodaran Ayyappan Museum, and the Kesari Balakrishna Pillai Museum. The conservation of 11 heritage structures is in progress.

The first Muziris Paddle event was held in 2021, and nearly 400 kayakers from around the world participated in the backwaters of Kottapuram to Bolgatty Kochi Marina. Next was the 'Students Heritage Walk'. A total of 2,600 students from 14 districts of the State participated in the event. This provided the agency with wide publicity and appreciation from a variety of agencies,

including the Department of General Education. The "Muziris Waves 2022" program was also conducted during the new year period.

Way Forward

Kerala should maintain its reputation as an eminent tourist destination, its world-renowned brand, and its consistently growing business. The post-COVID era requires focusing on domestic tourism and safety at every point of destination in order to revitalise the sector. The focus should be on destination development, tourism infrastructure, tourism products, information technology, hospitality and investment and funding in the tourism industry. Heritage tourism, cultural tourism, health tourism, caravan tourism, sports tourism, adventure tourism, water-based tourism, monsoon tourism, and MICE tourism may be prioritised by the industry. Developing tourism cannot be successful without addressing other issues such as health, sanitation, urban and rural planning, and connectivity. Tourism is currently a dynamic industry which requires flexible planning and it requires strengthening the whole system of data collection and management. Kerala will focus on promoting rural tourism and extending Responsible Tourism practices to all of its destinations. In this sector, competition from neighbouring States and countries, such as Sri Lanka and other Asian countries, is intense.

The State should strive to accelerate tourist arrivals in a sustainable and responsible manner; and provide a warm, safe, clean, hygienic, and accessible destination that offers unique experiences to all. Kerala must develop different strategies to cater to the needs of international, domestic (other States) and local tourists. As tourism develops, it must be responsive to emerging trends, such as young travellers, solo travellers, and senior travellers.

5.4 EXTERNAL TRADE

World trade growth (both goods and services) in 2021 continued to be positive during each quarter of the year and reached the pre pandemic-level during the fourth quarter. The World Trade Organisation's forecast released in October 2022 estimated a growth of 3.5 per cent of volume of global merchandise trade in 2022. It is anticipated to lose momentum in the second half of 2022. In 2023, the world trade will slow down sharply but remain positive with one per cent growth. The slowdown in the trade growth will be due to the weak demand for imports, high energy prices caused by the conflict in Ukraine, inflation and monetary tightening. India's external trade in 2021-22 revived, with high capital inflows leading to a rapid accumulation of foreign exchange reserves.

External Trade in India

India exports around 7500 commodities to more than 190 countries. As per the statistics of Ministry of Commerce and Industry, GoI, in 2021-22, India's overall exports (merchandise and services combined) registered a growth of 35.8 per cent to 676.2 billion USD as against 497.9 billion USD in previous year. India's merchandise export in 2021-22 was 421.8 billion USD, against 291.81 billion USD in 2020-21. The export growth was due to the hike in demand for products like petroleum, cotton yarn, textiles, chemicals and engineering goods. Service exports in 2021-22 was 254.4 billion USD as against 206.1 billion USD

in 2020-21. Telecommunication, computer and information services, other business services and transport are top contributors in service exports.

India's merchandise imports in 2021-22 were 611.89 billion USD as against 394.44 billion USD in 2020-21, much higher than its export target resulting in a trade deficit at 87.5 per cent. The increase in the imports of crude, coal, gold and electronics contribute the growth in imports. India's service imports were 144.79 billion USD in 2021-22 as against 117.52 billion USD in 2020-21 exhibiting a growth of 23.2 per cent. The overall imports of India (merchandise and services combined) in 2021-22 were 756.68 billion USD as against 511.96 billion USD in 2020-21. China continued to be the major source for Indian imports in 2021-22 followed by UAE, USA, Saudi Arabia, Iraq and Switzerland. (**Table 5.4.1**).

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 2021-22, the total traffic, coastal and foreign handled by Cochin Port was 345.5 lakh MT as against 315.0 lakh MT in 2020-21 registering a growth of 9.7 per cent compared to the negative growth of (-)7.5 per cent in previous year. Out

Table 5.4.1 India's Overall Exports and Imports: 2016-17 to 2021-22, Value in Billion USD

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 (up to September 2022)#	231.88	150.43	382.31	380.34	89.13	469.47

Source: Ministry of Commerce and Industry GoI

Note: # provisional

of the total traffic in 2021-22, total coastal traffic was increased by 6.6 per cent to 118.3 lakh MT as against 111.0 lakh MT in previous year and total foreign traffic increased by 11.4 per cent to 227.2 lakh MT in 2021-22 compared to 204.0 lakh MT in 2020-21. (**Table 5.4.2**).

Total export, both coastal and foreign, through Cochin Port was 85.3 lakh MT in 2021-22 as against 70.3 lakh MT in 2020-21, recording a significant growth of 21.2 per cent compared to 4.5 per cent growth in the previous year. Out of this, coastal export accounts for 49.4 lakh MT in 2021-22 as against 38.3 lakh MT in 2020-21 recording a growth of 29.0 per cent. The foreign export also increased to 35.9 lakh MT in 2021-22 from 32 lakh MT in previous year, recording a growth of 12.2 per cent.

Export of commodities through Cochin Port showed an increasing trend in 2021-22 except tea and coir products. There is significant increase in the export of coffee, sea foods during this period as compared to the previous year. Export of coffee in 2021-22 registered a very impressive growth

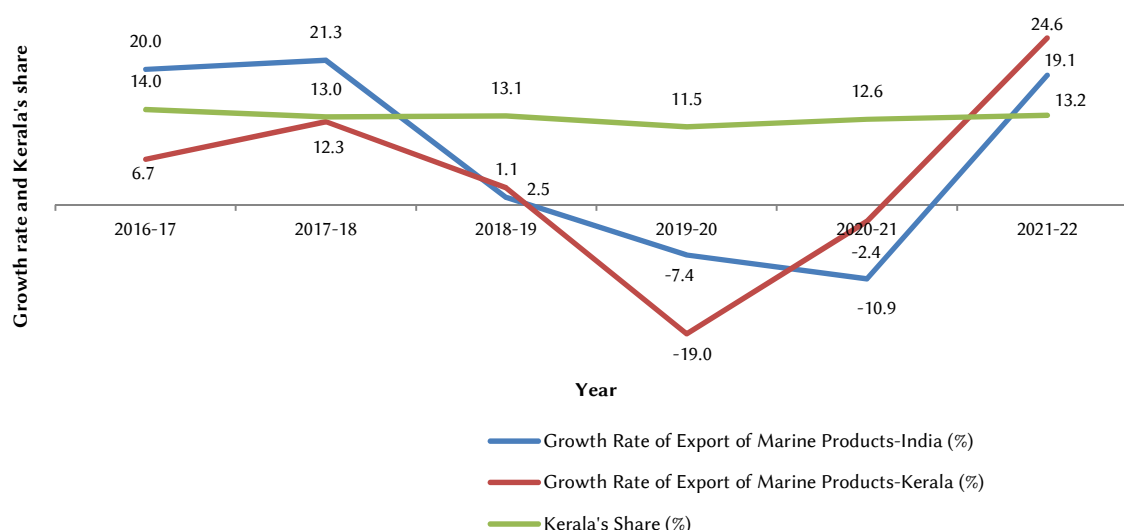
of 81.8 per cent to 62,069 MT compared to the growth rate of 7.5 per cent to 34,134 MT in 2020-21. The export of sea foods increased 19.2 per cent to 1,79,579 MT in 2021-22 compared to the growth rate of 2.6 per cent to 1,50,640 MT in previous year. The export of cashew kernels had registered a growth of 4 per cent to 24,299 MT in 2021-22, in contrast to the negative growth of (-)21.8 per cent to 23,368 MT in previous year. The export of coir products shows a decline of (-)15.3 per cent to 2,40,745 MT in 2021-22 compared to the high growth rate of 140.6 per cent to 2,84,065 MT in 2020-21. The export of spices exhibits a marginal growth of 5.3 per cent to 1,05,697 MT in 2021-22 as against the growth of 33.1 per cent to 1,00,429 MT in previous year. The export of tea from Cochin port continuously declining since 2019-20. In 2019-20 there was a sharp decline of (-)12.8 per cent to 71,732 MT and the decreasing trend continued in 2020-21 and 2021-22 with respective negative growth of (-)2.5 per cent and (-)6.8 per cent. The export of tea through Cochin port in 2021-22 was 65,199 MT. Details are given in **Appendix 5.4.1**.

Table 5.4.2 Cargo handled at Cochin Port, 2019-20 to 2021-22, quantity in lakh MT

Traffic	Export			Import			Total		
	2019-20	2020-21	2021-22	2019-20	2020-21	2021-22	2019-20	2020-21	2021-22
1	2	3	4	5	6	7	8	9	10
Coastal	39.2	38.3	49.4	71.8	72.7	68.9	111.0	111.0	118.3
Foreign	28.1	32.0	35.9	201.3	172.0	191.3	229.4	204.0	227.2
Total	67.3	70.3	85.3	273.1	244.7	260.2	340.4	315.0	345.5

Source: Cochin Port Trust

Figure 5.4.1 Trend in the quantity of export of marine products, India and Kerala, 2016-17 to 2021-22



Source: Marine Products Export Development Agency (MPEDA)

Total import traffic, both coastal and foreign, through Cochin port increased to 260.2 lakh MT in 2021-22 as against 244.7 lakh MT in 2020-21 registering a growth rate of 6.3 per cent compared to the negative growth of (-)10.4 per cent in the previous year. Out of total import traffic, coastal imports traffic decreased to 68.9 lakh MT in 2021-22 as against 72.7 lakh MT in 2020-21 registering a negative growth rate of (-)5.2 per cent compared to the growth of 1.3 per cent in the previous year. Foreign imports traffic significantly increased to 191.3 lakh MT in 2021-22 as against 172 lakh MT in 2020-21 recording a growth rate of 11.2 per cent compared to the negative growth rate of (-)14.6 per cent in 2020-21 (**Table 5.4.2**). Fertilisers and raw materials, iron, steel and machinery and miscellaneous items including Petroleum, Oil, and Lubricants (POL)

were the major items of import in 2021-22. There was no import of food grains, news print and cashew nut through Cochin port. Details of major items of import through Cochin port are given in **Appendix 5.4.2**.

Export of Marine Products

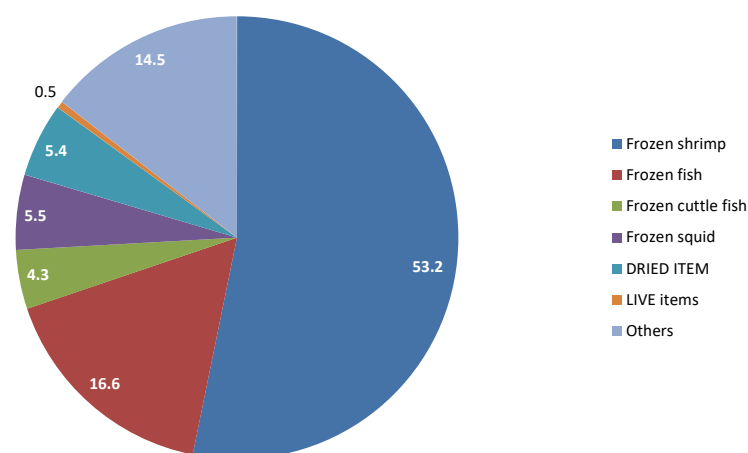
India exported 13.69 lakh MT valued ₹57,586.5 crore of marine products in 2021-22 as against 11.5 lakh MT valued ₹43,721 crore in 2020-21. Export of marine products from Kerala also recorded a significant growth in 2021-22. Kerala exported 1,80,315 MT valued ₹6,396.2 crore of marine products in 2021-22 as against 1,44,700 MT valued ₹5,039.9 crore in 2020-21 registering a growth of 24.6 per cent in quantity and 26.9 per cent increase in value (**Table 5.4.3** and **Figure 5.4.1**).

Table 5.4.3 Export of marine products in India and Kerala 2016-17 to 2021-22, quantity in MT and value in ₹ 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	14.0	13.2
2017-18	13,77,244	45,106.9	1,78,646	5,919.0	13.0	13.1
2018-19	13,92,559	46,589.4	1,83,064	6,014.7	13.1	12.9
2019-20	12,89,651	46,662.9	1,48,226	5,020.3	11.5	10.8
2020-21	11,49,510	43,721.0	1,44,700	5,039.9	12.6	11.5
2021-22	13,69,264	57,586.5	1,80,315	6,396.2	13.2	11.1

Source: Marine Products Export Development Agency (MPEDA)

Figure 5.4.2 Market share of item-wise export of marine products from India in 2021-22, in per cent



Source: Marine Products Export Development Agency (MPEDA)

The year-wise growth of export of marine products in quantity terms from India and Kerala during the last six years showed an increasing trend except for the pandemic affected period in 2019-20 and 2020-21.

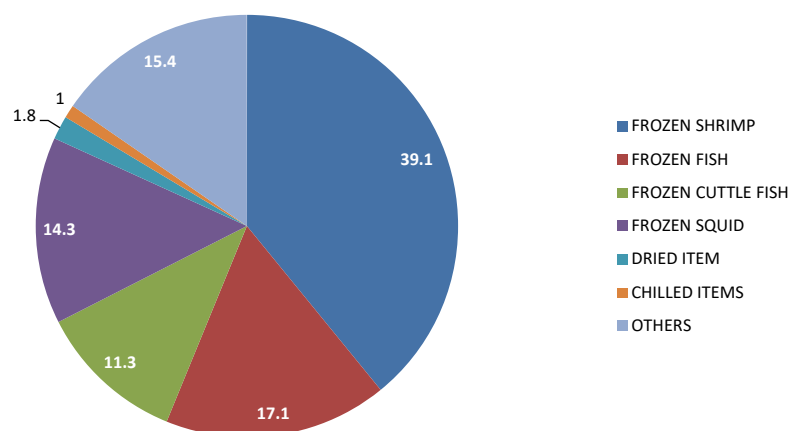
The share of exports from Kerala in the export basket of marine products from India (in quantity terms) has increased to 13.2 per cent in 2021-22, compared to 12.6 per cent in previous year.

The item-wise export of marine products from India in 2021-22 shows that frozen shrimp continued to be the top export item with a market share of 53.2 per cent in quantity and 74.1 per cent in value, followed by frozen fish with a share of 16.6 per cent in quantity and 6.0 per cent in

value. India exported 7.3 lakh tonnes of frozen shrimp valued at ₹42,706 crore (**Appendix 5.4.3**). **Figure 5.4.2** depicts the market share of item-wise export of marine products from India in 2021-22.

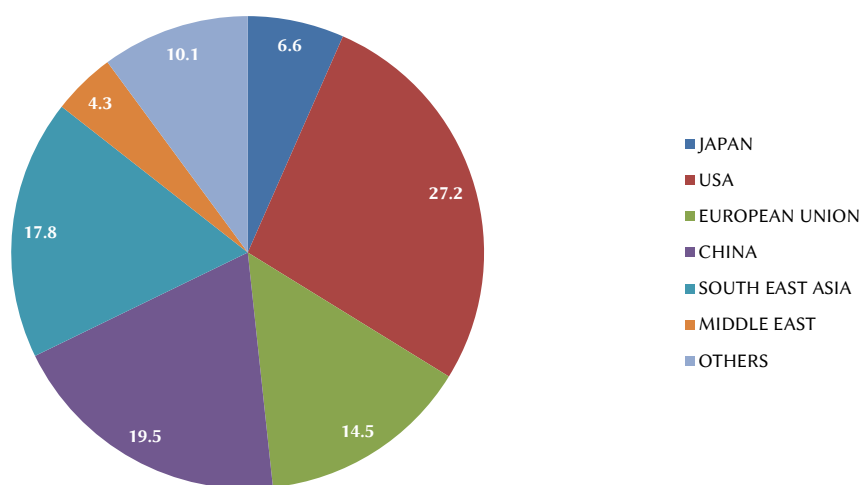
In 2021-22, the export basket from Kerala also shows that frozen shrimps maintained its position as a major item accounting for 39.1 per cent in quantity and 55.6 per cent for earnings followed by frozen fish with share of 17.1 per cent in quantity and 7.2 per cent in value. Compared to the previous year, export of frozen shrimps from Kerala recorded a significant increase of 27 per cent in quantity and 24 per cent in value in 2021-22. **Figure 5.4.3** shows the market share of item-wise exports of marine products from Kerala in 2021-22.

Figure 5.4.3 Item-wise export of marine products from Kerala 2021-22, in per cent



Source: Marine Products Export Development Agency (MPEDA)

Figure 5.4.4 India's market-wise export of marine products in 2021-22, in per cent



Source: Marine Products Export Development Agency (MPEDA)

The largest export market for India's marine products in 2021-22 was USA (3.73 lakh MT) followed by China (2.67 lakh MT), South-East Asia (2.43 lakh MT), European Union (1.98 lakh MT), Japan (0.9 lakh MT), Middle East (0.58 lakh MT), and other countries (1.39 lakh MT). Major markets of India's marine products and their share are depicted in **Figure 5.4.4**.

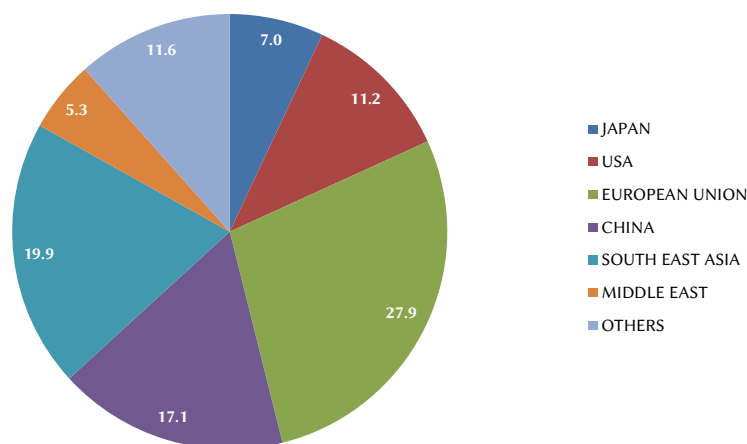
The largest export market for Kerala's marine products in 2021-22 was European Union (50,336 MT) followed by South-East Asia (35,870 MT), China (30,862 MT), other countries (20,985 MT), USA (20,206 MT), Japan (12,548 MT)

and Middle East (9,510 MT). Major markets of Kerala's marine products and their share are depicted in **Figure 5.4.5**.

Export of Cashew

India exports cashews to more than 60 countries. In 2021-22, India exported 53,770 MT (valued ₹3,175.2 crore) as against 49,992 MT (valued ₹2,907 crore) in 2020-21. 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.

Figure 5.4.5 Kerala's market-wise export of marine products 2021-22, in per cent



Source: Marine Products Export Development Agency (MPEDA)

The export of cashew kernels from Kerala also increased to 24,299 MT in 2021-22 from 23,368 MT in 2020-21 registering a growth of 4.0 per cent in volume.

In 2021-22, Kerala's share in total export of cashew kernels from India declined marginally to 45.2 per cent in terms of quantity compared to the previous year share of 46.7 per cent (**Table 5.4.4**).

The export of cashew nut shell liquid from India shows an increasing trend in 2021-22 in spite of the continuous decline since 2016-17. In 2021-22, it was 4,944 MT valued ₹32.5 crore as against 3,736 MT valued ₹19.72 crore in 2020-21 registering a growth of 32.4 per cent in quantity and 64.8 per cent in value. Korea Republic, Belgium, Japan, China and Italy were the major markets. Kerala did not export cashew nut shell liquid since 2020-21. The export was 699 MT valued ₹3.3 crore in 2018-19 and it declined to 1.00 MT in 2019-20. (**Appendix 5.4.4**).

India produced 7,51,848 MT of raw cashew nuts in 2021-22 as against 7,38,009 MT in 2020-21, registering a marginal growth of 1.9 per cent compared to previous year. The other main raw cashewnuts producing countries are Vietnam, Cambodia, Nigeria, Tanzania, and Guinea Bissau. In 2021-22, the production of raw cashew nuts in Kerala declined to 71,760 MT as against 73,105 MT in 2020-21 recording a negative growth of (-)1.8 per cent. Maharashtra continued to be the major producer of Indian raw cashew nuts with a share of 25.2 per cent followed by Andhra Pradesh (16.9 per cent) and Odisha (16.1 per cent). Out of

the total production of raw cashew nuts in India, Kerala's share was 9.5 per cent in 2021-22.

In 2021-22, India exported 21,654 MT of raw cashew nuts worth ₹202.3 crore as compared to 19,832 MT worth ₹199.8 crore in previous year. Kerala did not export raw cashew nuts since 2018-19.

India imported 9,35,574 MT of raw cashew nuts valued ₹9,145.2 crore in 2021-22 as against 8,31,231 MT valued ₹7,331.3 crore in 2020-21. Ivory Coast, Tanzania, Guinea Bissau, Benin, Ghana, Mozambique, Nigeria, Senegal etc. were the major import markets of raw cashew nut. Out of the total import of raw cashew nuts into India, Kerala's share increased to 21,990 MT valued ₹220.6 crore in 2021-22 as against 18,424 MT valued ₹166.3 crore in 2020-21.

Export of Coir and Coir Products

In 2021-22, India exported coir and coir products of 12,34,855 MT valued ₹4,340.1 crore as against 11,63,213 MT valued ₹3,779 crore in 2020-21. The export of coir and coir products from Kerala through Cochin Port showed a declining trend in 2021-22 compared to the impressive growth of 141per cent in previous year. A total of 2,40,745 MT of coir and coir products were exported through Cochin Port in 2021-22 as against 2,84,065 MT in 2020-21 registering a negative growth of (-)15.3 per cent.

In 2021-22, 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

Table 5.4.4 Export of cashew kernels, Kerala and India, 2015-16 to 2021-22, Quantity in MT, value in ₹ crore

Year	Kerala		India		Share of Kerala (%)	
	Quantity	Value	Quantity	Value	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	49992	2907	46.7	NA
2021-22	*24299	NA	53770	3175.2	45.2	NA

Source: Cashew Export Promotion Council of India

*Cochin Port Trust

terms of quantity and value, whereas, coir geotextiles, rubberised coir, handloom matting and powerloom 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 ₹2,259.2 crore 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 per cent in quantity and 23.1 per cent in terms of value. Coir fibre with an export value of ₹636.6 crore 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 5.4.6**.

Export of Tea

In 2021-22, India exported 2,00,785 MT valued ₹5,415.8 crore of tea as against 2,03,791 MT worth ₹5,311.5 crore in 2020-21 registering a

negative growth rate of (-)1.5 per cent in terms of quantity and 2.0 per cent growth in terms of value. The major export market was Russian Federation followed by Iran, UAE and USA.

Export of tea from Kerala ports in 2021-22 decreased to 64,854 MT worth ₹1,468.4 crore from 70,398 MT worth ₹1,566 crore in 2020-21 registering a negative growth of (-)7.9 per cent in terms of quantity and (-)6.2 per cent in terms of value (**Table 5.4.5**).

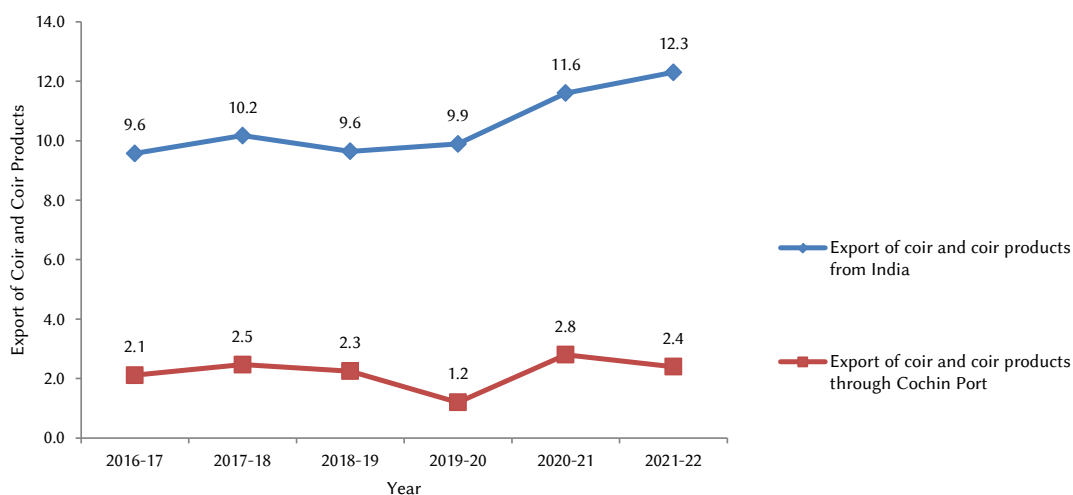
Export of Coffee

In 2021-22, a total quantity of 4.14 lakh MT of coffee worth ₹7,655.5 crore was exported from India as against 3.11 lakh MT worth ₹5,449 crore in 2020-21. Italy, Germany, Belgium and Russian Federation are the major importers of coffee from India. The export of coffee from Kerala through Cochin port also showed an upward trend with a very impressive growth of 81.8 per cent to 62,069 MT in 2021-22 compared to the growth of 7.5 per cent to 34,134 MT in the previous year.

Export of Spices

In 2021-22, the export performance of spices from India is not encouraging as compared to 2020-21. However it has crossed the 4 billion US\$ with negative growth of (-)2 per cent in terms of dollar value over previous year. In 2021-22, spices and spices products of 15,31,154 MT worth ₹30,576 crore was exported from India as against 17,58,266 MT worth ₹3,0967.7 crore in 2020-21.

Figure 5.4.6 Export trend of coir and coir products from India and Kerala (through Cochin Port), 2016-17 to 2021-22, quantity in lakh MT



Source: Coir Board and Cochin Port Trust

Table 5.4.5 Export of tea from Kerala ports and India, 2016-17 to 2021-22, quantity in MT, ₹ in lakh

Year	Kerala		India	
	Quantity	Value	Quantity	Value
2016-17	67,431	1,13,935	2,27,634	4,63,250
2017-18	75,741	1,23,294	2,56,572	5,06,488
2018-19	80,683	1,43,440	2,54,502	5,50,684
2019-20	76,983	1,47,082	2,41,344	5,45,710
2020-21	70,398	1,56,595	2,03,791	5,31,153
2021-22	64,854	1,46,841	2,00,785	5,41,577

Source: Tea Board

The export of spices from Kerala through Cochin and Thiruvananthapuram ports increased to 1,23,723 MT valued ₹5,666.4 crore in 2021-22 as against 1,21,349 MT valued ₹5,006.3 crore in 2020-21 registering a marginal growth of 2.0 per cent in volume and 13.2 per cent in value.

The share of Kerala in country's export of spices and spices products shows a fluctuating trend since 2016-17. In 2021-22, the share of Kerala increased to 8.1 per cent as against 6.9 per cent in 2020-21 in terms of quantity. In terms of value, it marginally increased to 18.5 per cent in 2021-22 from 16.2 per cent in 2020-21. (**Table 5.4.6**).

The export of spices and spice products, in quantitative terms, from India showed a decline in 2021-22. The decline is mainly due to the economic recession faced by the major importing countries coupled with increased domestic price and quality restriction imposed by major importing countries like China and EU.

The export basket of spices and spice products from India includes about 52 spices and its products. The export of chilli, spice oils and oleo-

resins, cumin, mint products, turmeric, cardamom (small), curry powder/paste and ginger contribute 80 per cent of the total export earnings from spices. In 2021-22, the export of spices like spice oils and oleo-resins, cardamom, pepper, tamarind, asafoetida, cambodge, fennel and garlic showed increase both in quantity and value whereas the export of turmeric and nutmeg/mace showed increase in value terms only. The export of chilli, coriander, cumin and fenugreek declined both in quantity and value terms in 2021-22. China is the largest importer followed by USA, UAE, Bangladesh, Thailand, Indonesia, Malaysia, UK, Srilanka, Nepal, Germany, Saudi Arabia, Netherlands and which accounts 75 per cent exports of spices from India.

Kerala's export of spices and spice products, in quantitative terms, showed an increasing trend since 2019-20. The exports of spices and spice products registered an increase of 11.8 per cent and 21.1 per cent respectively in 2019-20 and 2020-21. In 2021-22, export recorded a marginal growth of 2.0 per cent in volume and a significant growth of 13.2 per cent in value compared to previous year.

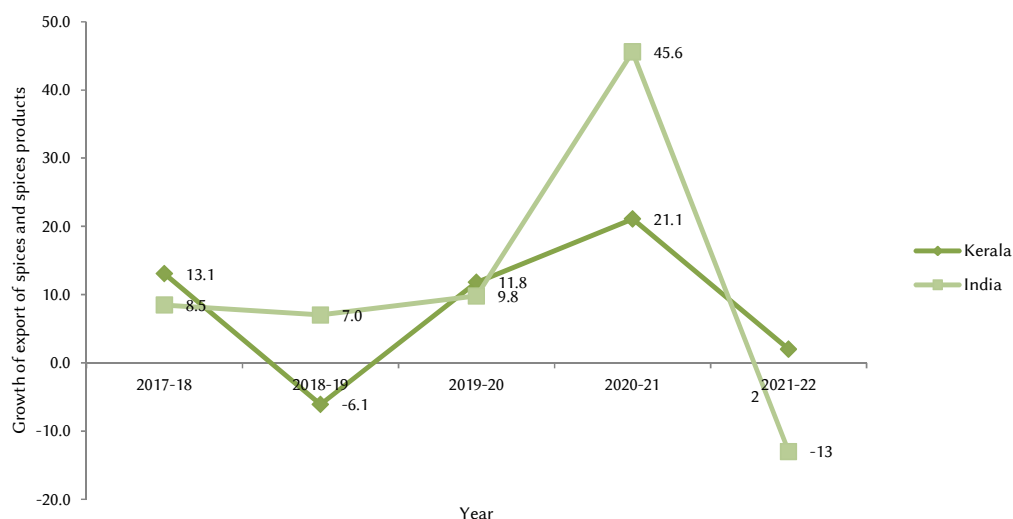
Figure 5.4.7 depicts the trend in growth of export

Table 5.4.6 Export of spices, India and Kerala, from 2016-17 to 2021-22, quantity in MT and value in ₹ lakh

Year	Kerala		India		Kerala's share (%)	
	Quantity	Value	Quantity	Value	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	1,23,723.4	5,66,643.6	15,31,154	30,57,644.3	8.1	18.5

Source: Spices Board

Figure 5.4.7 Trend in growth of export of spices and spice products from India and Kerala, 2017-18 to 2021-22, quantity in per cent



Source: Spices Board

of spices and spice products from India and Kerala.

In 2021-22, the export of individual spices like chilli, cardamom (small), ginger, cumin, celery, fenugreek from Kerala showed an increase both in volume and value as compared to previous year. A total volume of 5,925 MT of cardamom (small) valued ₹815.5 crore was exported from Kerala through Cochin and Thiruvananthapuram ports in 2021-22 as against 3,029.5 MT valued ₹586.3 crore in 2020-21, registering a remarkable growth of 95.6 per cent in volume and 39.1 per cent in value. Export of chilli increased from 29,433.8 MT valued ₹572.8 crore in 2020-21 to 30,365.3 MT valued ₹651.9 crore registering a growth of 3.2 per cent in volume and 13.8 per cent in terms of value. The export of pepper was declined to 17,253.1 MT valued ₹603.2 crore in 2021-22 as against 17,321.1 MT valued ₹491.4 crore in 2020-21 registering a marginal decline of 0.4 per cent in volume and a growth of 22.8 per cent in value.

In the case of value-added products export of curry powder and mixture showed an increase in volume and value while spice oil and oleo-resins and mint products showed marginal decline in 2021-22 in terms of quantity as compared to 2020-21. Export of curry powder and mixture in 2021-22 was 15,253 MT valued ₹314.8 crore as against 14,517 MT valued ₹313.3 crore in 2020-21 recording an increase of 5.1 per cent in volume and 0.5 per cent

in value. A total volume of 10,588 MT of spice oils and oleo-resins valued ₹2,444.7 crore was exported in 2021-22 as against 10,640 MT valued ₹2,210.9 crore of previous year registering a marginal negative growth of (-)0.5 per cent in volume and a growth of 10.6 per cent in value.

5.5 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 and survey activities of the proposed locations by Waqf board. The Department had completed resurvey of land in 920 villages till 2022, with the resurvey work of 746 villages remaining to be completed. The resurvey works are to be completed with the help of modern techniques such as Continuously Operating Reference Stations (CORS) and Real Time Kinematic Rover (RTK-Rover). At present geo referenced digital records are being prepared in WGS 84 systems with the equipment's like

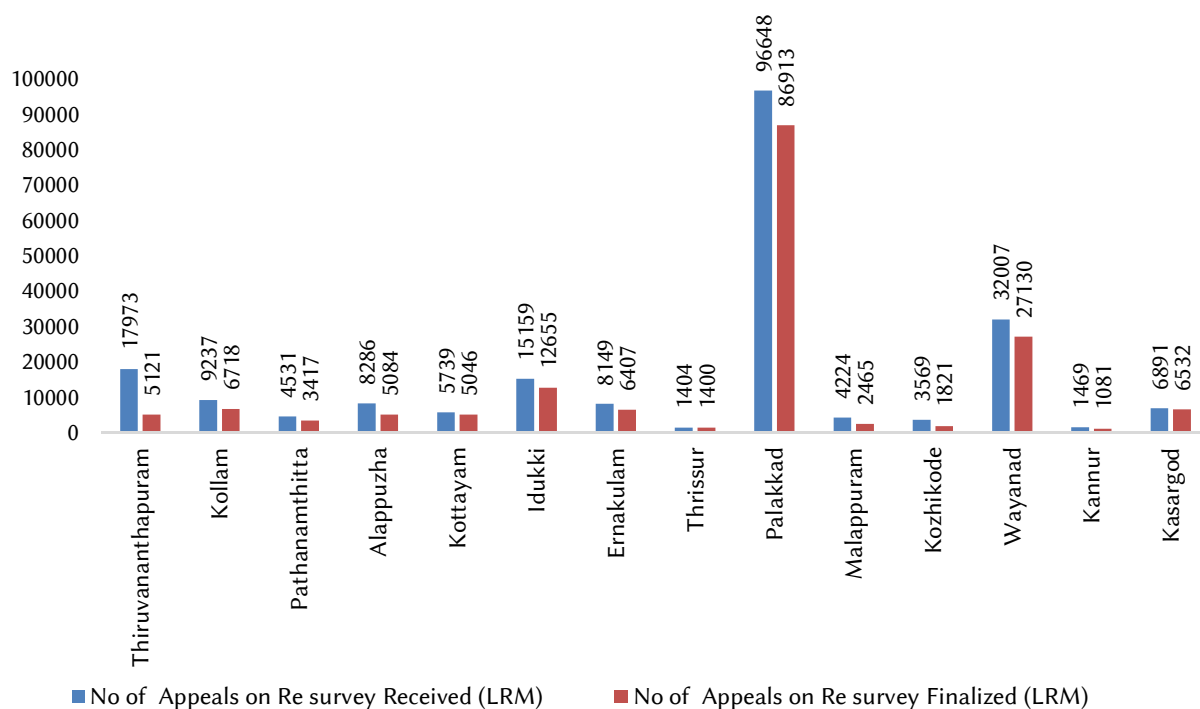
Electronic Total Station (ETS) and Global Positioning system (GPS). The present position of CORS is given in **Box 5.5.1**. Details of resurvey from 2019 to 2022 (up to August 31, 2022) are given in **Appendix 5.5.1**. The digital resurvey has been progressing in 1,550 villages and will be completed within four years.

The Department also acts as the authority on resurvey appeals and Land Acquisition (LA) appeals. The District Collector takes final decision on the recommendation of the District survey superintendent on such appeals. In 2021, the District offices have finalised 1,71,790 cases (79.79 per cent) out of 2,15,286 appeals on resurvey. **Figure 5.5.1** shows the District-wise details of resurvey appeals received and finalised. It also finalised 5,917 cases out of 41,375 appeals received on LA. Details are shown in **Appendix 5.5.2**.

Box 5.5.1 Continuously Operating Reference Stations (CORS)

According to the topography of the State, 28 COR Stations are required. The COR Stations are setup in collaboration with Survey of India and are ready for operation. For bringing the entire State under CORS network a CORS control centre is being established.

Figure 5.5.1 District-wise number of Re-survey appeals received and finalised in 2021



Source: DSLR

The Survey Department imparts training to IAS officers and officials of revenue department, survey department and Deputy Collectors. Details 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. 49 Block maps were prepared in 2021. Details are given in **Appendix 5.5.4**. The existing land records are scanned and kept in digital form. In 2020 and 2021 the number of Field Measurement Book (FMB) scanned are 982 and 24,858 respectively. In 2022, 2,01,969 FMB was scanned up to August 31, 2022. During this period, the largest number of FMB was scanned in Thiruvananthapuram District (41,474).

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. The Department had successfully implemented e-payment system for the collection of registration fee. In 2021-2022, the department collected a total of ₹1,212.53 crore as document registration fee.

Out of this ₹768.45 crore is for sale conveyance which is the major component. Details of documents registered and fee collected are given in **Appendix 5.5.5** and **5.5.6**. The major initiatives of the Registration Department during 13th Plan period are given in **Box 5.5.2**.

Excise Department

The Excise 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. 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 given in **Box 5.5.3**.

Box 5.5.2 Major Initiatives of the Registration Department during 13th Plan Period

- E-Payment for all transactions.
- E-Stamping for all transactions related to immovable property with a stamp duty of one lakh rupees and above.
- Online transfer of Registry implemented in 1,666 villages spanning across 315 Sub Registry offices in the State.
- Facilitated self preparation of documents by the buyer or seller.
- Filing sheet resized from A3 to A4 for promoting self preparation of documents.
- Digital Gehan document (Mortgage deed) implemented in all Sub Registry Offices.
- Integrated Swiping machines (POS) installed for collection of transaction fees in all the Sub Registry offices.
- Anywhere Registration of Documents within a District.
- Pilot implementation for endorsement with Photo and Biometric finger print of the parties to a document.
- Pilot programme for template based document generation.
- Online issue of certified copy with digital certificate.

The numbers of Abkari cases in the State were 15,860 in 2020 and in 2021, it increased by 25.68 per cent to 19,934. The rate of increase is highest in Thiruvananthapuram District (56.73 per cent). With respect to NDPS cases in 2021, the rate of increase is 6.95 per cent compared to previous year. The number of cases has decreased in some Districts. The highest decline in NDPS cases was recorded in Kollam District (-)26.40 per cent. In case of COTPA cases, an overall increase of 42.86 per cent was recorded in the State. Kozhikode District recorded 131.54 per cent increase and in Alappuzha District the number of COTPA cases shows a decrease. In 2022 (from January 01, 2022 to August 31, 2022), it registered 12,358 cases under Abkari act, 3,386 cases under NDPS Act and 56,129 cases on COTPA. It was 19,934, 3,922

and 74,604 respectively in 2021. District-wise case details for the year 2020, 2021 and 2022 are in **Appendix 5.5.7**. Details 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 for the year 2022 are in **Appendix 5.5.9**.

Excise department conducts public awareness campaign for schools, colleges and for public. A total of 14,691 awareness campaigns were conducted in 2022 (up to August 31, 2022). It was 9,394 in 2021. District-wise and sector-wise details are in **Appendix 5.5.10**.

Box 5.5.3 Highlights of Vimukthi Mission

- As part of local-level intervention Vimukthi Ward Level Committees have been formed in 19,469 LSGD wards.
- Started 6,032 Anti-Narcotic Clubs in Schools.
- Started 899 Anti-Narcotic Clubs in Colleges.
- 52 Schools are identified for Unarv programme, which aims to divert students energy towards arts and sports activities.
- Setup 14 de-addiction centres in 14 districts.
- Setup three zonal counselling centres.

Police Department

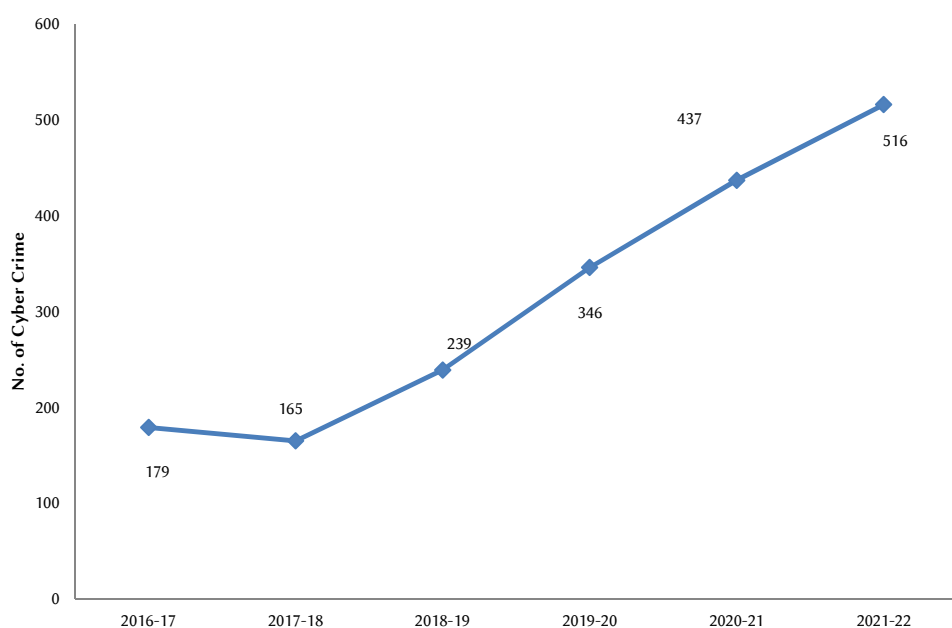
Kerala Police Department is the law enforcing agency for the State. The Department has different wings, such as the General Executive Wing, Crime Branch, Armed Police, State Crime Record Bureau, Training Wing, Special Branch and 11 specialised wings. The specialised wings include Forensic Science Laboratory, 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 counselling centres. There are 578 Nirbhaya Volunteers working along with the Police Department. Details are in **Appendix 5.5.11**. The Department works along with people through community policing schemes. 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 are given in **Appendix 5.5.12**.

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 81,514 cadets in 1,000 schools in which SPC is implemented. Out of 1,000 schools, 542 are Government schools, 435 are aided schools and 23 are unaided schools. Details are in **Appendices 5.5.13** and **5.5.14**. The important campaigns of the Police Department is given in **Box 5.5.4**.

The NRI Cell of police registered 29 cases in 2021-22 (up to August 2022). Details are in **Appendix 5.5.15**. The cyber and high-tech enquiry cell had registered 201 cases in 2022-23 (up to August 2022), it was 516 in 2021-22. **Figure 5.5.2** shows

Figure 5.5.2 No of Crimes Registered in Cyber Cell



Source: Police Department

Box 5.5.4 Student Police Cadet Activities during COVID-19 Pandemic

Feed a Stomach: SPC team prepared and distributed around seven lakh food packets to the needy people and also distributed 40,000 packets of groceries to the poorest families and to the community kitchens run by the local self-Governments.

Jeevadhara Blood Donors Bank: SPC created a blood bank to ensure the availability of blood at hospitals and blood banks during the pandemic. This programme created a network of three lakh willing blood donors across the State.

Sadaram: A programme of SPC to honour the cleaning staff of hospitals, during the pandemic period.

Kitchen Garden: SPC with the help of Vegetable and Fruit Promotion Council of Kerala setup and maintained 1 lakh kitchen gardens.

Hashtag and Awareness Campaigning: A campaign started to convert the lockdown period to a productive and creative experience. A special hashtag, “Break Chain Make Change” was created for cadets to post photos and videos created with support from their parents on social media. This campaign created an impressive collection of 22,731 photos and videos and it is still continuing.

Whatsapp Class Room: Student Police Cadets created whatsapp groups to spend time judiciously during the lockdown for online classes.

Kutti Desk and Awareness Videos: Awareness regarding the formation of COVID-19 and its prevention over the telephone to children from weaker sections of the society and videos and posters exhibiting various COVID-19 related health issues.

Paravaykku oru Thanneerkkudam (Watering Hole): To maintain the Earth’s biological rhythm, cadets placed water pots in several different locations for birds and animals for their thirst during the hot summer days.

Sravanam 2020: Student Police Cadets conducted online Onam celebration programme in the wake of COVID-19.

Thalam, Sandram, Sangeetham 2020: Virtual Kalothsavam for Student Police Cadets.

Padavukal: Through this programme the children are exposed to various career options available before them through streamed live over Facebook.

Virtual Classroom: SPC arranged virtual classroom with the help of teachers. SPC mobilised ‘TV Challenge’ and the ‘Mobile Challenge’ to provide equipment’s to the needy children’s.

Chiriyo Chiri: Chiri is an online friend created by SPC to help children who have struggled with mental health during the COVID-19 period.

the increasing trend of cyber crimes reported during the period from 2018-19 to 2021-22.

Social media abuse, online cheating, cyber offences done through smart phones, hacking of bank accounts and e-mail ids, creation, publishing and sharing of child pornography are the major cyber-crime cases reported during the period under report. Details are given in **Appendix 5.5.16**.

Prisons and Correctional Services

Globally, all nations use imprisonment as a punishment to protect society from crime and reduce recidivism. Although imprisonment is imposed as a punishment, significant efforts have been made to improve the conditions of prisons

and prisoners. In recent years there have been radical changes in the approach towards prisoners. The purpose and rationale of imprisonment are to correct and reform criminals and to protect society from crime. Prisons aim to reintegrate offenders back into society so that they can lead dignified life. The State Prisons and Correctional Services Department is working towards the above objectives of correction, reformation, and rehabilitation of prisoners.

The jails department in Kerala was established in 1956 by reorganising the existing jails in Travancore – Cochin State and British Malabar State. 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.

The existing authorised capacity of all the jails in the State is 8,050. As of March 2022, there were 7,450 prisoners, of which 163 were women. There were 110 inmates in the three open jails, 110 inmates in women's jails, and 1,409 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 2022 (up to March 31, 2022). The figures show a jump in the number of inmates in March 2022 when compared to March 2021. This is due to a drop in the number of inmates in March 2021. The general lockdown, in the wake of COVID-19, has slowed down office procedures, including the trials. In addition to this, the number of parole and releases was high at that time to contain the disease.

Overview of the Department Schemes in 2021-22

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 ₹12 crore for the welfare and rehabilitation of prisoners and

₹7.50 crore for the modernisation of prisons in 2021-22.

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 2021-22, ₹11.99 crore was spent on the scheme and mainly completed the third phase works of the jail at Tavanur. Some of the major activities that are sanctioned comprise construction of the compound wall at District jails Alappuzha and Viyyur, renovation of internal roads in central prison at Thiruvananthapuram, Open Prison at Cheemeni and Women's Prison at Kannur. Along with this, an extension of toilet facilities in central jails and open jails, heightening the compound wall at District jail, Kottayam, special sub-jails at Kasaragod and Kannur, and sub-jail at Ernakulam were also sanctioned.

Various programmes aimed at the welfare and rehabilitation of inmates, such as initiatives for basic education, vocational training, etc., have been taken up under the welfare scheme. This scheme also aims at encouraging and utilising the talent and interest of the prisoners in the fields of arts and sports. In 2021-22 ₹5.05 crore were spent out of ₹7.50 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, and organic farming were conducted. Apart from these, training is also provided in computer hardware assembling and lift operation. 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. The system has been set up in District jail, Idukki, special sub-jails at Thiruvananthapuram, Mavelikara, Ponkunnam, and sub-jail Peerumedu. An excavator with jack hammer for the Open Prison and Correctional Home, Chimeni, and

Table 5.5.1 Number of prisoners from 2016 to March 31, 2022

Prisoners	2016	2017	2018	2019	2020	2021	2022
Female	213	200	196	181	193	148	163
Male	7,770	7,413	7,686	7,786	7,470	6,047	7,287
Total	7,983	7,613	7,882	7,967	7,663	6,195	7,450

Source: Prisons and Correctional Services

a power tiller in District jail, Palakkad, was purchased to expand agricultural activities and provide more employment opportunities to the inmates. An amount of ₹1.50 crore has been invested in the Public Works Department to construct quarantine block in three central jails. Funds are also sanctioned for setting up a sewage treatment plant at Viyyur central prison and improving kitchen facilities at District jail Kozhikode, special sub-jail Thalassery, and sub-jail Koilandi.

Major Achievements

- Constructed special sub-jail at Koothuparambu and completed the first phase work of the special sub-jail at Thaliparambu
- Completed the first phase of construction works of District jail Pathanamthitta
- Acquired four acres of land at Mannarkkad in Palakkad District to construct a new sub-jail.
- Completed the construction of a special block for transgender prisoners in special sub-jail, Thiruvananthapuram
- Constructed separate blocks for mentally ill prisoners in central jails, Viyyur, and Kannur
- Constructed Administrative block and a new barrack at the Open Prison and Correctional Home at Chimeni.
- Constructed a multipurpose auditorium at central jail, Viyyur, and quarters in the District jail, Mananthavadi

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 November 30, 2022.

Table 5.5.2 number of probationers in Kerala as on November 30, 2022.

Name of District	Number of Probationers (01st January to 30th November 2022)
Thiruvananthapuram	51
Kollam	43
Pathanamthitta	11
Alappuzha	40
Kottayam	39
Idukki	48
Ernakulam	64
Thrissur	32
Palakkad	46
Malappuram	64
Wayanad	30
Kozhikkod	22
Kannur	50
Kasaragod	42
Total	582

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 and arranged a study through the Sree Sankaracharya University of Sanskrit and the Centre for Management and Development, Kerala. 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.

The first such home for men was started at Valakom, Kollam District in collaboration with Gandhi Bhavan International Trust on March 13, 2020. This institution provides a homely atmosphere and can accommodate 25 men from all districts of Kerala between the age group 18-70 years. The inmates would be engaged in various programmes such as agriculture, gardening, aqua farm, soap and lotion making, mushroom culture. They would also be engaged in sports and recreational facilities for their physical and mental health support.

Achievements of Aftercare Services and Victim Rehabilitation in 2021-22

- Provided financial assistance to the children of crime victims and spent ₹1,52,000 for 31 beneficiaries
- Under the Education Assistance Scheme for the children of prisoners, ₹8,51,000 was utilised for 36 beneficiaries.
- Provided marriage assistance for daughters of prisoners at ₹30,000 per person for nine beneficiaries
- An amount of ₹6,09,597 was used for the rehabilitation of cured mentally ill prisoners.

- For the implementation of Nervazhi programme, an amount of ₹25,44,920 was utilised
- Under the scheme for self-employment of ex-offenders, ₹10,20,000 was given to 68 beneficiaries.
- Under the Self-Employment Scheme for the victims of violence, an amount of ₹26,45,000 was utilised for 176 beneficiaries

Way Forward

Kerala is making progress in mitigating overcrowding in prison institutions and ensuring humane treatment of prisoners. 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. State Probation Rules 1960 may also be amended to accommodate the changing situation. Institutional support, vocational training, livelihood support programmes and better follow-up would also help smooth re-integration of offenders into society.

5.6 OUTREACH TO PUBLIC

Democratic Governments are supposed to be responsive to public opinion. Public relations activities are decisive in democracy as the Government at different levels works best when the citizens are well-informed. Various departments in Government generally conduct publicity, promotional, and informational campaigns; however, the Information and Public Relations Department (I&PRD) is the nodal agency for these activities in Kerala. The Department disseminates information on the policies, programmes, 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.

State Initiatives on Public Relations

Visual Media- Visual Media Division produces and distributes video news clippings, short videos, info-videos, documentaries, short films, and posters to television channels. The major television programme broadcasts are Naam Munnott – The hon'ble Chief Minister's weekly interactive television programme, Navakeralam – a weekly development-based programme, and Priyakeralam – news roundup. 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(www.twitter.com/keralainfoiprd), Facebook (www.facebook.com/keralainformation), and YouTube (www.youtube.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, programmes, 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.

Outdoor Publicity and Culture- Outdoor publicity within 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 Outdoor Publicity and Cultural Division.

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 refresher training 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.

Tagore Theatre- The Department has developed the Tagore Theatre as a cultural hub in the Capital city. This is a major venue for hosting the National Theatre Festival and the International Film Festival of Kerala.

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 2021-22

- Published an average of 15 special stories and 20 news-based items in a month through Public Relations Information Service Management (PRISM) project at the Village and Block-levels.
- Digitised 56,220 images and uploaded them to the official website of the Government, www.kerala.gov.in; and sub-portals noticeboard.kerala.gov.in and document.kerala.gov.in
- Produced and telecasted 20 episodes of Navakeralam – IPRD's news-based television programme highlighting the Government's development and welfare-oriented activities.
- Live coverage of the State Budget, distribution of media awards, State film festival 2022, and the first anniversary of the Government were done through Radio Kerala, the Department's internet radio. About 140 Info videos of one-minute duration based on the Government's welfare programmes, announcements, and achievements were produced and released through social media.
- Organised an online video competition for the public named '*Mizhiv 2022*'. It focuses on the Government's development and achievements. 69 entries were received and 11 short films were produced through empanelled directors, based on the stories of effective interventions of the Government in tackling the 1st and 2nd waves of COVID-19.
- As part of the modernisation of District Information Offices, the Department has completed office renovation work at District

information offices in Alappuzha, Kottayam, Kasaragod, Idukki, and Kannur. The renovation work of Tagore Theatre has been progressing and completed rainwater tank and Portable audio system.

- Prepared a Visual History of Kerala – a six-hour-long documentary and five books.
- Outdoor publicity campaigns were organised District-level to create awareness about various Government programmes and conducted a special Public Relations campaign successful. Conducted Ente Keralam trade and knowledge exhibitions at the District-level on the occasion of the first anniversary of the Government.
- Monitoring the 10 Malayalam news channels with recordings and storage, scrutiny, and digitisation of 14 English and Malayalam dailies carried out.

Way Forward

Dissemination of Information and networking with the Public can play a critical role in fast-tracking developmental activities, keeping law and order, and delivering welfare programmes in the State. A better result can be attained by the induction of modern technology and gadgets like the application of artificial intelligence, augmented reality, and drones based photography, especially during natural calamities. A full-fledged system has to be developed to live-stream the Government programmes to the public with the help of a high-quality multi-media editing studio at the department headquarters as well as all its District centres.

CHAPTER

06

HUMAN DEVELOPMENT

HUMAN DEVELOPMENT

6.1 EDUCATION

Any assessment of development process in Kerala must take account of its outstanding measures with regard to universal literacy, schooling, school-pupil retention and social inclusiveness in education. It must further take into account the availability of educational institutions in the immediate neighbourhood of most households in urban and rural areas. Assessments in the present and recent past must further take in to account the extraordinary enhancement of the quality of education in public schools over the past five years.

The State has taken measures to address the needs and requirements of children from different sectors, particularly the marginalised and vulnerable sections. Specifically designed programmes, with professional expertise and assistance, are being implemented to meet the requirements of children with disabilities. Special focus on extracurricular activities such as sports and arts has also been given, though they need further improvements in terms of coverage and scientific assistance. Through the projects such as '*Vidya Kiranam*' a component of Nava Kerala Mission which is a continuation of '*Pothu Vidyabhyasa Samrakshana Yajnam*' and 'Kerala Knowledge Economy Mission', the Government aims to bring major changes in school and higher education levels.

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 all sections of society access to digital study material and library networks on a completely new scale.

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 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 rate, 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 rate by sex 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 marginalised sections of the society with special focus on women, scheduled caste, scheduled tribes, transgenders, coastal area people and migrant workers etc. 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 implementing 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 PadmaLikhnaAbhiyan (PLA) for the eradication of illiteracy. Total number of persons benefitted by the literacy programmes of KSLMA in 2021-22 was 2,09,441.

A new Centrally sponsored project namely, New India Literacy Programme for the period 2022-27 is also being implemented to cover all the aspects of adult education to align with National Education Policy 2020. In Kerala all the 14 districts will be part of this programme and its first phase (year) will be implemented to make 85,000 illiterates as literates.

2. Special projects for the marginalised sections of the society

- a. Attappadi Tribal Literacy programme: As part of this, conducted classes in 192 tribal settlements at Attappadi and 2,553 learners became literates.
- b. Wayanad Tribal Literacy programme: This

programme is designed to eradicate the illiteracy among Wayanad tribal people. Three phases of this project have been completed and more than 25,000 tribal learners attained literacy.

- c. Navachethana – Special Literacy programme for scheduled castes: The project was implemented in the 14 districts of Kerala and 1650 learners became literates and 1410 learners attained 4th class equivalency. At present 356 learners are parts of this programme in the year 2021-22.
- d. Samagra – (Special Literacy programme for scheduled tribes): This project was implemented in 100 selected tribal settlements across the State and 3,835 learners became literates. 941 learners passed 4th class equivalency test and 211 learners passed 7th class equivalency test.
- e. Changathi – Special Literacy programme for Migrant Labourers: In the period 2019-20 literacy mission implemented this project in 14 LSGDs in all Districts and 1,641 migrant labourers became literates. In 2021-22 there are 1,432 changathi learners.
- f. 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.
- g. Aksharasree: It is an exclusive project implemented in the 100 wards of Thiruvananthapuram corporation. In the year 2022, there are 400 learners for 10th equivalency learners and 862 plus one learners are studying under this programme.
- h. Aksharasagaram: It is a programme aimed for the development of coastal area people funded by the Fisheries department. The first and second phases of the project have been completed. 2,135 learners gained literacy and 1,473 learners were promoted to 4th class equivalency through this project.
- i. Adisree – Aaralam literacy project: This project is envisaged to eradicate illiteracy in Aaralam farm, Kannur Districts. 600 learners are attending classes in this programme.

3. Equivalency Programmes

Equivalency programmes are organised with a view to provide an alternative education equivalent to the existing formal system of education.

4th 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

Table 6.1.1 Number of persons who enrolled in Higher Secondary and 10th equivalency courses in 2021 and 2022

Course		Female	Male	Transgender	SC	ST	Persons with disabilities	Total
Higher Secondary	2021	12,849	7,491	31	4,736	740	251	20,371
	2022	16,104	7,065	23	4,885	731	325	23,192
10th	2021	10,755	7,839	16	4,173	675	518	18,610
	2022	17,064	8,620	14	4,854	906	656	25,698

Source: KSLMA

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 2021-22, a total number of 9,767 people enrolled in 4th class equivalency programme and out of this 2,658 learners passed and 4,726 people enrolled in 7th class equivalency programme and 1,820 learners passed.

Because of the focussed efforts of KSLMA, Preraks could identify the persons in need and enroll them into various levels of equivalency programmes. KSLMA is taking efforts to bring a large number of persons back to studies and to enroll them in 10th and Higher Secondary equivalency courses (Table 6.1.1). The details on the number of people benefited from Equivalency programme of Kerala State Literacy Mission in 2021 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, a total number of 37 transgenders enrolled in the 10th and higher secondary equivalency programmes in 2022. Likewise, a significant participation of persons with disabilities can also be seen.

4. Social Literacy Programmes

The Kerala State Literacy Mission Authority (KSLMA) is focusing not only to alphabets and numerical literacy, but also the other social literacy programmes. Realising 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. Constitution Literacy: Kerala Literacy Mission embarked on a mass people's campaign for 'Constitution Literacy' across the State to create basic awareness about the Indian Constitution among the general public. Two phases have been conducted so far and the Mission worked over 50 lakh people with the participation of Kerala Legislative Assembly.

b. Environmental Literacy Programme: Literacy mission conducted so many programmes such as environmental literacy survey, awareness classes, seminars, exhibitions, Water Literacy classes etc. as part of environmental literacy programme.

5. Certificate Courses: KSLMA launched three new Certificate courses, Pacha Malayalam, Acchi Hindi, Good English aimed 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.

Table 6.1.2 Details of Certificate Courses of KSLMA in 2021 and 2022

Sl No.	Course Name	Number of Learners in 2021	Number of Learners in 2022
1	Good English	2152	2069
2	Acchi Hindi	33	255
3	Pacha Malayalam	435	1072

Source: KSLMA

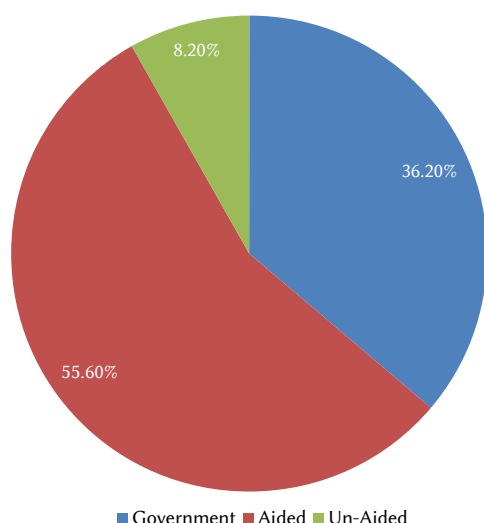
School Education

Directorate of General Education co-ordinates all the activities of public education from class one to ten, higher secondary and vocational higher secondary education. Earlier, classes from one to ten 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 12,972 schools in Kerala in 2021-22, out of which 4,697 (36.2 per cent) are Government schools, 7,212 (55.6 per cent) are aided schools and 1,063 (8.2 per cent) are unaided schools. 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.

Figure 6.1.1 Management-wise percentage of schools in the State, 2021-22



Source: Directorate of General Education

In 2021-22, Malappuram District had the largest number of schools (1,572) in the State followed by Kannur (1,306) and Kozhikode (1,281). 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 2021-22 are given in **Appendix 6.1.4**.

In 2021-22, there are 1,523 schools in the State which are offering syllabi other than the one prescribed by the State Government. These include 1,309 CBSE schools, 164 ICSE schools, 36 Kendriya Vidyalaya and 14 Jawahar Navodaya vidyalayas. District-wise details of schools with syllabi other than State syllabus in the year 2021-22 are given in **Appendix 6.1.5**.

Physical Infrastructure and Facilities in Government Schools

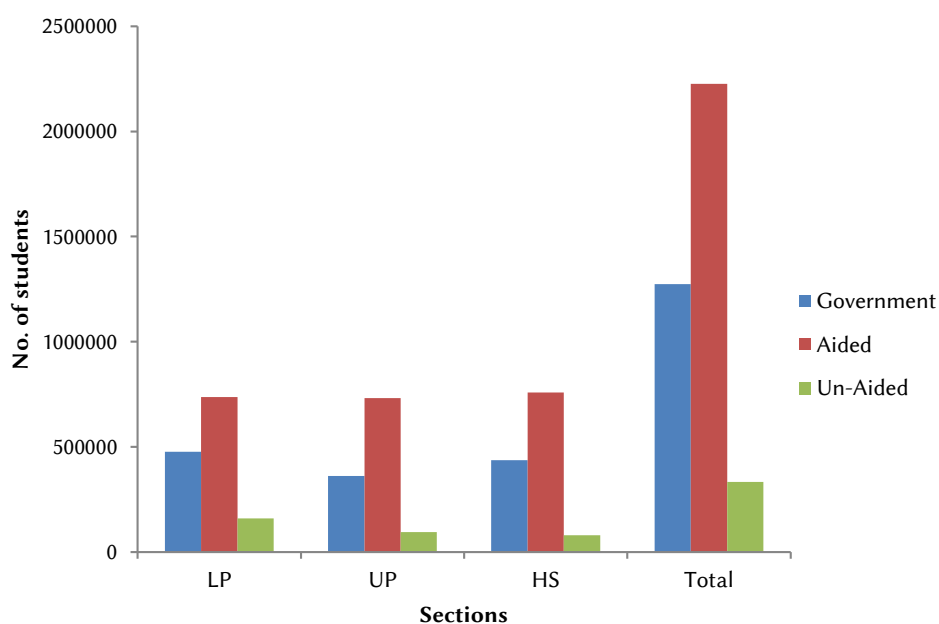
Most of the Government schools in Kerala are functioning in pucca buildings. Eighty Government schools are working in rented buildings. District-wise details of Government schools having building facilities are given in **Appendix 6.1.6**. Local Governments and programmes like Sarva Shiksha Abhiyan (SSA) have contributed much to the overall development and improvement of physical infrastructure and common facilities in Government schools in the State. An amount of ₹5 crore, ₹3 crore and ₹1 crore each has been allotted for the infrastructural development of 141, 386 and 446 number of schools respectively under KIIFB. Under ₹5 crore category construction of building has been fully completed in 119 schools and partly completed in 20 schools. In the ₹3 crore category constructions of buildings has been completed in 132 schools and in ₹1 crore category constructions of buildings has been completed in 23 schools. The construction of building of 52 schools has been completed, with the aid of NABARD, by utilising ₹104 crore. It is seen that 99.74 per cent of Government schools have access to drinking water and almost all schools have urinals/latrine facilities. District-wise details of Government schools having drinking water/latrines/urinal facilities in Kerala in 2021-22 are given in **Appendix 6.1.7**.

Enrolment of Students

There is a small decrease in the enrolment of students in 2022-23 (provisional) to 38.32 lakh from 38.68 lakh in 2021-22. This decrease is seen 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 2016-17 to 2022-23 are given in **Appendix 6.1.8**. Details of management-wise and standard-wise enrolment of students in schools in 2022-23 (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 2022-23 is given in **Appendix 6.1.10**. Boys outnumber girls in all sections and Districts.

Compared to previous years, around 2,56,448 new students sought admissions in Government and Government Aided schools in Kerala in the academic year 2021-22. The corresponding number for the year 2022-23 is 82,448. The

Figure 6.1.2 Management-wise and section-wise enrolment of students in Kerala in 2022-23



Source: Directorate of General Education

Table 6.1.3 New Students who sought admission in public funded schools in Kerala, from 2016-17 to 2021-22

Management	I-IV	Standards V-VII	VIII-X	Total I-X
From 2017-18 to 2018-19				
Government	22931	12229	35484	70644
Govt. Aided	29186	67483	18658	115327
Total	52117	79712	54142	185971
From 2018-19 to 2019-20				
Government	16223	12616	36376	65215
Govt. Aided	19412	63312	15619	98343
Total	35635	75928	51995	163558
From 2019-20 to 2020-21				
Government	21339	9659	3859	34857
Govt. Aided	32493	57844	3310	93647
Total	53832	67503	7169	128504
From 2020-21 to 2021-22				
Government	50124	20018	37316	107458
Govt. Aided	56196	77094	15700	148990
Total	106320	97112	53016	256448
From 2021-22 to 2022-23				
Government	-3304	1557	31282	29535
Govt. Aided	-8097	54601	6409	52913
Total	-11401	56158	37691	82448
Total new students during the last five years				816929

Source: Directorate of General Education

total number of new students sought admission in Government and aided schools for the last five years is 8,16,929 (**Table 6.1.3**).

Enrolment of Girls in Schools

In 2022-23, girls constitute 48.93 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.

Strength of Scheduled Caste and Scheduled Tribe Students

In 2022-23, Scheduled Caste (SC) students constitute 9.82 per cent of total students in the State. The percentage of SC and ST students in Government schools is higher than that of aided and unaided schools. The percentage of SC students in Government schools, Government aided schools and private unaided schools are 12.17 per cent, 9.40 per cent, and 3.67 per cent respectively (**Table 6.1.4**).

ST students constitute 1.86 per cent of total enrolment in schools in 2022-23. The percentage of ST students in Government schools, Government aided schools and unaided schools are 3.34 per cent, 1.22 per cent, and 0.44 per cent respectively in 2022-23. The standard-wise strength of SC/ST students in the State in 2022-23 is given in **Appendix 6.1.11**. Out of the total number of SC/ST students in the State, only 3.25 per cent of SC and 2.06 per cent of ST students are enrolled in private unaided schools. The rest are admitted in Government and Government aided schools. Out of the total ST students, 59.78 per cent is enrolled in Government schools.

Table 6.1.4 Proportion of SC/ST Students in Schools in Kerala, 2022-23 (provisional)

Management	Others	SC	ST
Government	84.49	12.17	3.34
Government Aided	89.38	9.40	1.22
Unaided	95.89	3.67	0.44
Total	88.32	9.82	1.86

Source: Directorate of General Education

Dropout rate

Kerala has achieved the distinction of having the lowest dropout rate of school students among the Indian States. In the year 2020-21, dropout ratio among school students in Kerala was 0.04 per cent. 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. In Kerala the dropout ratios in lower primary stage and high school stages are slightly higher compared to that of the Upper Primary stage. Dropout rate is highest among high school students. Drop-out ratio of high school has declined from 0.22 per cent in 2017-18 to 0.05 per cent in 2021-22 (**Table 6.1.5**). This declining trend is seen at all stages of school education. (Due to COVID-19, data for 2020-21 is not available).

Table 6.1.5 Stage-wise Drop-out Ratio in Schools in Kerala

	2017-18	2018-19	2019-20	2021-22
Total	0.16	0.12	0.11	0.04
L.P	0.15	0.12	0.10	0.03
U.P.	0.1	0.07	0.06	0.02
H.S.	0.22	0.17	0.15	0.05

Source: Directorate of General Education

Among the Districts, Ernakulam has the highest dropout ratio in lower primary (0.17 per cent) section followed by Idukki (0.11 per cent). Kottayam has the highest dropout ratio in upper primary (0.10 per cent) section followed by Ernakulam (0.09 per cent). In high school section, Idukki has the highest dropout ratio with 0.23 per cent followed by Wayanad (0.18 per cent). District-wise/stage-wise dropout ratio in schools in 2021-22 is given in **Appendix 6.1.12**.

The dropout ratio of SC and ST students has significantly declined over the years. The dropout ratios of SC and ST students are still higher than that of students from 'others' category (**Table 6.1.6**). Drop-out ratio among SC students in Kerala has declined in 2021-22 as 0.04 per cent and that of ST students also declined as 0.30.

The dropout ratio of SC students is highest in Idukki District (0.14 per cent) followed by Wayanad District (0.10 per cent), whereas the dropout ratio of ST students is highest in Malappuram District (1.81 per cent) followed by Thrissur District (1.12 per cent). District-wise and management-wise details of dropout among SC and ST students in Kerala in 2021-22 are given in **Appendices 6.1.13** and **6.1.14**. The situation of ST students in Malappuram and Thrissur has

to improve much to reach to the level of all Kerala average.

Number of Teachers

The number of school teachers in Kerala in 2021-22 was 1,58,637. Out of this 91,219 (57.50 per cent) teachers are working in aided schools and 14,082 (8.88 per cent) teachers are working in unaided schools. The remaining 53,336 (33.62 per cent) teachers are working in Government schools. 50.88 per cent of total teachers in the State are teaching in high schools, 24.53 per cent in upper primary schools and 24.58 per cent in lower primary schools. 73.65 per cent of total teachers in the State are women. Stage-wise and management-wise number of teachers in Kerala in 2021-22 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 2020-21. Total number of students in these special schools during the period was 3,046 and the number of teachers was 642. Out of the total 3,046 students, 429 are having visual disability and 2,617 are deaf and hard of hearing. Apart from this 328 special schools are functioning under various NGOs and LSGD in the State. Out of these 328 schools, 40

schools are receiving grant in aid from Central Government scheme known as Deendayal Disabled Rehabilitation Scheme (DDRS). The remaining 288 schools are receiving financial assistance from State schemes. Also, 61,233 students with disabilities are studying in Government, aided and unaided schools all over Kerala. Among them, 36,017 are boys and 25,216 are girls. When taking the District-wise details, highest number of students under IED category is in Malappuram (7,271), followed by Thiruvananthapuram (6,705) and Kollam (6,662). 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.

Schools with Less Number of Students

In 2022-23, the total numbers of schools with average strength of less than 25 students was 953 and out of these 356 were in Government sector and 597 were in the aided sector. There were 39 Government lower primary schools having average number of students with less than 10 while the number of schools in this category was

Table 6.1.6 District-wise Dropout Ratio among SC-ST students in Kerala in 2021-22

District	SC	ST	Others	Total
Thiruvananthapuram	0.03	0.04	0.02	0.02
Kollam	0.01	0.11	0.01	0.01
Pathanamthitta	0.00	0.11	0.00	0.00
Alappuzha	0.03	0.00	0.01	0.01
Kottayam	0.09	0.10	0.07	0.08
Idukki	0.14	0.62	0.10	0.14
Ernakulam	0.09	0.26	0.11	0.11
Thrissur	0.03	1.12	0.02	0.03
Palakkad	0.03	0.29	0.03	0.04
Malappuram	0.02	1.81	0.02	0.03
Kozhikode	0.01	0.06	0.02	0.02
Wayanad	0.10	0.25	0.01	0.07
Kannur	0.00	0.02	0.02	0.02
Kasaragod	0.09	0.06	0.02	0.03
Total	0.04	0.30	0.03	0.04

Source: Directorate of General Education

79 in aided sector. District-wise analysis shows that highest number of schools with less number of students was in Pathanamthitta (184) followed by Kottayam (126) and Kannur (112). The highest number of schools with less students in aided sector is in Pathanamthitta (137) followed by Kannur (96). In the Government sector, Pathanamthitta has the largest (47) number of schools with less number of students followed by Alappuzha (46) and Kottayam (46). Lower primary schools constitute large chunk of the schools with less number of students. Among the Government schools with less number of students, majority (93.54 per cent) are lower primary schools. In the aided sector also 86.26 per cent of schools with fewer students are from lower primary section. District-wise details of schools with less number of students in the State in 2022-23 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, setup 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 in 2021-22

First Bell 2.0

In June 2021, Government decided to continue the Digital Classes until the schools reopen since the COVID-19 pandemic has not settled down. Accordingly the 2nd version of First Bell classes titled First Bell 2.0 was launched on 1st June 2021. Like in the previous year, KITE was assigned with the development and telecast of Digital Classes through its KITE VICTERS educational channel. This continued until the end of academic year and over 18000 digital classes were developed and aired through the channel.

Online Classes using customised G-Suite Platform.

In addition to First Bell digital classes, Government approved the proposal put forth by KITE for rolling out a customised Google India customised their Google Workspace for Education (G-Suite) platform for Online Classes, without any financial commitment but ensuring the privacy and security of students and teachers. Based on the inputs from KITE, G-Suite platform for KITE by creating a separate domain viz. kiteschool.in. A State admin was created as the Super User. Below that there were 14 District admins and school admin. 20 lakh students and one lakh teachers were logged in to this platform and were used effectively. In the first phase, the initiative was rolled out to standard 8, 9 and 10. In the second phase, it was expanded to Class 12. In the third phase, Class 11 has also been included. A total of 5,321 schools made use of this facility for Online Classes.

Additional COVID-19 prevention measures undertaken by KITE VICTERS

KITE VICTERS also telecasted Live Phone-in cum programme titled, 'Athijeevanam' wherein the callers to this programme were able to interact with experts and doctors on respective areas on queries related to COVID-19 testing, quarantine, home isolation, treatment guidelines etc. The topics also included Back to Basic Campaign, preventive measures to be adopted, use of SMS (Soap, Mask and Social Distancing), Different campaigns like Break the Chain and Back to Basic, COVID Vaccination, different vaccines, their protection, effectiveness and dosage details, Registration procedure for vaccination, Virus mutation and e-Sanjeevani Telemedicine.

Audio Books and Sign Adapted classes for differentially abled

To ensure an all-inclusive education, KITE developed Audio Books for visually challenged and sign adapted classes for hearing impaired students of Class 10 and 12, which were launched by Education Minister on 11th February 2022. This was in continuation to the First Bell Digital Classes aired through KITE VICTERS channel. The Audio Books for Plus Two classes has an average duration of 1.5 hours per subject and they can be heard in an enjoyable way like listening to a radio programme and are easily downloadable and shareable in mp3 format. Kerala has taken a huge leap in ensuring Digital Inclusion by incorporating Audio Books for comfortable listening to all

students with special emphasis to visually challenged kids along with Sign adapted classes for hearing impaired kids.

New version of KITE new GNU/Linux Operating System (20.04) released

The new version of KITE GNU/Linux Operating System (OS) viz. 20.04 was released by Chief Minister on 16th March 2022. This OS can be used not only by students and teachers in schools, but also in home computers, Government offices, DTP centres, software developers etc. The OS features a large collection of Malayalam Unicode fonts which help in Malayalam computing, DTP graphics image editing software, sound recording, video editing, 3D animation packages, IDEs for programming, database servers etc. The State had made full use of free software in education by even adopting GNU Kata instead of Tally and LibreCAD instead of the heavily priced AutoCAD. The Operating System can be freely downloaded from the website of KITE www.kite.kerala.gov.in.

Deployment of additional Laptops as part of Vidyakiranam programme

KITE had earlier deployed 45,313 Laptops to all SC and ST students of standard 10 and 12 as part of Vidyakiranam programme. Subsequently 477 Laptops were also deployed to schools in Thiruvananthapuram and Wayanad Districts by making use of CSR funds received as part of this programme.

Capacity Building for Teachers

KITE has trained over 30,000 teachers using the KOOL – (KITE's Open Online Learning) platform, in various ICT courses.

SamagraShiksha, Kerala (SSK)

The SamagraShiksha is an integrated scheme on school education that envisages the 'school' as a continuum from pre-school to senior secondary levels. The creation of such a single administrative structure assists in developing a school sector-wide strategy stressing on improvement in quality of education. The common objectives of the scheme are to enhance access through the expansion of quality school education; to promote equity through the inclusion of disadvantaged groups and weaker sections, to improve the quality of education for all, to bridge social and gender gaps in school education, to ensure equity and inclusion at all levels of school education, and to promote vocationalisation of education.

All the activities by the SSK are undertaken in order to achieve the broader objectives of Pothu Vidyabhyasa SamrakshanaYajnam and to bridge the academic lacuna for ensuring age appropriate education as envisaged in the Right to Education Act.

Major Initiatives/Achievements of Samagra Siksha Kerala in 2021-22

Back to School

Under the leadership of SamagraShiksha Kerala, DIET Malappuram, Kerala SasthraSahityaParishad, ITDP, Forest Department, Social Justice Department and education workers, were visited the Cholanaikar section of people living in the Karulai forest of Nilambur in the month of March 2022 and collected information and a conceptualisation workshop was conducted. Based on understanding that the children who speak only Cholanayikar language in the villages are difficult to understand Malayalam language and the reason for children's lack of interest in learning, lessons were prepared in Cholanayika language (Malayalam script). 13 children from six families living in the area did not get school admission or dropped their studies. Three local teachers were identified and trained. From May 9, 2022 to May 31, 2022, the children were trained in a study centre organised near the residence. In the academic year 2022-23, all the children of Ooru (habitat) were brought to school through the intervention of Samagra Shiksha Kerala.

Inclusive education – Niramaya and Legal Guardian

With the objective that no benefit to differently abled children should go unavailed due to lack of awareness, south URC, Thiruvananthapuram District conducted an awareness programme on Niramaya Legal Guardianship for the parents of CWSN. Information about the scheme was given to every parent and special educators took care that the formalities for the same was completed without fail by all the parents. As a result South URC was able to provide legal guardianship certificate to 85 differently abled children in public schools and Niramaya Insurance Certificate to 125 children.

Scaffold from early stage

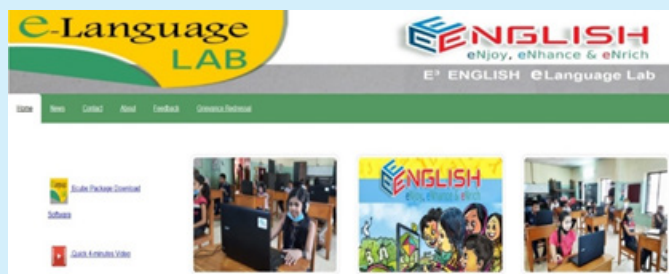
Early detection and intervention is paramount to IEDC. As part of early detection and intervention, special educators visit the Anganwadis and conduct survey.

Box 6.1.1 E-Cube English e-Language Lab

KITE rolled out the FOSS based E-Cube English e-Language Lab project in March 2022, for enhancing the English language proficiency of students from classes 1 to 8, subsequent to the GO (Rt.) No.804/2020/G.Edn dated 17.02.2020. The E3 (E-Cube) stands for Enjoy, Enhance, and Enrich English, which will not only help students' command of the language but also make learning more fun. The programme was launched on 11.03.2022 at Government Upper Primary School, Poojapura in Thiruvananthapuram District, by making use of the ICT equipment deployed as part of the Hi-Tech projects implemented by KITE earlier.



E-Cube English have three components, viz e-Library, e-Language Lab and e-Broadcast. The e-library is a digital library of international quality English books on the Samagra portal. Digital copies of books that children can enjoy and improve their language are made available in this library. Next is e-Language lab, which has the language lab software developed by KITE in Moodle platform that provides opportunities for students to hear English, talk, read, and write depending on their learning capability.



The third component is the e-Broadcast, which includes programmes on KITE Vickers educational channel that helps students learn how to use English in practical situations through interactive mode.

The software has the potential to become the largest FOSS based Language Lab software in global context and it can be

replicated across different States in a phased manner. The language lab software aims to develop the listening, speaking, reading and writing skills of the learners in an integrated manner and it also helps the learners practice the language skills they have learned in the classroom. The four levels of stories and activities in the software are based on the vision and curricular expectations mandated by National Education Policy 2020 (NEP-2020). Nearly 70,000 teachers were trained in implementing the use of E Language labs in schools in 2022.

Source: KITE, 2022

We Can

The reopening of the schools in Kerala after the COVID lockdown and summer vacation was of great interest and enthusiasm. Department of General Education and the entire machinery connected to school education involved in it. In Wayanad District, the District-level Pravesanotsavam was arranged in GHSS Kakkavayal within SulthanBathery BRC. SSK, DIET, DDE, DEO, LSGD, PTA, and the student community together made it a wonderful experience. A team of 25 students belonging to the Local Resource Centre at Pambla, in Ambalavayal Panchayath of Wayanad District was the centre of attraction in the Pravesanotsavam. These students had undergone professional training in Chendamalam. (Chenda is a South Indian drum instrument, and performed as a team). Access and retention of learners belonging to side-lined

section is made possible by SSK through the Chendamalam training and providing chances to perform.

Free uniform

₹600 per child per annum is allotted for providing two pairs of free uniforms to all girls from classes one to eight in Government schools, including all SC/ST students and all boys below poverty line. In 2021-2022, a number of 7,75,676 children were provided with uniforms free of cost. An amount of ₹4,646 lakh was spent for this.

Free Textbooks

As part of strengthening compulsory and free primary education, free textbooks were distributed to all children in classes one to eight in schools. Braille books and large print books were also provided free of cost for differently-abled children.

In 2021-2022, a total number of 25,35,976 free textbooks provided to children of classes two to eight. For differently abled students free 247 braille books and 619 large print books were distributed.

LEP (Learning Enhancement Programme) aims to bring the child to a higher-level in various fields. The following programmes were implemented to address the learning difficulties of the children. Ganitholsavam, MalayalaThilakkam, Kunjuvayana, Hello World, Sureeli Hindi, Science Park, kalautsav, Ullasaganitham, Ganithavijayam etc.

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.

Some of the major achievements in 2021-22 are the following;

- SCERT took the academic leadership by providing digital classes through 'First Bell', with the slogan '*Veettiloru Vidyalayam*'.
- Vayanavasantham and Avadhikkalasanthoshangal; novel initiatives organised during the pandemic period.
- Initiated steps for development of State Curriculum Framework for pre-school education, school education, teacher education and adult education.
- "*SruthyPadam*" was an innovative project carried out for the benefit of students with visual disabilities in Kerala. A total of 100 text books and hand books were converted into audio books through this venture.
- "*Mudrika Padam*" another novel venture was implemented for hard of hearing students.

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 2022 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 7,221 batches of higher secondary classes in 2022. The total enrolment in higher secondary schools was 3,83,034 in 2022. Malappuram had the largest number of batches (1,065) with highest enrolment of 61,815 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 2021-22 was 83.87 per cent. 3,02,865 students were eligible for higher studies, out of which 1,68,826 were girls and 1,34,039 were boys in 2022. The details are given in **Appendix 6.1.19**. The pass percentage of SC students during the period was 59.11 per cent and that of ST students was 48.92 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 levels with the objective of achieving self/wage/direct employment as well as vertical mobility. In 2022-23, 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. Districts like 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 2022-23 are given in **Appendix 6.1.22**. 81.85 per cent of students were eligible for higher education in VHS examination in 2022 March. The number of students who appeared and those who passed vocational higher secondary examination from 2013 to 2022 and the results

of school going students (2015-2022) are given in **Appendices 6.1.23** and **6.1.24**.

Higher Education

As Kerala resolves to evolve as a Knowledge Society, enhanced investment and reforms in education has 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 2021-22, there are 229 arts and science colleges in the State which comprise 163 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 2021-22 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 3.48 lakh students had enrolled in various arts and science colleges (excluding unaided colleges) for various courses under the four general universities in Kerala in 2021-22. Of this, 2.27 lakh (65.4 per cent) are girls. (**Table 6.1.7**)

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.	1,44,461	93,234	51,227	64.5
B.Sc.	1,10,552	74,970	35,582	67.8
B.Com.	47,580	29,910	17,670	62.9
Total	3,02,593	1,98,114	1,02,347	65.5
M.A.	16,939	10,933	6,006	64.5
MSc.	20,919	13,241	7,678	63.3
M.Com.	7,106	4,947	2,159	69.6
Total	44,964	29,121	15,843	64.8
Grand Total	3,47,557	2,27,235	1,20,322	65.4

Source: Directorate of Collegiate Education

Out of the total students enrolled for degree courses, 47.7 per cent is enrolled for B.A degree courses, 36.5 per cent for B.Sc and 15.7 per cent for B.Com degree courses. Girls constitute 65.5 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, English has the largest enrolment of students followed by Economics. 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 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, 23,109 students were admitted in 2021-22. As much as 65.6 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 2021-22, a total of 32,242 Scheduled Caste (SC) students were enrolled in degree and post graduate course, which constitute 9.28 per cent of the total enrolment. The number of Scheduled Tribe students admitted to degree and post graduate courses in the State in 2021-22 is 8,053, which form 2.32 per cent of the total enrolment in the State.

Details of the enrolment of SC and ST students in arts and science colleges in Kerala in 2021-22 is given in **Appendix 6.1.33**. Percentage-wise distribution of SC/ST students is shown in **Table 6.1.8** and **Figure 6.1.4**.

Table 6.1.8 Percentage of SC and ST students in higher education in Kerala in 2021-22

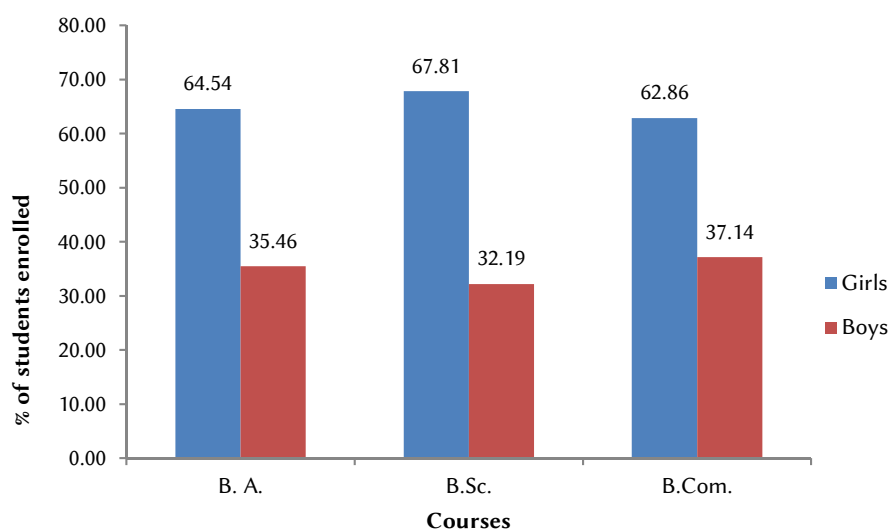
Course	Total	% of SC	% of ST	% of Others
B.A	100	7.75	2.41	89.84
B.Sc	100	11.66	1.09	87.25
B.Com	100	8.41	2.13	89.46
Total	100	9.28	1.88	88.83
M.A	100	9.09	6.25	84.66
M. Sc	100	8.51	3.86	87.63
M.Com	100	11.67	6.91	81.42
Total	100	9.23	5.24	85.53
Grand Total	100	9.28	2.32	88.41

Source: Directorate of Collegiate Education

Scholarships

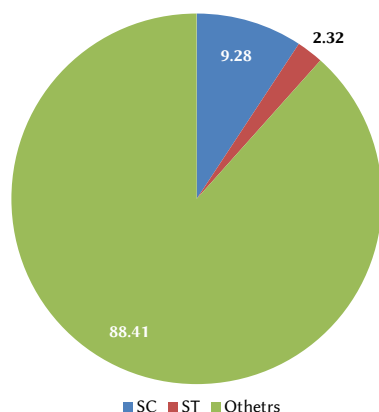
Students in Kerala availed 16 types of Central and State sector scholarships in the year 2021-22. Post matric scholarships are availed by 74,291 students. District Merit Scholarships were given to 41,621 students and Kerala State Suvarna Jubilee Scholarship is availed by 6,500 students. Central sector scholarships were provided to 7,600 students in 2021-22. The details of different types of scholarships offered from 2017-18 to 2021-22 are given in **Appendix 6.1.34**.

Figure 6.1.3 Gender-wise proportion of students in degree courses in 2021-22



Source: Directorate of Collegiate Education

Figure 6.1.4 Distribution of students in undergraduate and post graduate courses in 2021-22



Source: Directorate of Collegiate Education

Teachers

The number of teachers in arts and science colleges in the State in 2021-22 was 10,493, of whom 57.5 per cent are women. Details of the number of teachers in arts and science colleges across different universities in the State from 2017-18 to 2021-22 are given in **Appendix 6.1.35**. It is estimated that 4,390 (41.8 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 3,943 guest lecturers were working in arts and science colleges of the State in 2022. Details are given in **Appendix 6.1.37**.

Major initiatives in the higher education sector by the Government

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.

Kerala State Higher Education Council

Recognising 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 in 2021-22

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.

Higher Education Scholarship

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.

Schemes and programmes under the centre for curriculum development and examination reforms. The Kerala State Higher Education Council is responsible for suggesting improvements in curriculum and syllabi of graduate, post graduate and teacher education programmes in the State, in accordance with the new social and academic changes and challenges.

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)

This initiative ensures the co-operation of the libraries attached to the higher education institutions by forming a network in the State which would enable sharing of resources among them. KALNET consists of two levels;

- i) Libraries of a University to be networked and to be known by the name of the university.
- ii) The network of the affiliated college libraries which in turn would be linked to KALNET

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.

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. It is a recognised research centre of the University of Kerala and has bilateral academic and exchange

agreements with leading universities and research institutes in India and abroad. The Kerala Council for Historical Research has two distinct campuses – one in Thiruvananthapuram and the other in Pattanam. The former has a library and resource centre which is being further developed to accommodate a digital library and archive.

Major activities of KCHR in 2021-22

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. In the period between 2020 and 2022 KCHR started a School of Epigraphical Studies at the Pattanam campus. 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 undergraduate students. It has trained more than two lakh students through its Skill Development Centres and Community Skill Parks in offline mode from 2014 till 2020. In January 2021, it was converted into a Section-8 company named ASAP Kerala by the Government. Despite the outbreak of the COVID-19 pandemic and the subsequent lockdowns, industry-relevant, job-oriented, and advanced-level skill courses and training in foreign languages were provided online and in blended format in partnership with industry and established training partners.

Major Achievements/Performance of ASAP in 2021-22

Offering Advanced-level Skill Courses Online

Advanced-level online technical courses were offered to a total of 3711 students in 132 batches and online non-technical courses were offered to a total of 2,805 students in 132 batches.

Foreign language training

Language training was offered online to 72 students in German, 124 in French and 75 in Japanese during the lockdown period

Industry on Campus (IoC)

ASAP Kerala set up equipment worth ₹6.5 crore at Government polytechnic colleges. They include CNC Vertical milling machine, CNC lathe, laser cutters, TIG-MIG welding stations, Robotics labs, fab labs, etc. Staff and faculty were trained to use the equipment. Thereafter ASAP Kerala launched the 'Industry on Campus' initiative. IoC is an initiative to use this equipment and encourage partnerships with industry to facilitate job works for them so that students are exposed to industry dynamics and they are encouraged to foster business innovation through a realistic model of industry on campus while promoting the concept of 'Earn While You Learn'.

Placement

In the financial year 2021-22, a total of 1,056 candidates were placed by ASAP Kerala with prominent MNCs and 127 candidates were provided internship opportunities in Government departments and organisations such as LS GD, KILA, Pollution Control Board, Rebuild Kerala Initiative project, KWA, KSIDC, KIIDC and KSCADC.

Training programme for Kudumbasree dependents: ASAP Kerala, along with Kudumbasree State Mission, launched 'Connect to Work', a 120 hour employment-oriented training programme to help educated youth find jobs of their choice. As a part of the initiative, 350 of the 2,200 participants got placed with leading firms.

'Vayanashala' to Train Rural Women

ASAP Kerala's Vayanashala scheme, which was launched in association with Ernst and Young, aims to train rural candidates in gig work and provide them with virtual internship opportunities for three months.

ASAP Cells

ASAP Cells have been instituted in over 800 academic institutions across the State to create a virtual platform for students to have personal, social, and intellectual growth. They are exposed to global trends in employment and skill sets

Community Colleges

Admissions to the first batch of the Community College project were made in 2021-22 at three colleges – GPC Attingal, GPC Nattakom and IPT and GPC Shoranur. AICTE-approved DVoc programmes are offered to students, and the fee

of eligible students was subsidised by Federal Bank, as part of their CSR initiative. Community colleges are expected to address the skill gap of the local population, along with serving the local skill demands.

Skill Development Through External Fund Support

ASAP Kerala had collaborated with external agencies such as NABARD and NORKA to provide fund support to students enrolling in higher-order courses. ASAP Kerala trained 58 candidates in the Graphic Designer programme with funding support from NABARD, and 150+ candidates in Cloud Computing and Artificial Intelligence with NORKA funds.

Collaboration with Local Self Government Institutions

ASAP Kerala created a new model of skilling in association with various LSGIs in the State. Dharppanam is a first-of-its-kind higher education skilling intervention model by ASAP Kerala for women with an education gap after school.

Details of certificates issued to ASAP students from April 01, 2021 to March 31, 2022: ASAP Kerala successfully shifted to Digi certification through the Digilocker portal in compliance with the guidelines of NCVET in 2021.

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 characterised 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 ₹199.57 crore was approved. Out of this ₹173.94 crore was released up to 2022. As part of the first phase of RUSA, grants for improving infrastructure was 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.

RUSA Phase-II was started in 2018, and ₹363.00 crore was approved. Out of which ₹147.00 crore has been released up to 2022. In this phase, proposals for establishing a RUSA new Model Degree college at Mananthawady, Wayanad and five autonomous colleges 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.

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 174 engineering colleges have functioned in the State in 2021-22, with a sanctioned intake of 46,712. Out of these engineering colleges, 162 (93.1 per cent) are self-financing colleges (unaided), 9 (5.1 per cent) are Government colleges and 3 (1.7 per cent) are Government aided colleges. Highest number of the unaided engineering colleges are functioning in Ernakulum (29) followed by Thiruvananthapuram (27). There are no Government engineering colleges in Kollam, Pathanamthitta, Alappuzha, Ernakulam, Malappuram and Kasaragod 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 2021-22 was 3,570 (7.6 per cent), aided colleges 1,970 (4.2 per cent) and unaided colleges 41,172 (88.1 per cent).

The highest number of seats in 2022-23, was found to be in Computer Science and Engineering (9,384) followed by Mechanical Engineering (8,409), Civil Engineering (7,938) and Electronics and Communication Engineering (6,951). In 2021-22 also, highest number of seats was in Computer Science and Engineering branch (9,335). Branch-wise distribution of seats in engineering colleges in 2022-23 are given in **Appendix 6.1.40**.

Gender facts: At graduate-level, the proportion of girls' intake was 47.3 per cent in 2021-22 in Government and aided colleges. In post graduate courses, 1,395 students were admitted in Government and aided engineering colleges. Girl students constituted 64 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, Government self-financing, private self-financing and private autonomous colleges. While Government aided colleges registered 72.75 pass percentage, private autonomous colleges had 69.12 per cent pass and Government engineering colleges had 68.11 per cent. It is also to be noted that the pass percentage of Government self-financing colleges (54.18 per cent) is much above the private self-financing engineering colleges which secured 43.25 per cent.

Compared to boys, girls performed better with a pass percentage of 66.59m, though the number of boys registered were more than girls. (**Table 6.1.9**). It is quite disturbing that only 24.78 per cent SC students and 29.21 per cent ST students passed the examinations, which are far below the State average (**Table 6.1.10**).

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

Box 6.1.2 Student Affairs and Counselling Centre (SACC) and Human Resources Development Cell (HRDC) at Higher Education Institutions under DTE

Student Affairs and Counselling Centre (SACC) and Human Resources Development Cell (HRDC) function in tandem to facilitate holistic and timely approach to human resources development to ensure that our engineers have the right blend of professional technical expertise, social consciousness, and well-rounded personality.

Student Affairs and Counselling Centre (SACC) aims to take care of mental/emotional well-being and wellness of students, enabling them to perform to their full potential and help them develop into confident and responsible individuals. The Counselling cell of the SACC engages professionals including counsellors and psychologists, to provide timely counselling and to ensure mental/emotional wellbeing of the students. The centre supports all the affairs of students in liaison with faculty and parents/local guardians; provides necessary help in student activities, and organises programmes to increase basic awareness about issues related to mental/emotional wellbeing.

Human Resources Development Cell (HRDC) devises mechanisms to foster a conducive atmosphere for the overall development of students as well balanced personalities with right blend of professionalism and social commitment, leveraging the existing forums/activities in the institution with the support from alumni, industry, professional societies and Government programs. It is engaged in activities to enhance the capabilities of faculty to i) understand new generation students, their strengths, weaknesses, ideas, priorities, problems, issues and concerns ii) understand the psychology of teenagers iii) sensitise the students on socio-cultural-gender related issues and iv) be with them to enable them to bloom to their fullest. The cell will engage professional consultants, practitioners and subject matter experts on need basis to ensure appropriate best practices to develop the creative talents of students. The cell will also undertake activities to develop and maintain a culture of inclusiveness that promotes socio-economic-gender diversity and that increases the accessibility of the differently-abled in all spheres.

Source: Directorate of Technical Education, Kerala

Table 6.1.9 Details of B.Tech Result, 2022

Management	Boys			Girls			Total		
	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage
Government	2,089	1,330	63.82	1,394	1,039	74.53	3,483	2,369	68.11
Govt. Aided	1,249	837	67.01	718	594	82.73	1,967	1,431	72.75
Govt. Self Financing	2,123	945	44.77	1,674	1,105	66.05	3,797	2,050	54.18
Private Self Financing	9,457	3,149	33.33	5,424	3,282	60.54	14,881	6,431	43.25
Private Autonomous	1,057	635	60.13	618	522	84.47	1,675	1,157	69.12
Total	15,975	6,896	43.24	9,828	6,542	66.59	25,803	13,438	52.14

Source: Kerala Technological University, 2021

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 in 2021-

22 was 34. Details of visiting faculty programmes and placement details of students of various Government engineering colleges in 2021-22 are given in **Appendices 6.1.43** and **6.1.44**.

Table 6.1.10. Pass percentage of SC and ST B.Tech students, 2022

Category	SC			ST		
	Registered Students	Students passed	Pass Percentage	Registered Students	Students passed	Pass Percentage
Government	267	84	31.46	39	16	41.03
Govt. Aided	129	50	38.76	10	3	30
Govt-Self Financing	170	19	11.38	7	0	0
Private Self Financing	303	59	19.47	32	7	21.88
Private Autonomous	26	9	34.62	1	0	0
Total	895	221	24.78	60	26	29.21

Source: Kerala Technological University, 2021

Polytechnics and Technical High Schools

There were 45 Government polytechnics and six Government aided polytechnics in Kerala in 2021-22. The annual intakes of students in Government polytechnics and Government aided polytechnics in 2021-22 were 10,967 and 1,354 respectively. The total number of students in Government polytechnics in 2021-22 was 32,247 and that in Government aided polytechnics was 4,760. Details of annual intake and student strength in polytechnics during the period from 2017-18 to 2021-22 are given in **Appendices 6.1.45** and **6.1.46**.

Distribution of the annual enrolment of students in polytechnics in 2022-23 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 (1,450). Girls constituted only 24.4 per cent of the total strength in polytechnics while their proportions in Government and aided polytechnics were 25.37 per cent and 17.6 per cent respectively. A total of 1,269 teachers worked in polytechnics in 2021-22. The proportion of female teachers was also less (40.9 per cent). In Government aided polytechnics, female teachers constituted 23.4 per cent while the

respective proportion in Government sector was 45.3 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 2019-20 to 2021-22 (**Table 6.1.11**) are given in **Appendix 6.1.49**.

Thirty Nine Government technical high schools are functioning in the State. In 2022-23 there are 7,805, students and 535 teachers respectively. Women teachers constituted 34.5 per cent of teachers in technical high schools. Number of students and teachers in technical high schools from 2017-18 to 2022-23 are given in **Appendix 6.1.50**. As in the year of 2021-22 the percentages of SC and ST students in technical high schools have remained almost same at 9.8 per cent and 0.7 per cent respectively. Details are given in **Appendices 6.1.51** and **6.1.52**.

Kerala, compared to other States, has made tremendous progress in the last five years in ensuring access, equity, and excellence in school education. To make further use of this achievement, the higher education sector also must be strengthened.

Table 6.1.11 Percentage of SC and ST students in Polytechnics

Type of Institution	2019-20				2020-21				2021-22			
	SC	ST	Others	Total	SC	ST	Others	Total	SC	ST	Others	Total
Government	8.0	1.1	91.0	100	7.46	0.83	91.7	100	7.61	0.88	91.51	100
Govt. Aided	5.1	0.5	94.4	100	6.5	0.40	93.1	100	4.36	0.44	95.2	100
Total	7.6	1.0	91.4	100	7.3	0.80	91.9	100	7.20	0.83	91.97	100

Source: Directorate of Technical Education

Kerala has made a significant progress with regard to higher education, in respect of coverage, broad basing social entry into higher education and ranking by the National Assessment and Accreditation Council (NAAC). The State has now prioritised higher education, investing in infrastructure, clearing the way for efficient administration and continually improving the quality of syllabi, teaching and research in the higher education sector.

6.2 MEDICAL AND PUBLIC HEALTH

Public healthcare in the State focuses on accessible, equitable, affordable, and quality healthcare services for all. 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. According to NITI Aayog's State Health Index for 2019-20, Kerala retain 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). State policy is paying increasing attention to issues of 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

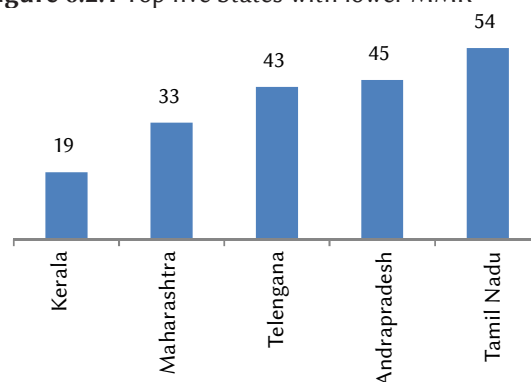
However, Kerala is now facing new health challenges like return of infectious diseases, increase in accidents and injuries, diseases due to environmental degradation. Communicable diseases such as chikungunya, dengue, leptospirosis and COVID-19 are also major concerns of the State. The unprecedented outbreak of COVID-19 pandemic impacted the entire health system network in the States. Other than these, 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 is essential. During the 14th Five-Year Plan period, the State aims 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 the most important yardstick to judge the quality and well-being of people. Life expectancy (at birth and at ages 5-10 years) in Kerala has been the highest amongst all States in India. Life Expectancy at birth in the State is at 75, higher than National-level (70). Kerala retains its top rank in life expectancy for males (71.9) and females (78.0), higher than the National levels of 68.6 and 71.4 respectively (refer to **Table 6.2.1**). In the State, the life expectancy for females (78) is higher than that for males (71.9).

Figure 6.2.1 Top five States with lower MMR



Source: Special Bulletin on MMR 2018-20

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

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 are given in **Table 6.2.1**. Southern States have comparably low MMR.

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, the proportion in Kerala is 80.7 which is 48.7 per cent in India. However, still birth rate in Kerala is slightly higher than that of all India-level. This may be attributed to the fact of better data collection in Kerala, where most births are institutional deliveries. Fertility rates are also lower than national. 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.

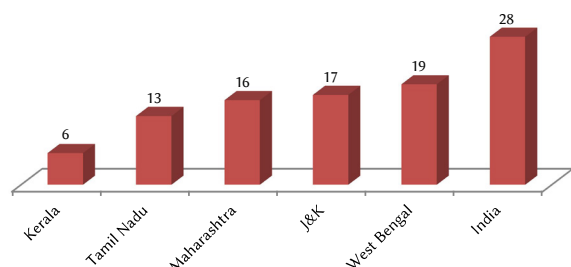
Child Mortality at Different Levels

Infant Mortality Rate (IMR) Kerala is the only large State in India with a single digit Infant Mortality Rate (IMR) of six, whereas it is 28 at all India-level. Top five States with low IMR are given in **Figure 6.2.2**.

Neo Natal Mortality Rate (NNMR) in the State is four which is one-fifth of the national average (20). Under-five mortality (under five MR) rate is eight, 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 the all India figures. 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 per cent 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 **Table 6.2.2**.

Figure 6.2.2 Top 5 States with lowest IMR



Source: SRS Report May 2022

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 per cent of women aged 20-24 years got married before attaining the legal minimum age of 18 years.

Only 10.2 per cent of women aged 20-49 years have never married compared with 35.9 per cent of men aged 20-49. Total Fertility Rate (TFR) expressed per women is 1.5 in Kerala, where as it is two at all India-level. Comparative figures of major fertility indicators at the State and National-level are given in **Table 6.2.3**.

Aardram Mission

The Aardram Mission 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) 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, District hospitals, Taluk hospitals and Primary Health Centres (PHCs). The conversion of PHCs

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

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

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 in 2022.

Family Health Centre

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 in progress. In the second phase in 2018-19, 504 PHCs were selected for developing into FHCs of which 403 have been completed and works are progressing in other PHCs in 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 of which 27 are completed. In addition to this 76 Community Health Centres (CHCs) were selected as first phase to convert into Block Family Health Centres in 2019-20 of which 11 have been completed and another 75 Community Health Centres (CHCs) were selected as second phase to be converted into Block Family Health Centres in 2021-22. A total of 1830 posts were created in two phases.

New initiatives started as part of Aardram Mission in FHCs are:

- 'ASWASAM' depression management clinics in Primary Care were started in 241 Family Health Centres across the State.
- Chronic Obstructive Pulmonary Disease (COPD) control programme called 'SWAAS' is

implemented from Family Health Centre-level onwards as part of Aardram Mission.

- Conversion of 4261 rural sub centres into health and wellness centres is progressing. In 2100 centres middle-level health care providers/staff nurses are posted on temporary basis.
- Patient friendly hospital environment has been created in all hospitals.
- OP facilities have been extended in all PFHCs up to 6.00 pm every day.
- Nurses' pre check-up facilities have been started in FHCs.
- Laboratory facilities have been started in FHCs.
- Life style diseases clinic will function in all FHCs on all days.
- Sampoorana Manasika Arogyam Programme (SMAP) has been started in FHCs.
- Comprehensive sub centre services have been initiated.

Patient friendly transformation of the outpatient wings of Government Hospitals

Considering the fact that Medical College hospitals and District-level hospitals are large 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 and 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 work of 14 hospitals has been completed. The work in other hospitals is progressing well. Out of the total 86 Taluk hospitals, 43 institutions were selected for standardisation in a phased manner, the task is completed in six institutions. Creation of posts in District/General/Taluk hospitals as part of Ardrum was 891, consisting 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 aims 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 works in these eight Medical Colleges have been completed. The main components of the projects are making available online registration facility 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 Ardrum Mission is given in **Table 6.2.4**.

National Quality Assurance Standards (NQAS)

Even though NQAS was started in 2013, Kerala was not able to accredit many institutions because certain points in the NQAS check lists were not applicable to Kerala. Accordingly, in 2017, NQAS check list was customised 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 2022, 148 out of 1,284 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 aims to link health institutions all over Kerala. The project aims to build a database of individual medical records easily accessible to medical practitioners. It includes unique patient identification in different settings and exchange of

Table 6.2.4 Status of Infrastructural Development in Hospitals under Ardrum Mission

Type of Hospital	Phase	Total Institutions	Work Completed	Work Progressing	Works to be started
PHCs into FHCs	1st Phase	170	166	1	3
	2nd Phase	504	403	31	70
	3rd Phase	212	27	39	146
	Total	886	596	71	216
CHC to Block FHCs	1st Phase	76	11	40	25
	2nd Phase	75	0	2	73
OP s of District/General Hospitals	1st Phase	17	14	0	3
OPs of Taluk Hospitals	1st, 2nd and 3rd Phases	43	6	15	22
Medical Colleges	1st Phase	8	8	0	0

Source: Directorate of Health Services

data between different health care delivery units at primary, secondary and tertiary-level across State. This could avoid repeated medical tests and can 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. E-health is completed in 476 hospitals of 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 2,59,55,975 people has been collected and stored as electronic records. This includes 68,34,845 household, 1,26,83,841 males, 1,32,71,318 females and 816 transgender person. The details are given in **Table 6.2.5**.

Table 6.2.5 District-wise demographic data surveyed under e-health programme

District	Demographic Data Surveyed
Thiruvananthapuram	24,06,933
Kollam	21,68,789
Pathanamthitta	10,26,324
Alappuzha	15,21,575
Kottayam	15,22,289
Idukki	8,67,535
Ernakulam	18,70,452
Thrissur	23,01,629
Palakkad	23,44,909
Malappuram	38,44,697
Kozhikode	25,00,494
Wayanad	6,23,140
Kannur	19,41,500
Kasaragod	10,15,709
Total	2,59,55,975

Source: e-halth Kerala, DHS as on November 15, 2022

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 6.21 per cent (₹1,887.13 crore in 2022-23) of its total State Plan outlay (₹30,370 crore in 2022-23) on health care excluding the contribution of LSGs and other line departments. As per the recommendations of the Sixth State Finance Commission, 26.5 per cent (₹8,048 crore) of total State Plan outlay is earmarked

to the Local Self Government Institutions (LSGIs). LSGIs expend a considerable per cent of their 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 ₹3,31,888 lakh (BE). The total expenditure reported during the Plan period was ₹3,00,600.50 lakh (90.57 per cent). During the 13th Five-Year Plan, ₹7,19,929 lakh was allocated to the health sector and the expenditure reported was ₹9,10,077 lakh (126.41 per cent). Department-wise Plan outlay and expenditure during the last four Annual Plan periods of 13th Plan and total outlay and expenditure of the first year of the 14th Plan upto October 2022 (2022-23) 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 2021-22 has been 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**.

National Health Estimates (2018-19)

Ministry of Health and Family Welfare released report of the National Health Accounts (NHA) Estimates for India for 2018-19. Health Accounts describe health expenditures and flow of funds in the health system over a financial year. It included the flow of funds in both Government and Private sector in the country. The NHA estimates for 2018-19 show that there has been an increase in the share of Government health expenditure to total GDP of the country. It has increased from 1.15 per cent in 2013-14 to 1.28 per cent in 2018-19. Total Health Expenditure (THE) constitutes current and capital expenditures incurred by Government and Private Sources including External funds. Health accounts estimate of Kerala compared to India are given in **Table 6.2.8**.

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 and COVID-19 in recent years has led to considerable morbidity and

Table 6.2.6 Department-wise outlay and expenditure, 13th Plan 2017-22 and outlay and expenditure of the first year of the 14th Plan (2022-23) in ₹ crore

Department	Annual Plan 2018-19		Annual Plan 2019-20		Annual Plan 2020-21		Annual Plan 2021-22		Annual Plan 2022-23 (Exp. upto October 31)	
	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.
Health Services	789.21	84	783.29	82	991.40	135	991.40	206	1297.76	71
Medical Education	494.14	56	484.25	72	420.60	77	420.60	111	463.75	20
Indian Systems of Medicine	48.20	70	47.55	67	41.95	120	41.95	91	44.05	29
Ayurveda Medical Education	50.60	51	49.75	41	43.20	39	43.20	62	47.52	6
Homeopathy	27.00	100	26.60	65	23.75	85	23.75	104	25.15	21
Homeo Medical Education	10.15	100	10.00	68	8.65	170	8.65	129	8.90	31
Total	1419.30	73	1405.94	76	1529.55	115	1529.55	170	1887.13	55

Source: Plan Space

Table 6.2.7 Investment in Health and Family Welfare (₹ in crore)

Year	Revenue Expenditure on Health			Capital Expenditure on Health			Total Government Health Expenditure			Total Government Expenditure	Percentage of Health Expenditure to total Government Expenditure	GSDP in crore at constant Prices	Percentage of Health Expenditure to GSDP
	Plan	Non Plan	Total	Plan	Non Plan	Total	Plan	Non Plan	Total				
2017-18 (ACC)	1593.55	4580.85	6174.4	269.4	38	307.39	1862.95	4618.85	6481.79	110237.81	5.88	516189.76	1.26
2018-19 (ACC)	1640.16	5206.89	6847.05	222.6	28.91	251.51	1862.76	5235.8	7098.56	120069.82	5.91	554228.31	1.28
2019-20 (ACC)	2024.97	5269.62	7294.58	221.64	22.59	244.23	2246.61	5292.21	7538.81	114384.94	6.59	559194.18	1.35
2020-21 (ACC)	2894.05	5592.71	8486.76	250.68	64.92	315.6	3144.73	5657.63	8802.36	138884.49	6.34	512076.08	1.72
2021-22 (RE)	3549.83	8201.08	11750.9	258.54	88.29	346.83	3808.37	8289.37	12097.7	164800.19	7.34	573591.46	2.11

Source: Budget in Brief, DES

Note: ACC is Accounts, RE is Revised Estimate

Table 6.2.8 Health accounts estimate of Kerala compared to India 2018-19

Sl. No.	Indicator	India	Kerala
1	Population in crore	133.42	3.5
2	Gross Domestic Product (GDP)/Gross State Domestic Product (GSDP) in crore	18899668	790302
3	Government Health Expenditure (GHE) ₹ in crore	242219	8676
4	Government Health Expenditure (GHE) as % of GSDP	1.28	1.1
5	Government Health Expenditure (GHE) as % of GGE	4.81	7.4
6	Government Health Expenditure (GHE) % THE	40.6	25.1
7	Government Health Expenditure (GHE) per Capita in ₹	1815	2479
8	Government General Expenditure (GGE) in crore	5040707	117747
9	Total Health Expenditure (THE) in crore	596440	34548
10	Total Health Expenditure (THE) Per Capita in ₹	4470	9871
11	Total Health Expenditure (THE) % of GDP	3.16	4.4
12	Out of Pocket Expenditure (OOPE) in crore	287573	23702
13	Out of Pocket Expenditure (OOPE)% of THE	48.2	68.6
14	Out of Pocket Expenditure (OOPE) % of GSDP	1.52	3
15	Out of Pocket Expenditure (OOPE) Per Capita in ₹	2155	6772

Source: National Health Estimates (2018-19)

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.

Prevalence of Major Communicable Diseases

A comparative analysis of the prevalence of major communicable diseases over the last five years is given in **Table 6.2.9**.

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 Thiruvananthapuram, Kollam, Kottayam, Pathanamthitta, Kozhikode and Malappuram. But in 2017, all 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 2018 to 2022 (till August 2022) are given in **Table 6.2.9**.

Leptospirosis

Leptospirosis is another public health challenge faced by the State. Considered as a rare disease in

early 1980, later 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. 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 is essential for effective control of this disease. District-wise number of patients treated and death reported affecting Leptospirosis in 2021-22 and 2022-23 (upto August 2022) are given in **Appendix 6.2.1** and number of cases and death reported from 2018 to 2022 (upto August 31, 2022) are given in **Table 6.2.9**.

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 2021, 334 cases were reported in Kerala. Here

Table 6.2.9 Prevalence of communicable diseases in Kerala

Sl. No.	Name of Diseases Case	2018		2019		2020		2021		2022 (Aug 31)	
		Death	Case	Death	Case	Death	Case	Death	Case	Death	Case
1	Dengue Fever	4090	32	4651	14	2722	22	3251	27	2655	19
2	Malaria	908	0	656	1	267	1	309	1	208	0
3	Chikungunya	76	0	109	0	558	0	334	0	46	0
4	Japanese Encephalitis (JE)	5	2	11	2	0	0	0	0	1	0
5	Leptospirosis	2079	99	1211	57	1039	48	1745	97	1522	55
6	Scrub Typhus	400	6	579	14	423	8	438	6	410	11
7	Kala Azar	6	1	4	0	1	0	1	1	4	0
8	Kysanur Forest Disease	0	0	8	2	29	3	4	0	1	0
9	H1N1	823	50	853	45	58	2	1	0	65	3
10	Fever OP	2935627		2862375		1265782		1463517		2040180	
	IP	59983	63	60080	51	18879	0	12458	0	13029	10
11	Measles	190	0	199	1	76	1	3	0	1	0
12	C.pox	30154	17	29583	20	14959	3	3457	2	4990	9

Source: Directorate of Health Services

again the vector responsible for disease transmission is the *Aedes* mosquitoes. Since both dengue and chikungunya are transmitted by the 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 2021, 334 cases were reported in which 315 cases were from Thiruvananthapuram District. In 2022 (upto August 31), 46 cases reported, of which 43 were from Thiruvananthapuram only. The details of District-wise patients treated for chikungunya and death reported in 2021 and 2022 (upto August 31) are given in **Appendix 6.2.2** and number of cases and death reported from 2018 to 2022 (upto August 31) is given in **Table 6.2.9**.

Fever

Fever is a body temperature that is higher than normal. A number of infections can affect humans. 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 1,46,3517 viral fever cases were reported in Kerala in 2021. In 2022 (up to August 31), the number of reported cases were 20, 40,180. The details of District-wise patients treated for viral

fever and death reported in 2021 and 2022 (up to August 31) are given in **Appendix 6.2.2** and number of cases and death reported from 2018 to 2022 (up to August) is given in **Table 6.2.9**.

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 all 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 2021 number of cases reported was 309 and one death was reported. In 2022, upto August, 208 cases and no death were reported. Number of cases and death from 2018 to 2022 (August 31) is given in **Table 6.2.9**. There is a declining trend in number of malaria cases in the State.

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 mosquitos, which breed abundantly in water logged areas of paddy fields. The peculiar nature of the Culex mosquito to breed in contaminated water 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 2021, no cases and death reported. One case has been reported in 2022 (up to August 31). Details of cases and death from 2018 to August 31, 2022 are given in **Table 6.2.9**.

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 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 waste 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 decrease in incidents of typhoid in Kerala since 2015. Details of cases and death due to water borne diseases of Acute Diarrhoeal Diseases (ADD), typhoid and Hepatitis from 2018 to 2022 August 31 are given in **Table 6.2.10**.

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 persons, 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

Table 6.2.10 Prevalence of water borne diseases in Kerala

Sl. No.	Name of Diseases	2018		2019		2020		2021		2022 (Aug 31)	
		Case	Death	Case	Death	Case	Death	Case	Death	Case	Death
1	Hepatitis-A	1369	5	1620	7	464	2	114	0	95	1
2	Cholera	9	0	9	0	2	0	1	0	0	0
3	Typhoid	109	0	27	0	16	0	30	0	45	0
4	ADD (Diarrhoea)	540814	12	544027	6	250788	1	240860	3	318372	0

Source: Directorate of Health Services

Table 6.2.11 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

based on India HIV Estimates 2021 are given in **Table 6.2.11**.

Coronavirus Disease (COVID-19)

The first case of COVID-19 in India was reported in Kerala on January 30, 2020. Kerala adopted 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.

The Health Department activated its emergency response mechanism. From the beginning of COVID 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 training was conducted exhaustively and elaborately covering all staff working in the health sector. Ward-level teams were active in all Panchayats and are ensuring daily calls and visits to the homes of the elderly. A series of mass media campaigns were 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 provided services in a centralised manner and DISHA is the State hub managing the telemedicine activities for the State. The COVID-19 data were made available to public via the GoK dashboard available in the web address www.dashboard.kerala.gov.in. Major highlights of the COVID-19 disease are given in **Table 6.2.12**.

Table 6.2.12 Major highlights of the COVID-19 disease*

Total number of cases confirmed	65,34,596
Total number of cases recovered	64,63,499
Total number of active cases	2351
Total number of death reported	69,782

Source: www.dashboard.kerala.gov.in

*Data from January 1, 2020 to April 8, 2022

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 for low income groups. Rapid urbanisation, 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. A survey conducted by Achutha Menon Centre for Health Science Studies, Thiruvananthapuram 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 with the prevalence dipping to 12 per cent from 21 per cent, the increasing consumption of alcohol is affecting the health sector with prevalence rate as high as 44 per cent and age of starting 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 has contributed to the rise in lifestyle diseases resulting in 52 per cent of total deaths in the productive age group between 30 and 70 being due to one or other cause of NCD. (Source: DHS)

Table 6.2.13 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: National Family Health Survey

Prevalence of Anemia

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 per cent in all targeted age groups. Anaemia Mukth Bharat (AMB) strategy was launched in 2018 with the objective of reducing anaemia prevalence among children, adolescents and women in reproductive age group. Anemia Free Kerala aims to strengthen the existing mechanisms imparted as part of Anemia Mukth 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 6.2.13**.

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 Centres, Primary Health Centres and even the 5400 Sub centres 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. So far 1.34 crore people were subjected to screening out of which 9.01 lakh new diabetes cases, 10.06 lakh new hypertension patients and 3.09 lakh patients with both the diseases were detected. Nearly 27 lakh Diabetes patients and 31 lakh hypertension patients have been registered and availing the benefits under the programme.

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

Table 6.2.14 Details of SWAAS clinics, screening and diagnosis of COPD and asthma

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Symptomatic Screening	47601	63206	45444	3750	35244	217773
Swaas clinic-FHC	89	90	91	108	96	474
Swaas clinic-DH/GH/THQH	14	25	10	0	0	49
Spirometry Screening	9147	18428	1952	299	7017	36843
COPD Diagnosed	4677	11557	3709	737	4764	25444
Asthma Diagnosed	4145	7081	4371	359	3036	18992

Source: Directorate of Health Services

(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 474 Family Health Centres and 49 Sub Districts/District Hospitals. Details of SWAAS clinics, screening and diagnosis of COPD and asthma are given in **Table 6.2.14**.

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 Organisation (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. Thiruvananthapuram, Thrissur, Kannur and Wayanad. The IHMI is focused on five essential components of scalable treatment of hypertension, based on WHO HEARTS Package. The major achievement of the programme is that the control rate among hypertension patients on treatment has increased from 13 per cent to 35.5 per cent and defaulters were tracked and the defaulter rate has been reduced to 27.6 per cent from 55 per cent.

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. Diabetic Retinopathy clinics are functional at 14 District Hospitals and 172 Family Health Centres. Total 7,446 patients were screened (July 2018 to October 2019) and 841 cases were detected with Diabetic Retinopathy and 465 cases diagnosed with other retinal changes.

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. Over 46 lakh people were screened so far and out of those eight lakh people were found to have risk factor group above four, two lakh people were referred for cancer screening, 4.9 lakh were confirmed of Hypertension and 4 lakh with Diabetes Mellitus.

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 has 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 which the patient reaches the treatment centre which is usually four 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 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. And, 82 Diabetic foot clinics are functional in the State.

360 degree Metabolic Centre of Excellence

As a part of the mission to control life style diseases an exemplary centre named 360 degree metabolic centre of excellence started functioning at Ernakulam General Hospital, supported by the Government of Kerala and external donors. Patient gets a unique id once they register at the centre. 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 centre. Using tele-calling facility patient gets a reminder call before few days of the scheduled follow up date.

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 latest facilities for the treatment of cancer patients. In 2021-22, a total of 5,974 in patients and 74,218 out patients were treated in Malabar Cancer Centre in which new cases were 8,306. In 2022-23 (upto August 31, 2022), the number of IP and OP are 2267 and 35684 respectively and new cases are 3,129. The average number of new cases detected every year in the centre is 6,984 (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 for 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. Average number of new cases detected every year is 1,351 (based on last five years data). Numbers of outpatients treated in 2021 were 8,617, IP were 360 and new cases were 1,108. In 2022 (upto August 31), the number of OP and new cases were 8,047 and 1,098 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 2021-22 were 697. 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 2021-22, 14,183 new cases, 2,11,778 review cases and 10,524 in-patient admissions were done in RCC. Further details on RCC is covered in section 5.2 of this Review.

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, to 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 6,000. Out Patients treated in 2021 were 49,239, IP were 319 and new cases were 6,908. In 2022 (upto August 31) IP (275), OP (25,651) and new cases (4,842) were reported.

Mental Health

As per Census of India 2011, 0.2 per cent of the population of Kerala suffers from mental illness and 0.2 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.

In Kerala, three mental health Centres are functioning with bed strength of 1,366. District

mental health programme is functioning in all the districts with a total of 10,000 out patients per month. Rehabilitation facilities are offered through these Centre's. 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 patients are being given day care.

District Mental Health Programme (DMHP)

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).

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. The institute now runs M.Phil courses in psychiatric social work (8 seats) and clinical psychology (8 seats) and post basic diploma in psychiatric nursing (10 seats). In clinical services, the institute currently focuses on community psychiatry, child psychiatry and rehabilitation services. IMHANS has no inpatient facility at present. In 2021-22 number of new OP cases was 5782 and follow up cases were 9,832.

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 centre 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 and electrophysiology lab ready for patient service. The centre is giving treatment to children, adult 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.

Health Care Institutions

In Kerala modern medical services are offered by the Directorate of Health Services (DHS) and the concerned education sector is dealt by the Directorate of Medical Education (DME).

Health Care Institutions under DHS

At present there are 1,286 health institutions with 38,525 beds, 6,550 doctors, 14,373 nursing staff

and 7,304 paramedical staff under Health Services Department consisting of 159 (24x7) PHCs, 688 PHC/FHCs, 227 CHCs/Block FHCs, 87 taluk headquarters hospitals, 18 District hospitals, 18 general hospitals, 3 mental health hospitals, 11 women and children hospitals, 3 leprosy hospitals, 18 TB hospitals/clinics, 6 other speciality hospitals and 48 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 2021-22 and 2022-23 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 6.2.3** Thiruvananthapuram and Ernakulam districts have higher number of beds as compared to other districts while Kasaragod, Idukki and Wayanad districts have lesser number of beds. The bed population ratio in Kerala is 1:604 which is 1:668 for modern medicine alone. The average doctor bed ratio in Kerala is 1:4 and 1:5 for modern medicine. Doctor population ratio in Kerala is 1:2634. Population here is estimated population of 2021. The figures are reflecting the status of Government sector only and the figures will be much better if private sector is also included.

Health Insurance

Karunya Arogya Suraksha Padhathi (KASP)

Karunya Arogya Suraksha Padhathi (KASP) is the comprehensive health insurance programme of the Government of Kerala which also includes Pradhan Mantri Jan Arogya Yojana (PM-JAY). GoK implemented PM-JAY as KASP. KASP converges 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 ₹5 lakh coverage per family. From July 1, 2020 onwards, the same scheme is

Table 6.2.15 Progress of AB PM-JAY/KASP during 2021-22 to 2022-23 (upto August 31, 2022)

Year	Number of Families Enrolled	Number of Claims	Claims Paid
2020-21	41,48,806	2,05,551	584,13,75,231
2021-22	41,52,359	7,74,835	999,92,89,583
2022-23 (up to August 31, 2022)	41,79,471	4,99,011	176,03,15,464

Source: State Health Agency Kerala

being implemented under assurance mode with same ₹5 lakh coverage per family. A total of 41.79 lakh families are covered under the KASP scheme out of which 22.03 lakh families are 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 ₹1,500 for each family and 60 per cent of that will be given to the State as Central share. The Central Government, therefore, provides ₹900 for each enrolled AB-PMJAY (RSBY) family hence the expected Central assistance will be ₹198 crore (22,00,554 families x 900). Total claim amount paid by SHA in 2021-22 was 999.93 crore. About 587 hospitals are so far empanelled, which includes 396 private hospitals and 191 Public 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 6.2.15** and utilisation of AB PM-JAY/KASP by sector is given in **Appendix 6.2.6**.

Karunya Benevolent Fund (KBF)

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 ₹3 lakh as per the Ration Card irrespective of their APL Status can avail of financial assistance under this scheme. However, this income limit is not imposed on the treatment of haemophilia. Every family can avail financial assistance upto ₹3 lakh for the treatment of kidney diseases and upto ₹2 lakh 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, it is being implemented by State Health Agency. In 2021-22, State Health Agency expended an amount of ₹44.21 crore and in 2021-22 (up to November 15) ₹40.00 crore was expended.

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

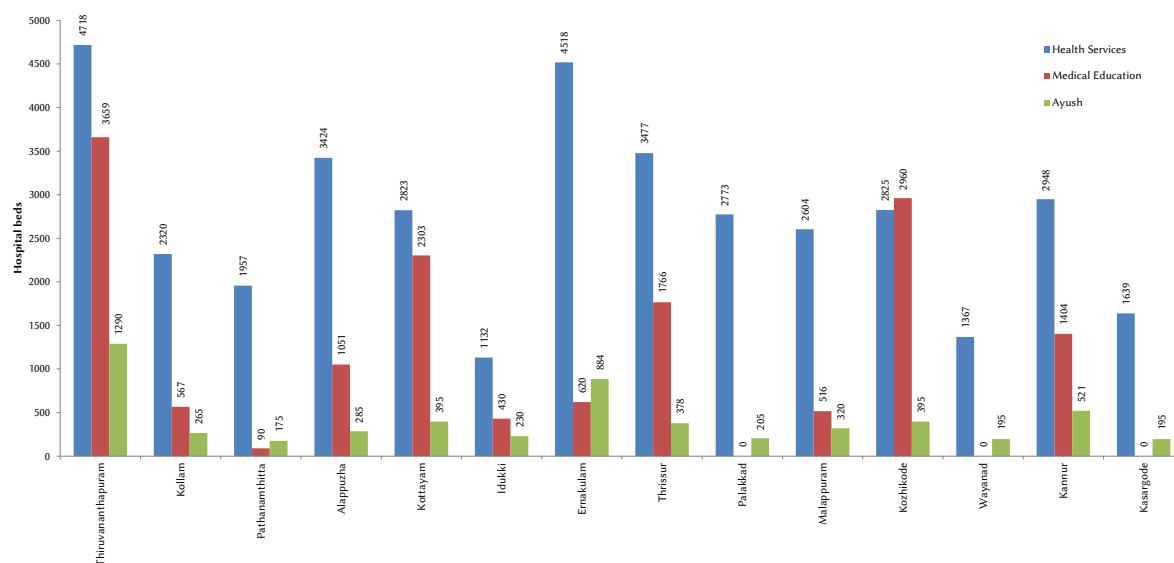
Figure 6.2.3 District-wise Distribution of Hospital Beds in Kerala, 2022

Table 6.2.16 Release of Central Assistance for NHM from 2016-17 to 2022-23 (up to October 31)

Year	Central share NHM activities	Central release for COVID activities	Central release for Infrastructure Maintenance	Total Central release	State share
2016-17	191.95		252.49	444.44	302.8
2017-18	241.31		255.4	496.71	258.11
2018-19	271.06		574.6	845.66	226.9627
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	48.82	381.42	757.49	514.31
2022-23	229.82	0	381.42	611.24	350
TOTAL	1519.43	744.19	2217.06	4480.68	2489.55

Source: NHM Kerala

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 will be implemented by State Health Agency from the financial year 2022-23 onwards. The out patients treated in 2020-21 were 27,63,291 and inpatients were 88,919. These are 41,51,114 and 1,85,958 respectively in 2021-22.

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 2022-23 is given in **Table 6.2.16**. Total staff strength of NHM is 12,003 (upto August 2022) under medical, paramedical and other categories.

Pradhan Manthri Swasthya Suraksha Yojana (PMSSY)

PMSSY is a GoI supported scheme to improve infrastructure facilities and technology in Government Medical College, Thiruvananthapuram

Table 6.2.17 Major achievements of the Drugs Control Department in 2020-21

Number of inspections conducted	11448
Number of prosecutions initiated	61
Number of sale licences suspended as deterrent measure	229
Number of samples tested	7686
Number of new manufacturing licenses issued (Modern medicine and Cosmetics)	75
Number of price violations detected and reported to National Pharmaceutical Pricing Authority	39

Source: Drugs Control Department

Box 6.2.1 New Born Screening (NBS) Programme During 2013-23

The New Born Screening (NBS) Programme started in March 2013 was extended to all delivery conducted 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 Ketouria and G6PD deficiency. Director, State PH Lab is the State Nodal officer for newborn screening programme of Kerala. Cumulative total number of samples received for NBS in four PH Labs from April 2013 to September 2022 comes to a total of 970345 babies of which positive Congenital Hypothyroidism (490 cases), Congenital Adrenal Hyperplasia (149 cases), G6PD deficiency (291 cases) and Galactosemia (9 cases) were detected.

Table 6.2.18 Major achievements of the Commissionerate of Food Safety in 2020-21 and 2021-22

Programmes	2020-21	2021-22
Total No. of Inspections conducted	42742	47199
No. of Inspections carried out by Quick Response Team (QRT)	15967	18751
No. of Food Poison Cases attended by the QRT	41	93
No. of License Issued	24015	30726
No. of Registration Certificate Issued	134759	193288
No. of Statutory Samples Lifted	6971	7780
No. of Surveillance Samples Lifted	8897	10160
No. of Adjudication cases filed	422	542
No. of Prosecution cases filed	274	358
No. of awareness activities conducted by using Mobile Food Testing Lab	377	442
No. of food handlers trained under FoSTaC training initiative	10889	12252
Hygiene Rating Audits conducted	-	480
No. of Schools in which Safe and Nutritious Food @School (SNF@School) has been implemented	-	466
No. of Panchayats in which Sampoorana Bhakshya Suraksha Grama Panchayath programme has been implemented	-	36
Lab Analysis	6971	7780
No. of Statutory samples Analysed		
No. of Surveillance samples Analysed	8897	10160

Source: Commissionerate of Food and Safety

(Phase-I), Kozhikode and Alappuzha (Phase-III) with a total outlay of ₹150 crore each, of which ₹30 crore is the State share. The project for super speciality block in Government Medical College, Thiruvananthapuram (Phase-I) and Kozhikode has been completed and the rest of the projects will be completed in 2022-23.

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.

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 attend the laboratories every day for various lab investigations. Average 1,300 lab tests are performed every day.

Child Development Centre (CDC)

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 4067 participants in 2021-22.

Drugs Control Department

The responsibility of the Drugs Control Department is to ensure the availability of quality 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, Pathanamthitta, Ernakulam 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 and Cosmetics Rules, 1945, stipulates 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 2021-22 are given in **Table 6.2.17**.

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. 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 2020-21 and 2021-22 are given in **Table 6.2.18**.

The State of Kerala has been awarded 6th Rank with 57 points (in the category of larger States) in State Food Safety Index 2021-22 released by FSSAI based on overall performance on various parameters viz. human resources and institutional data, food safety compliance, food testing infrastructure and surveillance, training and capacity building and consumer empowerment. Tamil Nadu is ranked first in the category of larger States with 82 points and Andhra Pradesh is ranked last (17th) 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.

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 seven 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, one Paramedical Institute also functioning under the Department. Works for establishing new medical colleges are progressing in Wayanad and Kasaragod. Two new nursing colleges will be started in the financial year 2022-23 at Kollam and Manjeri.

Table 6.2.19 Details of the Government, aided, and unaided colleges affiliated under various streams, number as on October 2021

Stream	Government	Aided	Self-financing (Co-operative)	Self-financing (Pvt.)	Total
Medicine	12	0	0	20	32
Dental	6	0	0	19	25
Ayurveda Medicine	3	2	0	12	17
Homeo Medicine	3	3	0	0	6
Sidha Medicine	0	0	0	1	1
Nursing	6	0	11	107	124
Pharmacy	5	0	0	53	58
Paramedical	8	0	2	45	55
Unani Medicine	0	0	0	1	1
Total	43	5	13	258	319

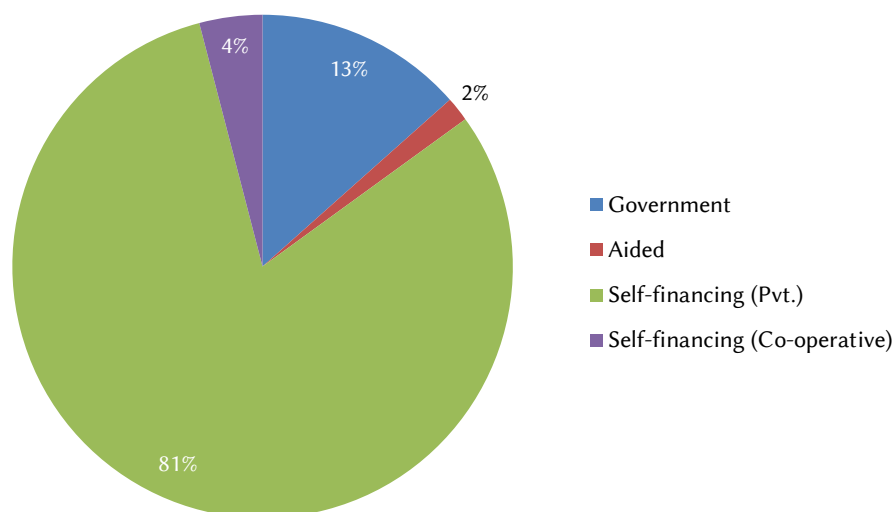
Source: Kerala University of Health and Allied Sciences

Total number of faculties under DME as on August 31, 2022 is 3381. Total number of medical and paramedical seats in 9 medicals colleges in 2022-23 is 5,233 which was 5,062 in 2020-21. 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 2022-23 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 2021-22 and 2022-23 is given in **Appendix 6.2.9**. The bed strength has increased by 396 in 2022-23 in Medical College institutions as compared to the previous year figure of 14,418.

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 2022) is 319 with 43 Government colleges, 5 Government aided colleges 13 self-financing co-operative colleges and 258 self-financing colleges. The colleges fall under

Figure 6.2.4 Government, aided, and self-financing colleges affiliated under KUHS, in per cent



Source: Kerala University of Health and Allied Sciences

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 6.2.19**.

Graphical representation of the Government, aided and unaided colleges affiliated to Kerala University of Health and Allied Sciences (KUHS) as on October 2022 is given in **Figure 6.2.4**. Government and Government aided colleges constitute only 15 per cent of the total number of colleges affiliated to KUHS.

The total intake of students in 2022-23 is 23,161 (4361 male and 18,800 female) under various health sciences stream. Details of annual intake of students in each discipline and male/female count of students in each discipline are given in **Table 6.2.20**.

Table 6.2.20 Details of annual intake of students in each discipline and male/female count of students in each discipline, number as on October 2022

Stream	Male	Female	Total
Medicine	1782	3616	5398
Dental	267	1640	1907
Ayurveda Medicinez	146	1030	1176
Ayurveda Nursing	0	0	0
Ayurveda Pharmacy	0	0	0
Homeo Medicine	40	345	385
Sidha Medicine	4	13	17
Nursing	910	6770	7680
Pharmacy	858	3169	4027
Paramedical	345	2166	2511
Unani Medicine	9	51	60
Total	4361	18,800	23,161

Source: Kerala University of Health and Allied Sciences

Indian System of Medicine (ISM)

Ayurveda is deals not only with therapy but with wellness as a whole. The department of Indian System of Medicine renders 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) and marma (1) are functioning under this Department. At present there are 130 hospitals and 818 dispensaries under the Department which includes 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 2020-21 and 2021-22 is given in **Appendix 6.2.10**.

Special projects were implemented by the ISM department in 2021-22 and 2022-23 in addition to the normal medical treatment. They are Ritu, Prasadam, Drishti, Jeevani, Punarnava, Snehadhara, Geriatric Care, Yoga, Sports Medicine, Panchakarma, Ksharasutra, Manasikam, koumarabhrithyam, prosoothithantra, sickle cell, Nirvisha, siddha, Child and adolescent care and Kshemajanani. 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 6.2.21**.

Central release for National Ayush Mission to Kerala has increased over different financial years.

Table 6.2.21 Year-wise Resource Allocations of National AYUSH Mission Kerala

Year	Gol Resource Envelope	Proposal submitted	Approval received from Gol	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	1153.39	768.92
2022-23	4229.70	10072.72	9777.40	1466.61	0
Total	14987.6	27361.11	24033.09	9095.97	5086.225

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 1,039 exclusive agencies spread in and outside the State. The profit of the firm before tax in 2021-22 was ₹5,864.20 lakh which is a huge increase from ₹2,378.60 lakh in 2020-21.

Ayurveda Medical Education – Ayurveda Colleges

There are three Government Ayurveda colleges situated at Thiruvananthapuram, Thrippunithura and Kannur having bed strength of 1,361. Total number of inpatients treated in 2021 were 3987 and outpatients treated were 2,34,089 in which new cases were 1,03,888. It is 7466 and 2,92,822 respectively in 2022 in which new cases were 1,51,343. 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 is 1,080 PG Degree is 186 and Paramedical Courses is 482.

Homoeopathy

There are 669 homoeopathic dispensaries, 14 District hospitals, 17 taluk hospitals, 2 ten-bedded

hospitals and one hospital with total bed strength of 1,000 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 2021-22, net profit of Homco amounts to ₹12.43 crore. District-wise distribution of institutions, beds and patients treated under homeopathic department in 2021 and 2022 is given in **Appendix 6.2.12**.

Homoeo Medical Education

Homoeo medical education is imparted through two Government homeopathic medical colleges at Thiruvananthapuram and Kozhikode. In addition to this three aided colleges and one unaided paramedical institute are functioning under this Department. Total bed strength of the Government homeopathic medical college at Thiruvananthapuram is 118 and Kozhikode is 100. Patients treated in these two Medical Colleges in 2020-21 in IP and OP were 116 and 1,48,677 respectively; new cases were 37,988. In 2021-22 the respective figures were 295 IP, 1,65,035 OP and 66,872 new cases. Annual intake of students and courses in the five Homoeo Medical Colleges and one paramedical institute are given in **Appendix 6.2.13**.

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.

Table 6.2.22 The details of deliveries in public and private hospitals since 2010-11 in Kerala

Period	Public	Private	Total	Public %	Private %
2010-11	136161	347199	483360	28	72
2011-12	140678	360397	501075	28	72
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 till September	64921	143655	208576	31	69

Source: 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, and 97 in India (*Source: Special Bulletin on MMR 2018-20*). The details of deliveries in public and private hospitals since 2010-11 are given in **Table 6.2.22**.

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 2018-19 is given in **Appendix 6.2.14**.

State Vaccine Policy

The Vaccine Policy Committee chaired by Dr. B Ekbal has submitted its report to Government. The seven member Committee has suggestions that need to be implemented in three phases of short term, intermediate term and long-term plans. The major recommendations of the committee are as follows

Short Term Priority Plan: [to be achieved in 1.5 years]

- The UIP [Universal Immunisation Programme] schedule includes two doses of MR [Measles, Rubella] vaccine. As mumps is a problem in India it is better to include MMR [Measles, Mumps, Rubella] instead of MR in UIP schedule.
- Current UIP schedule recommends TD (tetanus and diphtheria vaccine) at 10yrs. Considering the possibility of re-emergence of pertussis (Whooping Cough), Tdap rather than TD at 10 years may be included in UIP.
- As neighboring countries still having polio transmission, IPV Injection (Inactivated poliovirus vaccine) booster may be given at 18 months also to cover all three types of polio virus.
- As mortality and morbidity due to H1N1 in pregnancy is high, quadrivalent influenza vaccine should be considered in pregnancy.
- For the potential benefit of preventing pertussis morbidity and mortality in infants, during each pregnancy Tdap should be administered during third trimester instead of TT (Tetanus Toxoid) administered now.
- In order to prevent outbreaks of diphtheria, measles, mumps and rubella in adolescents/ adults, Td+MMR should be administered at 10 the grade or at the time of joining college [if not

vaccinated already with same vaccines earlier].

- The mortality and morbidity due to influenza and pneumococcal infections is high in elderly, immunocompromised and in those with co-morbidities. In this context for people above 65 years, immunocompromised and in those with co-morbidities, pneumococcal vaccine and annual quadrivalent influenza vaccine should be administered.
- Immunisation status of all guest workers [migrant labourers] in Kerala should be assessed. Vaccination cards should be made mandatory for all guest workers in Kerala. A mechanism has to be put in place to ensure that all guest workers get registered, their vaccination status checked, and catch-up vaccination administered if immunisation is not complete for age on a priority basis.
- Vaccination status of all students should be recorded at the time of joining school and college. The details of students with incomplete immunisation status should be reported to local health authorities. Health education programmes should be organised for the parents to impress upon them the importance of vaccination for school going children
- For the transplant recipients, pre-transplant evaluation and immunisation should be included in Karunya Arogya Surakhsha Pandhathi
- All food handlers and those who work in food processing units should be vaccinated against Enteric fever and Hepatitis A. A uniform mandatory vaccination card should be issued to all food handlers.
- Data regarding administration of various vaccines in pediatrics from private hospitals is not getting captured completely. A standardised certificate format should be created to capture vaccination details from private sector.
- Keralites going to other States to pursue education/jobs should have their immunisation status verified. They should be administered Hepatitis A, Typhoid and Cholera vaccines if not previously immunised. They should also be administered Td/Tdap, MMR vaccines also based on immunisation status.
- Pre-exposure prophylaxis against rabies is recommended for individuals at higher risk of dog bites due to occupation such as animal handlers, pet owners, veterinary doctors etc. and for the children in rabies endemic areas.

Intermediate Term Priority Plan [to be achieved in three years]

- Typhoid conjugate vaccine [TCV] at 6-9 months of age should be incorporated to UIP, considering reports of drug resistant Salmonella typhi infections from neighbouring States and countries.
- Hepatitis A vaccine at 12 months of age may be adopted to UIP after considering feasibility, supply chain and logistical challenges.
- As per National schedule, Japanese Encephalitis [JE] vaccine is recommended to be administered as two doses at nine months and 16 months respectively. In Kerala State immunisation schedule, only one dose at 16 months is administered. Just like in National schedule, it is better to administer JE vaccine as two doses at nine months and 16 months.
- As of now JE vaccine is offered only in districts of Thiruvananthapuram and Alappuzha. An epidemiological study to assess the burden of JE should be planned and designed in Kerala. Based on the study results the need to expand JE vaccination to all districts in Kerala may be considered.
- A vaccination card with full details regarding the immunisation status of the individual should be issued to all.
- The vaccination status of inbound visitors to Kerala planning to reside here for more than 3 months should be assessed. Catch up vaccination should be offered if not vaccinated for age.
- All adult guest workers should be administered Tdap, MR/MMR, Typhoid and cholera vaccine.

Long Term Priority Plan [to be achieved in five years]

- Inorder to bring down the morbidity and mortality associated with varicella and influenza in children, Varicella vaccination and annual influenza vaccination may be adopted to UIP schedule.
- Human Papilloma Virus [HPV vaccine] should be considered if there is increasing incidence of carcinoma cervix from baseline.
- Vaccinations to be taken by recipients of hematopoietic stem cell transplantation and solid organ transplantation prior to and after transplantation should be adopted as part of State Vaccination policy

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

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' occurred globally in recent years. This is primarily due to the reduction in fertility and increase in longevity of life achieved by 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. With declining fertility and increased longevity, the relative size of older age groups increases while that of younger age groups declines. 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 9 per cent in 2019 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 Ageing, 2019).

The United Nations Decade of Healthy Ageing (2021-2030) is a global collaboration that brings together Governments, civil societies, 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 an important determinant of their well-being. World Population Ageing, 2020 highlights the need to understand the interconnections between the living arrangements of older persons, their socioeconomic status, and their health and 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. The share of the population over the age of 60 is projected to increase from 8 per cent in 2015 to 19 per cent in 2050. India's elderly population is projected to touch 194 million in 2031. India Ageing Report, 2017 has projected the total aged population in the country to be nearly 34 per cent, by the end of the century.

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 per cent. The old age dependency ratio was 19.6 per cent for Kerala and 14.2 per cent for the 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 dependency ratio has also been increasing and it is projected to be 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, Tamil Nadu, Himachal Pradesh, and Punjab in 2021.

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. Only 10 per cent in rural and 11 per cent in urban areas of elderly females were economically independent and 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. Among the elderly persons, it is observed that, despite illness, more men (64 per cent) seemed to have a feeling of having fairly good health as compared to women (60 per cent). 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 urban-rural classification, the distribution is 91 per cent for urban and 88 per cent for rural.

At the national level, the most prevalent disability among elderly persons is the locomotors disability (4.9 per cent), followed by hearing disability (1.2 per cent) and visual disability (1.1 per cent). On examining region-wise, in the broad category of disabilities, such as blindness, low vision, visual disability, and hearing disability, it is observed that the percentage of elderly disabled persons is slightly higher in rural areas as compared to urban areas (NSS 76th Round, July to December 2018 – Persons with Disabilities in India).

Crime Against Elderly Population

As per the National Crime Records Bureau, the rate of total crime (per one lakh of the population) against senior citizens at the all-India level is 23.9 per cent in 2020, whereas the crime rate recorded in Kerala is 16.7 per cent during the period.

Interventions of the Government

The Ministry of Social Justice and Empowerment is the nodal ministry for the welfare of senior citizens which develops and implements programmes and policies for the senior citizens in close collaboration with State Governments, Non-Governmental Organisations, and Civil Society.

The National Action Plan for the Welfare of Senior Citizens (NAPSrC) of GoI addresses the welfare and well-being of senior citizens, by taking care of

the top four needs of senior citizens viz – financial security, food, health care, and human interaction/ life of dignity. Major Schemes Implemented through the Government of India for the Welfare and Protection of Rights of the Senior Citizens are:

Pradhan Mantri Vaya Vandana Yojana: This is a pension scheme launched in May 2017 to provide social security exclusively for senior citizens aged 60 and above. The scheme is now extended up to March 31, 2023.

Indira Gandhi National Old Age Pension Scheme (IGNOAPS): The scheme has been implemented by the Ministry of Rural Development since 2007 for senior citizens above the age of 60 years and below the poverty line, according to the guidelines prescribed by the Government of India.

National Programme for the Health Care of Elderly (NPHCE): This was launched by the Ministry of Health and Family Welfare in 2010-11 to address various health-related problems of elderly people. The basic thrust of the programme is to provide dedicated healthcare facilities to senior citizens at various levels of primary, secondary, and tertiary healthcare.

Rashtriya Vayoshri Yojana: The scheme provides physical aids and assistive devices for elderly above 60 years of age suffering from age-related disabilities/infirmities, and those who belong to the BPL category. The scheme aims to address disability/infirmity, low vision, hearing impairment, loss of teeth, and locomotor disability.

Pradhan Mantri Jan Arogya Yojana (PM-JAY): was launched by the Ministry of Health and Family Welfare in 2018. This health insurance scheme provides a health cover of ₹5 lakh to poor and vulnerable families, per family per year for secondary and tertiary care hospitalisation across public and private empanelled hospitals.

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.

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. In addition to this, the department runs “Sayamprabha Homes” for providing day care facilities to the elderly, in cooperation with LSGD institutions. It was initiated in 82 LSGIs in 2018. The Local Self-Governments had been running ‘Pakal Veedu’ (Day Homes) for the daycare of the elderly and later on, it was upgraded to Sayamprabha Homes incorporating recreational, health care, and nutritional supply for the elderly.

The Department also piloted ‘Model Sayamprabha Homes’ in Thiruvananthapuram and Kozhikode districts as Multi-Service Day Care Centres for various old age needs. To upgrade the status of Government old age homes to the national standards, the Department launched the “Second Innings Project”. After the success of the pilot project in Kannur, the scheme was extended to Kollam and Malappuram Government old age homes.

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 very essential to protect the rights of the elderly occupants. In Kerala, the number of persons in old age homes is increasing as seen in **Table 6.3.1**.

Table 6.3.1 Number of persons in old age homes in Kerala, 2016-17 to 2021-22

Year	No. of inmates
2016-17	19149
2017-18	27272
2018-19	28029
2019-20	28021
2020-21	28788
2021-22	30105

Source: Social Justice Directorate, GoK

Old Age Pension Scheme

The Indira Gandhi National Old Age Pension Scheme (IGNOAPS) is a non-contributory pension scheme by the Government of India for citizens aged 60 years and above belonging to the BPL category. Presently, the beneficiaries of social security pensions, including IGNOAPS,

receive a monthly pension of ₹1,600 of which, the greater share is met by the State Government. The Central share contribution is ₹200 per month for persons aged 60-79 years and ₹500 for 80 years and above. Amount over and above this is met by the State Government. As of November 2021, there are 28.23 lakh beneficiaries for IGNOAPS, constituting 54.98 per cent of the total social security pensioners in the State. The beneficiaries of old age pension, LSGI-wise, as on November 2021 are given in **Table 6.3.2**.

Table 6.3.2 Pension beneficiaries (LSGI-wise)

IGNOAPS (LSGI-wise)	No. of Beneficiaries as on 08.11.2021 (in lakh)
Grama Panchayat	22.57
Municipality	3.56
Corporation	2.09
Total	28.23

Source: Sevana Pension, IKM

The Government of Kerala developed an online application system, Sevana Pension, through the Information Kerala Mission for the distribution of social security pensions to beneficiaries of Kerala. The eligible beneficiaries are identified and pensions are distributed through the local bodies. The State has successfully introduced the system of Direct Benefit Transfer.

Schemes for the Elderly Implemented by the Government of Kerala

Kerala has the highest percentage of the 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 demography 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, widow/unmarried/childless women, persons with disability and weak, those with no living immediate relatives, those living alone, destitute, and those who suffer from serious and 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. Apart from the Department, LSGIs 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:

Sayamprabha: 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 multi-service day care centres for the elderly, benefitting around 80 people
- *Vayoposhanam* supplies nutritional kits to the elderly persons registered at Sayamprabha

Box 6.3.1 Elderline – A National Helpline for Elderly

The Ministry of Social Justice and Empowerment has set up a National Helpline for Senior Citizens with toll free number 14,567. It is formally inaugurated in Kerala on 1st November 2021. This is a connect centre that the officers connect with senior citizens; provides information, guidance, emotional support and field intervention, driven by values of Consistency, Care, Empathy and Encouragement. The elder line functions from 8 AM to 8 PM. All calls that require direct interventions will be handled by the field team. They network with Government Departments, NGOs, resource persons, community based organisations, Local Governments, Anganwadi workers, ASHA workers etc. A total of 19,449 call were received in 2021-22, of which 5,930 were actionable calls.

Table 6.3.3 Beneficiaries of Vayomithram during 2017-18 to 2021-22

Year	2017-18	2018-19	2019-20	2020-21	2021-22
No. of old age beneficiaries	253503	262845	279635	280165	278623

Source: Kerala Social Security Mission

homes. Around 4,100 beneficiaries were covered under the scheme in 2021-22.

- *Mandhahasam* provides free tooth sets for senior citizens: 1,692 and 1,400 persons benefitted through the scheme during 2018-19 and 2019-20 respectively.
- *Vayomrutham* project is implemented with the support of the Indian System of Medicine for Ayurveda treatment for persons in Government old age homes. Every year around 900 persons of 16 Government old age homes are availing the benefits of the scheme.
- Psycho-Social Care in Old Age Homes is provided in association with NIMHANS, Bengaluru
- Vayomadhuram scheme supplies glucometers for old age people under the BPL category free of cost.
- Music Therapy and Yoga Therapy are provided in old age homes.

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 Alzheimer’s and Related Disorders Society of India. Under the project, a daycare facility is available at Kunnamkulam, and a full-time daycare centre at Edavanakkad, Ernakulam. Every year around 40 persons get benefits through the dementia centres in Ernakulam and Thrissur.

Vayomithram: A social safety net programme implemented by Kerala Social Security Mission, provides health care and support to elderly above the age of 65 years residing in the corporation/municipal areas in the State. Currently, 95 Vayomithram units are functioning effectively in the State, and are operational 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 2021-22 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 self-employment loans to senior citizens, by way of bank loans up to ₹50,000 for starting self-employment ventures, of which 25 per cent would be reimbursed as a Government subsidy, subject to a maximum of ₹12,500.

Empowerment of Special Neighbourhood Groups by Kudumbashree: Kudumbashree has initiated the formation of special neighborhood groups for persons with physical and intellectual disabilities, transgender persons, and also for the elderly along with the mainstream neighborhood groups. Currently, 25,992 geriatric neighborhood groups, consisting of 2,83,615 members are functioning and 525 micro-enterprises have been set up through them. Medical Camps are being conducted at the ward level Area Development Societies (ADS) and Grama Panchayat level Community Development Societies (CDS) with the support of Panchayats and hospitals. A special campaign called “Grant Care for the Elderly” was organised in connection with COVID-19, through which awareness on reverse quarantine was given to the elderly population (17,68,929 numbers) over the phone and they were also supported with food (19,933) and medicines (82,632 numbers). In 2020-21, 4,700 elderly neighborhood groups were provided with the revolving fund at the rate of ₹5,000.

Way Forward

Every person should have the opportunity to have good health as they grow older. The elderly population is steadily increasing and the problems faced by this expanding group need to be addressed through more innovative and sustainable approaches. To effectively plan the strategy, 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 Self Government Institutions. Institutional mechanisms need to be strengthened to improve service delivery.

CHAPTER

07

LABOUR AND EMPLOYMENT

LABOUR AND EMPLOYMENT

7.1 LABOUR

Kerala is well-known for its achievements in the sphere of social development that includes a rapid and high-level mobilisation and organisation of workers regardless of location and sector. As stated in the Annual Report of Ministry of Labour and Employment 2019-20, GoI, economic development means not only creation of jobs but also working conditions in which one can work with freedom, safety and dignity.

In Kerala the Government always observes the changes taking place in the labour sector. Labour Commissionerate is the department which deals with labour matters in Kerala. The most important aims and objectives of the department include maintenance of peaceful atmosphere in the labour sector as a whole; decent working conditions and improved quality of life of the workers; ensure co-operation and healthy relation between the employers and the employed; systematic implementation of the various labour laws (numbering 30 Central/State Acts and Rules) throughout the State; enhancing social security coverage of workers through better policies and programmes.

Labour Force

Labour force, or in others words, the 'economically active' population includes both 'employed' and 'unemployed' persons. Estimates of the labour

force have been obtained based on the two approaches: Usual Status (ps+ss) approach, i.e. by considering usual principal and subsidiary activity together and Current Weekly Status approach.

The workforce in the usual status (ps+ss) includes (a) the persons who worked for a relatively long part of the 365 days preceding the date of survey and (b) the persons from among the remaining population who had worked at least for 30 days during the reference period of 365 days preceding the date of survey.

The workforce measured in current weekly status (CWS) gives the average picture of the workforce in a short period of one week during the survey period. The estimate of workforce in the current weekly status is derived by considering those who worked for at least one hour on any day during seven days preceding the date of survey

Labour Force Participation Rates (LFPR) in usual status and Current Weekly Status

Table 7.1.1 shows the LFPR (in per cent) according to usual status and CWS from the period 2017-18 to 2020-21 at all India-level. It is evident from the table that, from 2017-18, LFPR has progressively increased at all levels up to 2020-21. When compared at 'person' level, in all the three segments both LFPR in usual status and

Table 7.1.1 LFPR (in per cent) according to usual status (ps+ss) and CWS during LFPR (2017-18), LFPR (2018-19), LFPR (2019-20) and LFPR (2020-21)

Category of persons	LFPR 2020-21		LFPR 2019-20		LFPR 2018-19		LFPR 2017-18	
	Usual status (ps+ss)	CWS	Usual status (ps+ss)	CWS	Usual status (ps+ss)	CWS	Usual status (ps+ss)	CWS
Rural								
Male	57.1	56.0	56.3	55.4	55.1	54.5	54.9	54.4
Female	27.7	22.7	24.7	21.1	19.7	16.7	18.2	16.1
Person	42.7	39.7	40.8	38.6	37.7	36.0	37.0	35.7
Urban								
Male	58.4	57.8	57.8	57.2	56.7	56.7	57.0	56.7
Female	18.6	17.3	18.5	17.5	16.1	15.6	15.9	15.3
Person	38.9	38.0	38.6	37.8	36.9	36.7	36.8	36.4
Rural + Urban								
Male	57.5	56.5	56.8	56.0	55.6	55.2	55.5	55.0
Female	25.1	21.2	22.8	20.0	18.6	16.4	17.5	15.8
Person	41.6	39.2	40.1	38.3	37.5	36.2	36.9	35.9

Source: Periodic Labour Force Survey, 2017-18, 2018-19, 2019-20 and 2020-21

CWS (rural+urban) recorded a steady increase from the CWS and usual status figures of 35.9 and 36.9 in 2017-18 to 39.2 and 41.6 respectively by 2021-22.

The **Table 7.1.2** shows the LFPRs for persons based on usual status (ps+ss) obtained from PLFS (2017-18) to LFPR (2020-21) at the all-India-level for different age groups:

It is noted from the table that, LFPR at all ages (person, rural+urban) of India and Kerala has been increasing at a very low rate during 2017-18 to 2020-21. India's LFPR at all ages (person in rural+urban) in 2017-18 was 36.9 per cent and Kerala's was 36.6 per cent, which has increased to 41.6 and 41.8 per cent respectively in 2020-21. The LFPR of women in India (Rural Urban) has increased from 17.5 in 2017-18 to 25.1 by 2020-21, and in Kerala, it has increased from 21.3 in 2017-18 to 27.5 per cent in 2020-21. Although this is a positive sign in the labour force participation of women, there is a huge gap between the male and female labour force participation rates in India and Kerala. As of 2020-21, India's (rural-urban) male labour force participation rate is 57.5 per cent and Kerala's is 57.8 per cent.

It is also noticed that there is a disparity between rural and urban areas in the Labour Force Participation Rate of women in India and Kerala. The LFPR for women in India in 2020-21 is 27.7 per cent in rural and 18.6 per cent in urban, while in Kerala it is 29.5 per cent and 25.2 per cent respectively.

Worker Population Ratio (WPR) in Different Approaches

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. In **Table 7.1.3**, WPR based on the different approaches, as estimated from LFPR 2017-18, 2018-19, 2019-20 and 2020-21 are presented at the all-India-level and Kerala.

Worker Population Ratio in India and Kerala in 2017-18 (rural urban) person at all ages was 34.7 and 32.4 respectively. WPR has increased to 39.8 and 37.6 per cent respectively in 2020-21. There has been marginal increase in WPR in subsequent years.

Table 7.1.2 Labour Force Participation Rate (LFPR) according to Usual Status (ps+ss), 2017-18, 2018-19 and 2019-20 in per cent

Sl No	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 2017-18									Kerala 2017-18								
1	15-29 years	58.9	15.9	38.1	58.5	17.5	38.5	58.8	16.4	38.2	55.1	20.8	37.2	48.4	27.6	37.8	52.2	23.6	37.4
2	15-59 years	80.2	26.6	53.6	80.1	22.3	51.6	80.2	25.3	53	79.5	31.1	53.6	78.1	33	53.6	78.9	31.9	53.6
3	15 years and above	76.4	24.6	50.7	74.5	20.4	47.6	75.8	23.3	49.8	71.1	25.9	46.6	68.9	27.3	46.4	70.1	26.5	46.5
	All ages (0+)	54.9	18.2	37	57	15.9	36.8	55.5	17.5	36.9	54.1	20.7	36.4	53.6	22.1	36.8	53.9	21.3	36.6
		All India 2018-19									Kerala 2018-19								
5	15-29 years	58.8	15.8	37.8	58.6	17.1	38.7	58.8	16.2	38.1	43.3	23	32.9	51.6	29.1	39.9	47	25.8	36
6	15-59 years	80.6	28.3	54.5	79.6	22.5	51.6	80.3	26.5	53.6	76.5	35.5	54.6	79.9	35	55.4	78.1	35.2	55
7	15 years and above	76.4	26.4	51.5	73.7	20.4	47.5	75.5	24.5	50.2	71	31.3	49.7	71.4	29.7	48.8	71.2	30.6	49.3
	All ages (0+)	55.1	19.7	37.7	56.7	16.1	36.9	55.6	18.6	37.5	56.9	25	39.7	56.3	24.2	39.2	56.6	24.6	39.5
		All India 2019-20									Kerala 2019-20								
9	15-29 years	60.8	20.7	41.3	58.3	20.3	40.0	60.0	20.6	40.9	55.6	26.2	40.9	52.9	25.4	38.8	54.3	25.8	39.8
10	15-59 years	81.5	35.4	58.5	80.6	25.7	53.5	81.2	32.3	56.9	80.6	39.8	58.4	79.1	33.5	54.6	79.9	36.7	56.5
11	15 years and above	77.9	33.0	55.5	74.6	23.3	49.3	76.8	30.0	53.5	73.6	35.1	52.8	69.8	28.6	47.7	71.7	31.9	50.3
	All ages (0+)	56.3	24.7	40.8	57.8	18.5	38.6	56.8	22.8	40.1	57.9	29.4	42.9	54.9	23.2	38.1	56.4	26.3	40.5
		All India 2020-21									Kerala 2020-21								
13	15-29 years	60.6	22.0	42.0	59.0	19.0	39.9	60.1	21.1	41.4	55.3	23.6	38.7	48.2	26.3	37.8	51.7	24.9	38.3
14	15-59 years	81.4	39.2	60.4	80.9	25.8	53.7	81.2	35.2	58.4	82.4	40.8	60.2	76.6	36.9	55.8	79.6	38.9	58.1
15	15 years and above	78.1	36.5	57.4	74.6	23.2	49.1	77.0	32.5	54.9	75.7	35.4	53.9	68.5	30.6	48.4	72.2	33.2	51.3
	All ages (0+)	57.1	27.7	42.7	58.4	18.6	38.9	57.5	25.1	41.6	59.8	29.5	43.8	55.6	25.2	39.5	57.8	27.5	41.8

Source: Periodic Labour Force Survey, 2017-18, 2018-19 and 2019-20

Table 7.1.3 Worker Population Ratio (WPR) (in per cent) according to usual status (ps+ss)

Sl No	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 2017-18										Kerala 2017-18									
1	15-29 years	48.6	13.8	31.8	47.6	12.8	30.6	48.3	13.5	31.4	43.8	7.9	25.1	35.1	9.6	22.1	40.1	8.6	23.8
2	15-59 years	75.2	25.5	50.5	74.2	19.8	47.3	74.9	23.8	49.5	74.3	24.5	47.6	72.2	23.4	45.7	73.4	24	46.8
3	15 years and above	72	23.7	48.1	69.3	18.2	43.9	71.2	22	46.8	67	20.8	41.9	64.4	19.8	40.2	65.8	20.4	41.2
4	All ages	51.7	17.5	35	53	14.2	33.9	52.1	16.5	34.7	50.9	16.6	32.7	50	16	32	50.5	16.4	32.4
All India 2018-19										Kerala 2018-19									
5	15-29 years	49.1	13.6	31.7	47.6	12.7	30.9	48.6	13.3	31.5	33.1	9.7	21.1	39.7	13.7	26.1	36.1	11.5	23.4
6	15-59 years	75.8	27.2	51.5	73.7	20.2	47.5	75.1	25	50.3	72.2	29.2	49.2	75.1	27.7	49.3	73.5	28.5	49.3
7	15 years and above	72.2	25.5	48.9	68.6	18.4	43.9	71	23.3	47.3	67.6	26.4	45.5	67.7	24.1	44.1	67.7	25.3	44.9
8	All ages	52.1	19	35.8	52.7	14.5	34.1	52.3	17.6	35.3	54.2	21.1	36.4	53.4	19.7	35.4	53.8	20.4	35.9
All India 2019-20										Kerala 2019-20									
9	15-29 years	52.5	18.6	35.9	47.7	15.2	32.1	51.0	17.6	34.7	40.7	10.9	25.8	39.1	13.0	25.7	39.9	11.9	25.7
10	15-59 years	77.5	34.4	55.9	75.1	23.3	49.6	76.7	30.9	53.9	73.5	33.5	51.7	72.4	27.3	48.2	72.9	30.5	50.0
11	15 years and above	74.4	32.2	53.3	69.9	21.3	45.8	73.0	28.7	50.9	68.2	30.3	47.7	64.7	23.8	42.7	66.5	27.1	45.3
12	All ages	53.8	24.0	39.2	54.1	16.8	35.9	53.9	21.8	38.2	53.7	25.3	38.7	50.8	19.3	34.2	52.2	22.4	36.5
All India 2020-21										Kerala 2020-21									
13	15-29 years	53.6	20.2	37.5	49.2	14.3	32.6	52.3	18.5	36.1	41.7	11.7	25.9	35.7	12.7	24.8	38.6	12.1	25.3
14	15-59 years	77.9	38.4	58.2	75.7	23.4	49.9	77.2	33.9	55.7	76.1	34.5	53.9	69.2	29.9	48.6	72.8	32.3	51.4
15	15 years and above	75.1	35.8	55.5	70.0	21.2	45.8	73.5	31.4	52.6	70.8	30.7	49.1	62.5	25.3	42.8	66.8	28.2	46.1
16	All ages	54.9	27.1	41.3	54.9	17.0	36.3	54.9	24.2	39.8	55.9	25.6	39.9	50.7	20.8	34.9	53.5	23.3	37.6

Source: Periodic Labour Force Survey, 2017-18, 2018-19, 2019-20 and 2020-21

Female WPR (rural) in India was 17.5 in 2017-18 and female WPR (rural) in Kerala was 16.6. In India, it has increased to 19 per cent in 2018-19 and 24 per cent in 2019-20. During same years, it has increased to 21.1 per cent and 25.3 per cent respectively in Kerala.

There is remarkable difference in WPR for women in rural and urban areas of India and Kerala. According to the LFPR estimate for 2020-21, the female Worker Population Ratio in rural India is 27.1 and that for urban areas is 17 per cent.

According to 2020-21 LFPR report, female WPR (rural) in Kerala is 25.6 and WPR (urban) is 20.8 per cent. All these figures show that there is a gap between the worker population rates in rural and urban areas of India and Kerala.

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

Table 7.1.4 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
1	Andhra Pradesh	232.4	247.5	271.2	291.3	305.3
2	Assam	233.8	245.5	258.3	263.6	299.3
3	Bihar	228.6	237.2	250.9	268.5	289.3
4	Gujarat	204.3	216.1	224.1	234.5	239.3
5	Haryana	352.7	355.5	362.3	376.9	384.4
6	Himachal Pradesh	303.4	330.4	336.4	344.1	342.1
7	Jammu and Kashmir	408.8	417.3	433.9	452.8	483.0
8	Karnataka	238.5	242.4	261.1	263.4	279.2
9	Kerala	615.6	625.6	657.2	670.4	677.6
10	Madhya Pradesh	184.4	198.1	202.4	205.9	232.6
11	Maharashtra	215.9	226.7	229.6	240.2	262.3
12	Punjab	300.5	313.1	319.2	331.9	344.2
13	Rajasthan	300.1	301.2	316.3	312.1	329.0
14	Tamil Nadu	389.6	401.7	414.3	438.6	449.5
15	Uttar Pradesh	222.7	244.7	261.1	272.3	286.8
16	West Bengal	259.9	279.3	287.0	291.1	305.8
All India		261.3	273.8	284.8	293.9	315.3

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

with the lowest wages for casual workers in urban areas are Uttar Pradesh, Assam, Madhya Pradesh, 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. **Table 7.1.4** depicts the State-wise average daily wage rate in rural India (Men non-agricultural labourers) in 16 States. From the **Table 7.1.4** it is clear that, the daily wage rate in Kerala has two times higher than India's average. The daily wage rate in Kerala has been increasing over the years.

According to 2020-21 estimates, Kerala ranks top in daily wage rate among the States with ₹677.6 followed by Kashmir with ₹483 and Haryana with ₹384.4.

Labour and Labour Welfare in Kerala

The Government also intends to create job opportunities to enhance productivity, to envisage schemes to develop skills, to ensure gender equality, minimum wages and health protection thereby creating a better workplace atmosphere. The Government aims at overall well-being of the labourers of all sectors by ensuring them wage protection and financial security.

Labour Welfare Boards

The Labour Department plays a key role in implementing labour welfare activities. There are 28 Labour Welfare Boards in the State (Labour Commissionerate). At present there are 16 Welfare Fund Boards functioning under the Labour Department and providing welfare amenities to the respective sector of labour. The rest of the

boards are functioning under various departments like Agriculture and Industry. The welfare boards under Labour Department and registered members are shown in **Appendix 7.1.1**

It is clear from the **Appendix 7.1.1** that, 64,74,501 people have been registered in 16 labour welfare boards under the labour department. Out of 16 boards, Kerala building and other construction worker's welfare board has the highest number of members i.e. 20,450,00 registered members. During the COVID-19 pandemic, the Labour Welfare Boards worked well in Kerala. Government disbursed financial assistance for the members of all Welfare Fund Boards under the Labour department.

Table 7.1.5 Country-wise Recruitments through ODEPC in 2021-22

Country	Job Type	No. of Person recruited
Belgium	Nurse	22
	Medical Imaging Technician	4
Saudi Arabia	Perfusionist	1
	Nurse	39
	Nurse	7
Oman	Student Counsellor	1
	Teacher	10
Qatar	Teacher	6
	Doctor	8
	Medical Imaging Technician	43
United Arab Emirates	Sales Executive/Sales Representative	82
	Nurse	3
	Telephone Switch Board Operator	1
United Kingdom	Radiographer	1
	Nurse	244

Source: ODEPC, Government of Kerala

Labour Commissionerate

The department emphasises developing a good employee-employer relationship, creating awareness about not only rights but also duties, among the employees. The interests and rights of both employers and employees need to be protected. Hence, the department aims to increase efficiency without losing man-days and to ensure the benefits of labour laws to the employee and the whole

society. In Kerala, the socio-economic security of the unorganised sector including self-employed groups are given due importance. Gender equality is one of the goals.

Overseas Development and Employment Promotion Council (ODEPC)

Overseas Development and Employment Promotion Consultants (ODEPC) Ltd. is a Government of Kerala undertaking, with a view to generate more employment opportunities in foreign countries for jobs seekers in and out of State. Apart from recruitment, ODEPC is currently functioning in 4 more verticals, travel, tours, training and study abroad.

Major Achievements

Recruitment process has already been started for nurses to Germany, with online/offline free German language training for nurses with monthly stipend up to ₹10,000, along with study materials. First candidate travelled to Germany on 30th September 2022. Around 110 candidates are under language training. Six candidates cleared B1 and have started paper work for the German visa; 15 candidates are getting ready to write their B1 exam in December 2022. At least 40 candidates are supposed to travel to Germany by the end of this financial year.

Recruitment of Nurses to Belgium has been started and the first batch of 22 nurses travelled to Belgium in March 2022. The candidates were given free residential training in Dutch language for 6 months and were given monthly stipend also. The next batch of 39 candidates are undergoing training presently, and they will be traveling to Belgium by Jan/Feb 2023.

Recruitment process has been started of radiographers and senior clinical advisors in association with Health Education England (HEE, a Government body, UK). Till date one radiographer has been deployed to UK.

Employer meet was conducted in association with Kerala Academy for Skills Excellence (KASE) at Riyadh, Abu Dhabi, and Dubai in September 2022. In which 78 organisations participated in Dubai, 46 organisations participated in Abu Dhabi, and 67 organisations in Saudi Arabia. In Saudi Arabia, more than 50 potential employers expressed their interest to associate with ODEPC.

Factory Workers in Kerala

Table 7.1.6 indicates the number workers coming under the purview of Factories and Boilers Department from 2016 to 2022 (as on August 31, 2022). The number of workers in the factories is steadily increasing except in the year 2017, 2020 and 2021.

The main reason for the decline in the number of factory workers in 2020 and 2021 is the COVID-19 pandemic. Details of working factories from 2016 to 2022 are given in **Appendix 7.1.2**.

Table 7.1.6 Number of workers in the factories

Year	No. of Workers
2016	702129
2017	678058
2018	698679
2019	726195
2020	702901
*2021	665775
*2022	678586

(As on August 31, 2022)

*Data provided by Factories and Boilers Department
Source: Labour Commissionerate

Safety of the Factory Workers

The Department of Factories and Boilers is the statutory authority to ensure the safety, health and welfare of all workers in factories and the general public, living in the vicinity of factories. The Department carries out various programmes for the safety of the workers. In 2022-23 (As on 31, 2022), 23 priority inspections in MAH factories and 21 inspections in hazardous factories by specialist inspectors have been done by the Department. 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 7.1.3**.

Industrial Accidents in Kerala

The number of fatal accidents and non-fatal accidents in industries under the Factories and Boilers Department has declined from 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 2022 (up to October).

Industrial Disputes

Providing a platform for raising grievances and settlement of the issues between employee and employer is an essential requirement for ensuring harmonious labour relations in the State. Industrial Disputes Act of 1947, provide the legal framework for the same 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 2021-22 was 4,046 and the number of disputes that arose in 2021-22 was 2,805. Total number of disputes handled in the year 2021-22 is 6,241. Total number of disputes settled in the year 2021-22 was 2,956. This indicates that around 47 per cent of the disputes were settled in the year 2021-22. The details of industrial disputes and settlements from 2016-17 to 2022-23 (up to August 31, 2022) are shown in the **Appendix 7.1.4**.

Number of Working Days Lost due to Strikes, Lockouts and Lay Offs

Strikes, lockouts and lay off are the reason for loss of working days. The total persondays lost in Kerala in the year 2021-22 is 57,13,256 for various reasons such as strikes, lockouts and lay offs. Details are provided in Number of Working Days

Table 7.1.7 Industrial Accidents in factories under the purview of Factories and Boilers Department in Kerala, 2016 to 2022 (in number)

Accident	2016	2017	2018	2019	2020	2021	2022 (up to October)
Fatal	17	20	21	28	14	12	17
Non-Fatal	194	200	173	139	79	117	42
Total	211	220	194	167	93	129	59

Source: Factories and Boilers Department, GoK

*Industries working under the Factories and Boilers Department

lost due to various reasons are shown in **Appendix 7.1.5, 7.1.6 and 7.1.7.**

Guest Workers in Kerala

Till 2001, migrants to Kerala were primarily from neighbouring States like Tamil Nadu, Karnataka, and Maharashtra. However, in recent years migrants are mostly from West Bengal, Assam, Odisha and Bihar. The construction sector tops the rank with 17.5 lakh of migrant workers followed by manufacturing with 6.3 lakh migrants. Distribution of registered migrant workers from other States/Union Territories in various districts of Kerala under the Awaaz registration is shown in **Table 7.1.8** and the number of guest workers registered under Migrants Welfare Board is shown in **Appendix 7.1.9.**

Table 7.1.8 Distribution of registered migrant workers from other States/Union Territories in the districts of Kerala (as on August 31, 2022) 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

Social Security and Welfare Activities for Workers in Kerala

1. Major labour Welfare Schemes under Labour Commissionerate are the following
 - *Income Support to Workers in Traditional Sector Activities:* This scheme was introduced in 2010-11 to give financial

support of ₹1,250 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 Departments of Coir, Fisheries, Khadi, Handloom and Textiles and various welfare fund boards. An amount of ₹75 crore has been spent on 1,53,005 beneficiaries in 2020-21 and over ₹58 crore on 1,26,817 beneficiaries in 2021-22.

- *Better accommodation for Plantation Workers and affordable Housing for Unorganised poor:* The scheme aims to provide housing facilities to the workers in the plantation sector, considering the working conditions in the plantation sector, wage system, lack of urban facilities and poor infrastructure.
- *Social Protection for Un-Organised 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 ₹2,000 to the workers covered under the definition of daily waged workers and those have not covered under any other welfare schemes, and have 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 the deceased workers who have received a financial assistance under the Kerala Tree Climbers Welfare Scheme (c) Maternity Allowances to Workers in the un-organised Sector. Government commenced a Maternity Allowance Scheme to the workers in the un-organised 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 amount of maternity benefit is being disbursed to the workers through various welfare fund boards.
- In 2021-22, a total of 38,937 beneficiaries received financial assistance through this scheme.

2. Employees State Insurance (ESI) Scheme- ESI Scheme of the GoI aims at providing assistance to employees in case of sickness, maternity, disablement and death due to employment injury and to provide medical care to insured persons and their families. The comprehensive social security provisions are based on the ESI Act 1948. This scheme covers all the employees working in non-seasonal factories running on power that employ 10 or more persons, and factories not using power that employ 20 or more persons. It also includes those working in shops, hotels, restaurants, cinemas, road motor transport undertakings and newspaper establishments. Each insured employee and their employer are required to contribute a certain per cent of their wages to the ESIC every month. The ceiling wage rates are revised from time to time. The ESI Scheme runs like most of the social security schemes. It is a self-financing health insurance scheme and the contributions are raised from covered employees and their employers as a fixed per cent of wages. The payments are to be made on a monthly basis. There are 145 ESI dispensaries and nine ESI hospitals existing in Kerala. District-wise details of ESI Dispensaries and Hospitals are given in **Appendix 7.1.8**.

3. Welfare activities for guest workers in Kerala A major drawback is that there are no accurate data on the number of guest workers. As per Parida and Raviraman's study in 2021, the number of guest workers is 31.5 lakh, the number of registered workers under the Awaas scheme of the Labor Commissionerate is over five lakh, and the number of workers registered with the guest worker welfare board is over 1,60,000.

- *Apna Ghar*: Government has started 'Apna Ghar Project' for providing dwelling places for the migrant workers at reasonable rates. The project provides for 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. Hostel facility with 620 beds is ready under Apnaghar Palakkad project. Similarly, the 120 bed hostel facility under the Apna Ghar, Kinalur project has also been completed.

- *Guest Workers Friendly Residence in Kerala-AALAY*: This is a project to provide accommodation for guest workers in collaboration with Local Self-Governments. Under this scheme landlords who are willing to provide houses on rent to guest workers, register with the Labour Department and the said houses are available for them to occupy. As of October 2022, 493 buildings have been registered.
- *Health Insurance for Interstate Migrant Workers (AWAAZ)*: Government has introduced a Health cum death Insurance scheme for guest workers. Accordingly an insured person will get health insurance of ₹25,000 and two lakh of accident death insurance claim. A total of 5,16,320 guest workers have taken registration card under this scheme. Out of this, medical benefits have been provided to 374 people till October 2022 and accident cum death assistance to the dependents of 29 guest workers.

7.2 EMPLOYMENT

Global Employment Perspective

According to the “World Employment and Social Outlook: Trends 2022” published by the International Labour Organisation, global unemployment is projected to stand at 207 million in 2022, surpassing its 2019 level by some 21 million. The report also projects that global unemployment is expected to remain above pre-COVID-19 levels until at least 2023. The ILO’s report cautions that the overall impact on employment is significantly greater than represented in these figures as many people have left the labour force. Many of those who left have not come back, so the level of unemployment captured still underestimates the full impact of the employment crisis. The global labour force participation rate, having fallen by close to two percentage points between 2019 and 2020, is projected to recover only partially to just below 59.3 per cent by 2022, around one percentage point below its 2019-level. 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 drop to 202.7 million, and the unemployment rate to 5.7 per cent.

Employment Scenario: India and Kerala

Unemployment Rate

In the PLFS, Unemployment Rate (UR) is defined as the percentage of unemployed persons in the labour force, and is measured in terms of usual 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 2020 to June 2021, unemployment under usual status (ps+ss) for persons of age 15 years

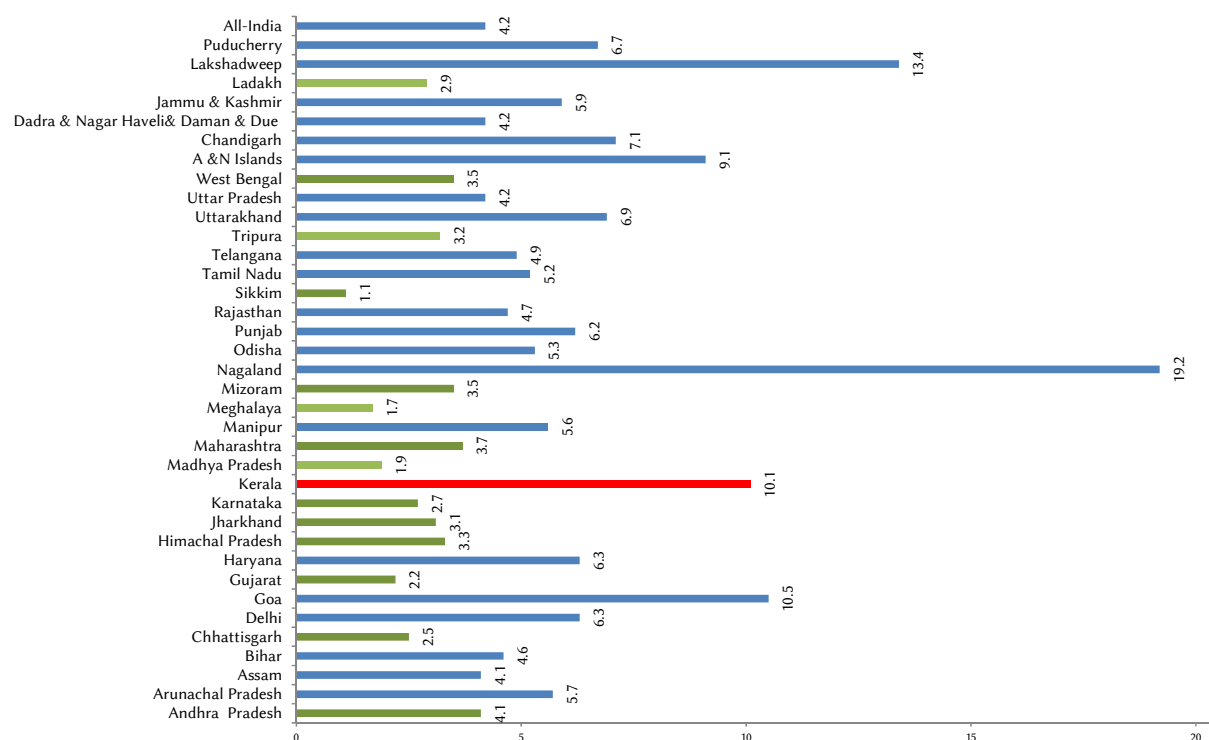
and above, among the major States, Kerala has an unemployment rate of 10.1 per cent as against the all India-level of 4.2 per cent (**Figure 7.2.1**).

The all India unemployment rate has declined from 4.8 per cent in 2019-20 to 4.2 per cent in 2020-21. The unemployment rate among males was 4.5 per cent and among females 3.5 per cent in 2020-21. In 2019-20, these rates were 5 per cent and 4.2 per cent respectively. In 2020-21, unemployment rate was 3.8 per cent among males and 2.1 per cent among females in rural areas, and 6.1 per cent among males and 8.6 per cent among females in urban areas.

The unemployment rate in Kerala increased from 10.0 per cent in 2019-20 to 10.1 per cent in 2020-21. The unemployment rate among males was 7.5 per cent and 15.1 per cent among females. The unemployment rate was 6.4 per cent among males and 13.4 per cent among females in rural areas, while the rates were 8.7 per cent among males and 17.4 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**.

For educated (secondary and above) persons of age 15 years and above, in usual status (ps+ss) unemployment rate in India was 9.1 per cent: 8.3 per cent in rural areas and 10.2 per cent in urban areas. In this category, unemployment rates among rural males and rural females of age 15 years and above were 7.8 per cent and 10.0 per cent respectively. In urban areas, the unemployment rate was 8.6 per cent among males and 16.3 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 16.6 per

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, 2020-21, Gol

cent, 16.0 per cent in rural areas and 17.3 per cent in urban areas (**Appendix 7.2.2**).

In current weekly status (CWS), for persons of age 15 years and above, the unemployment rate was 7.5 in India and the corresponding unemployment rate of Kerala was 16.8. The unemployment rate in India was 7.2 per cent among males and was 4.8 per cent among females in rural areas while the rates were 9.4 per cent among males and 12.2 per cent among females in urban areas. The corresponding unemployment rate in Kerala was 12.6 per cent among males and 22.4 per cent among females in rural areas while the rates were 15.7 per cent among males and 23.2 per cent among females in urban areas (**Appendix 7.2.3**).

The male and female unemployment rate in Kerala in rural area as measured by usual status (ps+ss) and CWS approaches are found to be much higher than the all India average. Female unemployment, particularly in rural areas, is a matter of concern in Kerala. However, the female labour force participation rate (LFPR) in the age group 15-59 Kerala is estimated at 38.9 per cent which is higher than the all India-level of 35.2 per cent (**Appendix**

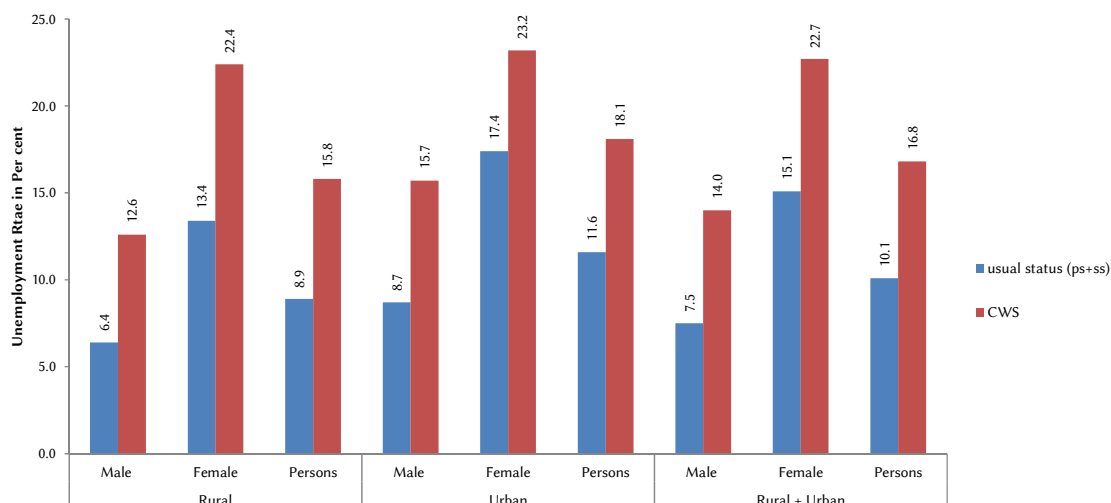
7.2.4). As per the PLFS report, the Unemployment Rate (UR) in Kerala is lower in rural areas as compared to urban areas (**Figure 7.2.2**).

Unemployment Rates (UR) of the Youth

Productive employment of youth (persons aged 15-29) is an essential factor for economic development. Unemployment rate among the youth is measured at the all-India-level in PLFS, and in the last three erstwhile quinquennial rounds of NSSO. 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 while 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. The unemployment rate among the urban male youth ranged from 7.5 to 8.8 per cent between 2004-05 and 2011-12. It rose to 16.6 per cent in 2020-21. 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.

In Kerala, the youth account for around 23 per cent of the State's population. As per the survey

Figure 7.2.2 Unemployment rate in Kerala [both usual status (ps+ss) and CWS] for persons of ages 15 years and above, in per cent



Source: PLFS report, 2020-21, GoI

Note: The estimates based on usual status considering principal and subsidiary statuses together is called as unemployed in usual status (ps+ss). 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.

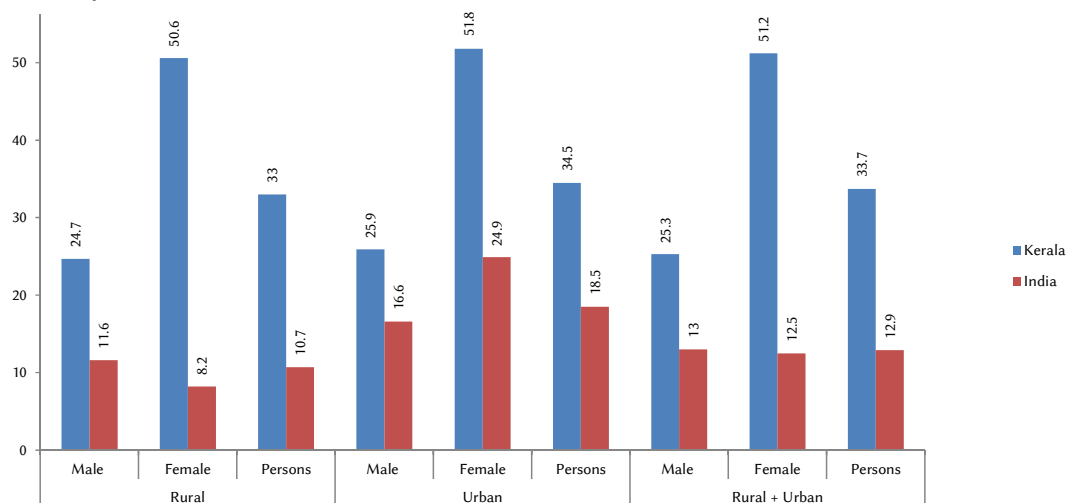
report, the UR among the youth in Kerala is much higher than the unemployment in all age groups. The UR among youth is 33.0 per cent in rural areas and 34.5 per cent in urban areas. Similarly, the UR among female youth is much higher than that of the male youth. In rural area 50.6 per cent and in urban area 51.8 per cent of the female are unemployed as against the respective unemployment rate among males of 24.7 per cent and 25.9 per cent (Figure 7.2.3).

Youth unemployment is prevalent in Kerala because young people lack adequate skills, and work experience in emerging areas. In order to face the challenge, 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

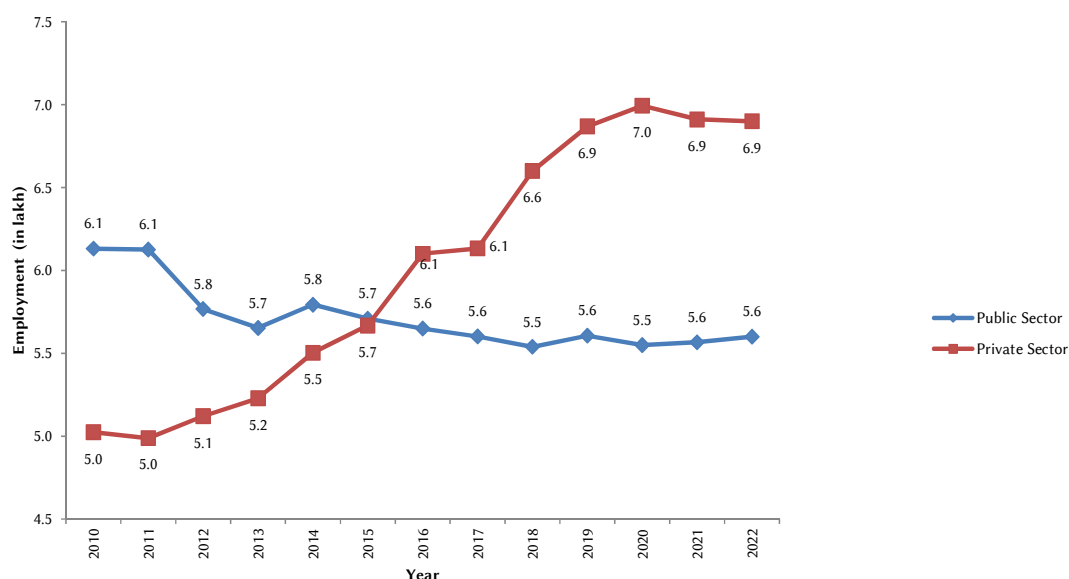
In Kerala, employment in the organised sector has

Figure 7.2.3 Unemployment rate (in per cent) among the youth (15 to 29 years) in Kerala and India as per usual status (ps+ss)



Source: PLFS report, 2020-21, GoI

Figure 7.2.4 Employment in the organised sector in Kerala, in lakh



Source: Directorate of Employment, GoK, 2022

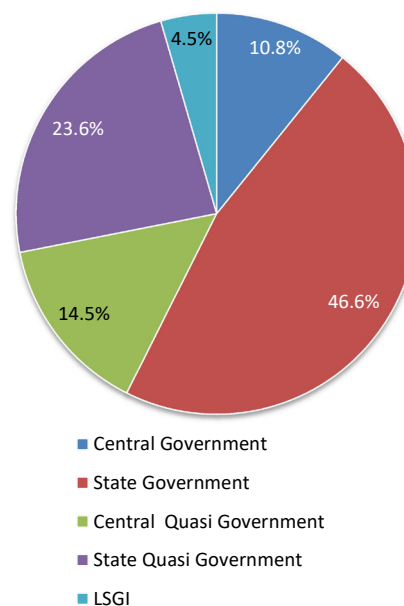
remained more or less stagnant, showing only a marginal increase from 10.9 lakh in 2012 to 12.5 lakh in 2022 (as on March 31, 2021).

The organised sector is comprised of private and public sectors, and it is noteworthy that private sector employment was slowly rising up to 2020, but declined in 2021. In 2022, of the 12.5 lakh persons employed in the organised sector, 5.6 lakh (44.8 per cent) are in the public sector and 6.9 lakh (55.2 per cent) are in the private sector. Both public sector and private sector employment has increased slightly in 2022. (**Appendix 7.2.5, Figure 7.2.4**).

Within the public sector, 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 (**Figure 7.2.5 and Appendix 7.2.6**).

Data on district-wise employment as on March 2022 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 35,229 persons, which accounted for 2.8 per cent of the total employment. (**Appendix 7.2.7**)

Figure 7.2.5 Distribution of employment in public sector



Source: Directorate of Employment, GoK, 2022

In Kerala, men outnumber women in public sector employment, but the private sector employs slightly more women than men. In 2021-22, 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 are Districts which account for the highest and lowest

Table 7.2.1 Women's Participation in Public Sector Employment in 2021-2022

Sl. No.	Branch	No. of Women Employed	Share (%)
1	State Government	105627	54.4
2	State Quasi Government	39120	20.1
3	Central Government	14726	7.6
4	Central Quasi Government	25391	13.1
5	Local Self Government Institutions	9272	4.8
Total		194136	100.0

Source: Directorate of Employment, GoK, 2022

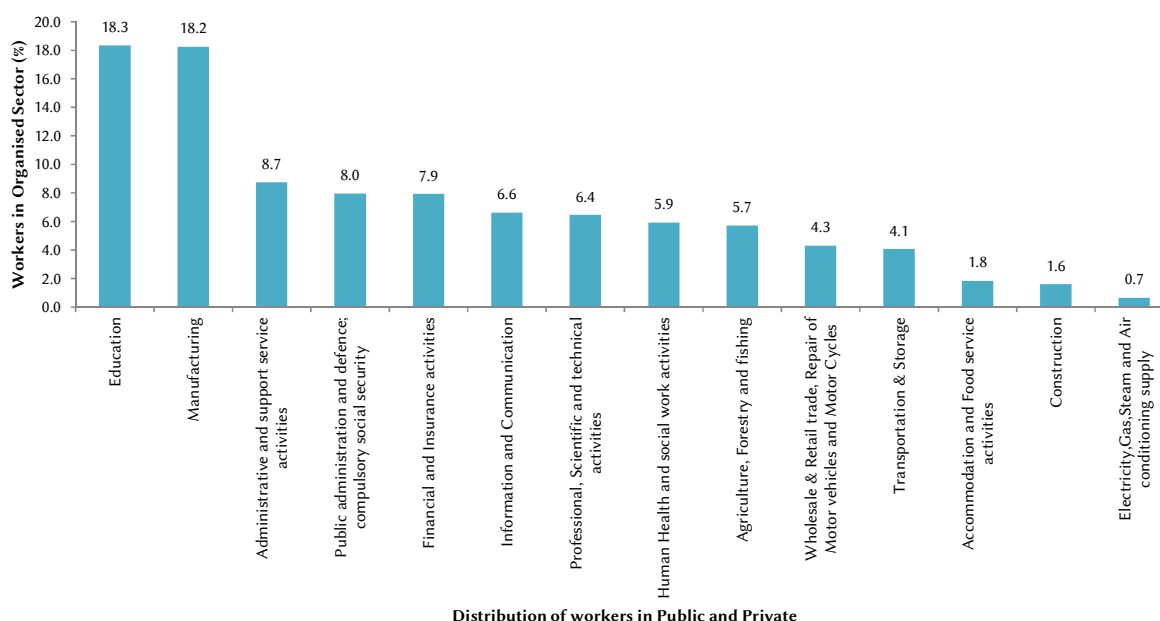
women employees in the public sector, respectively. In Thiruvananthapuram, 30,585 women are employed in public sector, followed by Ernakulam (23,065), Thrissur (21,973), Kollam (16,969), Malappuram (14,941), Kozhikode (13,560), Palakkad (13,519), Kannur (13,497), Kottayam (10,556), and Alappuzha (10,533). In Idukki, 3,442 women are employed in the public sector, preceded by Kasaragod (6,499), Wayanad (6,889) and Pathanamthitta (8,108) (**Appendix 7.2.8**). Women's participation in the public sector employment is shown in **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 other sectors, has fallen. The shares of employment in education and manufacturing have risen. (**Appendix 7.2.9** and **Figure 7.2.6**).

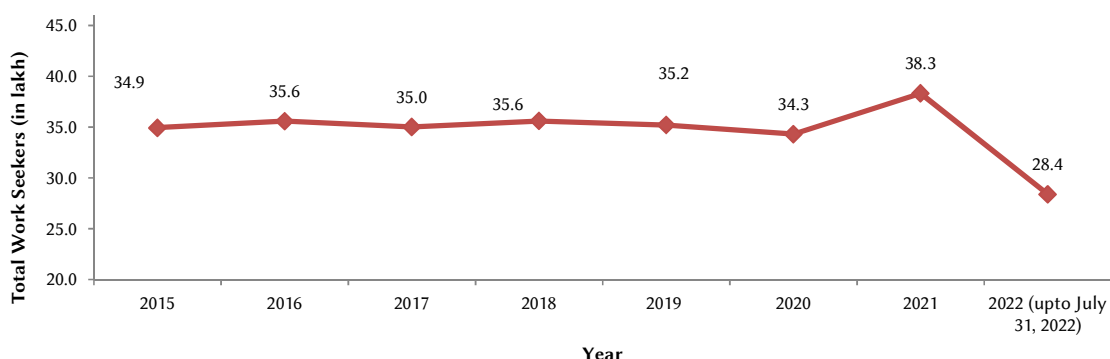
Employment in Unorganised Sector

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. 93 per cent of workforce and nearly 50 per cent of the Gross Domestic Product is attributable to this sector. A high proportion of the socially and economically weaker sections of society are engaged in the unorganised economic activities in India and Kerala.

Figure 7.2.6 Major sectorial distribution of employment in the organised sector in Kerala March 2022, in per cent

Source: Directorate of Employment, GoK, 2022

Figure 7.2.7 Work Seekers in Kerala, number in lakh



Source: Directorate of Employment, GoK, 2022

Employees of enterprises belonging to the unorganised sector have lower job security, have no social protection, lesser chances of upward mobility, and no paid holidays. In Kerala, 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

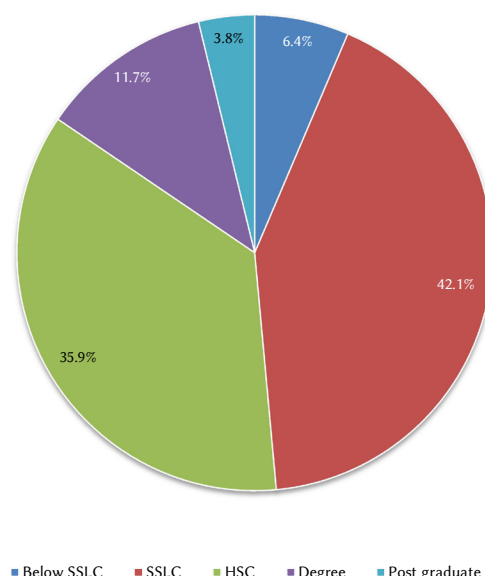
Registered Job Seekers

According to live register of employment exchanges in Kerala, the total number of job seekers as on December 31, 2015 was 34.9 lakh, and it increased to 38.3 lakh as on December 31, 2021. The number of job seekers up to July, 2022 is 28.4 lakh. Details of job seekers for various years are given in **Appendix 7.2.10** and **Figure 7.2.7**.

Contrary to the all-India scenario, live registers in Kerala indicate a larger number of women jobseekers than men. Of the total job seekers in 2021 (up to December 31, 2021), 63.1 per cent are women. Distribution of job seekers by educational-level indicates that only 6.4 per cent have qualification below SSLC. About 93.5 per cent of the job seekers have qualifications of SSLC and above. (**Figure 7.2.8** and **Appendix 7.2.11**).

The number of professional and technical job seekers as on December 31, 2021 is 2.9 lakh. Data reveals that ITI certificate holders, diploma holders and engineering together constitute 57.4 per cent of the total professional and technical job seekers.

Figure 7.2.8 Distribution of work seekers in Kerala by Educational-level

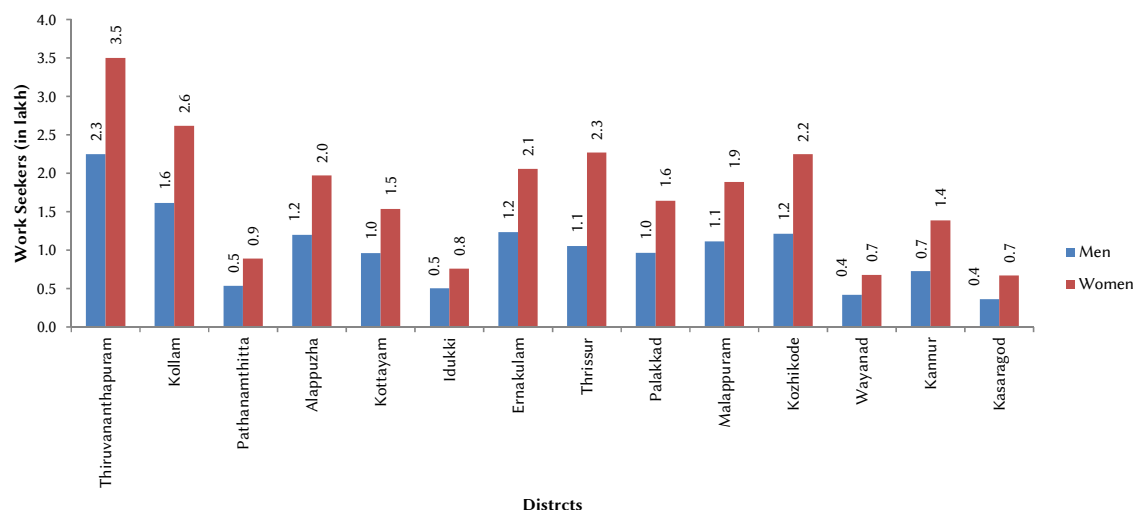


Source: Directorate of Employment, GoK, 2022

There are 56,540 registered engineering graduates and 11,103 medical graduates and 1,09,984 other professional candidates (candidates having PG second class and above, LLB, Ph.D,etc) (**Appendix 7.2.12**). District-wise job seekers in Kerala are shown in **Figure 7.2.9**.

The district-wise details of work seekers as on July 31, 2022 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 4.5 lakh; of which 2.9 lakh are women and 1.6 lakh men. There are 3.1 lakh job-seekers in Kollam. The lowest numbers are

Figure 7.2.9 Job seekers in Kerala, men and women in 2021, in lakh



Source: Directorate of Employment, GoK, 2021

registered in Kasaragod District – 0.7 lakh persons. (**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 ₹2,452.68 lakh was spent in 2021 for implementing the above activities, benefiting 4,906 persons. In 2022-23 (as on July 31, 2022), ₹274.00 lakh has been disbursed. Details of amount disbursed and beneficiaries are given in **Appendix 7.2.14**.

Self-Employment Schemes

Three self-employment schemes are implemented through the Employment Exchanges in Kerala.

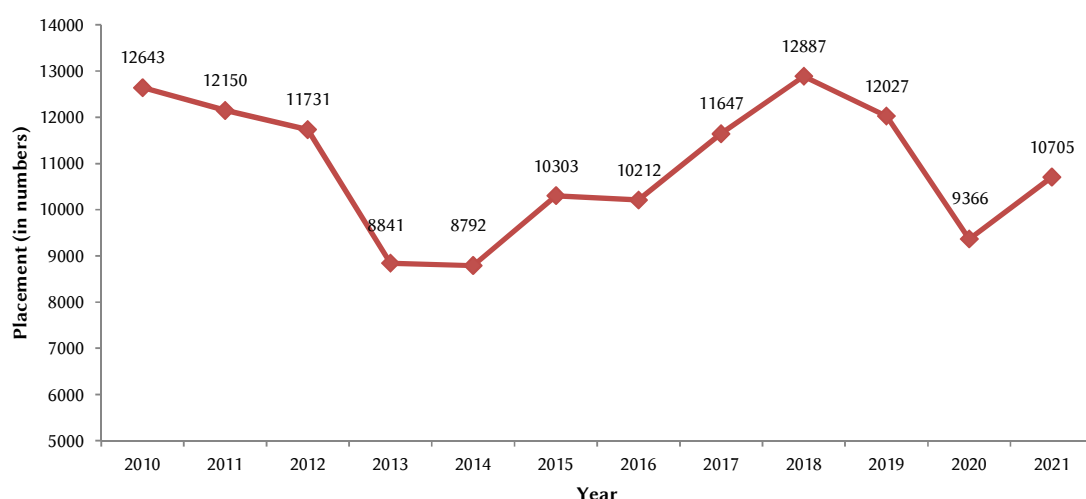
1. Kerala Self-Employment Scheme for the Registered Unemployed (KESRU): KESRU has been implemented since 1999, and is intended for unemployed persons in the live register between the ages 21 to 50 years with annual family income not

exceeding ₹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 loan up to ₹1 lakh, with a 20 per cent subsidy, is given for self-employment ventures. In 2021-22, an amount of ₹137.0 lakh was allotted to the scheme, and ₹80 lakh has been spent for 444 beneficiaries.

2. Multi-Purpose Service Centres/Job Clubs (MPSC/JC): This is a group-oriented, self-employment scheme for development of enterprises in the unorganised sector. Bank loan up to ₹10 lakh, with 25 per cent subsidy subject to a maximum of ₹2 lakh, is 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 2021-22, an amount of ₹68.0 lakh was allotted to 44 job clubs.

3. Saranya: This Employment Scheme for the 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 loan up to ₹50,000, with 50 per cent subsidy is given for starting self-employment ventures. In 2021-22, an amount of ₹1,800.00 lakh was allotted, and the whole amount was spent for 3,586 beneficiaries.

Figure 7.2.10 Placement through employment exchanges-Kerala



Source: Directorate of Employment, GoK, 2022

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.

Unemployment Assistance

The Government of Kerala had introduced an unemployment assistance scheme in 1982. Under the scheme, unemployed youth remaining in the live registers for over three years (two years for persons with disabilities) after attaining the age of 18 and having passed SSLC (for SC/ST and persons with disabilities, candidate need to have only appeared for SSLC examination), and having annual family income below ₹12,000 and monthly personal income below ₹100, are eligible for an unemployment assistance of ₹120 per month, up to the age of 35. Since 1998, with the enactment of the Kerala Panchayat 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 2021, ₹439.3 lakh was disbursed to 37,069 beneficiaries as unemployment assistance, and ₹766.6 lakh to 1,595 beneficiaries as self-employment assistance. In 2022 (as on August 31, 2022), ₹138 lakh was disbursed to 12,637 beneficiaries as unemployment assistance, and ₹2,146.1 lakh to 4,904 beneficiaries as self-employment assistance (**Appendix 7.2.15**).

Placement through Employment Exchanges in Kerala

The total placement through Employment Exchanges in Kerala has mostly been declining since 2010. In 2021, the placement through employment exchanges increased to 10,705 persons, against 9,366 persons in 2020. The placement through employment exchanges in Kerala since 2010 is given in **Figure 7.2.10**.

7.3 SKILL DEVELOPMENT

Low skills perpetuate poverty and inequality. Skill development can reduce unemployment and underemployment, and improve incomes and well-being.

Emerging technology, climate change, demographic transition, urbanisation and globalisation are changing the nature of work and skill demand across the world. To succeed in the 21st century job market, one needs a comprehensive skill set comprising cognitive skills, socio-emotional skills, technical skills and digital skills. The development of skills can contribute to structural transformation and economic growth by enhancing employability and labour productivity. In recent times, skill development has become a priority for both developed and developing countries.

India is experiencing major shifts in its workforce from agriculture to service-manufacturing sectors and is facing a need for better skills. 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 growth.¹

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 decade.²

Formulated by the Ministry of Labour and Employment in 2009, the National Policy on Skill Development (NPSD) was, in a way, the first step towards a comprehensive effort towards skill development involving all stakeholders (government, industry, trade unions, and civil society) to create a skills ecosystem in India. It acts as a guide to formulate skill development strategies by addressing different challenges.

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.

India is one of the fastest growing economies in the world and a need was felt to expand the scope in services sector and to integrate training courses with apprenticeship. With a view to foster apprenticeship in the country, Apprenticeship Act

¹ National Skill Development Mission – Ministry of Skill Development and Entrepreneurship, GoI; also see Mehrotra S, Kalaiyaran 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

² National Policy for Skill Development and Entrepreneurship, Ministry of Skill Development and Entrepreneurship, GoI-2015

was reformed in December 2014 and subsequently National Apprenticeship Promotion Scheme (NAPS) was launched in August 2016 to incentivise the employers to take on more apprentices. The efforts have borne fruit during the last five years with significant improvements in apprentices' enrolment.

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.³

Challenges in Skilling and Entrepreneurship in India

Skills and knowledge are driving forces of economic growth and social development for any country. 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, 2011-12 (68th round) report on Status of Education and Vocational Training in India, among persons of age 15-59 years, about 2.2 per cent reported to have received formal vocational training and 8.6 per cent have received non-formal vocational training. According PLFS 2020-21, 3.3 per cent of the population received formal vocational training.

One of the biggest challenges of skill development in our country is that 93 per cent of the workforce is in informal/unorganised sector. Consequently it is difficult to map existing skills in the unorganised sector and gauge the skilling requirement in the sector.⁴

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 2020-21 report, women workforce participation rate in rural areas is 27.7 and 18.6 in urban areas.

On demand side, a skill gap study has been conducted by NSDC over 2010-2014, which indicates that there is an additional incremental human resource requirement of 120.79 million skilled human power by 2022 in twenty four key sectors. The sector-wise and State-wise details are in **Appendix 7.1.1.**

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. 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 the institutional strengthening at the State, and District-level, Kerala Academy for Skills Excellence (KASE) under department of Labour and Skills has been designated as the State Skill Development Mission (SSDM). The mission would guide, coordinate, monitor and evaluate skilling initiatives and bring all skill development activities of the State under a single umbrella.

Skill Training Programmes through Various Department

1. Additional Skill Acquisition Programme

(ASAP) Kerala: Pioneered by the Government of Kerala, the Additional Skill Acquisition Programme (ASAP) is a skilling initiative that focuses on imparting industry relevant skills to the youth. ASAP Kerala has collaborated with 1,510 partner institutions, 99 engineering colleges and 45 polytechnics. It has established 16 Community Skill Parks and has trained 251,242 students since inception. In schools ASAP delivered, a specially curated programme called Foundation Module that comprised 100 hours of Communicative English, 80 hours of basic IT skills and 150 hours of industry relevant vocational and on-the-job training on a trade of choice. Certification for ASAP training programmes is provided through the National Council for Vocational Education and Training as well as the industry concerned. This is in line with the commitment of the Government of Kerala to transform the State into a knowledge economy and skill 50 lakh people and provide jobs to 20 lakh over the next five years.

a) Advanced-level skill courses online

The advanced courses offered by ASAP Kerala were Artificial Intelligence and Machine Learning Developer, Google Associate Cloud Engineer, Cyber security, Essential

³ Annual report 2021-22 – Ministry of Skill Development and Entrepreneurship, GoI

⁴ National Policy for Skill Development 2015, Ministry of Skill Development and Entrepreneurship, GoI

Design Courses using Autodesk Fusion 360, Advanced Solar PV System Design and Installation, Graphic Designer, Digital Marketing, Service Now, Robotic Process Automation, AWS Cloud Foundation, Sales force Administrator and Sales force Developer. Technical courses were offered to a total of 3,711 students in 132 batches.

b) Foreign language training: ASAP Kerala partnered with various internationally-validated language certification agencies linked to the Embassies concerned like Goethe Zentrum for German, Alliance Francaise for French, and ASATC for Japanese to offer language training and different levels of language proficiency certifications. The language training was offered online during lockdown to the students. 72 students have enrolled for the German, 124 for French and 75 for Japanese language training programmes.

c) Training programme with Kudumbasree mission: ASAP Kerala, along with Kudumbasree State Mission, launched 'Connect to Work', a 120 hour employment-oriented training programme to help educated youth to find jobs of their choice. Modelled on the lines of a finishing school, 'Connect to Work' assisted educated job aspirants who did not manage to get placed due to various reasons, including the lack of soft skills. As a part of the initiative, 350 of the 2,200 participants got placed with leading firms.

d) 'Vayanashtala' to train rural women: ASAP Kerala's Vayanashtala scheme, which was launched in association with Ernst and Young, aims to train rural candidates in gig work and then provide them virtual internship opportunities for three months. This initiative widens the employment ambit of rural women in technology-immersive areas in the gig-economy. Dr. R. Bindu, Hon'ble Minister for Higher Education, officially launched the first phase of the programme on October 8, 2021. 38 successfully trained candidates have been placed in Recruitment Process Outsourcing (RPO) Vertical of EY GDS in permanent positions.

e) Skill development through external fund support: ASAP Kerala had collaborated with external agencies such as NABARD and NORKA to provide fund support to students

enrolling in higher-order courses. ASAP Kerala trained 58 candidates in the Graphic Designer programme with funding support from NABARD, and 150+ candidates in Cloud Computing and Artificial Intelligence with NORKA funds.

2. Skill Development Programmes of the Scheduled Tribes Development Department:

In order to reduce unemployment among the Scheduled Tribes youth, the Department intends to assist ST families for skill training in modern skill sets and 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**.

Table 7.3.1 Details of skill training for ST youth

Sl. No.	Course	No of candidates admitted
1	Quantity Surveyor	50
2	Garment Designing	100
3	Airline customer service	50
4	Airline and airport management	100
5	Textile designing and garment manufacturing	250
6	Gothrajeevika (2nd phase)	1050
Total		1600

Source: Scheduled Tribe Development Department

3. Skill Training Programmes under SC Development Department:

For providing 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 for Scheduled Castes. Through the "Assistance for Training, Employment and Human Resource Development" scheme, 1786 SC youths received skill training during 2019-20 and 2020-21. In 2021-22, 599 SC youths benefited under the skill training programme, while 67 people received training in 2022-23 (as on 30th September 2022).

Self-employment assistance is given to the individuals/self-help groups with one-third

of the loan as subsidy for undertaking self-employment ventures. In 2021-22, 171 beneficiaries received self-employment subsidy through the scheme “Assistance for Training, Employment and Human Resource Development”. District-wise details of SC persons benefited under the self-employment scheme in 2021-22 and 2022-23 (as on September 30, 2022) is given in **Table 7.3.2**. The table also shows that 240 SCs have benefited from skill training programmes under Scheduled Caste Development Directorate and they have been able to start self-employment ventures in the State during 2021-22 and 2022-23.

Table 7.3.2 Number of SC persons benefited under Self Employment scheme during 2021-22 and 2022-23

Sl. No.	District	No. of Persons Benefited
1	Thiruvananthapuram	28
2	Kollam	16
3	Pathanamthitta	8
4	Alappuzha	21
5	Kottayam	8
6	Idukki	11
7	Ernakulam	25
8	Thrissur	29
9	Palakkad	27
10	Malappuram	17
11	Kozhikode	16
12	Wayanad	3
13	Kannur	22
14	Kasaragod	9
Total		240

Source: Scheduled Caste Development Directorate

4. 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 many training programmes at State-level. It is the nodal agency of Centrally Sponsored Programme called 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 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 March 31, 2022, 77,775 people are being trained under the scheme. The details of DDU GKY status in Kerala are given in **Table 7.3.3**.

Skilling through Technical Education

A degree in engineering, medicine, agriculture, management, crafts or a diploma/certificate in agriculture, engineering/technology, medicine and crafts are included under technical education.⁶

Technical education also helps to acquire and improve the skills of an individual. It aims to improve the human resources by applying technology for the benefit of the society, in terms of improving the quality of life, enhancing industrial productivity and improvising technologies for the overall development of the community. Directorate of Technical Education is the nodal department for technical education in the State.

Polytechnics and Technical High Schools – There are 45 Government polytechnics 6 Government aided polytechnics and 39 Government technical high schools functioning in the State in 2022-23. All these institutes offer courses that give importance to skill training of the students in the State. The details of these institutions are covered in Chapter 6.1. The details of students admitted in various technical courses are enlisted in **Table 7.3.4**.

There are 71,359 students who have completed skill training in the year 2021-22 in various institutions of Kerala. There is a need to increase the facilities to provide them with necessary placements and apprenticeships. Similarly, safe migration should be possible for the students who have completed this training as soon as opportunities are available abroad.

⁶ Periodic labour Force Survey 2019-20, Ministry of Statistics and Programme Implementation, Gol

Table 7.3.3 DDU GKY status in Kerala

DDU GKY status				
Total No of Project Implementing Agencies	177			
Total No of Projects	230			
No of Active Training Centres	94			
Under training	1971			
	Commenced	Completed	Appointed	Three months Job completed
Cumulative	77775	65495	47387	37747
2022-23	3193	4036	3229	2006
2021-22	6248	5718	1568	3143
2020-21	3358	3053	1787	2931
2019-20	15221	12812	9957	8390
2018-19	16428	13702	10972	9593
2017-18	12998	10663	9196	5854
2016-17	10722	11250	8232	5149
2015-16	9607	4261	2446	681

Source: Kudumbashree

5. Kerala Development and Innovation Strategic Council (K-DISC):

The Kerala Development and Innovation Strategy Council, (K-DISC) is an advisory body constituted by the Government of Kerala. K-DISC aims at bringing out strategic plans that reflect new directions in technology, product and process innovations, and creating a healthy and conducive ecosystem for fostering innovations in the State.

Kerala Knowledge Economy Mission- 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 is 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.

Table 7.3.4 Details of Students Admitted in the Technical Courses

Institutions	Number of Students 2021-22
Government Polytechnic	32247
Government Aided Polytechnic	4760
Technical High School	7834
Government ITI	22959
Private ITI	2787
Various institution under KASE	772
Total	71359

Source: Directorate of Technical Education and Industrial Training Department

K-Disc strengthening skills for the knowledge economy and the spirit of innovation.

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).

6. Industrial Training Department:

Industrial Training Department is functioning 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 is implementing the major two schemes introduced by the DGT, namely Craftsman Training Scheme and Apprenticeship Training Scheme through various Government and private Institutes

scattered in urban, semi urban and rural areas of the State. The free training and other assistance given to the trainees help to bring the backward sections of the society to the main stream of technological advancement. By using the latest technologies in imparting training the department enhances the employability of the trainees. 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 the domestic industry, to raise quantitatively and qualitatively the industrial production by systematic training, to reduce unemployment among the educated youth by providing them employable training. National Council for Vocational Training (NCVT) is the apex authority in the country in 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.

The total seat strength of the 104 ITIs under the Department of Industrial Training for the year 2021-22 is 24,134 and the enrolment for the period is 22,959. In 2020-22, out of the total enrolment, 5,392 are women candidates, 3,897 are SC students, and 601 are ST students.

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 of apprentices in the industry so as to conform to a standard syllabi, period of training, skill sets etc. and to utilise the facilities available in industry for imparting practical training with a view to meet the requirements of skilled human power for the industry. 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 acts 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 the 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 organisation and passes the National Apprenticeship Trade Test.” Apprenticeship schemes in the State are implemented through office of the State apprenticeship advisor, and Assistant Apprenticeship Advisor in 14 districts. There are 81 trades in which seats have been located for Apprenticeship Training.

c) *Industrial Training Institutes*: There are 104 Government Industrial Training Institutes functioning in the State with a total capacity of 33,582 seats (1st year + 2nd Year), out of this 30 per cent of seats are reserved for women candidates. Apart from these 14 women ITIs are functioning in the State in Government sector.

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 7.3.2, 7.3.3, 7.3.4, 7.3.5, 7.3.6, 7.3.7 and 7.3.8.**

It is evident from the **Appendix 7.3.2** that, the total seat strength in Government ITI s in 2022-23 was 24134 and the total enrolment of students was 22959. Among the total enrolment in 2020-21, 5392 are girl students. In 2021-22 the total enrolment of students and the enrolment of women and the number of Scheduled Castes and Scheduled Tribes students have shown a slight increase as compared to the previous year.

Appendix 7.3.6 indicates the placement details of ITI students in the last 6 years from Government and private ITIs. In 2020-21, 6800 students from Government ITIs and 3098 students from private ITIs have been placed in jobs. The total available placements include 1468 girls and 1332 SC/ST students. An increase of 30 per cent has been recorded in total placements compared to last year.

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 skill and knowledge of instructional staff and others in pace with technical developments. The activities of this Institute include, study on TNA and preparation of course design, research in new methods of skill training and teaching, skill updating programmes of technical staff, soft skill training, training programmes under State training policy at IMG, off campus training programmes, monitoring of virtual class training, coordinating DLP training of DGT. IMG and SUIIT together conducted 48 training programmes

will fully utilise its existing networks and future networks to fulfill the aim of the Government for skilling and creating employment opportunities in the State.

Skill Convergence in Kerala

For institutional strengthening at the national, State and District levels, Kerala Academy for Skills Excellence (KASE) has been designated as the State Skill Development Mission (SSDM). 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. This mission would guide, coordinate, monitor and evaluate skilling initiatives and bring all skill development activities of the State under a single umbrella.

VIII Kerala Academy for Skills Excellence (KASE)

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.

Unique skilling models have been adopted by SSDM with industry tie-ups and placement linkages such as Centres of Excellence (CoE), Accredited Institutions, Employability Centres, Kaushal Kendras, Indian Institute of Infrastructure and Construction (IIIC), Kerala State Institute of Design (KSID) etc. KASE is also the nodal agency for implementing the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and the Skills Acquisition and Knowledge Awareness for Livelihood Programme (SANKALP). KASE

A brief overview of major initiatives of KASE is as follows;

International Skill Training and 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 setting up of Centres of Excellence (CoE) in various sectors. Presently in all such models, KASE will provide the basic shell infrastructure, whereas the training, certification and placement including overseas placement are the mandate of the industrial partner as per the standards laid out by KASE. iSTEP is open to any sector of the industry, where the skill gap is identified by the stakeholders.

Models under iSTEP are as follows:

- Centres of Excellence (CoE)
- Accreditation of Skill Training Courses

Box 7.3.1 Major achievements in the financial year 2021-22

- Land acquired for ITI Pinarayi (4.5 acre) and ITI Chadayamangalam (1.07 acre)
- Started production centres in 9 ITIs
- 15 ITI s were declared as Green Campuses
- Provide Nutritional food for 32000 trainees in Government ITIs
- Providing 24 hours insurance coverage for 32000 trainees in all Government ITI
- Naipunya Karma Sena has been set up permanently in 78 ITI s
- Kerala got 8 Gold, 8 Silver, 5 Bronze and 4 Medallian in national India Skill competition held in Delhi

Centres of Excellence functioning under KASE are detailed below:

Centres of Excellence (CoE)

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 skills of nurses. KASE partnered with M/s. Trivandrum Speciality Hospitals (NMC Healthcare Group, UAE) to set up this Centre of Excellence in Nursing 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 to the students for their career advancement and societal upliftment 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, Kochi for equipping the youth with requisite skills needed for this industry. The programme offers courses in Mechanical, Instrumentation and 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 Infrastructure and Construction domain which is intended to provide employability skills to the personnel in all cadres of the infrastructure and construction sector, from the lower-level workers to supervisory and managerial-level to make them readily employable in national and international market and to act as an intermediary to connect these skilled personnel, who have successfully completed the courses of IIIC with the probable employers. Established on nine acres of land with state of the art 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 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 the qualified nurses, to make them readily employable in international market and act as an intermediary to connect the nurses who have successfully completed the courses with probable employers. There is a one OET test centre for health care professionals.

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 the State of 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.

Skill Training Under Jaljeevan Mission

Under “Annual Action Plan 2020-21 Kerala” of Jal Jeevan Mission (JJM), funds are set aside for Support Activities in which, Skill Development Activities (Plumbers, fitters, electricians, masons etc) are included. The skill training activities shall be provided to Kudumbashree members, so as to enhance the availability of skilled workforce in villages. It will also meet the objective of local communities’ participation in JJM. As the initiative is intended for skill development of the rural population Jal Jeevan is conducting the program through KASE. A tripartite MOU

was signed between KASE, Water Authority and Kudumbashree. Training was provided in the plumbing and fitter trade in 10 districts in selected ITIs.

Accreditation of Skill Training Institutes – Reputed skill training institutions can associate with KASE in getting them accredited so as to enhance their reach and acceptance of 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.

Table 7.3.5 shows the placement details of various institutions under the KASE. From the table, it may be seen that 41 per cent of the students who have completed their training up to 2020-21 from various skill training centres operating under KASE have received placement.

Skill Registry Mobile Application

Department of Labour and Skills, Government of Kerala has launched a unique single window facility to help customers hire certified and experienced resources at an affordable cost for all their service needs.

Skill Registry is first of its kind mobile application in the Government sector. The application provides the services of skilled workforce for the daily household and commercial needs directly to the public. The application has been developed by KASE in association with the Industrial Training Department, Kudumbashree and Panchayat department. The mobile application helps to bridge the gap between the work force and the general public, thereby eliminating intermediaries. Skilled labourers can register as service providers and those who require their services can register as customers in this application. The application is hosted in Google play store and there is no registration fee for both the users, customers and service providers. Once a service provider registers in the mobile application, customers can view those service providers only after the authority concerned approves them, this in turn helps in providing only quality service providers to the customers. Status of Skill Registry mobile application is mentioned in the **Table 7.3.6**.

Kerala State Job Portal

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. State Job Portal is a one-stop solution or all-inclusive support system for

Table 7.3.5 Trained and placed details of KASE

Name of the Training Institute	Year	Total Trained	Total Placed
Nursing Institute of Career Enhancement (NICE)	2017-18	230	15
	2018-19	110	13
	2019-20	61	5
	2020-21	187	107
	2021-22	244	86
	2022-23	31	on-going
Centre for Advance Training in Security (CATS)	2017-18	160	76
	2018-19	3	Nil
	2017-18	240	176
ESPOIR	2018-19	415	220
	2019-20	565	289
	2020-21	170	122
	2021-22	224	168
	2022-23	78 (60 on-going)	40
	2018-19	174	146
IIIC	2019-20	503	119
	2020-21	231	28
	2021-22	158	132
	2022-23	254 (on-going)	142 (on-going)

SWAT	2018-19	33	20
	2019-20	30	33
	2017-18	187	150
Hedge School of Applied Economics	2018-19	1080	252
	2019-20	1304	Nil
	2017-18	60	30
SMEC	2018-19	72	40
	2017-18	132	65
	2018-19	93	85
Induscan Petroleum Institute	2019-20	22	Nil
	2017-18	31	25
	2018-19	29	5
Incaetek Solutions Pvt Ltd.	2019-20	8	4
	2018-19	39	Nil
	2019-20	80	34
Intercad	2017-18	102	75
	2018-19	167	104
	2019-20	90	6
Dhanwanthary Institute of Paramedical Science	2017-18	186	186
	2018-19	251	251
	2019-20	130	130
Atheos Institute of Skill Excellence	2019-20	32	Nil
	2020-21	31	8
	2021-22	13	Nil
Multi-Language Learning Centre	2022-23	8	Nil
	2018-19	44	39
	2019-20	27	21
Sports Management and Research Institute	2020-21	24	5
	2021-22	18	Nil
	2022-23	3	On-going
Blitz Academy Pvt. Ltd.	2017-18	212	102
	2018-19	1075	536
	2019-20	744	318
Centre of Excellence in Renewable Energy	2020-21	161	103
	2021-22	97	Nil
	2020-21	56	NA
	2021-22	116	NA
Total		10825	4516

job search and recruitment. State Job Portal provides employers with end-to-end recruitment solution 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 2021-2022, 780 employers and 2,23,672 jobseekers registered in State Job Portal. KASE has conducted District-level Job Fairs in all

the districts except Palakkad and Alappuzha through State Job Portal by associating with District Skill Committee and District Administration and placed 2,680 candidates in various companies. The portal also includes job seekers and employers' registration, Data Analysis, Integration with LinkedIn, Digi Locker System, Learning Management System (LMS) and Job Blog, Automatic resume building. Current status of Skill Registry Mobile Application is mentioned in the **Table 7.3.6**.

Table 7.3.6 Current status of Skill Registry Mobile Application

Registered Service Providers	Pending service providers for approval	Approved service providers	Total customers registered	Total service orders	Total services available
9,932	875	5416	19303	1185	42

Source: Kerala Academy for Skills Excellence (KASE)

Pradhan Mantri Kaushal Vikas Yojana 3.0 (2020-21)

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 the industry needs, meet the market demands, 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). It is the third version of PMKVY scheme.

PMKVY 3.0 (2020-21) Scheme is being implemented in 32 courses in 15 sectors. Under the Pradhan Mantri Kaushal Vikas Yojana 3.0 scheme there are 19 empanelled training partners and the number of enrolled candidates was 2,300. Among them 560 candidates had already completed the training.

Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP)

Government of India has launched a World Bank assisted project Skills Acquisition and Knowledge Awareness Livelihood Promotion (SANKALP),

under Ministry of Skill Development and Entrepreneurship (MSDE), to strengthen the institutional mechanisms for skill development and increase access to quality and market relevant training for youth across the country. The Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) project aims to implement the mandate of the National Skill Development Mission (NSDM), through its core sub-missions. The main objectives of the project include strengthening institutional mechanisms at both national and State levels, building a pool of quality trainers and assessors, creating convergence among all skill training activities at the State-level, establishing robust monitoring and evaluation system for skill training programs, providing access to skill training opportunities to the disadvantaged sections and supplement the “Make in India” initiative by catering to the skill requirements in relevant manufacturing sectors.

As part of the SANKALP project setting up of District Skilling Committee and District Nodal Centre at the District-level is essential to facilitate on-ground implementation of various skilling initiatives of Ministry of Skill Development and Entrepreneurship for ensuring quality and consistency in the skilling eco system. The District Skilling Committee acts as the focal point and local facilitator for ensuring and sustaining skilling at the District-level.

Table 7.3.7 Current Status of Kerala State Job Portal

Employers Registered	Jobseekers Registered		Partnered Institutes Registered	Vacancies Posted	Job Applications	Interview Scheduled	Job Offered	Job Fairs
	Completed	Basic						
1,066	28,325	4,11,211	109	62,653	78,309	4,661	3,389	16

Source: Kerala Academy for Skills Excellence (KASE)

Box 7.3.2 India Skills Report 2022

- Numerous cities from Kerala and Tamil Nadu have featured in the top 10 cities with highly employable resources.
- Multiple cities from Kerala have showcased a drastic improvement in female and male employability, with a lot of talent to leverage in the coming year.
- Cities of Thiruvananthapuram, Kottayam, Ernakulam, Thrissur and Kozhikode from Kerala do appear in the top cities for available skilled talent.
- As per the India Skills Report 2022 brought out by Wheebox in partnership with Confederation of Indian Industry, Taggd, Sunstone University, Pune, Lucknow and Thiruvananthapuram have the most employable youth talent among cities.
- New Delhi and Thiruvananthapuram ranked highest for numerical skills.
- Pune, Lucknow and Thiruvananthapuram topped in computer skills.

Ref: India Skills Report 2022

To strengthen the institutional mechanisms at the State-level, encourage demand driven skill development and to ensure convergence in demand and supply in each job role in the District-level, annual District Skill Development Plans (DSDPs) to be developed by each District with the District Magistrate/Collector as the overall in charge for the Plan. In this context, 13 districts in Kerala have submitted District Development Plan (2020-21) to Government of India through District Collectors.

The first tranche of funding of ₹10,15,50,000 under SANKALP scheme has been received. The implementation is in progress.

Acquiring new skills enables aspirants to get a job in a variety of ways and thereby earn regular incomes. Skill learning helps to increase access to employment opportunities. Central and State Governments have identified such skill gaps and are working to address them and enable skill development.

CHAPTER

08

INITIATIVES FOR SOCIAL
INCLUSION

8.1 GENDER AND DEVELOPMENT

Gender equality is a basic human right, and also crucial to establish social relations in which human beings achieve their full human potential.

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 2018 and published in 2019 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.

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

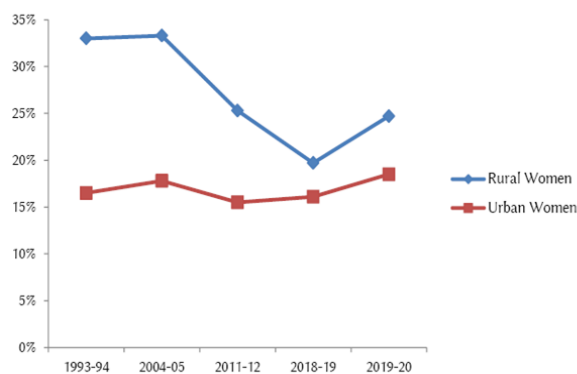
four decades. However, as a global community, we are still far away from being a gender-equal world.

India is ranked 140th among 156 countries in the World Economic Forum's Global Gender Gap Report 2021. 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. **Figure 8.1.1** shows women's participation in labour force in India.

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

Figure 8.1.1 Women's Participation in Labour Force in India.



Source: Previous NSS data and Periodic Labour Force Survey reports

Self-Governing bodies out of a total of 1,200 local bodies (Department of Panchayat, Kerala Government 2021). Kudumbashree Mission, one of the largest women empowerment projects in India has also been playing a key role in women's development. Women's participation in local bodies need to be seen also as a reflection of Kudumbashree'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 2017, 605 police constables were recruited (including a police battalion of women, commanded by a woman commandant) and another 154 were recruited in 2018. In Excise Department, 133 women were inducted for patrolling in 2018. 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 its high female literacy and education. Kerala has the highest female literacy rate among Indian States at 92 per cent and in literacy is very small gender gap (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**.

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

In the case of general education, enrolment is universal at the primary-level and gender parity has been achieved; girl students constitute 48.93 per cent of total student enrolment in schools. Girls outnumbered boys in terms of enrolment in higher secondary education at 50.73 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 5.39 per cent. Details are given in **Table 8.1.2**.

Table 8.1.2 Enrolment of Girls at Different Levels, Kerala 2022-23

Area	Total	Girls	Percentage
LP	1373066	671150	48.87
UP	1186030	583611	49.20
HS	1273299	620437	48.72
HSS	383034	194317	50.73
VHSS	29040	10857	37.38
Technical High schools	7805	421	5.39

Source: DGE, DVHSE, DTE, DHSE

Percentage of annual intake of girls in undergraduate and post-graduate courses in various Arts and Science colleges in Kerala is 62.84 in 2021-22. But when the annual intake of girls in engineering colleges and polytechnics is considered, the situation is different. Out of the total intake of students, girls constitute only 42.24 per cent in engineering colleges and 21.55 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. Annual intake of girl students in agricultural courses under Kerala Agricultural University is 74.17 per cent. More than 60 per cent of students in Kerala Veterinary and Animal Sciences University in 2021-22 are girls. Similarly, more than 75 per cent of students in Kerala University of Fisheries and Ocean Studies (KUFOS) are girls.

More than 81 per cent of the students in health and allied courses are girls (**Table 8.1.4**)

Health Status of Women in Kerala

Kerala has achieved high status in terms of most of the women's health indicators 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

Table 8.1.3 Annual Intake of Girls in Higher Education Institutions 2021-22

Catogory	Girls	Total	Per-centage
UG and PG (Arts and Science)	203208	323336	62.84
Poly Technic	2656	12321	21.55
B.Tech and M.Tech	14242	33711	42.24
UG and PG (KAU)	2585	3485	74.17
UG and PG (KUFOS)	379	513	73.87
UG and PG (KVASU)	1605	2510	63.94
Health and Allied Sci-ences	23161	18800	81.17

Source: DTE, DCE, KAU, KUFOS, KVASU, DHS

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 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 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 total literate

Table 8.1.4 Proportion of Annual Intake of Girls in Medical Education, Kerala 2021-22 as on October 2022

Name of Branch	Male	Female	Total	Female percentage
Modern Medicine	1782	3616	5398	67
Dental	267	1640	1907	86
Homeo Medicine	40	345	385	90
Ayurveda Medicine	146	1030	1176	88
Unani Medicine	9	51	60	85
Sidha Medicine	4	13	17	76

Source: Kerala University of Health Science (KUHS)

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

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 bulletin2021 October.

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 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. It was launched on January 12, 2021 and will go on for a year.

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 in females and 0.3 per cent in males.

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

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, as per the official labour force survey, have been lower in Kerala than at all India-level, particularly in rural areas. 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 2020-21 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 23.3 per cent in 2020-21 in all age groups. In the productive age group of 15-59 years, the WPR of women in Kerala is 32.3 while the all India average is 33.9.

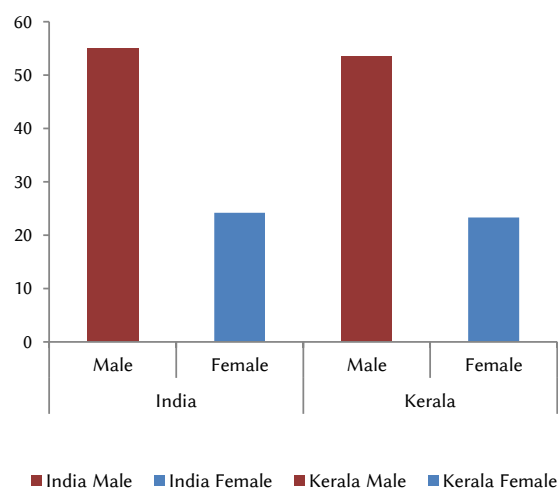
The gender gap in levels of employment both in India and Kerala in terms of WPR is brought out in **Figure 8.1.2**. Though both male as well as female WPRs show upward trends, the increase in female WPR in Kerala is less than of men and their counterparts in India. The increase was taken up by self-employment and casual labour; especially in rural areas. The detailed discussion 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 have 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

Figure 8.1.2 Work Participation Rates of Males and Females in Kerala and India (All Ages)



Source: Periodic Labour Force Survey 2020-21 *Inequality in Wage Rates*

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 of Centre for Development Studies, 2015 showed the shift of the female workforce away from agriculture was quite marked in Kerala. As per PLFS 2019-20, 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. For example, among beedi and cigar workers, women constitute 97.83 per cent of the total workforce.

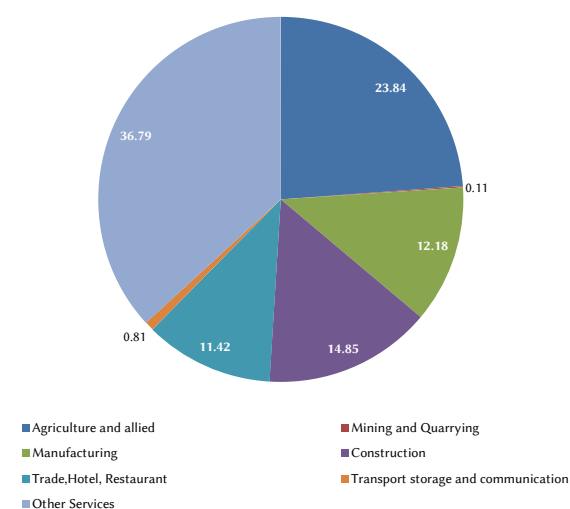
While in 2019-20, given the increase in FWPR in Kerala, there is a slight increase in women engaged in agriculture in rural and urban areas, the larger

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

Source: Periodic Labour Force Survey 2019-20, CWS

Figure 8.1.3 Industry-wise proportion of female workforce



Source: PLFS 2019-20.

increase in rural Kerala is in construction and certain services. In urban Kerala, the increase has been sharper in trade followed by manufacturing and services. Hence the increase in rural female participation rate in 2019-20, has been to some extent in agriculture, given the hike in National Rural Employment Guarantee Act (NREGA) employment but is found in other non-agricultural sectors also.

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 12 per cent. This point towards the better quality of employment that the State has been able to provide to its female workforce. Kerala also has a relatively small share of women casual labours compared to all India-level.

Women in Organised Sector

In 2022, the proportion of women workers (43.67 per cent) in organised sector in Kerala was low compared to that of men (56.32 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 (5,46,013) in the organised sector, majority (64.32 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

Table 8.1.8 Percentage distribution of working women in India and Kerala (CWS)

Employment Category		2019-20	
		India	Kerala
All self employed	Own Account Worker, Employer	55.5	39.4
	Helper in household enterprises		
Regular salaried		22.6	44.3
Casual labour		21.9	16.3

Source: PLFS 2019-20

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 34.86 per cent in 2022. The situation is better in the case of private sector where 3.5 lakh women (50.75 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 2021 and 2022.

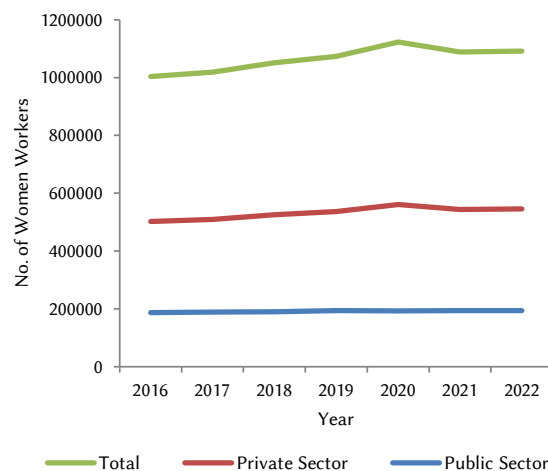
An examination of distribution of public sector employment of women in different types of Government organisation as shown in Table 8.1.10 reveals that the proportion of women is high in the State Government in 2020-21 and in 2021-22.

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 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

Figure 8.1.4 Growth of women's employment in organised sector



Source: Directorate of Employment

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. Micro, Small and Medium Enterprises has also opened a Women Cell to provide coordination and assistance to women entrepreneurs facing specific problems. There are also several other schemes of the Government at Central and State-level, 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

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

Source: Directorate of Employment

Table 8.1.10 Distribution of Women Employees in Different Levels of Government in Kerala

Year	2021-22			2020-21		
Type of Government	Total	Women	Percentage to the Total	Total	Women	Percentage to the total
Central Government	60063	14726	24.51	60003	14716	24.52
State Government	259339	105627	40.72	259239	105567	40.7
Central Quasi	80736	25391	31.44	80635	25341	31.42
State Quasi	131372	39120	29.77	131480	39172	29.79
LSGI	25296	9272	36.65	25277	9284	36.72
Total	556933	194136	34.85	556634	194080	34.86

Source: Directorate of Employment

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.

Women in IT Sector

The IT sector (Techno Park, Cyber Park, and Info Park) has shown an increase in employment in 2020-21 and 2021-22. The proportion of women employees in Cyber Park showed a marginal increase from 36 per cent in 2020-21 and 40 per cent in 2021-22, while the proportion was constant during the periods for Techno Park and Info Park. (Table 8.1.11)

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 2021-22 was more than ₹514 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

Table 8.1.11 Employment generation in Information Technology (IT) sector in Kerala

IT Parks	2020-21			2021-22		
	Total	Women	Per cent	Total	Women	Per cent
Techno Park	63000	28350	45	64000	28800	45
Info Park	54000	21600	40	63600	25440	40
Cyber Park	764	278	36	1237	495	40

Source: Techno Park, Info Park, Cyber Park

Table 8.1.12 Financial Inclusion through Neighbourhood Groups

	2019-20	2020-21	2021-22
No of NHGs	287723	294436	306551
No of NHG Members (in lakh)	45.1	45.85	45.86
Amount of Thrift (in crore)	443.7	406.71	514
No of Bank linked NHGs	73522	250018	52837
Total Disbursement Amt.(in crore)	2670	4070.26	3436
Internal Loan (in crore)	1778.4	1323.11	2510

Source: Kudumbashree

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 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 support 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 3.4 lakh of women farmers are actively involved in farming and they are cultivating in more than 33 thousand hectares of land in 2021-22. The figure is very crucial in Kerala where men are increasingly moving away from cultivation and the cultivable land (including paddy fields) are converted into other purposes.

Table 8.1.13 Joint Liability Groups and Micro Enterprises under Kudumbashree

Joint Liability Groups (JLGs) under Kudumbashree		
Year	2020-21	2021-22
No. of JLGs	72306	74776
No of JLG members	331060	343271
Total area cultivated (in Ha)	28042.35	33310.05
Area of Fallow land cultivated (in acre)	4206.235	6634.62
Women Enterprises under Kudumbashree		
No of Enterprises	46240 (cumulative)	54471
No. of Women Members	157848 (cumulative)	175006

Source: Kudumbashree

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 2021-22 and the percentage of women person days generated through MGNREGA is 89.57 per cent) (**Table 8.1.14**).

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

Table 8.1.14 Status of MGNREGA Employment Provided in Kerala from 2018-19 to 2021-22

Year	No. of Active Job Cards (No. in Lakh)	No. of households got Job (No. in Lakh)	per cent of women person da generated	Person days generated (No.in Lakh)	Average wage rate per day per person in ₹	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	512823

Source: MGNREGA data base (as on 21.11.2022)

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 40-49 and 62.6 per cent of 30-39 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 own 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 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

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)		
	Urban	Rural	Total	Total	Urban	Rural	Total
Currently married women who usually participate in household decisions (per cent).	91	87.7	88.7	84	93.6	94.6	94
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
Women having a mobile phone that they themselves use (per cent)	69.4	46.6	54	45.9	86.2	86.9	86.6

Source: NFHS

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 are 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 molestation (28 per cent) and cruelty by husband or his relatives (27.5 per cent). Crime against women in Kerala during the year 2016-2022 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 covers several departments with the WCD being the nodal agency and police and judiciary critical for redressal. A large number of measures ranging from regular sensitisation, public awareness, community based crime and vulnerability mapping, counselling to adolescent girls, self-defense 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 programme 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 fifteen Nirbhaya Homes (Women and Children Homes) 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 ₹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.

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.

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. So the marital status of women in Kerala is very important. It could influence the overall-level of care and support they receive from their family and society. 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 ₹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 Sahayastham 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 ₹3,00,000.

Athijeevika is a scheme that has been envisaged to provide one time financial assistance up to a maximum of ₹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 residents of 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 HLFPPPT (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 residents of Women and Children Homes with psychological problems. Government had accorded sanction for an amount

of ₹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, economic independence and free thinking men, all 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.

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.

- Protection from Domestic Violence during COVID-19 – 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, safety of women and children during lockdown period. In collaboration with Postal Department a new scheme named “Rakshadooth” was initiated to enable access services to women in remote area and women those who do not have a phone and transportation facilities.

- The 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 participators in social development and progress. The Corporation focuses on providing financial support to women entrepreneurs, trainings and gender awareness programmes. Upto the financial year 2021-22, the Corporation has implemented “ShePad” menstrual hygiene management awareness project in 1,925 Government/aided Schools for 3.42 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 six districts and has a total of 700 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.

Gender Sensitisation Programme for Police Personnel: '*Bodhyam*' Gender sensitisation online training programme for police personnel was launched by KSWDC on July 21, 2020. The training was conducted in batches of 30 personnel each (civil police officers) at 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 2021-22, in the midst of COVID-19 crisis, *Bodhyam* was transformed as an online training programme and completed training for 2,313 police in-service personnel and recruits.

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 2021-22, women cells have functioned in 99 women colleges with over 10,000 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.

24/7 Women Information and Assistance Centre: Mithra Helpline (181) was launched in Kerala on March 27, 2017 by KSWDC. The helpline is envisioned to create an infrastructure to support women at all times with the continuous feedback mechanisms at its core and as an emergency response system for women in distress. In 2021-22, 181 Mithra Helpline has rendered services to 41,496 calls. The concerted efforts of Mithra 181, OSCs (One stop centres called Sakhi) and the State Police can strengthen the safety infrastructure for women of the State.

Integrated Skill Development Centre for Tribal Women: The Corporation has piloted a scheme

of setting up of Integrated Skill Development Centre for tribal women in Chakkittapara Grama Panchayat, Kozhikode district. Community social workers were appointed by the Corporation to understand the skill and livelihood requirements of the women. Several training programmes and workshops have been conducted. During 2021-2022, the training was provided for cow dung cake making, Trichoderma - enriched fertiliser processing. Veterinary medical camps were conducted to control and prevent livestock diseases. A career guidance training was given to the tribal women beneficiaries under Vanamithra project to help them choose the right career path based on their educational and professional choices.

Finishing School for Women: KSWDC started "Reach" for enhancing employability skills among women to improve their job prospects. In 2021-22, a total number of 824 students were provided training. Through advanced skill enhancement programme for nurses (ASEPN), 99 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. "She Taxi" is to encourage women to take up driving for livelihood. 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.

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 four thematic areas selected for the learning process are: (1) women and work, (2) women and health, (3) women and mobility and (4) women and entertainment.

Kerala Women’s Commission: Gender Awareness Programme-A significant activity of KWC is the training of JagrathaSamithi (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. During 2011-22 (as on March 31, 2022) Women’s Commission received a total of 71,812 complaints of different cases against women in Kerala. The highest number of cases were in Thiruvananthapuram (25,715 complaints) followed by Kollam with 6,863 complaints. Out of the total, 14,406 complaints were related to family problems, 7,946 of domestic violence cases and 6,195 of property related.

“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 2021-22, 3,586 women were benefitted by the scheme. 774 women in 2020-21 and 1,656 women in 2021-22 (upto August 31, 2021) received financial assistance through Kaivalyaie. A rehabilitation and welfare scheme registrants with disabilities in employment exchanges, implemented by the Employment Department.

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. The facilities for conducting sex reassignment surgeries have been established in Kottayam Medical College. A programme, viz, “Nisarga” has been started by Directorate of Homeopathy for counselling and medication for transgender. 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. 120 TGs were benefitted by the programme in 2021-22. 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 Government hospitals based on medical advice was increased to ₹2 lakh in 2019 and further to ₹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 ₹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 for 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 2020-21, an amount of ₹1,509.33 crore (7.3 per cent) has been provided for women specific schemes (Part A) and an amount of ₹2,300.54 (11.1 per cent) for composite schemes in Part B has been made available for women. A total amount of ₹3,809.87 crore has been earmarked for women which is 18.4 per cent of total Outlay. Out of this amount, ₹5 crore is allocated for *Mazhavillu*, scheme for transgenders. Gender budgeting in the State has a total outlay of ₹4,665.2 crore for the 2022-23 financial year. Allocations for women have touched a high of 20.9 per cent of the total

Plan outlay, up from 19.54 per cent (₹4,025.4 crore) for 2021-22. While the resource allocation for 90-100 per cent women-specific schemes is 7.26 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 13.64 per cent, an increase from 13 per cent in 2021-22. This indicates a marginal but steady growth in both categories.

8.2 ADDRESSING SOCIO-ECONOMIC VULNERABILITIES

Scheduled Castes and Scheduled Tribes

The Government of Kerala is committed to the socio-economic transformation of the conditions of life and work of the people of the Scheduled Castes and Tribes. It is committed to addressing the development needs of the people of Scheduled Castes and Tribes through a range of development policies. The policy of the Government of Kerala has been to ensure that the share of total State Plan outlay for Scheduled Caste and Scheduled Tribe development is higher than the share of the people of Scheduled Castes and Tribes in the population.

In Kerala, 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 52 out of 89 departments on January 1, 2022, the representation of SCs and STs was reported to be 11.88 per cent of the total. Of this, 9.63 per cent were SCs and 2.25 per cent were STs. Details of representation of SC/ST employees in Government Departments are given in **Appendix 8.2.4**.

Development Programmes for Scheduled Castes and Scheduled Tribes

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 share. 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 per cent of funds allocated for SCSP and 23 per cent 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 total Plan amount set apart for the development of SCs and STs in 2022-23 is ₹2,979.40 crore and ₹859.50 crore respectively out of the total State Plan outlay of ₹30,700 crore. Year-wise details of allocation under SCSP and TSP from 2018-19 to 2022-23 are given in **Table 8.2.1**.

Development of Scheduled Castes

According to the Census of 2011, 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 53 SC communities and the communities like Vedar, Nayadi, Kalladi, Arundhathiar/Chakkiliyar are identified as the vulnerable communities among Scheduled Castes. The people of these specific Scheduled Castes

Table 8.2.1 Year-wise Outlay for SCSP and TSP 2018-19 to 2022-23, in ₹ crore

Year	Total State Plan Outlay	SCSP Outlay			Per cent of Total State Plan	TSP Outlay			Per cent of Total State Plan
		Department	LSGIs	Total		Department	LSGIs	Total	
2018-19	29150.00	1570.36	1289.26	2859.62	9.81	632.59	193.60	826.19	2.83
2019-20	30610.00	1649.00	1353.84	3002.84	9.81	663.27	202.99	866.26	2.83
2020-21	27610.00	1487.39	1221.15	2708.54	9.81	598.26	183.10	781.36	2.83
2021-22	27610.00	1487.39	1221.15	2708.54	9.81	598.26	183.10	781.36	2.83
2022-23	30700.00	1638.10	1341.30	2979.40	9.81	657.95	201.55	859.50	2.83
Total	145680.00	7832.24	6426.70	14258.94	9.81	3150.33	964.34	4114.67	2.83

Source: Budget Documents, GoK.

constitute 3.65 per cent of the total Scheduled Caste population in the State. Owing to the historical marginalisation and the socio-economic disadvantages emanating from that, State Government takes special efforts to ensure their development and well-being.

Government of Kerala allocates Plan fund to the SC Development Department and the Local Governments for implementing various development programmes. Besides this, Central Government also allocates fund for the implementation of Centrally Sponsored Schemes. An amount of ₹2,708.54 crore was earmarked in the 2021-22 Budget for the welfare of Scheduled Castes. Out of this, an amount of ₹1,487.39 crore was allocated to the SC Development Department and ₹1,221.15 crore for Local Governments. SC Development Department spent ₹1,267.07 crore (85.18 per cent) while the Local Governments utilised ₹1,082.75 crore (88.66 per cent) out of the allotted budgeted outlay. Out of the 2,979.40 crore earmarked for the welfare of Scheduled Castes in the 2022-23 Budget, SC Development Department received ₹1,638.10 crore and the LSGIs received ₹1,341.30 crore. Allocation of SCSP funds from State Plan Outlay from 2018-19 to 2022-23, is given in **Appendix 8.2.5**. The Scheme-wise outlay and expenditure and the physical targets and achievements for the years 2021-22 and 2022-23 (as on September 30, 2022) of SC Development Department are given in **Appendix**

8.2.6 and **8.2.7** respectively. Major programmes undertaken for the welfare of Scheduled Castes are summarised below.

Major Development Programmes for the Welfare of Scheduled Castes

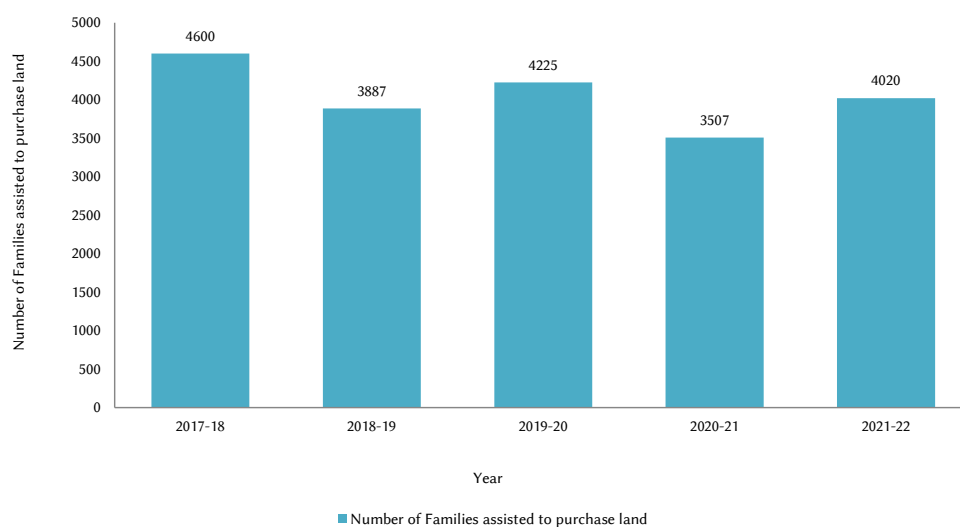
Land and Housing

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'. According to LIFE Mission, there are 46,731 landless SC families and 67,720 families with land are houseless (as on September 30, 2022). Out of the budgeted outlay of ₹185.00 crore, ₹158.61 crore (85.73 per cent) was spent in 2021-22 to purchase land for 4020 SC families. The potential of the scheme can be explored fully in order to address the issue of landlessness among SCs. Number of families benefited under this scheme from 2017-18 to 2021-22 are given in **Figure 8.2.1**.

District-wise details of land provided to SCs under the land to landless scheme from 2020-21 to 2022-23 (as on September 30, 2022) is given in **Appendix 8.2.8**.

As regards housing, LIFE Mission has undertaken the construction of new houses and also

Figure 8.2.1 Number of SC Families Assisted to Purchase Land from 2017-18 to 2020-21



Source: SC Development Department, 2022

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 through LIFE Mission. In the first phase of LIFE Mission, construction works of 19,153 houses were completed out of the eligible 19,566 incomplete houses identified for the Phase-I (completion of incomplete houses). In the second phase (housing for homeless with land), out of the 48,494 eligible SC beneficiaries, 31,610 beneficiaries executed agreement for construction and the construction of 18,983 houses have been completed. For the third phase (housing for landless and homeless), 46,930 SC beneficiaries have been identified from the combined list of LIFE Mission and additional list of SC Development Department. Out of these identified landless beneficiaries, 8,140 families had acquired land and 7,345 families executed agreement for construction. Out of this, 4020 families completed the house construction so far (as on September 30, 2022).

Education

SC Development Department runs 85 nursery schools, 11 Model Residential Schools, 44 Industrial Training Institutes, 87 pre-matric hostels, 19 post-matric hostels, seven subsidised hostels, four Pre-Examination Training Centres, one Institute for Civil Services Exam Training Society, 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. Government provides various types of educational assistances such as primary education aid, lump sum grant, stipend, pre-matric and post-matric scholarships and overseas scholarships for improving the educational status of SC students. 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. The construction of 6,611 study rooms were completed in 2021-22 for the students of high school and higher secondary classes hailing from families having annual income less than ₹1.00 lakh. Out of this, 139 study rooms were for those children who belong to the vulnerable communities among SCs. Likewise, 1,674 study rooms were constructed in 2022-23, of which 135 study rooms belongs to the students from the vulnerable communities among SC (as on September 30, 2022). Major educational assistances given to SC students in 2021-22 are given in **Box 8.2.1**.

Details of lump sum grant, stipend and pocket money provided to Scheduled Castes students in 2021-22 and 2022-23 (as on September 30, 2022) are given in **Appendix 8.2.9** and the number of students who availed various kinds of scholarships and assistance from 2019-20 to 2022-23 (as on September 30, 2022) are given in **Appendix 8.2.10**.

Box 8.2.1 Major educational assistances given to SC students in 2021-22 (Number of students benefited)

Pre-matric scholarships	4,18,188
Post-matric scholarships	1,84,300
Assistance for studying abroad	106
Assistance for studying in other States	3,043
Assistance for purchasing laptop	1,110
Assistance for purchasing stethoscope	127
Ayyankali Talent Search scholarship	7,504
Special incentive (Cash award given to those students who achieve excellence in annual examinations including SSLC to PG and other professional courses)	27,501
Initial expenses to those admitted to Engineering/Medical Courses	523
Lump sum Grant	5,11,436
Stipend	27,374
Pocket Money	2,61,609

Source: SC Development Department, 2022

Health

Under the health care scheme, treatment assistance is provided to the deserving patients and the elderly. Financial assistance as a relief for the death of sole income earning member of an SC family is also a part of the scheme. In 2021-22, altogether 10,879 persons availed treatment assistance for various diseases throughout the State. Besides this, 29 homeo dispensaries are functioning in SC colonies. In 2021-22, ₹57.74 crore and in 2022-23 (as on September 30, 2022), ₹32.05 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 8.2.11**.

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 2021-22, altogether 599 SC youths received skilling through various skill development programmes. Self-employment assistance is given to individuals/self-help groups with one-third of the loan as subsidy for undertaking self-employment ventures. In 2021-22, 171 beneficiaries received self-employment subsidy. Details of assistance under the self-employment scheme in 2021-22 and 2022-23 (as on September 30, 2022) is given in **Appendix 8.2.12**. Financial assistance up to ₹1.00 lakh is given for unemployed

SC youths with annual family income below ₹2.50 lakh for seeking job abroad. In 2021-22, 673 persons availed assistance for seeking job abroad and in 2022-23 (as on September 30, 2022) 408 persons availed this assistance. This scheme has the potential to play a vital role in addressing the unemployment situation among the people of SCs and providing sustainable livelihood for them.

Infrastructure Development in SC Settlements

For providing better infrastructure facilities in the habitats, the 'Ambedkar Village Development Scheme' was launched in SC settlements in which more than 30 SC families reside. Under this scheme, ₹1.00 crore is provided to each colony for undertaking various developmental activities like 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 undertaken in 202 colonies have been completed in 2021-22.

Other Social Development Programmes

Assistance for Marriage

Under this scheme, financial support is given to SC families for the marriage of girls. In 2021-22, 11,025 SC families were assisted under the scheme

and ₹82.68 crore was spent out of the budgeted outlay of ₹83.39 crore. In 2022-23, by disbursing ₹32.83 crore was out of the budgeted outlay of ₹83.39 crore, 3,848 SC families were assisted under the scheme (as on September 30, 2022). The rate of marriage assistance was enhanced from ₹50,000 to ₹75,000 in 2016-17. It has been further enhanced to ₹1,25,000 as per the announcement in the Budget speech of 2021-22. Outlay and expenditure under marriage assistance scheme and number of persons benefitted from the scheme for the last four 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 the purchase of agricultural land for vulnerable communities such as Vedar, Nayadi, Kalladi and Arundhathiyar/Chakkliar. Under this package, assistance was provided up to a maximum of ₹10.00 lakh for purchasing minimum 25 cents of land. In 2021-22, for the development activities for the vulnerable communities ₹39.80 crore was utilised. Altogether, 144 beneficiaries received assistance for purchase of agricultural land and 165 families got assistance in purchasing land for house construction in 2021-22. Besides this, 139 study rooms, 90 houses, 206 toilets were constructed for the vulnerable communities and 19 families were provided assistance for repairing houses in 2021-22.

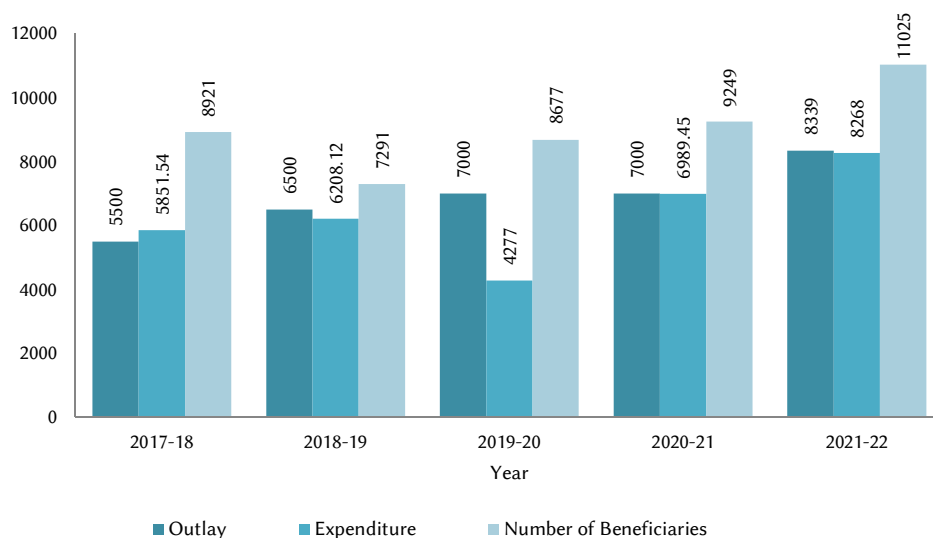
Legal Services

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 (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 2021-22, ₹12.50 crore was earmarked for this scheme and ₹14.91 crore was spent. Earlier, inter caste marriage assistance was provided at the rate of ₹75,000 which enhanced to ₹1,25,000 in 2022-23. Under this scheme, 2,650 couples received the assistance in 2021-22. Apart from this, 983 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 8.2.13**.

Valsalyanidhi

For the holistic development of the 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 ₹1,38,000 in the name of the girl child in LIC in four instalments. ₹30,000 as first instalment, when the child attains six months; ₹33,000 as second instalment when she gets admission in primary school and attains five years;

Figure 8.2.2 Outlay, Expenditure and Number of Families Benefitted under Marriage Assistance Scheme, (in ₹ lakh)



Source: SC Development Department, 2022

₹36,000 as third installment at 5th standard or at the age of 10; and ₹39,000 as fourth installment on completion of 10th standard. ₹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 ₹1,000 is also given to the brother or sister of the girl child studying in 9th standard to 12th standard. Altogether, ₹6.59 crore was spent in 2021-22 and 1,691 newborn girl children got insured under 'Valsalyanidhi'.

Corpus Fund for SCSP (Critical Gap Filling)

SC Development Department earmarks a portion of outlay as Corpus fund in the Budget annually for filling critical gaps identified in the Scheduled Caste Sub Plan schemes. Corpus fund is intended to provide funds for filling any critical gap in the SCSP provision made under various schemes on project basis with emphasis on socio-economic development. Administrative sanction for such schemes up to ₹25.00 lakh can be accorded at the districts by District Level Committee for SC/ST. In 2021-22, 101 projects were completed by using Corpus Fund for an amount of ₹19.71 crore. Road works, drinking water schemes, cultural centres and side protections for SC houses are the major works undertaken by using the funds. Outlay and expenditure under the scheme from 2018-19 to 2022-23 (as on September 30, 2022) is given in **Appendix 8.2.14**.

Special Central Assistance to Scheduled Castes Sub Plan (SCA to SCSP)

Government of India has provided SCA to SCSP to the States for undertaking mainly economic development programmes for the people of SCs. It helps the State Governments to fill the gaps which is not met from the Central, State and Local Government Plans. Out of the total funds received under SCA to SCSP, 75 per cent of the fund is distributed to the District Collectors on the basis of SC population in the districts and the balance 25 per cent is handled by the Director, SC Development Department for implementing various developmental programmes. Activities that can be undertaken in SCA to SCSP are assistance to SC families for taking up viable income generating activities, through a mix of institutional finance and subsidy. The outlay and expenditure details of SCA to SCSP from 2018-19 to 2022-23 (as on September 30, 2022) are given in **Appendix 8.2.15**. In 2022-23, by merging Special Central Assistance to Scheduled Caste Sub Plan (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.

Development of Scheduled Tribes

Kerala houses 4,88,053 tribal people in 1,47,744 families that constitute 1.45 per cent of the total population of the State and they live in 6,578 settlements. Major portion of the tribal population is concentrated in Wayanad and Kasargod with a population share of 34.05 per cent and 16.97 per cent respectively. There are 37 Scheduled Tribe communities in the State. Of these, five communities are identified as particularly vulnerable tribal groups: Kadar, Kurumba, Kattunaikan, Koraga, and Cholanaikan. Eight communities like Aranadan, Wayanad Kadar, Kudiya (Melakudi), Maha Malasar, Palliyan, Thachanadan Moopan, Malapanickar, Malai Pandaram etc. can be classified as minority communities, and eight communities like Adiyan, Eravallan, Hill Pulaya, Irula, Malasar, Malayan, Mudugar, and Paniyan can be treated as marginalised communities who also need special care along with PVTGs. The State have been implementing several schemes and programmes to uplift the tribal population from their present living condition.

The major sources of funds for Scheduled Tribes Development Department are State Plan, Centrally Sponsored schemes and Special Central Assistance to Tribal Sub Plan (Prime Minister's Adi Adarsh Gram Yojana (erstwhile SCA to TSP). An amount of ₹781.36 crore was earmarked for the welfare of Scheduled Tribes in 2021-22. Out of this, an amount of ₹598.26 crore was allocated for the ST Development Department and ₹183.1 crore for LSGIs. Scheduled Tribes Development Department had spent ₹553.69 crore and LSGIs had spent 164.27 crore out of the budgeted outlay. Allocation of TSP funds from State Plan Outlay from 2018-19 to 2022-23 is given in **Appendix 8.2.16**. Details of financial and physical achievements of schemes implemented by the Department in 2021-22 and 2022-23 (as on October 05, 2022) are given in **Appendix 8.2.17** and in **Appendix 8.2.18**.

Major Developmental programmes undertaken for the welfare of STs are given below

Land

The Tribal Resettlement and Development Mission

(TRDM) was set up in 2001 for providing land to landless tribals. 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 8,306 landless STs in the State. The land distribution under TRDM is through land bank scheme, distribution of vested forest land and Forest Rights Act. Major achievements under the scheme in 2021-22 are given below.

- Under the Land Bank scheme 6.17 acres of land were distributed to 53 beneficiaries of Wayanad District.
- Under Forest Rights Act 406.66 acres of land was distributed to 362 tribals. Of which, 159 beneficiaries availed 223.77 acres of land in Idukki District, 188 beneficiaries availed 154.58 acres in Wayanad District and 28.31 acres of land given to 15 beneficiaries in Kannur District.

In 2021-22 and 2022-23, altogether 1547.76 acres of land were distributed among 1526 tribals under various schemes (as on October 05, 2022). District-wise details of land distribution from 2018-19 to 2022-23 is given in **Appendix 8.2.19** and in **Appendix 8.2.20**.

Major Development Activities In Rehabilitated Areas

- Construction of 10 roads have been completed in Sugandhagiri Pookkode area at a cost of ₹5.80 crore.
- An amount of ₹20.74 lakh has been sanctioned for electrification of Cheepramkunnu colony in Wayanad District.

- An amount of ₹36.00 lakh has been sanctioned for drinking water project in Avayal colony in Wayanad district.
- An amount of ₹10.00 lakh has been sanctioned for housing rehabilitation in Wayanad District

Housing

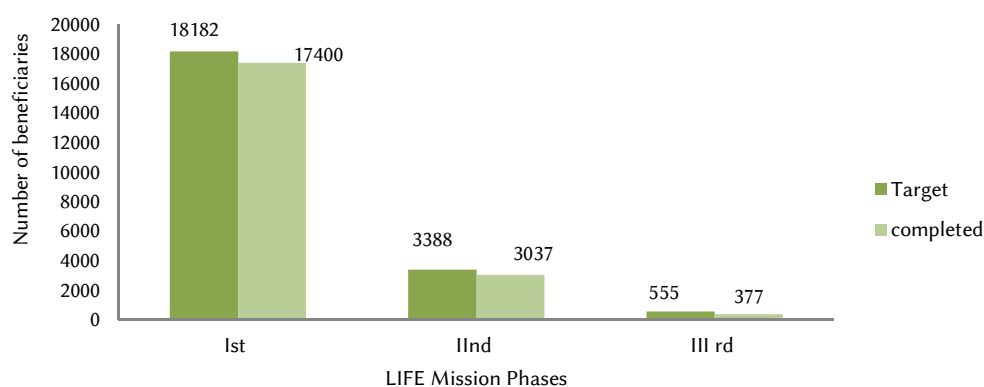
The policy of the State Government is to provide housing to all Scheduled Tribes so that there will be no homeless Scheduled Tribe family in the State. As per the Survey conducted by the Scheduled Tribes Development Department in 2018, it is estimated that about 16,070 tribal families possessing land are 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. Out of the 7,542 houses sanctioned by the ST Department since 2016-17 under various housing schemes, 3,321 houses were completed as on October, 2022. In the Phase-I of LIFE Mission, out of the 18,182 unfinished houses, 17,400 have been completed. Under Phase-II, out of the 3,388 houses sanctioned, 3037 houses have been completed. In the Phase-III, out of the 555 houses sanctioned, 377 have been completed. The progress of the LIFE mission in ST sector are given in **Figure 8.2.3**.

Outlay and expenditure of housing scheme from 2018-19 to 2022-23 is given in **Appendix 8.2.21**.

Educational Programmes

There has been a phenomenal improvement

Figure 8.2.3 The Progress of the LIFE Mission in ST Sector



Source: ST Development Department

in the educational status of Scheduled Tribe communities in Kerala due to concerted efforts of the State Government over the last few decades. The residential schooling programmes for tribal students coupled with wide coverage of scholarship programme have led to the progress of tribal education, especially among girls. The State Government has taken up creation of model residential schools and hostels in a major way in the last two decades with a strong focus 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 greatly address access related issues faced by tribal children of remote regions and also reduce burden of the disadvantaged tribal families by taking care of all expenses towards their children's education. Scholarship is another major scheme of State Government for incentivising the educational attainment among the Scheduled Tribe students which is implemented both through Plan and non-Plan. Apart from post matric and pre-matric scholarships, Ayyankali Talent Search scholarship, peripatetic education and sports promotion helps in overall development of tribal students.

Major physical achievements in education sector in 2021-22 are given below.

- 2,950 talented tribal students were assisted under the 'Ayyankali Memorial Talent Search and Development Scheme'.
- 505 orphans availed special assistance.
- 40,157 Students availed pre-matric scholarships
- 77,214 students availed post-matric scholarships.
- Special incentives availed by 1698 brilliant students.
- Laptops were distributed to 275 students.
- 150 ST youths participated in two skill training programmes, and 114 youth who had completed training programmes were successfully placed.
- A multi-purpose hostel for girls was constructed at a cost of ₹596.06 lakh in Ernakulam District where 100 female students have been provided lodging and study facilities.
- More than 7,600 students in 20 MRSs were benefited through career guidance cell and a vocational training cell started to enhance the quality of MRSs.
- A new building has been sanctioned for

Kasaragod Savitribhai Phule Memorial Ashram School at a cost of ₹31.00 crore.

- **Civil Service Coaching:** The programme aims to identify ST youths who are aspirants of civil service and extent coaching in top class Civil service coaching centres. ST youth below the age of 30 and attained degree with 50 per cent marks with family income below 2.5 lakh are eligible to apply. Based on the residential orientation camp conducted by State Civil Service Academy, 40 ST youths were selected and by further filtering 20 candidates were selected for intensive one year training in reputed institutions in the country.
- **Community Study centres in tribal hamlets (Samuhya Padanamuri):** Under the scheme, community study centres equipped with computers with internet, television, furniture, and reading material were established in tribal hamlets. An educated tribal youth from the same community is selected as a tutor and social worker. As on September 2022, 350 community study centres are functioning in Scheduled Tribe concentrated settlements. In 2021-22 hundred new study centres have been initiated. These centres have helped in addressing the dropout, improving school retention, improving the quality of education and also have proved helpful in conducting online classes at the time of the COVID-19 pandemic.

Number of students who availed scholarships and assistance from 2018-19 to 2022-23 (as on October 05, 2022) is shown in **Appendix 8.2.22**. Details of lump-sum grant, stipend and pocket money provided to ST students in 2021-22 and 2022-23 (as on as on October 05, 2022) are given in **Appendix 8.2.23**. Educational institutions run by the ST Department are given in **Appendix 8.2.24**.

In 2021-22, ₹159.25 crore was earmarked for education. Year-wise details of outlay and expenditure under education sector is given in **Appendix 8.2.25**.

Health Programmes

Various programmes were undertaken for providing health care to the tribal people. Comprehensive Tribal Health Programme, Janani Janmaraksha, Assistance to Sick Cell Anaemia patients, Financial assistance to tribal healers, Running of Mobile

Medical Clinics are major health care schemes undertaken for STs. Major physical achievements in health sector in 2021-22 are given in **Box 8.2.3**.

In 2021-22, the budgeted amount for health sector was ₹43.73 crore, but through re-appropriation and additional authorisation of fund an amount of ₹52.80 crore was spent for programmes under health sector. In 2022-23, ₹18.35 crore was spent under the healthcare scheme, as on October 05, 2022. Details of outlay, expenditure and physical achievements under health sector for the last five year is shown in **Appendix 8.2.26**. Major Health institutions run by the ST Department are given in **Appendix 8.2.27**.

Skill Development, Employment and Livelihood Programme

Department conducts career guidance camps and skill training for unemployed youth belonging to the Scheduled Tribes. 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 placement in both Government and private firms, including multinational companies abroad.

In 2021-22, 150 ST youths participated in two skill training programmes and 114 youths who completed the skill training were successfully placed in private enterprises. Details of skill trainings conducted and placement effected for the last four years are given in **Appendix 8.2.28**.

Kerala Tribal Plus under MGNREGA

Kerala Tribal Plus scheme is introduced by the State Govt. to provide additional 100 days of wage employment in a financial year to those Tribal

Households who complete 100 days of eligible employment under Mahatma Gandhi NREGS. Since 2017-18 the scheme is being implemented by Mahatma Gandhi NREGS Mission and the funds are provided by the Tribal Development Department.

The number of Job card holders of ST households increased from 91,717 in 2017-18 to 1,29,597 in 2021-22. The ST families who completed 100 days of employment (including 200 days) 2021-22 is 29,644. The number of ST families who availed more than 100 days employment under Tribal Plus in 2017-18 was 6,609 families which had increased to 22,937 families in 2018-19 and 21,726 in 2019-20 which further increased to 31,870 families in 2020-21.

The District-wise progress of the Tribal Plus scheme in 2021-22 are given in **Appendix 8.2.29**.

Food Security and Nutritional Development Programmes

For addressing the issue 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 district. Several agricultural projects were taken up in various districts using the Corpus Fund and Pooled Fund of ST Department. In addition, the Millet village programme and Nutrition-sufficiency in Food Through Agroecology programme were implemented in Attappady specifically for addressing

Box 8.2.3 Major physical achievements in Health sector in 2021-22

- 56,000 people were provided medical assistance under the comprehensive health care scheme.
- Under the distress relief component of the health care scheme, ₹84 lakh were given to 42 families (two lakh for each) who were suffering due to the death of the sole breadwinner.
- 811 sickle cell anemia patients received monthly financial assistance of ₹2,500.
- 8,935 pregnant women and lactating mothers received monthly financial assistance of ₹2,000 under the scheme Janani Janmaraksha.
- Under the scheme 'Financial Assistance to Traditional Tribal Healers' annual grant was given to 235 tribal healers at the rate of ₹10,000.
- 3,909 medical camps were organised by mobile medical clinics for ensuring health services to tribals at their door steps.

Source: ST Development Department

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. It has benefitted 2500 ST families in Idukki and Wayanad.

Millet Village Scheme

This initiative intended to rejuvenate agriculture in Attappady is jointly implemented by the Agriculture Department and Scheduled Tribes Development Department. The total project cost is ₹7.41 crore and covers 70 settlements covering 1,900 acres. Apart from the production of millets, pulses, oilseeds, vegetables and apiculture, it includes procurement, processing, packing, labelling, 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 for the 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. Through this project, they revived the Panjkrishi, one of the traditional farming methods practised by the various tribal communities of Attappady. It enhanced food security and nutrition of the community and is resilient and sustainable. It is managed and driven exclusively by the tribal communities with field coordinators from the scheduled tribes who supervises the projects and support the farmers.

Haritha Rashmi

Sustainable agricultural intervention among Scheduled Tribes, better known as the 'Haritha Rashmi' project, aims to promote the effective utilisation of land available to the tribal communities in the Idukki and Wayanad districts. The scheme was developed and implemented by the Centre for Management Development, funded by Scheduled Tribes Development Department of Kerala. The objective of this scheme is to promote scientific and modern agriculture in the unutilised land owned by the Scheduled Tribes and thereby improvements in their income and living standards.

The programme benefits 3,000 selected families in Wayanad District and 1,000 selected families in Idukki district. The project is being carried out in three inter-linked phases. During Phase-I of the project, preliminary activities such as awareness campaigns, identification of tribal households, training programs and formation of SHGs were carried out. Phase-II will further focus on the cultivation of crops and post-harvest activities. Phase-III will deal with the marketing of these products, creating a brand identity and formation of Farmer Producer Organisations. So far 4,022 beneficiaries from 376 tribal settlements have been identified as the beneficiaries of the project. 157 Farmers' Groups have been formed as part of the scheme. The tasks under Phases-II and III are progressing simultaneously. Practical trainings on farming methods, scientific harvesting methods, seed management and nursery management have been started in Wayanad District for the farmer groups formed under the scheme with the support of agricultural experts. A two day Onam fair was organised at Yenoor, Wayanad on 5th and 6th of September 2022 as part of Haritha Rashmi project.

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, Gothravatsalyanidi and Ambedkar Settlement Development scheme. Major physical achievements under social development schemes are given below.

- 895 ST girls received marriage assistance at the rate of ₹1.50 lakh.
- Of the 94 colonies selected under the Ambedkar Settlement Development Scheme, the infrastructure works in 49 colonies have been completed.
- Under Special package for Adiya, Paniya, 2,780 beneficiaries were benefitted.

Other Development Activities

- To prevent wild animal attacks, ₹11.00 crore have been approved for the construction of an elephant wall in the Aralam Rehabilitation area.
- Internet connectivity was made available to 1,013 settlements expending ₹6.13 crore.
- Trade and Arts Fair (Gaddhika) for Scheduled Tribes has been implemented in six districts as Mini Gaddhika programmes.
- As part of e governance initiative in the Directorate, DDFS (Digital Document Filing System) an office automation programme was

implemented in the Directorate of Scheduled Tribes Development Department and other District offices, spending ₹46.02 lakh.

Major Farms under Scheduled Tribe

Development Department

Aralam Farm

In 1970, Aralam Farm was founded as Central State Farm on 7,000 acres of land in Kannur District. The farm has been producing quality planting materials for several agricultural crops, and it also has rubber plantations. It is worth mentioning that 3,500 landless Scheduled Tribal families in Kannur and nearby districts were given one acre of land each out of the 7,000 acres of Aralam Farm. Major initiatives in the Aralam Farm in 2021-22 were: Renovation of the poly house, Setting of rain cover and starting vegetable cultivation, Opening Thanal Mini Supermarkets in which various planting materials, indoor plants, hanging pots, farm products, garden plants, and kitchen garden products were sold, Various activities were initiated to increase income from rubber, Initiated programmes to produce 2.5 lakh coconut saplings in the next three years. Area per plot by type of crop is given in **Table 8.2.2**.

Table 8.2.2 Area per plot by type of crop (in Ha)

Name of crop	Area in Ha
Coconut	315.35
Cashew	587.63
Mango	9.90
Areca nut	16.76
Pepper	6.81
Rubber	243.20
Others	4.45
Nursery	6.00

Source: ST Development Department

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, ₹ 3.00 crore was allocated to the Attappadi Co-operative Farming Society (ACFS). The amount 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. The crops cultivated are coffee, black pepper, areca nut, cashew, nutmeg,

turmeric, cardamom, papaya, leafy vegetables, curry leaves, etc. With the objective of farm modernisation and mechanisation, machinery has been procured in collaboration with the Department of Agriculture.

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 2021-22 out of ₹295.1 lakh of grant-in-aid sanctioned, a sum of ₹273.90 lakh has been utilised for the purpose of implementation of the PCR and SCs/STs (Prevention of Atrocities) Acts for which 136.95 lakh is the Central share and 136.95 is the State share. About 195 atrocity victims were provided relief fund. In 2021-22, inter-caste marriage assistance was given to 46 couples. In 2022-23, inter-caste marriage assistance was given to 18 beneficiaries (as on October 05, 2022). Details of number of beneficiaries received marriage assistance and inter caste marriage assistance from 2018-19 to 2022-23 is given in **Appendix 8.2.30**.

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 2021-22, ₹30.00 crore was earmarked for the scheme and ₹29.97 crore was expended for various projects undertaken by the ST Directorate and District offices. Outlay and expenditure under the scheme from 2018-19 to 2022-23 (as on October 05, 2022) is given in **Appendix 8.2.31**.

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, Prime Minister's Adi Adarsh Gram Yojana. The outlay and expenditure under SCA to TSP from 2018-19 to 2022-23 (as on October 05, 2022) is given in **Appendix 8.2.32**.

Box 8.2.4 New Initiatives

Edamalakkudi Comprehensive Development Package

Edamalakkudi, which is the only tribal Grama Panchayat in the State, faces many development issues. Providing basic necessities such as better housing, drinking water, electricity, road, education and health facilities are not an easy task with conventional development models. For addressing these specific issues in Edamalakkudi a new package has been introduced in the Annual Plan 2022-23 with an allocation of ₹15.00 crore. The component of utmost priority, viz, construction works of the Pettimudi-I daliparakudi road in Edamalakkudi obtained Administrative Sanction of ₹13.70 crore as the first step. The other components like construction of Office complex for Government Offices and Staff Quarters, School building and related structures, construction of Anganwadies and community centres, NTFP collection centre, provision for health and housing etc. will be taken up in the ensuing years.

Family based/Settlement based Micro Plan

In association with Kerala State Planning Board, the ST Department has initiated the preparation of Family/Settlement based Micro Plans as a road map for the development of tribal settlements. As the initial step, 162 settlements where vulnerable and marginalised communities reside were selected across Kerala for the preparation of the Micro Plan. In the Financial Year 2022-23, an amount of ₹1.34 crore has been allotted for the initial activities like App based data collection and compilation and for immediate interventions and field works for identification of development gaps in various sectors etc.

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 Scheduled Tribes (KIRTADS) was started as a 'Tribal Research and Training Centre' in 1970. The Institute conducts research and studies on Scheduled Castes and Scheduled Tribes population of the State. The Institute 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. The Institute also undertakes Adikala gramam programme which includes traditional dance music of the Scheduled Caste and Scheduled Tribe Communities of the State. The scheme-wise outlay and expenditure of KIRTADS is given in **Appendix 8.2.33**. Number of anthropological investigation cases against Scheduled Castes and Scheduled Tribes

in Kerala from 2017-18 to 2022-23 conducted by KIRTADS (as on October 05, 2022) is given in **Appendix 8.2.34**.

Kerala State Development Corporation for Scheduled Castes and Scheduled Tribes

The Kerala State Development Corporation (KSDC) for SCs and STs Ltd. 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 Schemes (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 and so on comes under the Social welfare schemes. In 2021-22, the Corporation disbursed an amount of ₹93.99 crore through the

schemes meant for assisting SC and benefited 5,207 people. Altogether, 528 ST beneficiaries got the assistance through various schemes which disbursed ₹9.37 crore. In 2022-23, assistance has been given to 2,742 SC and 301 ST beneficiaries (as on September 30, 2022). Major initiatives of the Corporation in 2021-22 are given below.

Income Generating/Self Employment Schemes

Beneficiary Oriented Schemes for SC and ST helps unemployed youth among SC and ST to start self-employment ventures with maximum project cost of ₹3,00,000. Through this scheme, 769 and 65 people from SC and ST respectively received assistance in 2021-22. 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 2021-22, 35 SC entrepreneurs and five 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 ₹50 lakh at seven per cent interest rate. Priority is given for newly passed out students of professional courses. Likewise, there is a scheme called Loan for Tribal Entrepreneurs to help poor ST youths for starting small projects in areas of agriculture, trade etc. This scheme created 120 entrepreneurs from ST communities. Likewise, through Laghu Vyavasaya Yojana, 1,502 SC entrepreneurs received assistance in 2021-22. Through 'Loan for Rehabilitation of Return Emigrants', KSDC extends need based loan subject to a maximum of ₹20.00 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 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 2021-22, total of 765 SC and 56 ST beneficiaries were assisted under this programme. Apart from this, KSDC implements Mahila Samridhi Yojana which offers soft loan assistance to SC women entrepreneurs and Adivasi Mahila Sashakthikaran Yojana (NSTFDC) for ST women. In 2021-22, through Mahila Samridhi Yojana and Mahila Sashakthikaran Yojana, 127 SC and 73 ST women received assistance for their self-employment initiatives.

Social Welfare Schemes

KSDC 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 ₹10 lakh, Marriage Assistance up to ₹2,50,000, Housing loan, Housing Renovation Loan etc. are few such schemes.

Details of scheme-wise physical and financial achievements of the Corporation in 2021-22 and 2022-23 (as on September 30, 2022) is given in **Appendix 8.2.35**.

Welfare of Other Backward Classes

Even before independence, protective measures were taken to uplift the vulnerable sections of the society such as Scheduled Caste, Scheduled Tribe and Other Backward Classes. After independence various protective measures were taken to improve the conditions of backward sections of the society. Article 15(4) and 16(4) of the Indian Constitution ensure special attention and reservation to the backward classes in education and jobs. As per Article 340 of the Constitution of India and the recommendations of the Mandal Commission Report, the State Government formed Backward Classes Development Department in November 2011 for promoting the welfare of socially and educationally backward classes of the society. Most backward communities among OBCs are classified as Other Eligible Communities (OECs).

Kerala is one of the pioneers among Indian States to ensure reservation for OBCs in public employment and education. Due to this, social progress of the backward class in Kerala is far better than their counterpart in other States of India. In Kerala, around 65 per cent of the population belongs to OBC and 84 communities are included in OBC list and 83 communities are included in the Socially and Educationally Backward Classes (SEBC) list. The largest groups among the OBCs 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 in prestigious foreign universities. Pre-matric and post-matric scholarships are provided for OBC as well as OEC students. The OEC students are eligible for all kind of educational assistances given to SCs and STs, without any income limit. Major educational assistances provided to OBC and OEC students in 2021-22 are given below.

- 54,370 OEC students availed pre-matric assistance and 65,352 OEC students availed post-matric assistance.
- 69,964 OBC students availed pre-matric scholarships and 1416 OBC students availed post-matric scholarships.
- 31 students availed Overseas Scholarship for higher studies in rated foreign Universities. A maximum amount of ₹10.00 lakh per student has been provided.

Schemes for Employment Generation

For enhancing 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 was given to students for coaching in medical/engineering entrance examination, civil service examination, UGC/NET/JRF/GATE/MAT and other competitive examinations in reputed institutions and also assistance was provided for starting self-employment ventures under the scheme 'Employability Enhancement Programme'. In 2021-22, 2458 beneficiaries availed assistance under the scheme. Placement oriented skill 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'. About 720 individuals were benefited under the scheme in 2021-22.

Many of the Communities of OBCs are engaged in specific traditional occupations like pottery making, fishing, weaving, washing, oil pressing, hair cutting and so on. In order to assist the traditional occupation among the OBCs, financial assistance was given to pottery workers, barbers and

craftsmen. In 2021-22, 112 pottery workers and 273 traditional barbers were assisted. The department has provided financial assistance to traditional working class communities for purchasing tool kits for improving the quality of their work. About 2,494 persons received skill development training and assistance for purchasing toolkits under the scheme, 'Skill development training and toolkit grant for traditional craftsmen'.

A total amount of ₹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 ₹144.83 crore has been spent by the Department in 2021-22. An amount of ₹161.44 Crore was allocated by the State Government to the Backward Classes Development Department in 2022-23. The scheme-wise outlay, expenditure, and the physical achievements of the Department in 2021-2022 and 2022-23 (as on October 30, 2022) are given in **Appendix 8.2.36** and **8.2.37**.

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 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 that include loan assistance for self-employment, education loans, and micro finance. KSBCDC also provides assistance such as marriage assistance, house building/maintenance and personal loan. KSBCDC has disbursed an amount of ₹2727.21 crore among 2,77,539 beneficiaries during the 13th Five-Year Plan (2017-2021). Corporation has been providing marketing opportunities to its beneficiaries through exhibitions and trade fairs organised by State Government and National Financial agencies. 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,

Box 8.2.5 Kumbhara Colony Infrastructure Development Programme

The traditional pottery making communities are one of the most backward communities among Other Backward Classes. *Kumbharan, Kushavan, Kulalan, Odan, Velaan* are the major pottery making communities among OBCs in Kerala. The condition of the colonies where they live lack even basic amenities and most of them have no working facilities like work shed, chimneys and modern equipments. The scheme envisages comprehensive development of the *Kumbhara* colonies where the traditional pottery making communities are thickly inhabited by providing basic amenities like drinking water, electricity, road, foot path, community hall, library and so on. The scheme also includes modernisation of the trade, providing work sheds, chimneys, transportation facilities for marketing of products and so on. An amount of ₹50.00 lakh has been provided for the scheme in 2022-23. As a first phase, the scheme has been implemented in *Kodakara Kumbhara* Colony in Thrissur District in 2021-22 and ₹ 1.00 crore has been spent for the installation of water tank and pipe connection for drinking water supply to the colony, footpaths inside the colony, furnace, community hall and a common pugmill for every households of the colony. The scheme benefitted 85 poor families.

Source: Backward Classes Development Department

or chronic illness. The Corporation implemented COVID Working Capital Loan Scheme in the wake of the COVID-19 pandemic for supporting OBCs and Minorities below poverty line. About ₹840.00 lakh was disbursed among 338 members through this scheme. The Corporation also implemented '*Subhiksha Keralam*' for women under OBC category for starting individual enterprises and has disbursed ₹85.00 lakh among 56 women beneficiaries. The Corporation has disbursed loans worth ₹713.14 crore in 2021-22 benefiting 68,258 persons. In 2022-23, an amount of ₹309.00 crore has already been disbursed among 19,361 persons (as on October 5, 2022). The source-wise expenditure and the physical achievements of the Corporation in 2021-22 and 2022-23 (as on October 5, 2022) are given in **Appendix 8.2.38**.

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 Ltd. was started 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, loans for self-employment, 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 grant, spot the talent, career guidance programme, Coaching assistance for competitive examinations such as Medical Engineering Entrance, Civil Service and PSC. The corporation formulated an action plan for loan recovery to reduce the NPA status, which helps to recoup earlier losses arising from it. Corporation collected ₹9.89 crore as loan recovery in the financial year 2021-22. An amount of ₹5.00 crore was allocated to the Corporation in 2021-22 for various programmess. But the expenditure was ₹7.08 crore. The excess of expenditure over outlay in 2021-22 is due to the loans issued from loan repayments. Details of year-wise disbursement of State Government assisted loan schemes from 2017-18 to 2022-23 (as on October 5, 2022) are given in the **Appendix 8.2.39**. The scheme-wise details of physical and financial achievements of the Corporation are given in **Appendix 8.2.40**.

Kerala State Pottery Manufacturing Marketing and Welfare Development Corporation Ltd.

Kerala State Pottery Manufacturing Marketing and Welfare Development Corporation Ltd. was set up in 2016 with the objective of modernising the traditional pottery sector in the State, thereby increasing the living standards of the families engaged in the sector. Major programmes implemented by the Corporation includes loans for manufacturing and marketing of pottery, marriage assistance loan and education loan. In 2021-22, an amount of ₹70.00 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, 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 for the welfare of minorities. The physical achievements of various schemes are given below:

- During the 13th Five-Year Plan, 97 projects were approved for an amount of ₹216.55 crore under the scheme ‘Pradhan Mandhri Jan Vikas Karyakram’ (PMJVK). In 2021-22, a total of

₹88.02 crore was allocated for the scheme and ₹88.00 crore was expended.

- Department has been providing free coaching to students of minority communities for PSC/UPSC/SSC/Railway Recruitment Board/Banking sector competitive examinations through various coaching centres across the State. A total of 37,470 students were given coaching during the Five-Year Plan period and among them, 2,837 students got permanent employment in State and Central Governments.
- Under Imbichi Bawa Housing/Renovation scheme for Widows/divorcees and abandoned women, an amount of ₹500.00 lakh was provided for the completion of 42 incomplete houses and renovation of 550 houses.
- The scheme ‘Water supply in Minority Concentrated Areas’ had been implemented in 2021-22 which benefited 200 families.

Major Educational Assistance Provided in 2021-22

- Scholarships were provided to 1513 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 benefitted 4,315 students and Civil Service coaching fee reimbursement has been provided to 30 minority students.
- Reimbursement of interest on educational loan for studying in selected foreign Universities was provided to 13 minority students.
- Fee reimbursement was provided to 3096 students pursuing technical courses or trades in recognised ITCs in order to promote skill training among minority students.
- Scholarships were provided to 1020 students pursuing three year Diploma courses in Govt/ Govt-Aided Poly-technic colleges.
- Scholarships were provided to 386 students pursuing Nursing Diploma/Para medical courses.

Pradhan Mantri Jan Vikas Karyakram-PMJVK

The Pradhan Mantri Jan Vikas Karyakram-PMJVK is a unique area development programme through infrastructure support. This is a Centrally Sponsored Scheme with the objective of developing infrastructure projects in identified areas with development deficits for the socio-economic development of the said areas. During the year 2018-

19, the Ministry of Minority Affairs restructured and renamed the erstwhile Multi Sectoral Development Programme as Pradhan Mandri 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 in the catchment area (15km 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 living in the catchment area. In 2021-22, an amount of ₹88.02 crore was allocated and ₹88.00 crore was spent. Construction of School buildings, additional class rooms and toilet blocks in schools were completed under the scheme in 2021-22.

An amount of ₹124.03 crore was allocated by the State Government for the welfare of minorities in 2021-22 of which ₹108.77 crore (88 per cent) was expended. An amount of ₹76.01 crore was allocated in 2022-23. Scheme-wise outlay and expenditure and the physical achievements of the Department in 2022-23 (as on October 5, 2022) are given in **Appendix 8.2.41** and **8.2.42**.

Kerala State Minorities Development Finance Corporation Limited

The Kerala State Minorities Development Finance Corporation Ltd. 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 major schemes implemented by the Corporation are self-employment loan, business development loan, education loan, visa loan, pravasi loan, employees multi-purpose loan and housing loan for Madrasa teachers and others.

The Corporation has announced a new multipurpose loan scheme namely '*Sumithram*' as a special initiative in the wake of the COVID-19 Pandemic period. It includes marriage loan, treatment loan and COVID related loan. KSMDFC has disbursed loans amounting to ₹25.52 crore to 628 beneficiaries belonging to minority communities in 2021-22. In 2022-23 (as on October 5, 2022), an amount of ₹23.58 crore has already been disbursed among 422 persons.

The financial and physical achievements of the Corporation are given in **Appendix 8.2.43**.

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 with an aim to carry on the business of 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 aghararas and houses and Mangalyasamunnathi. KSWCFC launched a new project named 'Samunnathi Thoosani Mini Café through women joint liability groups among economically weaker sections among Forward communities, which is intended to prepare and serve quality food at reasonable rates to the general public. Seventeen thoosani mini cafes are opened in various places of Kerala under this programme for the upliftment of women in Forward Communities. The Corporation has been providing interest subsidies to loans (at three 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. An amount of ₹36.24 Crore was allocated to the Corporation in 2021-22 for various programmes of which, ₹20.92 crore was spent (58 per cent). An amount of ₹38.05 crore was allocated to the Corporation in 2022-23. The Scheme-wise outlay and expenditure and the physical achievements of the Corporation in 2021-22 and 202-23 (as on October 5, 2022) are given in **Appendix 8.2.44**.

8.3 SOCIAL SECURITY MEASURES

Social security is an important instrument of the fight against poverty and of human well-being. Social security measures aim to provide support at every stage of life for everyone. 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 spread across health, nutrition, palliative care, education, training, employment, livelihood development, and other sectors.

Social welfare is a basic commitment of the State Government. Many of its departments implement programmes for the vulnerable sections of the society. The leading Government hands in social security and welfare programmes are 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 for and financial support of Government agencies for the aged, disabled, women, children, and transgender.

Institutional Care

Government, as well as Non-Governmental Organisations (NGOs), provide institutional care to the disadvantaged sections of the population.

Institutions of Government are run by the Social Justice, and Women and Child Development Departments. There are 16 welfare institutions for senior citizens and 15 for the disabled under the Social Justice Department (SJD). The Women and Child Development Department (WCD) run 64 institutions for women and child. The list of Care Homes is given in **Table 8.3.1**. The total sanctioned strength of all the homes of Social Justice Department is 4,862 and total occupancy is 3,218. The number of occupants is less compared to the sanctioned strength of inmates for certain categories of institutions. The District-wise number of Inmates in welfare institutions under SJD and WCD in 2021-2022 is given in **Appendix 8.3.2**. Institutions registered under these departments also run care homes. The District-wise number of Inmates in all registered welfare institutions under SJD and WCD in 2021-2022 is given in **Appendix 8.3.3**.

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 ₹600 per beneficiary in 2016 to ₹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. From April 2015 onwards the amount is disbursed as Direct Benefit Transfer (DBT). Around 53 per cent of beneficiaries

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
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

receive pensions as bank transfers and the rest of the beneficiaries get 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 October 2022, out of 52.38 lakh pensioners, 32.67 lakh (62 per cent) are women. Category-wise, 56 per cent of beneficiaries fall under old age pension, 27 per cent widow category, and around 7 per cent each for disabled and agriculture worker pension. Pension for unmarried women is given to 87,983 beneficiaries. District-wise, Thiruvananthapuram

has the highest number of beneficiaries and Wayanad the least. The District-wise coverage is given in **Appendix 8.3.4**.

Welfare pensions are also distributed through different welfare boards. In 2020-21, ₹951.27 crore were distributed among 17.2 lakh beneficiaries, through various welfare boards (*Source: Labour Department*).

Care for Persons with Disabilities

As per the World Health Organisation disability can be 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 Person with Disability Act 1995. In Kerala, a disability census was conducted by the Social Justice Department through KSSM in 2015. The categories of disabilities, as per the census, are given in **Table 8.3.2**.

The enactment of the Rights of Persons with Disabilities Act, of 2016 gave the effect the optional protocol of the United Nations Convention on the Rights of Persons with Disabilities (PwDs). It upholds right based approach to the needs of persons with disability. Followed by the enactment of RPWD Act 2016, the State Government introduced new schemes for gap-filling and mainstreaming persons with disabilities into society, such as the Barrier Free Kerala project, Individual Care Plan, Niramaya health insurance, Anuyathra, and other schemes. The Government also supported the efforts of NGOs in providing quality care and support to PwDs. Reservation of 4 per cent of vacancies to PwDs in State Government Services and identification of suitable posts for such reservation was another landmark in this sector. The global commitment to the Sustainable Development Agenda 2030 recognises and requisites the promotion of the rights, perspectives, and well-being of persons with disabilities in line with UN protocols.

Schemes for People with Disabilities

The Directorate of Social Justice is the nodal agency for implementing the social welfare schemes of the State and Union Governments. Kerala Social

Table 8.3.2 Disabilities based on the categories

Sl No	Disability	Number				%
		Male	Female	Trans Gender	Total	
1	Locomotor Disability	155836	104922	329	261087	32.89
2	Muscular Dystrophy	1359	913	8	2280	00.29
3	Chronic Neurological Disorders	2052	1575	6	3633	00.46
4	Multiple Sclerosis	282	232	1	515	00.06
5	Kyphosis	2044	2835	8	4887	00.62
6	Short Stature/Dwarfism	2488	3577	14	6079	00.77
7	Blindness	11361	9094	22	20477	02.58
8	Low Vision	33907	27916	77	61900	07.80
9	Learning Disability	5257	2805	12	8074	01.02
10	Speech Language Disability	13152	9443	53	22648	02.85
11	Intellectual Disability	38245	30546	143	68934	08.68
12	Mental Illness	48429	52423	131	100983	12.72
13	Autism	2179	950	6	3135	00.39
14	Hearing Impairment	28771	32093	61	60925	07.67
15	Leprosy Cured	679	494	2	1175	00.15
16	Haemophilia	1048	394	3	1445	00.18
17	Thalassemia	269	300		569	00.07
18	Sickle Cell Anaemia	461	544	1	1006	00.13
19	Cerebral Palsy	3781	2597	7	6385	00.80
20	Epilepsy	10839	8637	36	19512	02.46
21	Deaf Blindness	432	408	2	842	00.11
22	Multiple Disability	75982	61197	262	137446	17.31
Total		438853	353895	1189	793937	100

Source: Disability Census, Kerala 2015

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 the activities, educates the stakeholders and the society, conducts awareness camps, adalats, provides free legal aid for disabled persons, and undertakes research and development. The Kerala State Handicapped Person's Welfare Corporation (KSHPWC) supplies various disabled-friendly equipments, advance self-employment loans, proficiency award for students with disabilities, assistance to self-help groups for undertaking

appropriate micro-projects, and distribution of side wheel scooters.

National Institute of Speech and Hearing (NISH) and National Institute of Physical Medicine and Rehabilitation (NIPMR) – Therapy and Rehabilitation are mainly undertaken by the NISH and the NIPMR. In addition to this, these institutes conduct academic courses for supplying professional human power to the sector. The NISH focuses on the rehabilitation of deaf and hard-of-hearing persons in the State and providing higher education to the deaf and hard of hearing people. NISH conducts various courses for deaf and hard of hearing students, evaluation and

detection of hearing loss, early intervention, and rehabilitation of individuals with communication and other disabilities.

The NIPMR is the centre of excellence in disability management and rehabilitation. The organisation has various therapeutic departments and units for providing medical and therapeutic services. It conducts bachelor's and certificate programmes in Prosthetics and Orthotics, Physiotherapy, Audiology and Speech-Language Pathology, Developmental Paediatrics and Neonatal Care, and Rehab Nursing along with B. Ed Special Education. Along with its routine activities and academic programmes, it also runs numerous projects with other stakeholders including LSGIs, KSSM, SJD, and the Department of Education. Rehab on wheels is a mobile outreach programme providing assessment, health care, and assistive solution at the field-level using specially designed low-floor buses. The Centre for Mobility and Assistive Technology (C-MAT) wing undertakes the manufacture and distribution of mobility assistive solutions to people with disabilities.

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 **Table 8.3.3.**

Kerala Social Security Mission is the nodal agency for the issuance of the Universal Disability Identity Card (UDID). It organises disability certification camps across the State to ensure that the entire People with disabilities population receives the disability certificate and UDID card. The KSSM provides monthly assistance of 600 to the caregivers of patients of those categories who need a full-time caregiver like 100 per cent People with visual disability, bedridden patients suffering from cancer, cerebral palsy, autism, mental illness, intellectual disabilities, and also to the bedridden old aged under 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,

Regional Early Intervention Centres (REICs) established in five Medical Colleges. Kathoram – a life cycle approach in hearing disability management, Universal Hearing Screening of newborn babies, Auditory Verbal Therapy, Cochlear Implant under Shruthitharangam project.

CH Mohammed Koya Memorial State Institute for the Mentally Challenged, under the General Education Department imparts special education, training, and rehabilitation services to People with intellectual disabilities. The institute offers various services in the field of intellectual disability like special schools for children with intellectual disabilities, clinical services, physiotherapy centre, early intervention centre, vocational training centre, and diploma courses on special education.

General Education Department, through their Alternative and Innovative Education Centre (AIEC) or Multi-Grade Learning Centre (MGLC) provides primary education to marginalised children in remote, coastal, hilly, and forest areas. The Department also provides financial assistance to accredited institutions that offers care to intellectually disabled children for meeting their infrastructural needs, water supply, medical aid facilities, and so on. Assistance is also provided by the Department for enhancing the capacity of teachers in special schools.

Department of Labour and Employment – A rehabilitation package (Kaivalya) is provided by the Department for the welfare of People with disabilities registrants' of employment exchanges, by way of loans, up to a maximum of 50,000 for commencing self-employment ventures, vocational career guidance, soft skill training and so on. By disbursing ₹2.35 crore in 2019, the Kaivalya scheme benefitted 471 People with disabilities. The year 2020 witnessed a remarkable increase in the number of beneficiaries to 2,226 and loan disbursement worth ₹11.12 crore.

Care For Elderly

The demographic trend shows that Kerala is currently passing through the most critical stage of demographic transition as a result of notable achievements made by the State in variables of fertility and mortality. One of the important consequences of the demographic transition is population aging. The prospect of aging and accelerated growth of the older population became a pertinent issue across the world and it required

Table 8.3.3. Major programmes of Social Justice Department 2021-22

Scheme	Category/ criteria	No. of Beneficiaries	Total Amount
Parinayam	Girls with disabilities and Daughters of people with disabilities	1065	3,19,50,000
Education Assistance	Students who register in any University in Keraka	5	1,47,000
Scholarship	Disabled students with disabilities (40 per cent) having annual family income below ₹36,000	*	11,33,750
Financial Assistance	Advocates with visual disability and Orthopaedic disability having annual income of the family below ₹1 Lakh	11	2,58,097
Mathrujyothi	Mothers with disabilities for taking care their child	62	11,80,000
Vidyakiranam	Children of People with disabilities and annual income limit of ₹1 lakh	4483	2,29,30,000
Vidya Jyothi	Students with disabilities	343	9,23,000
Swasraya	Single mothers of children with disabilities for their self-employment	120	42,00,000
Vijayamrutham	Students with disabilities who have achieved high marks in degree/ equivalent courses, PG/professional courses	38	3,12,000
Niramaya Insurance Scheme	Persons with autism, Cerebral Pasly, intellectual disability and Multiple Disabilities	*	2,17,11,000
Imprest Money	Rehabilitation of orphans abandoned in public places	20	1,21,000
Pariraksha	Financial Assistance to PwDs for emergency treatments and in case of natural calamities	85	8,93,000
Prathyasa	Repatriation of inmates of Rehabilitation centres to their own States. Rehabilitation of Other State inmates in the MHCs and other Rehabilitation centres	*	17,51,000
Sahachari	Assistance to students with disabilities in studies as well as other extra-curricular activities	*	1,12,000
Sreshtam scheme	Students with disabilities who demonstrate ability in the arts and sports	*	20,000
Psycho Social Grant in Aid	Institutions which are rehabilitated people which having Govt. approval under Psycho Social Scheme	44	6,98,91,000
Athijivanam	People with disabilities with NGO collaboration to ensure rehabilitation of the marginalised	*	77,55,000
Barrier free Kerala	Converting physical infrastructure, public places, transporation facilities, IT related facilities etc accessible to PwDS	*	1,52,06,000

Source: Social Justice Department *Data Not Available

a better understanding of the implications and possibilities posed by population aging.

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. 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 daycare facilities in collaboration with LSGIs, Kudumbasree, and NGOs. 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 elders and multiple other departments and agencies actively 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 29.42 lakh senior citizens from 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 Vayomithram to serve the aged with periodical medical check-ups and treatment service and extended emergency response and support to the elderly through vayoraksha, and vayokshema. The Government also has instituted an award for promoting 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, which is essential for the development of society. More details of programmes for elderly care are given in section 6.3 (Impact of Changing Demographic Profile) of this Economic Review.

Destitute Free Kerala (Agathirahitha Keralam), implemented through Kudumbashree, is a flagship programme of Government of Kerala to identify, rehabilitate and monitor the destitute families. Through this programme, various needs of destitute families such as basic needs, infrastructural needs, development needs, and social needs are addressed. At present, 1,56,647 families are included in this project, with 1,46,917 families in the general category projects and 9,730 families in tribal projects. By assessing the needs of the destitute at the local body-level, Detailed

Project Reports would be prepared. Forty per cent of the total project (with a ceiling of ₹40 lakh and ₹50 lakh for general and ST projects respectively) would be met through Kudumbashree.

The Welfare Of Transgender

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 surgeries, marriage assistance, scholarships, pension, and insurance. The Government issued ID cards to TGs; opened a TG cell, a crisis management centre, and 24x7 Helpline. The Government also promoted 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. Loan for self-employment, TG Kalolsavam, and other activities were undertaken for mainstreaming the TGs in the State.

The 'Mazhavillu' scheme has empowered many Transgender individuals in interpersonal, educational, and socio-economic aspects and has laid down a strong foundation for further initiatives to be envisioned in the future. The educational assistance is given in the form of scholarships, hostel facilities, and financial assistance for continuing education through the State literacy Mission (Samanwaya), distance education (Varnam), and professional courses (Saphalam). Socio-Economic empowerment involves Transgender Helpline, self-employment assistance, Short stay/shelter homes, and awareness programmes. Under health-related interventions, the Department established an HIV Zero Surveillance centre and continues to provide financial assistance to SRS surgery and post-care treatment. Skill Development Initiatives include training in driving, beautician course, and entrepreneurship development programmes. The Transgender shelter homes of Kerala have gained national prominence as a pioneer programme accommodating transgender individuals during life crises and providing them shelter, food, and emotional support to ensure their well-being.

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 favorable sex ratio of 1,084 women per 1,000 men (Census 2011), and several other indices. However, violence and harassment against women are matters of great concern in our society. The Women and Child Development Department conducted a popular campaign to get rid of the menace of dowry in 2019-2020 and formulated a five-year-long action plan for awareness creation and empowerment. For effective implementation of the Dowry Prohibition, Kerala Dowry Prohibition Act 2004 has been amended and appointed designated officers for Dowry Prohibition activities; constituted District Advisory Board, opened a portal for Dowry Complaints, and initiated several other measures. The Department has taken up Marital/Pre-marital counseling to prevent domestic violence and dowry, an online consultation programme to take heed of the grievances of women and help them to solve their problems, and provided legal aid and police assistance to address the violence against women.

The Government has constituted Aswasanidhi – a corpus fund of ₹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. The increase in life expectancy coupled with a favorable sex ratio can be the main attribute of

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 ₹30,000 for self-employment through the scheme Sahayahastham, educational assistance for their children enrolled in professional courses through the scheme Padavukal, and monthly financial assistance of ₹1,000 to the 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.

Enabling women's access to economic empowerment and opportunities, education, employment, and self-employment of women are significant. 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 implements a Self-Employment loan programme, EDP/awareness/vocational training programmes, and exhibitions and also runs finishing schools (REACH) at Trivandrum and Kannur.

The Employment Department is another participant in this field. It implements a self-employment scheme, namely 'Saranya' for low-income women under the categories of unemployed widows, deserted/divorced/unmarried women, unwedded mothers/differently abled women, and wives of bedridden persons. The scheme provides an interest-free loan and 50 per cent subsidy for the eligible beneficiary.

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. The Department has implemented a few popular initiatives such as "Ponvakk" and Thejomaya After Care Home. The former stands for the eradication of child marriage from Kerala society by community participation through incentivising the informants of such cases. Thejomaya After Care Home is another progressive step of the Department to ease out the process of transition of inmates of Women and Children Homes to society after completing studies.

Kerala Women's Commission, a quasi-judicial body, continued its gender awareness programmes, legal workshops/seminars, adalaths and initiated Face to Face with Commission for adopting ideas and views. In 2020-21, the Commission received 5,439 complaints, of various natures, like violence against women, property-related issues, domestic violence, issues related to family problems, and so on. Category-wise and district-wise details of complaints received as on March 2022 are given in **Appendix 8.3.5**.

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 mankind 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 Census 2011, children in the age group 0-6 are 10.4 per cent of the State's total population and the child sex ratio of Kerala is 964. 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 are also quite 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).

Holistic development of children up to 18 years includes physical, mental, emotional, and social development. Child marriage violates the rights of children and adversely affects their health and well-being. NFHS-5 report shows a slight decrease in child marriage for 15-19-year-old girls. The rate has declined from 3 per cent (NFHS-4) to 2.4 per cent (NFHS-5). It is essential to create a safe and caring environment for all children, free from neglect, violence, abuse, and exploitation. Kerala State Commission for Protection of Child Rights, by legally binding has continued to review the 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 to 2021-22, 1202 in-country and 118 inter-country adoptions

took place. In 2021-22, 100 children were adopted in Kerala (88 in-country adoptions and 12 inter-country adoptions), out of which 45 were females. Number of adopted children are given in **Appendix 8.3.6**.

As per the State Crime Records Bureau, 4,317 cases of crimes were reported against children in Kerala in 2022 (upto October), other crimes against children dominated with 2696 cases, followed by 1363 POCSO cases.

Our Responsibility to Children programme implemented in schools aims at scientifically identifying and addressing the behavioral, emotional, learning, and psychological challenges faced by children, in collaboration with teachers, parents, and the general public. The project is currently operational in 304 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 first phase of the project was implemented in 2020-21, in collaboration with NGOs, led by the District Child Protection Unit. The project which started in Palakkad and Thiruvananthapuram was scaled up to Ernakulam, Idukki, Malappuram, Kozhikode, and Kannur districts in 2021-22. This will provide psychological, educational, and legal support to the children until they are mainstreamed or obtain a secure livelihood.

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 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 years. The Department owns and operates 33,115 Anganwadi Centres in the State (as on March 2022). District-wise coverage of ICDS beneficiaries is given in **Appendix 8.3.7**.

5.76 lakh beneficiaries are children in the age group 0-3 years and 5.37 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 as 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 will be blended with fortified rice kernels in a ratio of 100:1. The scheme was started on a pilot basis in the Taliparamba ICDS project of the Kannur district. 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 has also been started in Wayanad District and later extended to all other districts. In addition to this, the State Government has initiated a new programme for providing two days of egg and two days of milk 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 having 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 COVID-19 threw down an unprecedented challenge before the WCD Department to continue with preschool education during public restrictions and lockdowns. The Department responded to this by organising a team of expert Anganwadi workers and officers and developed content for broadcasts on 30 themes that aimed at nurturing the five major areas of child development, namely language, physical, cognitive, social and emotional, and creativity and enjoyment. The videos were broadcasted under the label Kilikonchal on the Victors TV Channel

and also podcasted on the YouTube channel of the Department. The Department also developed theme-based preschool activity posters and distributed them to children. Another achievement in educational content development during this period was the development of preschool teaching material in the mother tongue of “Paniya”, a major tribe in the Wayanad district.

Kerala Social Security Mission implemented Cancer Suraksha and Thalolam Schemes for Child Patients. Through these schemes, KSSM provides free treatment to children below 18 years who are suffering from cancer and life-threatening diseases. Cancer Suraksha Scheme is being implemented through 15 Government hospitals and Thalolam Scheme is being implemented through 18 major Government hospitals in the State. Cochlear Implantation in Children (Sruthitharangam) provides support to children in the age group of 0-5 years. 1,200 children benefitted through this in 2021-22. 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 5 Government Medical Colleges in the State.

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 benefitted 25,948 children in 2020-21. Snehasanthwanam, a relief measure for endosulfan victims, also provides educational assistance to children studying in classes I to XII. This scheme supported 6,941 children in 2021-22.

CHAPTER

09

ART, CULTURE AND SPORTS

ART, CULTURE AND SPORTS

9.1 ART AND CULTURE

The wide range of artistic expression in India is testimony to its rich artistic heritage and diversity. Fostering the creation of art, and making people participate in it are crucial for the development of a country. The wide range of art forms such as songs, dances, art forms, sculpture, architecture, rituals, performing arts and paintings not only enable aesthetic enjoyment but also maintains collaborative harmony in the society.

The role of art and culture in the revival and development of Kerala as a progressive society is tremendous. Kerala has a great tradition of 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; provide assistance to artists, writers and performers; aid various institutions of art and culture; and create an overall facilitating environment for the promotion of progressive and secular values through different forms of art.

Directorate of Culture

The Directorate of Culture was formed for effectively co-ordinating and regulating the activities of all the art, literary and cultural institutions functioning

under the department of Cultural Affairs. 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 give financial assistance to financially disadvantaged artists. Accordingly, artists and dependents of deceased eminent artists and writers are provided with monthly pension. The Directorate of Culture distributes annual grants to all cultural institutions in the State to promote different creative programmes. The Directorate also coordinates the activities of the South Zone Cultural Centre (Central Government Institution in Kerala).

Major Achievements and Performance

Construction of a new building for the Cultural Directorate: The activities to construct an office building for the Directorate of Culture have been initiated in the current year, and once completed, many cultural institutions under the Department of Cultural Affairs, which are now situated in rented buildings would be brought to one place, saving substantial amount of financial resources.

Disseminating Kerala's Art and Culture across the country: This project aims to spread the art and culture of Kerala beyond state boundaries. In connection with this, several cultural exchange programmes were conducted by the department. The programme called the 'Mazamizhi' had attracted huge public attention. The projects 'Mazhamizhi'

and ‘*Thalirmizhi*’ were implemented to provide assistance to the art community, which was suffering from the loss of livelihood due to the COVID-19 pandemic and floods in Kerala. The programme provided artists with opportunities to perform at a place and to webcast the programmes to a worldwide audience.

Samam: ‘Samam’ is a cultural awareness initiative by the Department of Culture to respond creatively to the atrocities against women and children and to spread the idea of gender equality. The “Samam” programme for women’s equality had envisaged a variety of activities, involving institutions like Bharat Bhavan, Malayalam Mission, Kerala Film Academy, Kerala Film Development Corporation, and Kerala Institute of Languages under the Department of Culture. They have designed and spearheaded the campaign on women rights and gender equality through various activities.

Diamond Jubilee Fellowship: The Diamond Jubilee Fellowship Scheme for Thousand Young Artists is a project to promote and assist young talented artists to give orientation to the people on different art forms. The programme intends to select young artists who have certain qualifications in fine arts and proficiency in folk arts and to provide them a platform to train people for which the artists will be supported by means of fellowships for a fixed period of time. This project is implemented with the active participation of local bodies. 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. The programme is implemented at more than thousand training centres in 171 Local Governments (municipal corporations, municipalities, and Block Panchayats). The fellows were given a monthly fellowship of ₹10,000 by the State Government and ₹7,500 (2022–23 financial year onwards) by the local body concerned for two years. District-wise details of the Diamond Jubilee Fellowship are given in **Appendix 9.1.1**.

Freedom memorial park, Kozhikode: In connection with ‘Azadi Ka Amrit Mahotsav’, celebrations of the 75th anniversary of independence, building of freedom parks commemorating brave patriots was initiated in North Kerala, Central Kerala and South Kerala. As a part of this, construction of Memorial Park in Kozhikode District was started in the financial year 2021-22.

Rural Art Hub/Grameena Kalakendram: Kerala has a rich handicraft tradition. But artisans are facing the threat of losing their livelihoods, and they are compelled to look for other sources of income. “Grameena Kalakendram,” or Rural Art Hub, is a project implemented by the Department to showcase the handicraft heritage of Kerala and ensure livelihood sustainability for the artisans. The project is being implemented in 20 selected heritage villages in the State.

In order to effectively implement this project and find the scope of its expansion to more centres, department has identified Aranmula Vastu Vidya Gurukulam (an autonomous body under the Cultural Affairs Department working in Pathanamthitta District) as the implementing agency of this project. 21 Art hub villages have been listed under this scheme. 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.

Major Cultural Institutions

There are many institutions set apart for the promotion and encouragement of the unique art forms of Kerala. Major implementing departments coming under the Cultural Affairs Department are – Department of Archaeology, Department of Museums and Zoos and the Department of Archives. There are 23 institutions working under this department and utilising plan funds. These include various academies, institutes, memorial buildings or institutions, which carry out their activities with the financial aid of the Government and in particular, the Department of Culture. The important institutions coming under the Department of Cultural Affairs are given in **Appendix 9.1.3**.

Kerala State Film Development Corporation

The Kerala State Film Development Corporation (KSFDCC) was established with the prime objective of facilitating the production and promotion of Malayalam cinema, besides developing a cinema culture of recognising and appreciating quality. The KSFDCC was registered under the Company’s Act on 23 July 1975. The Corporation also owns an exhibition network with 17 fabulous theaters spread all over Kerala. Kalabhavan Theatre, the first public sector movie hall began functioning at Vazhuthacaud in 1984. Some of these theaters regularly host the International Film Festival of Kerala (IFFK) The Corporation received its first national award for

Box 9.1.1 Non Recurring Grants to Cultural Activities from Directorate of Culture

The scheme provides financial assistance to cultural organisations and associations to strengthen their activities and encourage them to undertake more creative initiatives. As per the provisions of this scheme, an organisation will be provided financial assistance three times in five years. The following 11 institutions have been sanctioned a total amount of ₹47,80,000 in the financial year 2021-22:

1. O.V. Vijayan Smaraka Samithi, Thasrak, Palakkad
2. Vypin Folklore Fest
3. Academy of Magical Sciences
4. Shatkala Govida Marar Samithi
5. Kerala Magical Mission, Alappuzha
6. Cherukad Smaraka Trust, Perithalmanna
7. Dr.Sadanam Krishnankutty Asheethi festival, Irinjalakkuda
8. Dialogue Film Society Film Festival, Ottappalam
9. Vaikom Muhammed Basheer Smarka Trust, Kottayam
10. Pathanamthitta Kathakali club
11. Kuchan Nambiar Smarakam, Killikurishimangalam

Source: Directorate of Culture

recording through the film *'Elipathayam'*. The KSFDCC has bagged eight National awards and 24 State Awards; thus continuing its dominance and prominence in this field.

Major Initiatives and Performance

Modernisation of Kairali/Sree/Nila Theatre, Thiruvananthapuram has been completed and the theatre was re-opened on March 18, 2022. The service provider for setting up of OTT Platform has been finalised by the tender process, and launching the platform is expected to be completed by December 2022.

The Government has selected Kerala State Film Development Corporation as a Special Purpose Vehicle (SPV) for the implementation of three major projects: the construction of cultural complexes in all districts of Kerala under the Cultural Affairs Department; the conversion of Chithranjali Studio, Thiruvananthapuram into a film city under Kerala State Film Development Corporation Ltd.; and the construction of 100 theatres all over Kerala for KSFDCC with the financial assistance from Kerala Infrastructure Investment Fund Board (KIIFB). The construction works of the Cultural Complex at Palakkad, Kollam, and Kasaragod, as well as the Theatre Complex at Kayamkulam, Alagappa Nagar, and Payyannur, and different districts are progressing.

Margi

Margi had continued its activities to promote and nurture the temple arts of Kathakali, Koodiyattam, Chakyarkoothu, Nangyarkoothu and Pathakam. Margi staged 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 centres, students undergo training in their chosen fields of performing art forms. Margi also provides training in musical instruments such as *chenda*, *maddalam*, *idakka* and *thimila*.

Apart from regular courses, Margi conducts short-term courses, especially for foreigners. 'Margi' offers free online training in musical instruments of *Kathakali* to school children. The *Koodiyattam* section conducts online classes for students on Saturdays and Sundays. Margi provides free training to 22 children, in addition to these seminars. Classes are also conducted to promote appreciation of *Koodiyattam* and *Kathakali*.

Vastu Vidya Gurukulam, Aranmula

Vastu Vidya Gurukulam is an organisation that has been working for the past 30 years with the objectives of preserving and nurturing our material sculptural tradition, mural art heritage, sculptures, handicrafts, promoting climate-friendly and eco-friendly construction techniques. The institution functions as a centre

Box 9.1.2 Support to Women Film Directors and Aspiring Film Directors from SC and ST Communities

Films by women directors (women empowerment film making project)

During the financial year 2019-20, the State Government launched the Women Directed Film Scheme to increase the presence of women in the film direction sector. As part of this project, Mrs. Tara Ramanujan and Mrs. Mini I.G. were selected by an expert jury to produce the film. The film 'Nishidho' directed by Tara Ramanujan, was released on November 11, 2022, across Kerala. Nishidho won the Best Debut Director Award (the F.F.S.A.-K.R. Mohanan Award) at the 26th International Film Festival Kerala and was selected as the second-best film at the Kerala State Film Awards. Smt. Mini I.G.'s film 'Divorce' was screened at various festivals, and it will be released after the screening of the film Nishidho. In the financial year 2020-21, the films 'B32 muthal 44 vare' directed by Mrs. Shruti Namboothiri, and "Nila," directed by Mrs. Indu V.R., have been selected under this scheme. Screenplays are written by Ms. Sivaranjini J ('Victoria') and 'Ms. Farzana P. (Mumta)' was selected for the production of films under this category for the financial year 2021-2022.

Initiative to support the aspiring film directors from SC and ST communities

In the financial year 2020-21, the project 'Scheduled Castes and Scheduled Tribes' Films' was launched by the State Government. The screenplays 'Ariku' directed by Shri VS Sanoj and 'Pirathi' directed by Shri Arun J Mohan, were selected for production through a three-stage selection process. In the financial year 2021-22, the screenplays 'Praylaya shesham oru Jalkanyaka' directed by Mr. Manoj Kumar, and 'Kaadu' directed by Mr. Suneesh Vadakkumpadan, have been selected for production from this category.

Source: KSFDC

under the Department of Culture Affairs. The institution got membership from the Indian Green Building Council for the promotion of eco-friendly construction technology. In the financial year 2021-2022, the institution has conducted *Varamudra-2022*, a national-level mural painting workshop, completed graphic documentation of ten important heritage buildings under the Department of Archaeology, and did consultancy services for architectural works. The institution conducts academic courses on mural art and architectural subjects. 150 students have been enrolled in this course in the year 2021 and 2022.

Vyloppilly Samskrithi Bhavan

Vyloppilly Samskrithi Bhavan is mandated to foster and promote traditional arts of Kerala. Vyloppilly Samskrithi Bhavan organises and coordinates various activities to create awareness on the diverse cultural forms of the State and to orient people to appreciate culture rooted in humanity, democracy, and secularism. The major activities by the institution are given below:

Setting up of the Pallavoor Appumarar Art Gallery: Work on setting up a new art gallery by the Kerala Historical Heritage Museum to store and display the musical instruments of Pallavoor Appu Marar has been initiated this financial year. Renovation works for installing a new sound system in Koothambalam, Dance and Music A/C Hall and the compound wall have been completed.

Other Activities

'*Sanskriti Samskarikotsavam*': a monthly event of four to five days duration to promote the diverse arts and crafts of Kerala and to provide opportunities for people to enjoy different art forms, quizzes and workshops for children, and monthly classes on India's 75th independence celebrations viz. 'Azadi ka Amrut Mahotsav' were conducted.

Annual Cultural Event: The birth and death anniversaries of the great poet Vyloppilly Sreedhara Menon are celebrated regularly.

Learning Workshops: Organised online workshops, namely "*Akshara Shloka Kalari*" to develop language skills among school children. Students from different districts among Kerala participated in this workshop (Classes are arranged online twice a month).

The State Institute of Encyclopaedic Publications (SIEP)

The State Institute of Encyclopaedic Publications is an institution established for publishing encyclopedias and other similar reference books in Malayalam with standards comparable to those of renowned encyclopedias like 'Encyclopaedia Britannica' and 'Americana'. The Institute has printed 5,000 copies of the encyclopaedia volumes in 2021-22. Publication of the 19th and 20th volumes and title list of the encyclopaedia is in progress. Preparatory works for the publication of Encyclopedia on Freedom Struggle, the

Encyclopedia on Elements, Psychology, and Kerala Vijnanakosham have been started in the financial year 2021-22.

The Institute conducted writing workshops for the preparation of encyclopaedias and a seminar on freedom struggle encyclopaedia preparation. It has also initiated the preparatory activities for conducting 'Vijnanolsavam' at Thrissur, Kollam, Kottayam, and Thiruvananthapuram. This programme intends to spread knowledge to the entire society. Seminars, quizzes, and essay writing competitions among children have been included in this programme.

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. The academy today has become a major player in the cultural landscape of Kerala reaching out to students, teachers, and ordinary people through various initiatives designed to disseminate cinema not only as a means of entertainment but a serious academic endeavour and a tool to preserve and document the history of society, as well. 'Chalachitra Sameeksha', a bi-lingual magazine of the Academy, is published since August 2017. Publication of books that intend to pay tribute to late film makers has also been initiated.

Important Initiatives and Performances from the Academy

The Kerala State Film Academy and the Department of English, St. Joseph's Women's College, Alappuzha jointly conducted a certificate course in Film appreciation. Work was carried out to expand the film collection at Centre for International Film Research and Archives (CIFRA) (the Film Research Centre of the Academy). The Film Academy and the Department of General Education jointly organised a film appreciation workshop titled 'Wide angle' at CIFRA.

Government of Kerala's first Television Lifetime Achievement award was given to Mr. Shashi Kumar who has played a decisive role in propagating a serious television culture in Kerala. Renowned playback singer Mr. P. Jayachandran was selected

for the 2020 JC Daniel Award (highest film award of the State of Kerala). Academy has also started preparatory works for directing documentaries on the lives of the winners of J.C Daniel Award.

Touring Talkies project: it is a project implemented by the Kerala State Film Academy with the mission of bringing good films to rural areas have been restarted. For the promotion of this programme regional centres are established in the districts of Kannur, Kozhikode, Thrissur, Kottayam and Thiruvananthapuram.

Academy organised 3rd International Women's Film Festival on July 16-18, 2022 at Kozhikode and festival was popularised with strong public participation.

14th International Documentary Short Film Festival (IDSFFK)

The 14th edition of IDSFFK was held from August 26–31, 2022, in Thiruvananthapuram. A total of 261 films from 44 countries were screened on three screens in six days. The active presence of about 1500 people, including 1200 delegates and 300 filmmaker guests, made the festival a resounding success. "A.K.A.", directed and produced by Geetika Narang Abbasi, was selected as the best long documentary at the 14th International Documentary and Short Film Festival of Kerala. The best short documentary was shared by 'New Classroom', directed by Debankon Singh Solanky, and 'My Son and His Grandfather,' directed by Bijoy Chowdhary. The best campus film was "The Buoyant", directed by Arun A R, Akhilesh K A and Anandu Krishna, the best short fiction 'Little Wings', directed by Naveen Mu. Documentary director and editor Mrs. Reena Mohan was honoured with the Lifetime Achievement Award at this festival.

Regional International Film Festival Kerala (RIFFK)

The Regional International Film Festival (RIFFK), which was organised from April 1-5, 2022, in Kochi, received immense public response. Around 3,000 delegates participated in the event, which was held in three theaters. The 26th IFFK had screened 73 well acclaimed films. For those who could not make it to the film festival in Thiruvananthapuram, the academy provided an opportunity to watch the best films at the Regional festival. More facilities were provided for the delegates at RIFFK. Students were allowed double passes. Free travel in the Kochi Metro was also arranged for student delegates who participated in RIFFK.

Kerala Lalithakala Academy

The academy established in 1962, to conserve and promote visual art like painting, sculpture, architecture, and graphics, is an autonomous cultural organisation of the Government of Kerala. The academy is governed by a committee of 19 eminent figures in art and culture, artists, and representatives from cultural organisations. Today, the Academy has grown into a centre for cultural, artistic, and educational activities that include fields such as cartoons and photography as well. Even while the academy is keen on preserving Kerala's unique traditional fine arts, the contemporary art scene is promoted by bringing eminent artists to camps, workshops, exhibitions, and seminars. To promote sustained artistic ventures, it supports artists by providing space for exhibitions and honouring them with awards, fellowships, and scholarships. During the financial year 2021-22, the academy conducted 'Nira Keralam Camp II' with the aim of providing financial support to artists during the COVID-19 pandemic. Artists from 14 districts participated in the event. Out of the 250 artists including commercial artists, 14 were differently-abled and 22 were transgenders. The academy provided an amount of ₹20,000, canvas and colours to each artist who participated in the camp. Celebrated Cartoonist Sanker's birthday was held at the Academy's Cartoon Museum in Krishnapuram, Kayankulam (India's first national cartoon museum).

'*Silpakeralam*' Sculpture Art Camp: With an aim of providing financial support to sculptors during the pandemic, academy organised a sculpture camp with the idea of work from home. The Academy provided ₹20,000 as honorarium and ₹10,000 for the purchase of materials for sculpture designing.

National painter's camp: The event was organised jointly by Kerala Lalithakala Academy and South Zone Culture Centre Thanjavoor at Munnar on January 16 to 22, 2022,.

The Academy also conducted Mural painting camp, '*Azadi ka Amrut Mahotsav*', women artist's workshop, two day visual art camp, Kerala mural painters camp, '*Gandhi Smruthi*' art camp, workshop for children at Kollam and workshops and seminars at Kottayam as part of 'Samam' during the period up to August 31, 2022.

Kerala Sangeetha Nataka Academy

Kerala Sangeetha Nataka Academy, founded on April 26, 1958, under the Department of Culture, nourishes and encourages various forms of dance, music, drama, and folk arts in Kerala. Apart from this basic aim, the Academy undertakes documentation and preservation of art forms that are rare, historically important, and under threat of extinction. The Sangeetha Nataka Academy works in unison with similar bodies like the Sangeeth Natak Akademi, New Delhi for granting affiliation to organisations (*kala samithi's*), instituting

Box 9.1.3 International Film Festival Kerala

The 26th edition of IFFK was held in Thiruvananthapuram from 18th to 25th March 2022. The eight-day festival had 173 films from 60 countries, screened at 15 theatre in the capital. The festival turned out to be the biggest gathering of film lovers since the COVID-19, which had kept people aloof and isolated. A notable increase was seen in the participation of students in this festival. Around 13,000 people attended the fair, including delegates, invited guests and filmmakers. Honorable Kerala Chief Minister Shri.Prinarayi Vijayan inaugurated the festival and presented the Spirit of Cinema award to Kurdish director Lisa Calan who lost both her legs in the bomb attack by IS terrorists in Turkey. The late film talents Nedumudi Venu, K.P.A. C. Lalitha, Buddhadeb Das Gupta, KS Sethumadhavan, Dennis Joseph, P. Balachandran, Dilip Kumar and Madamp Kunjukuttan were honored with 'Homage' section in this festival.

The festival was also notable for the presence of unique talents such as Kurdish director Lisa Calan, Bangladeshi actress Asmeri Haque, the heroine of the opening film *Rehana*, directors Anurag Kashyap, Vetrimaran, Lijo Jose Pellissery, jury chairman Kannada director Girish Kasaravalli, and Malayalam actress Bhavana. The 4K version of Malayalam film '*Kummatti*' was released and the occasion was filled with director G. Aravindan's everlasting memories.

The Costa Rican film '*Clara Sola*' directed by Nathalie Alvarez Mezen, won the 'Suvarna Chakoram' for the Best Film at the 26th International Film Festival. The theme of the film is the struggle against the patriarchal social system and she was conferred with 'Rajata Chakoram' for Best Debut Director. Ines Maria Barrionuevo for '*Camila Comes Out to Night Esta Noche*' and Tamil film '*Koozhangal*' directed by Vinoth Raj won three awards for the Audience Award, NETPAC award for the best Asian film and Jury award in the International Competition category. The 27th edition of IFFK has been proposed to be conducted from December 9 to 16, 2022.

Source: Kerala State Chalachitra Academy

awards (17 awards at ₹30,000 to each artists), and fellowships (for three persons at ₹50,000 to each artists) for outstanding artists, and conducting seminars and workshops. The Academy has an official mouthpiece named 'Keli'. An open library in memory of eminent writer M.R.B has a great collection of reference books and journals on various art forms at the academy's head office. Every year academy announces professional theatre awards and fellowships to various artists and different art festivals.

During the period 2021-2022, the academy conducted events for the distribution of the Swathi Musical Award 2020 (conferred to Dr. K. Omanakuty) and the S.L. Puram Sadanandan Award 2020 for Drama (conferred to Sri. Ebrahim Vengara) at Thiruvananthapuram. Academy published 14 books in the last financial year. Writers are offered 10 per cent royalty for every 500 books published. Academy organised a street theatre festival in Thrissur with the aim of making the street an active place of art performance and to reach out to the people. Academy has also conducted festivals and workshops for the promotion of dance, music, drama, Kathakali story and recitals. Academy conducted folk festival, State professional drama festival, amateur drama festival and story recital festival in the year 2021-22.

Malayalam Mission

Malayalam Mission is an autonomous educational and cultural institution founded by the Government of Kerala to help children of migrant Keralites learn Malayalam and know more about Kerala's cultural legacy. The Malayalam Mission started working in different locations across the world where there are Malayali diasporas with the intention to help them

learn Malayalam, raising the slogan: 'Wherever there is a Malayali, there is a Malayalam'. The Malayalam Mission consists of 15 member management council and is headed by the Chief Minister. In this body, secretaries from related departments serve as official members, while the government-nominated renowned litterateurs in Malayalam serve as unofficial members.

Malayalam Mission is working in 24 States and 42 countries, including India. The Mission has been able to register 4037 teachers and 40665 children for learning our language. The official online magazine 'Pookkalam' is published every month to enhance the curriculum of the Malayalam Mission and includes articles on literature and culture. (website-www.pookkalam.kerala.gov.in). Curriculum for various courses like *Kanikonna* (two-year certificate course), *Suryakanti* (two-year diploma Course), *Ambal* (three-year higher diploma course), and *Neelakurinji* (three-year senior higher diploma course) were prepared based on ideas derived from research and discussions. After the completion of the course, the student will get a certificate issued by Malayalam Mission.

During the Annual Plan period department conducted activities in connection with *Azadi ka Amrut Mahotsav*, distribution of assistance to study centres, teachers training programmes, activities of *Samam* initiative and women empowerment programmes. The Mission also conducted chapter meetings for widening the activities of Malayalam Mission, '*Malayalam Bhasha Dinaghosham*', work shops, quiz, reading day celebration and seminars.

Bharat Bhavan

Bharat Bhavan is a cultural institution, established in 1984, with the aim of leading and encouraging

Box 9.1.4 Bhoomi Malayalam Open Online Course (BMOOC)

Bhoomi Malayalam Mission Open Online Course (BMOOC) programme was launched by the Mission. Now the beginners' level modules have been updated in the website. Through this programme, Malayalam Mission has laid a milestone in the growth of Malayalam language. BMOOC course, is developed in such a way that, it helps the students who have no basic knowledge in Malayalam to learn the language from their home itself. The course offers quick and easy learning with a free registration for everyone. It is the only open online course that teaches Malayalam. Anyone can learn Malayalam through this App by free registration. BMOOC is available on website www.bhoomimalayalam.kerala.gov.in. It is also available in a mobile application, which helps the users to write Malayalam letters and words through easy games and fun learning.

Now, around 1,800 users from 30 countries had registered in this application and MOOC is also conducting online interactive sessions for students. After the course the student will get an authentic certificate issued by Malayalam Mission. 150 participants completed the first phase of this course.

Source: Malayalam Mission

symbiosis between communities and cultures. The institution conducts and promotes cultural exchange activities at national and international levels. Further, Bharat Bhavan coordinates activities for various linguistic minorities who have come to Kerala from different States, to introduce Kerala's culture, art, history and lifestyle to them. The organisation also tries to disseminate the unique art forms and cultural activities of other States in Kerala and vice versa.

In 2021-22, Bharat Bhavan conducted an international dance workshop, cultural events at Loka Kerala Sabha venue, Gujarati folk dance programme and a ten day long art performance programme named '*Azadi ka amrit mahotsav-India is my country*' as part of the 75th year of Indian independence day celebration. The programme named '*Indian Vasanthosav*' – presented unique dance and song forms of Indian States from Kasaragod to Thiruvananthapuram as part of the Onam celebration. The first and second phases of the Indian village festivals were also conducted by Bharat Bhavan.

Mazamizhi Multi Media Mega Streaming Programme: Mazhamizhi, the multimedia mega digital streaming project by the department of culture features performances by State and national-level artists. This mega streaming event was conducted in collaboration with Bharat Bhavan, Culture Department and various cultural institutions. The programme included tribal arts, instrumental music, Mopla arts, Christian arts, classical art forms, martial arts, folk arts, ritual arts etc. performed by artists from across the State. These performances were filmed at their respective venues and would be archived and maintained as a visual digital library for future generations to know and appreciate these art forms.

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 functioning as major centres of attraction for tourists. The Department of Museums and Zoos also provides opportunities for education and research on wildlife. It is also engaged in 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**.

Major Achievements of the Department

Quarantine Station for animals: Construction work for quarantine station to accommodate newly arrived animals to the zoo and to relocate animals within the zoo has already started. Institution released coffee table book on October 02, 2022 as part of the wildlife week celebration 2022.

Establishment of Handloom Museum, Kannur: The preliminary works to set up a museum narrating the history, tradition, and evolution of weaving and looms of Kannur in the old building, built during the colonial period are in progress.

AKG Memorial Museum, Kannur: Construction work has been started by Kerala Historical Heritage Museum. It is informed by the department that the project would be finished by March 2024.

Heritage Museum, Wayanad: The department has established a heritage museum at Kunkichira, Wayanad. The construction of the museum building has been completed. Now it is expected that the museum will be opened in the financial year 2023-24. The construction work of the postmortem room, the interpretation centre, the renovation, and maintenance work of the barricade, and renovation work of the cages are in progress.

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 measures to protect historical monuments dating back to 200 BC onwards that are scattered in different parts of the State. There are 12 museums under the Archaeology Department. The important museums under archaeological department are listed in the **Box 9.1.5**.

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 **Appendix 9.1.6** and **Appendix 9.1.7** respectively.

Box 9.1.5 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, Kottarakkara, 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

Major Achievements of the Department

The department declared Attingal Palace, located at Chirayankeezhu Taluk in Thiruvananthapuram District as a protected monument. The conservation work of Chettuva Fort Phase-I has been completed in Thrissur. The second phase of conservation work at the Kerala Legislative Assembly Golden Jubilee Museum has been started. Modernisation of the ticketing system and website, training, and capacity building for museum staff are in progress.

The department took over the '*Urn burials*' found at Ugrapuram in Malappuram District and Shivapuram in Kannur District and three metal boxes bearing royal seals which kept in the Kottarakkara District treasury.

The project on documentation of the coins kept in the department is in progress. The second volume of the publication viz. "*Kerala Archaeological Series*" which was started to find out and publish inscriptions on Kerala was published. The department has initiated conservation work of various protected monuments, temples, and churches.

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 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 and manuscripts.

The Department conserves such documents and protects them scientifically so that they are preserved for reference purposes.

Major Achievements and Performances

For setting up of the International Archives and Heritage Centre at Karyavattom University Campus, Thiruvananthapuram, MoU has been signed with the University of Kerala. This project will be executed through the Kerala Museum. The implementing agency has started the construction of the building.

The department has started a sub centre at Kunnamangalam Mini Civil Station, Kozhikode. Inaugurated Idukki Heritage Centre and Idukki Archival Gallery on September 19, 2022. Department initiated the printing of publications such as a) Evolution of Mental health Care system in Travancore, b) Selected speeches of freedom fighters – Vol-4 and c) '*1924-le Pralayam*'.

Digitisation is another major activity of the department, so far 2,87,690 paper records have been digitised. The process is still in progress.

Department initiated the scientific conservation of records of Niranam St. Mary's Orthodox Syrian church (Through this project department has conserved 3020 pages and the binding processes of the twelve books have been completed) and Kannur Saint John's English Church (10,277 pages conserved and completed the project).

Preparation of Reference Media of Records: During this period, indexing of 16,333 records was completed. As part of digitisation process, physical verification of 13,788 records as also completed.

Digital Heritage Archives: Department made available 25 T.B storage space in the State Data Centre through Kerala State IT Mission. Department has taken steps to upgrade 'e-Likhitham' software through C-DIT. As part of 75th anniversary of Indian Independence, department conducted exhibitions and seminars at Thrissur and Kozhikode. Scientific Conservation and Digitisation of Cartographic records: department has conserved 377 maps under Scientific Conservation and digitisation of cartographic records project through Kerala Museum.

Muziris Project

The Government of Kerala initiated the Muziris Heritage Project to reinstate the historical and cultural significance of the legendary port of Muziris. The entire project is designed to involve and integrate the local community in all its intended developmental initiatives. Muziris Heritage Project is an important undertaking by the Government of Kerala towards holistic conservation of a rich and proud history. The project has been implemented through Tourism Department. The objectives of the Muziris project are as follows;

- More than 25 museums have been set up to help visitors appreciate the Muziris Heritage.
- A research and academic institution has been established in order to support the project.
- Integration with local communities, through the agency of native resource persons for the purpose of data collection, survey, etc. was ensured.

The details of Muziris project is mentioned in Chapter 5.2 (Tourism) of this review.

All States that uphold democratic values place great value on art and culture. Kerala is also renowned as a place of diverse art forms and festivals. It has a long history of creating different kinds of art forms and propagating them. Kerala's distinctive geographical features have historically contributed to the State's cultural diversity. The numerous facets of its culture, including its visual arts, handicrafts, languages, history, festivals, martial arts, apparel, and other aspects, show the magnitude of this diversity. Kerala has also acknowledged the importance of art and

culture in the progress of the State and appreciated those who have made great contributions. We have supported the institutions in this sector earnestly and fostered artists and writers through various schemes and programmes.

9.2 SPORTS AND YOUTH AFFAIRS

Sports activities promote physical, mental and emotional growth. It promotes a healthy lifestyle. Sports can build the spirit of competitiveness and teamwork, which, in turn, can help the holistic development of youth. Representing the country in international sporting events has always been a source of national pride and helps inculcate a feeling of national unity and belonging amongst the youth.

The use of modern infrastructure, equipment and advanced scientific support have changed the scenario of sports at the international-level. Keeping in view of the growing demands for advanced infrastructure, equipment and scientific support, Government of Kerala has taken several initiatives and is providing the necessary assistance to sports persons by way of training and exposure in international competitions. Also, the Kerala sports policy aims to revamp the sports sector in the State and introduce policy implementation of sports organisations.

Further, keeping in tune with the principle of 'Sports for All' and 'Health for All' as enshrined in the Kerala Sports Act 2000, it will be the endeavour of the Government to utilise sports as a vehicle to promote healthy living among all sections of people of the State.

The economy of Kerala is primarily a service driven one with tourism and IT Sector contributing to the growth of Kerala's GSDP in a major way. It is within this sector that Kerala Sports must find its

niche and contribute towards the attainment of economic targets of the State. The development of sports should be community driven and should utilise the extraordinary amount of social capital that the State has accrued over the years.

Sports Institutions under Government of Kerala

Government of Kerala provides financial assistance to the following institutions coming under the sector.

- 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

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 ₹5 lakh each as an annual scholarship to participate in the international sports events. The fourth Khelo India Youth Games was held from June 4, 2022 to June 13, 2022 in Panchkula, Haryana as the hosting city. Among 25 disciplines of the event, Kerala won 55 medals (18 gold, 19 silver and 18 bronze).

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

- **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’.
- **Hoops:** GrassRoot 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 five to nine years within six months.
- **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 six centres, one each in six districts, viz., Kannur, Kasaragod, Idukki, Pathanamthitta, Kottayam and Palakkad.

- **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 program 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.
- **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.
- **Punch:** The project aims to introduce a grassroots-level training program for boxing called punch at 5 centres across Kerala to strengthen the talent development structure at the grassroots-level to familiarise 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.

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 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.

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.

Sports Academies

Under the direct control of the Kerala State Sports Council, 31 District Sports Academies (**Appendix 9.2.2**) 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 and the lists are given in **Appendix 9.2.3** and **Appendix 9.2.4**. 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.

Table 9.2.1 Major Ten Stadiums in Kerala, by use and seating capacity

Sl 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 9.2.1 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. Facilities such as play courts for volleyball, basketball etc open gymnasium, walkway, toilets, changing rooms and coffee shop are proposed in the layout. The facilities are proposed in an open space with area not less than 1.00 acre. It is targeted to complete one project in each Grama Panchayat or rural areas in municipal corporations in a period of five years.

The State fund for a single project will be limited to ₹50.00 Lakh (The estimated cost of one play ground is ₹100.00 lakh). The fund will be mobilised by pooling State Plan Fund, Asset Development Fund of MLAs, funds of local body, beneficiary contribution, and other sources like CSR funds of corporate establishments.

The assets created will be managed by a committee chaired by the President of the local body and ward councilors, officials of Department of Sports/Sports Kerala Foundation, representatives of sports clubs nominated by the Grama Panchayat etc will be members.

It mainly focuses on the parameters of health, wellness and happiness of the society. Improved social interaction is an added benefit of the project. It helps the youth to stay away from the social evils such as liquors, drugs, communal and other fractional divide. It is an investment towards the future human resources of the State.

In the financial year 2021-22, a total of 111 play spaces across the State have been selected under the scheme. As a major infrastructure development scheme, it is proposed to extend the scheme to more places in the next financial year.

Source: Directorate of Sports and Youth Affairs Department

Box 9.2.2 Achievements of the Directorate of Sports and Youth Affairs in 2021-22

- The Directorate of Sports and Youth Affairs, in collaboration with the University of Victoria, Australia, conducted a training programme for Master Trainers through international partnership programme.
- Started football academies in 2021-22 at GV Raja Sports School Thiruvananthapuram and Kannur Sports Division in collaboration with professional football clubs to mould international quality footballers.
- The 26th Senior Women’s National Football Championship hosted by Kerala was successfully organised. 32 teams in 8 groups participated in the championship held from November 28 to December 9 2021 at 4 venues in Kannur, Malappuram and Kozhikode districts.
- Ahead of FIFA World Cup 2022 and National Football Championship 2021-22, steps are being taken to implement the One Million Goal campaign in all Panchayats of the State to popularise the game of football among school children.
- Started initial activities to publish a book containing basic information about Kalaripayat as part of efforts to make Kalaripayat a world class sport in collaboration with Tunjath Ezhutachchan Malayalam University.
- Started initial steps to implement Young Kerala Internship Programme in collaboration with Kerala Youth Leadership Academy with the aim of developing leadership skills in the youth and harnessing the skills of young students and professionals to the District administration.
- Renovation of existing stadiums, playgrounds, swimming pools and other sports infrastructure were done through Sports Kerala Foundation in the year 2021-22.
- On the model of Kannur Sports Division, Govt. Higher Secondary School Kunnamkulam Thrissur Sports Division was started functioning in 2021-22.
- Infrastructure has been developed in GV Raja Sports School, Thiruvananthapuram and Sports division, Kannur and programmes such as “Nutrition Projects”, “Inspire Scholarships”, “Talent Hunt” and “Cash award incentive scheme” were implemented for children in these schools.
- Conducted muscle biopsy test for the children of GV Raja Sports School, Thiruvananthapuram and Kannur Sports Division to evaluate the sports performance of children.

Source: Directorate of Sports and Youth Affairs Department

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 ₹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 9.2.2).

Various awards

The various types of awards given by the Kerala State Sports Council are given in Table 9.2.3 and the award winners for the year 2019 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 ₹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.

Kayika Kshamatha Mission

The Kayika Kshamatha Mission envisages the improvement of physical fitness-level of the

Table 9.2.2 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

students as well as the general public. As phase one of the project, the overall fitness-level of the students in the school was assessed. The results showed that an alarming figure of more than 80 per cent of students in schools in Kerala is below the desired fitness-level. The second phase of the Kayika Kshamatha Mission envisages the improvement of physical fitness-level of the students as well as the general public and also creating awareness about physical literacy. In the programme the entire population of the State will be categorised into four groups for the ease of implementation and monitoring. The categories are:

- Nursery to fourth standard students
- Fifth standard to twelfth standard and university students
- Youth and working professionals
- Senior citizens

The project will be implemented with the collaboration of various departments of the Government of Kerala, namely, the Kerala Sports Council, Department of Education and Department of Local Self Government.

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 five year from 8th std to 12th std. It is divided in to two stages. After three year (8, 9, 10) those who are showing high-level quality only will be promoted to next two year (+1, +2 class). 25 girls will be selected for the

Table 9.2.3 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 ₹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 ₹1 lakh, a plaque and a certificate of appreciation are given to the awardee.
3	Best sports coach	A cash prize of ₹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 ₹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 ₹50,000, a plaque and a certificate of appreciation are given to the awardee.

Source: Kerala State Sports Council

academy. The academy is established at Panambilly Nagar, Ernakulam.

The project is implemented by the Kerala State Sports Council with the collaboration of Department of General Education.

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 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. State School Sports and Games were not conducted in the year

2021-22 as offline classes conducted only for two months.

The National Youth Policy, 2014 seeks to define the Vision of the Govt. of India for the youth of the country and identify the key areas in which action is required, where not enough is being done, to enable youth development and to provide a framework for action for all stakeholders. It provides a holistic vision for the youth of India which is “to empower the youth of the country to achieve their full potential and through them enable India to find its rightful place in the community of nations”. The Policy defines ‘youth’ as persons in the age group of 15-29 years.

III. Kerala State Youth Welfare Board

Kerala State Youth Welfare Board was constituted in 1985. The main objective of the Board is to co-ordinate the youth welfare and development activities targeting the youth. The Board provides assistance to youth clubs and organisations

Box 9.2.3 The Commonwealth Games 2022, Birmingham

India competed at the 2022 Commonwealth Games at Birmingham, England from 28 July to 8 August 2022. It was India's 18th appearance at the Commonwealth Games. The Indian team of 106 men and 104 women competed in 16 sports categories. Wrestlers were the most dominant contributors to the medal table while Sharath Kamal was the most successful Indian athlete with 3 Gold medals. India won 61 medals in the games (22 gold, 16 silver and 23 bronze medals) and come in the fourth position.

From the overall medal tally of 61, Kerala athletes accounted for six medals of them. The medal details are as follows.

Commonwealth Games 2022, Birmingham Kerala's Medal list

Game	Athlete	Medal
Men's triple jump	Eldhose Paul	Gold
Men's triple jump	Abdulla Aboobacker	Silver
Long jump	Murali Sreeshankar	Silver
Badminton doubles	Treesa Jolly	Bronze
Badminton mixed doubles	Treesa Jolly	Silver
Hockey	P. R. Sreejesh (Goal keeper)	Silver

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 organise youth clubs and conduct social development activities, volunteer activities, organise other activities for social growth, strive to increase youth participation in Keralotsavam, increase youth participation in gram sabhas, organise 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 9.2.4**.
- **National Folk Fest of Kerala:** The National Folk Fest of Kerala aims to promote the indigenous folk art of the different States of the country. The delegation of National Folk Fest comprises delegates from outside the State, who present their unique folk arts and cultural programmes, interact with young talent in the community and learn about the work of others. People from neighbouring States get opportunity to get acquainted with the families of Kerala and to experience the family life, culture and lifestyle of the people. In 2021-22, 350 artists from Kerala and other States of India performed various folk arts during the three-day festival.
- **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

In 2021-22, from the various clubs of the Kerala State Youth Welfare Board around 1,11,800 youth across the State have benefited and

out of this 52,000 are women and 1,400 are transgender respectively. Financial assistance of ₹5,000 is given to the activities of each club.

Table 9.2.4 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.	Agricultural competitions are organised
2	Women clubs (avalidam)	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 organising 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

who achieve high points in the State-level. In 2021-22, online Keralotsavam was organised through specially prepared software. A total of 8,013 contestants and 929 clubs participated in District-level Keralotsavam. 517 contestants and 112 clubs participated in the State-level Keralotsavam. Considering the participation of competitors and clubs, around 70,000 youth across the State have benefited from this scheme.

- **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 force 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 1,034 captains from all the districts of the State. In collaboration with Police, Fire and Rescue, Forest, Excise and Health Departments, training was provided in the areas of disaster management, first aid, sports training, personality development and palliative care. As the first phase of this, 100 members were selected from each District and trained. Apart from this, uniform, shoes and cap are also prepared and given to the Panchayat-level captains. Under the leadership of trained Kerala team members, on 30th March 2022, programmes were organised in the name of Janasabha, anti-drug awareness in all 140 assembly constituencies of the State. Team Kerala is working with the objectives of bringing youth's own voluntary service force to the grassroots-

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. Team Kerala is able to utilise the human resources of the youth for social good and thereby inculcate in them the sense of dedication and willingness to sacrifice. About 60,000 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 District-wise 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. Under the banner of ‘Anti-Drug Campaign Jana Sabha’, awareness programmes against drugs were organised in all the 140 assembly constituencies in the State. Programmes to commemorate Environment Day, Gandhi Jayanthi, Independence Day, Anti-Narcotic Day and other important days were organised. 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.

IV. 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 2021-22 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 2021-22, a special youth volunteer group termed as “Youth Defence Force” was constituted and trained for the conduct of the programme and the trained youth conducted 350 programmes. About 40,000 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:** An international-level seminar was jointly conducted by the Commission and Mar Gregorios College of Law, Nalanchira, Thiruvananthapuram on the topic “Reproductive Choice of Women, a Fundamental Right,” and a National-level seminar on “Rebuilding the Youth-Kerala towards a knowledge society”

Box 9.2.4 Achievements of Kerala Youth Welfare Board in 2021-22

- Youth farmers meet, agricultural products exhibition and agricultural classes were organised in the districts.
- Conducted training for competitive exams such as PSC, UPSC, Railway, Civil Services and career development related subjects through the YouTube channel and official Facebook page of the board.
- Literary camps were organised at 2 places, Kozhikode and Kollam, with the participation of eminent literary personalities and budding young writers.
- A short film festival called Reels-2021 was organised 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 organised on 21 March 2022 at Shree Theatre in Alappuzha District.
- 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

was also conducted. 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. In 2021-22, commission considered 279 complaints of previous year and received 243 fresh complaints and out of which 287 were resolved. Action is being taken on other complaints.
- **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. In 2021-22, as part of the programme the Commission has conducted health camp at three tribal settlements in Parambikkulam, Kuriyarkutty, Chungam in Palakkad District and one camp at Moozhiyar in Seethathode Panchayat in Pathanamthitta District. A workshop for the youth home makers were conducted at Kalavoor, Pathirappally and Kattoor in Alappuzha District in the topics related to education, career guidance, self-employment and gender equality and a training camp on martial arts was conducted at Fort Kochi, Ernakulam for 100 youths.
- **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 Vivekananda 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 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. Commission also launched green zone project with the aim of converting all the barren land into agricultural land as done in the JLG model of Kudumbasree. To inculcate interest in farming among the youth and to provide the expertise in the field of agriculture, a conference of young farmers was conducted in Cherthala, Alappuzha District.

In 2021-22, under virtual employment exchange programme job fest had been conducted at Kannur, Pathanamthitta and Kollam districts. In the Kannur fest, 40 companies were registered and 1,423 candidates have been selected for employment and out of this, 187 candidates were directly recruited by the companies and 462 candidates were shortlisted for anticipated vacancies. In the Pathanamthitta job fest 12 Companies were registered and 105 candidates were recruited and 173 candidates were shortlisted for future vacancies. In the job Fest in Kollam, 14 Companies were registered and 116 candidates could avail job and 212 candidates were shortlisted for the anticipated vacancies.

CHAPTER

10

KERALA DIASPORA

KERALA DIASPORA

The United Nations defines a migrant 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).

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).

Though the human migration and mobility is an age old phenomenon touching almost every society around the world, migration and mobility have changed in many important ways. As per the current United Nations global estimate, there were around 281 million international migrants in the world in 2020, that equates to 3.6 per cent of the global

population. The migration process is very slow over the past two years as COVID-19 related immobility has gripped community everywhere.

According to World Migration report 2022, the estimated number of international migrants has increased over the past 50 years. The proportion of international migrants as a share of the total global population has also increased, but only incrementally.

For the past fifty years United States of America remains the primary destination for migrants, have over 51 million international migrants. Germany has become the second most prominent destination, with nearly 16 million international migrants, while Saudi Arabia is the third largest destination country for international migrants, with 13 million. The Russian Federation and the United Kingdom round out the top five destination countries, with about 12 million and nine million international migrants respectively.

Table 10.1.1 Key indicators on International Migration

International Migrants (a)	281 Million in 2020	272 Million in 2019
Female (a)	135 Million in 2020	130 Million in 2019
Male (a)	146 Million in 2020	141 Million in 2019
Labour Migrants (b)	169 Million in 2019	164 Million in 2017
Missing Migrants (c)	Around 3,900 dead and missing globally in 2020	Almost 5400 in 2019

Source: World Migration Report 2022

Note: (a) UN DESA, 2021, (b) ILO, 2021, (c) IOM, n.d.a

The **Table 10.1.2** shows top five countries in the world of origin for 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.

Table 10.1.2 Top five origins of migrants

Country	No. of Migrants (Million)
India	18
Mexico	11
Russian Federation	10.8
China	10
Syrian Arab Republic	8

Source: World Migration Report 2022

Around 78 per cent of the international migrants were of the working age (between 15-64). Since 1990, the share of international migrants age 19 and younger has dropped from 18.9 per cent to 14.6 per cent, while international migrants older than 64 have remained steady at around 12.2 per cent.

International Migrants by Sex

Over the past few years, the number of male migrants has not only been higher than that of female migrants, but the number of female migrants has also been decreasing. The **Figure 10.1.1** shows the details regarding international migrants by sex.

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).

In 2020, India, China, Mexico, the 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.

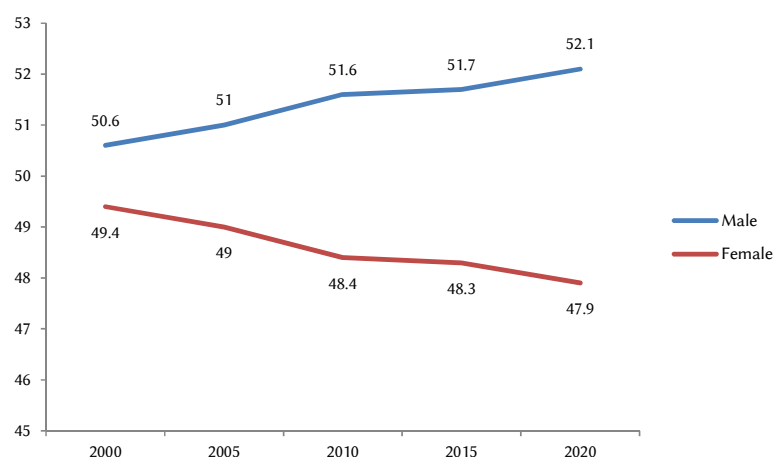
The share of the traditional remittance recipient States of Kerala, Tamil Nadu and Karnataka, which had strong dominance in the GCC region, has almost halved in 2020-21, accounting for only 25 per cent of total remittances since 2016-17, while Maharashtra has emerged as the top recipient State, surpassing Kerala.

Table 10.1.3 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

Figure 10.1.1 International Migrants, by Sex, 2000-2020 in per cent



Source: UN DESA, 2021a

Table 10.1.4 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

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 may lead to this structural change.

Emigration Trend in Kerala

According to the Kerala Migration Survey 2018, there are 21,21,887 emigrants are from Kerala. It is 1.49 lakh less than the 2016 KMS and 2.78 lakh lesser than 2013 KMS data. Furthermore, there has been a reduction in emigration for the last ten years. The figure shows that the rate of growth of emigration is continuously decreasing since 2008.

Although 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 87,000 people have emigrated more during the period from 2008 to 2011 and nearly 1.1 lakh more during the period from 2011 to 2013. The **Table 10.1.5** shows the inter survey change of the migrants.

Table 10.1.5 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.

Remigration scene in Kerala is dynamic and statistical evaluation of migration must be frequent and rigorous.

Table 10.1.6 District-wise NRKs in Kerala 2018

Estimated Emigrants from Kerala	
Districts	2018
Thiruvananthapuram	137007
Kollam	240527
Pathanamthitta	109836
Alappuzha	136857
Kottayam	166625
Idukki	32893
Ernakulam	53418
Thrissur	241150
Palakkad	89065
Malappuram	406054
Kozhikode	160691
Wayanad	30650
Kannur	249834
Kasaragod	67281
Total	2121888

Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

District-wise Emigrants

Table 10.1.2 shows the District-wise emigrant population 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

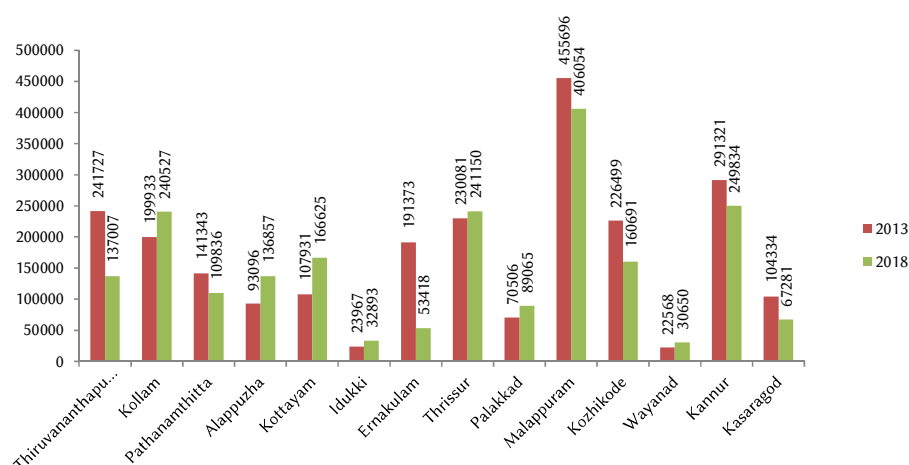
District-wise details of emigrants from Kerala in 2013 and 2018 are given in **Figure 10.1.2**. The total number of emigrants in Kerala has decreased from 24 lakh in 2013 to 21 lakh in 2018. That is a decrease of 11.6 per cent within the time span of five years. Of these, Ernakulam District shows a decline 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 1998 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 (five year interval) are shown in **Appendix 10.1.2**.

Return Emigration

Return emigrants 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 2019).

Figure 10.1.2 The total number of emigrants in Kerala in 2013 and 2018

Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

The diaspora plays an important role in the socio-economic spheres of Kerala. Kerala Government is making continuous policy interventions for the NRK community. Development-oriented and social justice-based projects and schemes involving NRKs and NRK returnees have been earmarked for this purpose.

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 purely 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), purchase of physical aids to combat disability (up to 10,000).

Under the Santhwana scheme, financial assistance has been sanctioned to 4,445 beneficiaries in the financial year 2020-21, 4,614 beneficiaries in 2021-22 and 751 beneficiaries in the year 2022-23 (up to October 31).

Rehabilitation of Returnee Migrants (NDPREM)

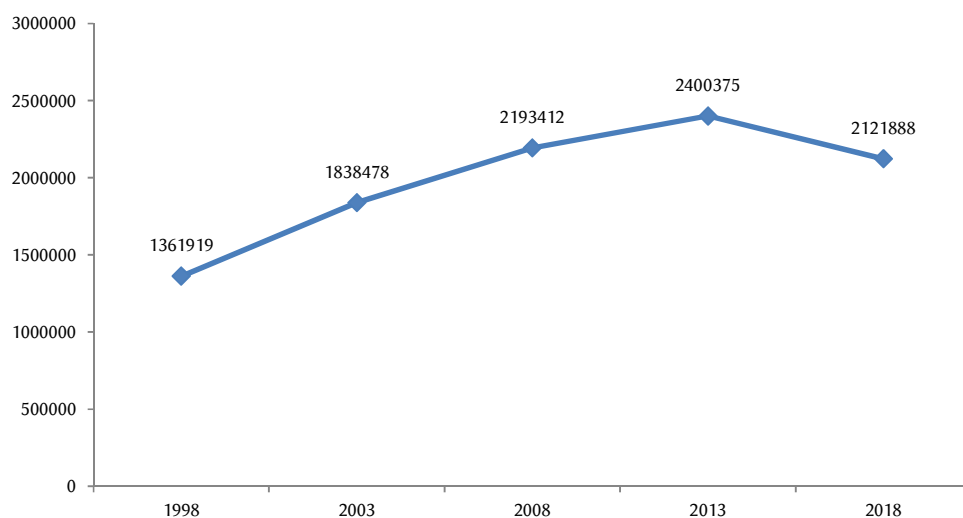
As part of rehabilitation of returned migrants, Government has formulated a scheme namely 'Norka Department Project for Return Emigrants (NDPREM)' with a view to provide sustainable livelihood for return emigrants by promoting self-employment ventures. As part of initiating the project, applications 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 three per cent for the first four years provided the unit is in operation.

NDPREM scheme has 1,000 beneficiaries in FY 2021-22 and 600 beneficiaries in FY 2022-23 up to 31st October 2022.

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.

Figure 10.1.3 Number of emigrants from Kerala, 1998 to 2018, in numbers



Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

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. 90.41 crore of loans have been given last year and 5010 enterprises have been started.

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.

2nd Conference of Loka Kerala Sabha with extensive diaspora participation organised on 1st, 2nd and 3rd January 2020. Apart from the further activities of the First Loka Kerala Sabha, the challenges faced by Kerala, including the floods and the problems and possibilities of the diaspora world were discussed in the sabha.

In addition to the proposals that will help in the formulation of policies related to non-residents, ideas that will help in the construction of New Kerala came up in the sabha. The creation of the Loka Kerala Sabha has made it possible for them to have a common platform to promote association and cooperation with the diaspora in different parts of the world outside the State. It also integrates the diaspora with the State for the social, cultural, economic and industrial development of Kerala, to give constructive suggestions and contributions and to discuss NRK's issues.

The third edition of Loka Kerala Sabha is scheduled to be held on 17th and 18th June 2022.

New Initiative by NORKA ROOTS

- *Triple Win Project*: NORKA ROOTS has agreed with the German Federal Employment Agency (BA) to recruit nurses from Kerala to Germany. Two nurses have already gone to Germany through fast track. The training of others will be completed soon.
- *SSW Program (G2G Japan Recruitment Programme)*: The Ministry of External Affairs has selected NORKA ROOTS as the nodal agency from Kerala for the specified skill workers program to provide special status of residence in Japan for skilled workers.

- *Dubai Expo*: At the World Expo held in Dubai, NORKA's information was incorporated and the Kerala Pavilion started.

Interventions made to bring home the NRKs stuck in Ukraine

- The Hon'ble Chief Minister requested the Hon'ble Prime Minister to bring home the students stranded in different provinces of Ukraine and held discussions with the Union Minister of External Affairs.
- Registration has started to transfer the information of NRK students stuck in Ukraine to the Central Government.
- Information of people who contacted NORKA through NORKA registration, email, call and Whats App was forwarded to Central Government and Indian Embassy in time.
- Helpline number 1800 425 3939 of NORKA ROOTS has been made available for NRKs and natives stuck in the battlefield to contact.
- Notifications of Central Government and Indian Embassy were delivered to the students on time.
- NORKA has arranged temporary accommodation for students who have returned to the country.
- 15 chartered flights from Delhi to Kochi (up to 08.03.2022) have been arranged to bring home the returning students.
- Special bus service was arranged to Thiruvananthapuram and Kasaragod for students arriving at Kochi airport from Delhi.

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.

Table 10.1.7 KNRKWB – Details of pension sanctioned for the year 2021-22 and 2022-23 (up to November 2022)

Year	Number of pensioners	Amount (₹)
2021-22	23117	525820325
2022-23	30808	772357127

Source: KNRKWB, Government of Kerala

It is evident from the Table, in the financial year 2021-22, more than ₹52 crore has been spent for 23117 members through NORKA Welfare Board in the form of pension. As of October 2022-23, more than ₹77 crore has been spent on pension for 30,808 members.

There is a transparent and secure online facility to enroll and pay dues in Pravasi Welfare Fund from anywhere in the world.

Kerala Non Resident Keralites' Welfare Board in collaboration with KIIFB is implementing Pravasi Dividend Scheme which is a long-term investment scheme to effectively utilise 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 around ₹310 crore 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, some drawbacks remain. 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, set up by the Government of Kerala to transform Kerala into a knowledge-based economy, is capable of learning from revolutionary changes in the skills and knowledge of global workforce. This is something that the returning NRKs hope for. Similarly,

this Government is ensuring various investment opportunities for non-residents to accelerate capital growth in Kerala.

CHAPTER

11

INFRASTRUCTURE

INFRASTRUCTURE

11.1 TRANSPORT

Creation of transport infrastructure, through its direct and indirect effects, has bearing on sustainability of growth and overall development of a country. Apart from improving connectivity, the development of transport infrastructure can open up hitherto unconnected regions to trade and investment and step up access to goods, services and employment opportunities. This is reinforced by the fact that spending on infrastructure has large multiplier effects. India has an extensive and diversified transport system, comprising 63,71,847 kilometres (km) of roads, 68,103km of rail, 12 major and 205 non-major ports, 29 international airports, 272 domestic airports and 20,236km of navigable inland waterways.

Road Network in India

Road Transport is a critical infrastructure for the economic development of a country. It impacts the pace, structure and pattern of development. Road Transport is considered to be one of the most cost effective and preferred mode of transport, both for freight and passengers, keeping in view its level of penetration into populated areas. Thus, it is vital for economic development and social integration of the country. Easy availability, adaptability to individual needs and the cost savings are some of the factors which go in favour of road transport. Road transport also acts as a feeder service to railway, shipping and air traffic.

The capacity of National Highways in terms of handling traffic (passenger and goods) needs to be in pace with economic growth. India has the second largest road network in the world with 63.72 lakh km, after United States. This comprises National Highways, Expressways, State Highways, Major District Roads, Other District Roads and Village Roads. Details are given in **Table 11.1.1**.

Table 11.1.1 Road Network in India

Particulars	Road Network(in km)
National Highways/Expressway	1,40,995
State Highways	1,71,039
Other Roads	60,59,813
Total	63,71,847

Source: Annual Report 2020-22, MoRTH

The National Highways (NH) have a total length of 1,40,995km, which in totality serve as the arterial network of the country. The development of National Highways is the responsibility of the Government of India. The Government of India had launched major initiatives to upgrade and strengthen National Highways through various phases of the National Highways Development Project (NHDP) and is taking the initiative forward through the umbrella programme of Bharatmala Pariyojna and other schemes and projects.

The State Highways (SHs) are intended to carry the traffic along major centres within the State. Major District Roads provide the secondary function of linkage between main roads and rural roads. The Other roads are District Roads and Village Roads that provide accessibility to the towns and villages to meet their social needs as also the means to transport agriculture produce from villages to nearby markets.

The Kerala Scenario

The State has a total road length of 2,30,934.18km. This includes classified and non-classified roads as stipulated by Indian Road Congress. Road density in Kerala is 548km per 100 sq. km, which is roughly three times the national average. The length of road per lakh population is 993.54 km and almost 90 per cent of the road network is single lane. 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 around 12 per cent of the road network handles almost 80 per cent of the traffic in the State. The major development indicators of transport sector in the State since 2011 are given in **Appendix 11.1.1**.

There are 11 National Highways in the State having a total length of 1,781.36 km. Out of this, the NH Wing of State PWD upkeeps 548km and the remaining 1,233.36km 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**.

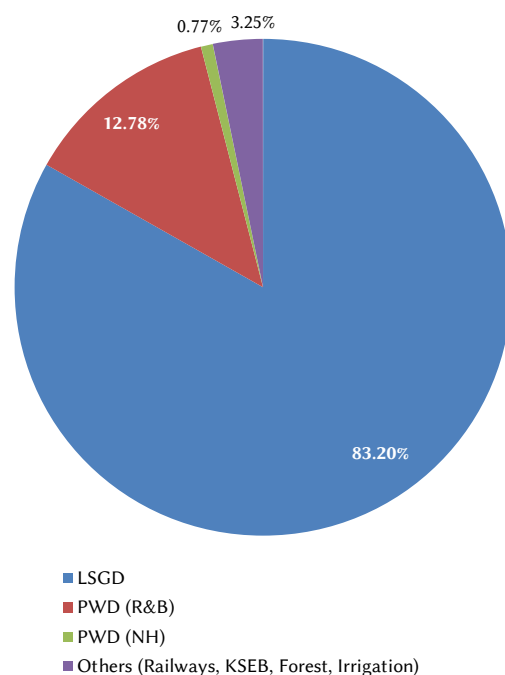
The major roads in the State are developed and maintained by the State Public Works Department. The total length of roads maintained by Public Works Department (PWD)-Roads and Bridges (R&B) is 29,522.15km in 2021-22, which comprises 4,127.80km (13.98 per cent) State Highways and 25,394.32km (86.01 per cent) Major District Roads (MDRs). Out of the total length of the State Highways, 898.74km is four lanes, 3,193.50km is two lanes and remaining 35.75km is single lane roads. The Major District Roads covers 25,394.32km of roads with 52.51km four lane. The Local Self Government Department

(LSGD) own and operates 83.19 per cent of the total road network in the State whereas the PWD (R&B) maintains 12.78 per cent of roads. The PWD (NH) wing upkeeps 0.23 per cent of the total length of road in the State and the remaining 3.8 per cent of roads are called other roads which are maintained by Railways, Irrigation, KSEB, Forest and Dewasom departments.

In the financial year 2021-22, 1,600km of roads was upgraded with Bituminous Macadam (BM) and Bituminous Concrete (BC), 650km of roads were resurfaced with chipping carpet, 350km of road works was done using plastic waste and 500km using Natural Rubber Modified Bitumen (NRMB) and Geotextiles was used in 10 km of roads for stabilisation.

Kottayam District tops in the share of PWD (R&B) maintained roads with 3,310.44km (11.21 per cent) in length. Wayanad District has got the lowest share of 856.95km (2.90 per cent). Details of District-wise and category-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**.

Figure 11.1.1 Length of Roads Maintained by Different Agencies, in per cent



Source: Various Departments

The total length of roads maintained by different local bodies in 2021-22 is 1,92,115km, of which 1,66,921km (86.88 per cent) is maintained by District and Grama Panchayats is 16,722km (8.70 per cent) by Municipalities and 8,472km (4.40 per cent) is maintained by the corporations. Roads maintained by various local bodies as per asset register is given in the **Table 11.1.2**.

The PWD (Bridges) wing maintains 2,798 along State Highways (546 Bridges), Major District Roads and Other District Roads (2,152 Bridges) and Village Roads and ROBs (100 Bridges). The major achievement of the wing in 2021-22 is the completion and opening of the 981 meter long Valiyazheekkal Bridge, which has bow string arch of 110 meter span and 12 meter height to facilitate water transport. During the 13th Five

Year Plan, administrative sanction was accorded for 205 bridge works, and 89 works were completed in 2022. The department envisions to provide connectivity to inaccessible habitats like tribal settlements, islands and to reconstruct damaged bridges. Details of bridges and culverts constructed by PWD (Bridges) wing as on March 31, 2022 is given in **Appendix 11.1.6**.

Road Traffic

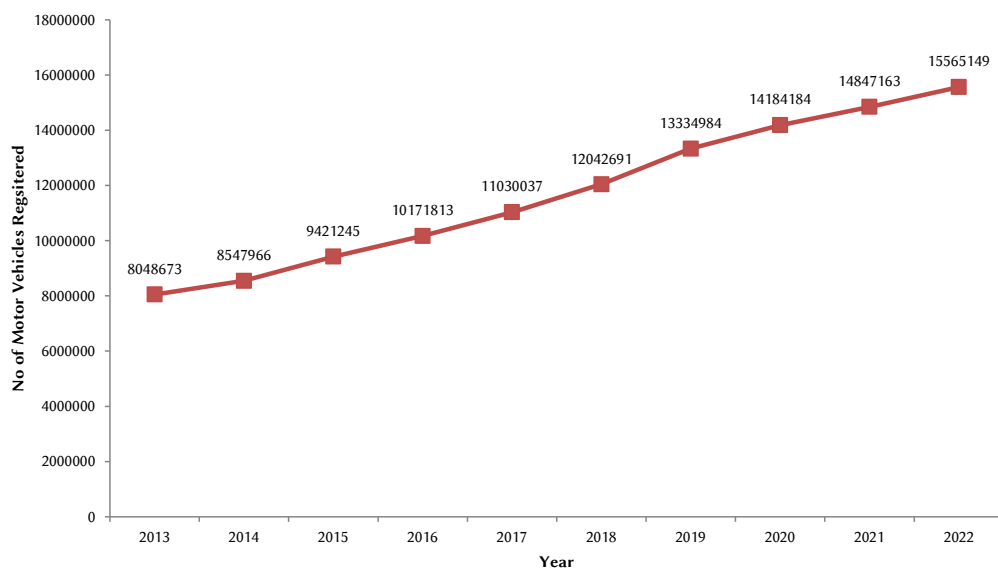
As on March 2022, there are 155.65 lakh motor vehicles registered in the State marking a growth of 4.83 per cent over the previous year. The number of vehicles per 1,000 population for Kerala as on March, 2022 is 466. The number of motor vehicles having valid registrations as on March, 2022 is 1,55,65,149 as against 1,48,47,163 in the previous year. As of March, 2022, the total number of two wheelers (Motor Cycles/Scooters/

Table 11.1.2 Roads maintained by various Local Bodies, in km

Local Body	Tar road		Concrete/ Interlock road		Earthen road		Total
	width up to 3m	width above 3m	width up to 3m	width above 3m	width up to 3m	width above 3m	Above 3m only
Corporations	1,630	4,813	614	984	307	124	8,472
Municipality	5,147	6,085	1,797	969	1,518	1,205	16,722
District Panchayat	0.0	11,993	0.0	302	0.0	532	12,827
Block Panchayat	No Road Asset for Block Panchayat						
Grama Panchayat	32,728	45,458	14,821	8,174	28,921	23,992	1,54,094
Total	39,505	68,350	17,232	10,430	30,746	25,853	1,92,115

Source: LSGD

Figure 11.1.2 Growth in number of Motor Vehicles, since 2013

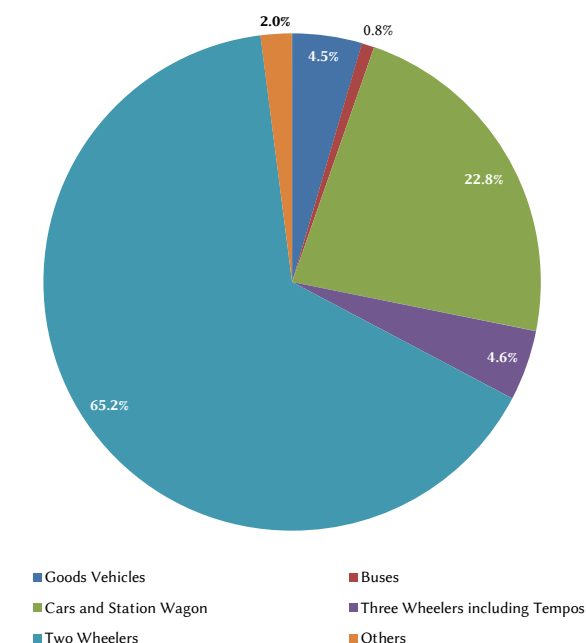


Source: Motor Vehicles Department

Mopeds) registered in the State is 1,01,51,286 and there are 7,09,289 Auto rickshaws and 32,58,312 cars in the State. There are 77,649 contract carriages (including Omni bus) and 49,791 stage carriages are registered in the State as of March, 2022. The number of newly registered vehicles in 2021-22 is 7,17,986 (6,62,979 in 2020-21). The details are given in 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 22,16,348 vehicles (14.25 per cent) followed by Thiruvananthapuram with 19,34,013 (12.44 per cent). Wayanad District has the lowest number of 2,59,676 vehicles (1.67 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 during 2012-13 to 2021-22 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. Percentage of motor vehicles registered in the State in 2021-22 is given in **Figure 11.1.3**.

Figure 11.1.3 Distribution of Motor Vehicles Registered by type, 2021 to 22, in per cent



Source: Motor Vehicles Department

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. Total number of electric vehicles registered in the State from January to September, 2022 is 26,087 as compared to 8,701 in the previous year. The growth in the number of registration of Motor Cycle/Scooter in the State is noteworthy that it increased from 5,843 in 2021 to 21,729 as in September, 2022. In the case of motor cars also, the State witnessed an increase from 1,633 in 2021 to 2,700 as on September, 2022. The e-vehicle registration details in Kerala in 2021 and 2022 (up to September, 2022) 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-lease 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 haphazard ribbon development all along the routes. The existing traffic levels at most stretches are excessive and beyond road capacity. Capacity augmentation of existing roads is beset with problems relating to limited right of way and land acquisition.

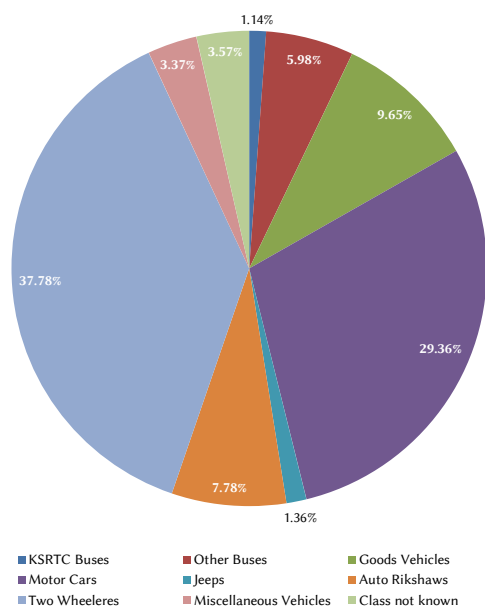
According to State Crime Records Bureau (SCRB), 3,429 deaths and 36,775 injuries (of which 26,495 are grievous injuries requiring hospitalisation) were reported in Kerala in 2021 from 33,296 road accidents. Thiruvananthapuram District reported the maximum number of fatalities (410) in 2021 whereas Wayanad reported the least number of fatalities (53) in 2021. As per the records of the SCRB, 2,848 deaths were reported in the State from 28,695 motor vehicle accidents during January to August, 2022.

Road accidents are attributed mainly traffic rules violations like drunken driving, over speeding, driving on wrong side, road condition, vehicle condition and road environment. Road Safety

being a complex issue, it requires consistent, prolonged and concerted efforts from various stakeholders to achieve the goals. Even though several initiatives have been taken by the Motor Vehicles Department and Police to enforce rules and road discipline, road accidents are increasing at an alarming rate. The District-wise motor vehicle accidents in Kerala and the category-wise details of motor vehicles involved in 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 38 per cent of accidents in the State in from January to August, 2022. The increase of road accidents involving two wheeler is on increase and is alarming despite implementation of various road safety measures by various departments. The number of traffic crashes involving two wheelers was 13,624 (37 per day) in 2021 and it is 10,840 from January to August, 2022 (Approximately 44 accidents per day). The percentage of vehicle category-wise accidents occurred between January and August, 2022 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, 2022, in per cent



Source: State Crime Records Bureau

A total of 2,045 bus accidents were registered in the State in 2021. Out of this, KSRTC buses involved in 328 accidents from January to August,

2022 and other buses in 1,717 accidents. Trend of motor vehicle accidents reported in Kerala over a period from 2010-2022 is presented in **Figure 11.1.5**.

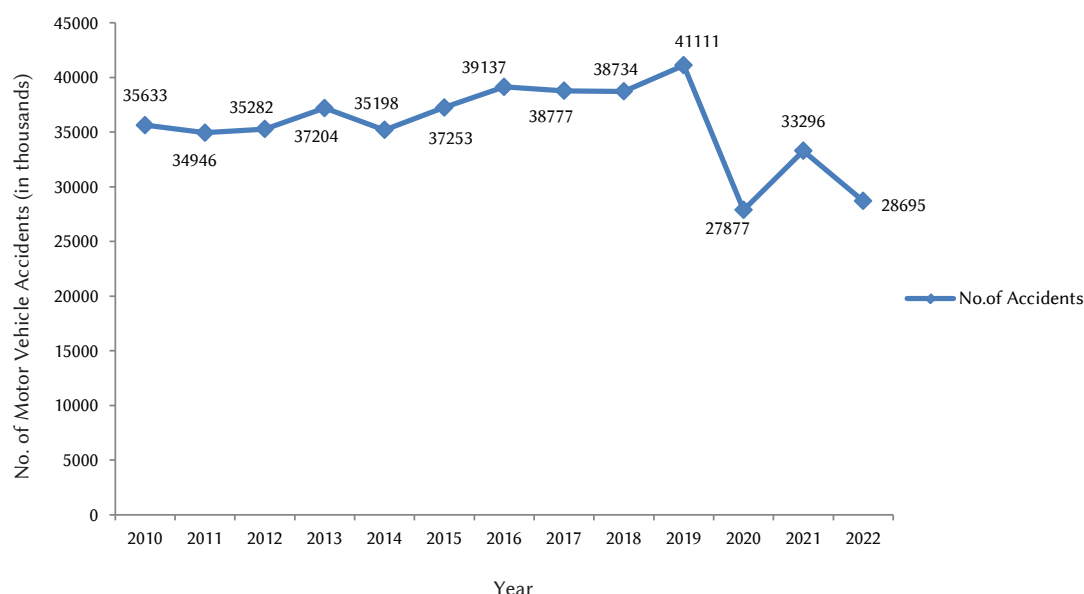
The trend of motor vehicle accidents in the State from 2010 to August, 2022 reveals that the number of accidents in the State remained almost stable during the period and it rose in 2019 and declined sharply in the year 2020 and it again increased in 2021.

The accidents per lakh vehicles registered in the State were 289 in 2019. Though the rate of accidents in the State has reduced to 188 in 2020, it again increased to 214 in 2021. The motor vehicles department has registered 5,12,009 cases of violation of motor vehicle rules including over speeding and red light violation in the financial year 2021-22 and an amount of ₹42,58,37,658 was collected as penalty for the violation of motor vehicle/road rules during the period.

It is to be highlighted that there is a constant decrease in accidents per lakh vehicles every year since 2011. The improvements made in roads have played a pivotal role in reducing the number of accidents over years. Most of the accidents are attributable to the fault of drivers as per records available with traffic police. 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. Details about black spots in the State is provided in **Box 11.1.1**.

National Transportation Planning and Research Centre (NATPAC) under the Kerala State Council for Science Technology and Environment (KSCSTE) had identified 4,592 crash black spots/hazardous locations across the State in the year 2021 based on the Crash data for the years 2018-2020 collected from Kerala State Crime Records Bureau and submitted the report to Kerala Road Safety Authority (KRSA). Ernakulam District has highest number (703) of crash black spots, followed by Thiruvananthapuram District (694) and Thrissur District (548). Identification, analysis and treatment of black spots are widely regarded as one of the most effective approaches in preventing road crashes.

Figure 11.1.5 Trend in Motor Vehicle Accidents in Kerala, 2010 to 2022*, in thousands



*Details as on August, 2022(Jan-August, 2022)

Source: State Crime Records Bureau

Road Improvements

The State PWD is primarily responsible for policy, planning, design, construction and maintenance of the State Highways, 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 implementation of road projects in the State.

The main source of funding for NH maintenance is Government of India assistance. The Central Road and Infrastructure Fund (CRIF) allocates funds based on weightage of 30:70 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 approval and financial approval are to be given by the State Government. The State Government advances fund for Central Road Fund works and later gets reimbursed from MoRTH. The status of CRIF works (State Roads) as of March, 2022 is given in **Appendix 11.1.14**.

However for keeping the National Highway in traffic worthy condition, the State Government also carries out improvement works using State Plan Funds and maintenance works using State Plan as well as Non Plan funds. Maintenance of

Box 11.1.1 Black Spots

Black Spots are the short stretches where the crashes/fatalities take place repeatedly, gets created on the road network due to various reasons. The NHAI has defined hazardous locations based on Accidents Severity Index (ASI) and Black spots as Hazardous spots with Accidents Severity Index (ASI) more than threshold value (Average Severity + 1.5 x Standard Deviation). The categorisation of black spots has been made on the basis of fatality and frequency of accidents in black spots namely black spots coming under class I category is more prone for accident and fatality and the same will be lower in class III black spots.

A total of 374 priority crash black spots are identified and prioritised based on the severity of the crashes occurring at crash black spots in the State. 'Priority crash blackspots' were further classified into Priority I black spots (250 locations) and Priority II black spots (124 locations). A total of 227 priority black spots were identified on National Highways in Kerala followed by 84 on State Highways and 63 on Other Roads

Source: NATPAC

Urban links to NHs and NH road bypass stretches are taken care of by the State PWD NH wing.

The works taken up include road improvements, repair and maintenance of existing roads, relaying and upgradation with a view to address geometrical improvement, junction improvement and other technical corrections. In 2021-22, development and improvement of roads for a total length of 14,724km have been carried out including 14,181km of Bitumen Macadam (BM) and Bitumen Concrete (BC) (under various Plan schemes. Development and improvement of State Highways for a length of 246.90km was completed in 2021-22 and this includes 177.80km BM/BC roads at a cost of ₹89.71 crore and development and improvement works to Major District Roads of 14,476.85km length (14,002.86km BM and BC). Further, 650km of roads were resurfaced with chipping carpet, 350km of road works was done using plastic waste and 500km using NRMB and Geotextiles was used in 10km of roads for stabilisation. No additional length of roads was added to SHs and MDRs in 2021-22.

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 have declared 7000km of road stretches including all State Highways and some MDRs as Core Road Network (CRN) and implementation of RMMs in these roads was completed in 2021-22. An amount of ₹378.01 crore has been allotted to the wing for the year 2022-23. The prioritisation of Core Road Network (CRN) has 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 most beautiful coastal belt of the State.

The coastal highway will serve as an alternative to the National Highway 66 and will serve as an evacuation route in the event of any emergency. The coastal high way with 629km length will pass through nine districts with a National Highway overlap of 45km. The Coastal Highway will connect Vallarpadam, Kollam and Vizhinjam apart from other small ports and harbours. As of March 2022, Kerala Infrastructure Investment Fund Board (KIIFB) has approved an outlay ₹2,620.63 for the project. Kerala Road Fund Board (KRFB) is the Special Purpose Vehicle for the implementation of the project. Details of Coastal Highway stretches approved by KIIFB are given in **Appendix 11.1.15**

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 almost all districts in Kerala except Alappuzha and starting from Nandarapadavu in Kasaragod to Parassala in Thiruvananthapuram. The total length of Hill Highway is 1,332.16km. 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 Special Purpose Vehicle for Hill highway also. As of March, 2022, work for 35 reaches having a total length of 625.96km has been sanctioned by KIIFB at an approved total outlay of ₹2,548.84 crore. Works have been completed in four stretches and are progressing in other stretches. Hill Highway stretches approved by KIIFB is given in **Appendix 11.1.16**.

External Aided Projects

Kerala State Transport Project (KSTP): Kerala State Transport Project handles two main projects funded by World bank and the KfW German Bank viz. i) Kerala State Transport project-II funded by World bank and ii) Rebuild Kerala Initiative funded by World Bank and the KfW German Bank. KSTP-II is a World Bank (IBRD) assisted project and the Bank has approved ₹2,403 crore (US \$445 million) for the project. The project envisages the upgradation of 363km of State Highways, Road Safety Management and Institutional Strengthening of Public Works Department (PWD). The project cost is US \$445

million (₹2,403 crore), out of which US \$216 million (₹1,166 crore) 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). Works of 11 stretches of KSTP Phase-II project have been completed and the work of Plachery-Ponkunnam stretch having a length of 22.17km is nearing completion. Works in the remaining stretch are in progress. As of May, 2022, a total of ₹2,815.93 crore has been spent for the project. The status of works under KSTP Phase-II is presented in **Appendix 11.1.17**.

Rebuild Kerala Initiative: As part of the Rebuild Kerala Initiative (RKI), KSTP has undertaken reconstruction/restoration of the roads damaged due to the floods and landslides in 2018 to make them traffic worthy and its aim is to implement the road reconstruction works for ₹3,346.09 crore ensuring Green and Climate resilience utilising World Bank assistance of ₹1,200 crore and KfW (German Bank) assistance of ₹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 1,609km; of this 16 are hill roads (431.17km) 43 Non-hilly roads (1,177.83km).

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 organises 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 42.07km have been completed and now the project is in its Operation and Maintenance stage. As of March, 2022 an amount of ₹325.19 crore has been paid to the concessionaires as annuity. KRFB has completed the Kozhikode City Road Improvement Project Phase-I (A), which involved development of 22.25 km over six corridors at a total concessionaire's cost of ₹211.00 crore. The project was completed on Design, Build, Finance, Operate and Transfer (DBFOT) annuity mode and as of March, 2022, an amount of ₹203.85 crore has been paid to the concessionaires as annuity. KRFB was entrusted as the SPV for KIIFB funded road projects in the State.

Smart City Projects: Approximately 54km of roads have been identified to be developed as Smart roads in 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 83km of roads in two packages A&B in Thiruvananthapuram, Kottayam and Kasaragod Districts at a total cost of ₹209.91 crore on Annuity modes. The works undertaken by RICK are Uppala-Kaniyana Road (9.4km), Vidyanagar – Seethangoli Road (15.6km), Kanjirappally – Kanjiramkavala Road (36.10km), Vellanad – Chettachal Road (21.90km) and land acquisition of Karamana-Vellarada Road (35.5km). 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

projects, toll collection rights and engage in activities like 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 or 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 Kerala 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 transport 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. The latest data shows that the COVID pandemic has also wrecked the industry which has depleted the number of registration of new buses.

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 (implementation of e-office in Chief Office and three Zonal Officers). Delhi Integrated Multimodal Transit System (DIMTS) has been entrusted for the implementation of Computerised Vehicle Tracking and Monitoring System (CVTMS) in KSRTC and a trial version of the software was launched in August, 2022. Further, a Multi-disciplinary Project Monitoring Unit (PMU) team has been deployed at Chief office for the efficient and Professional management of daily bus operations.

As part of fleet renovation, KSRTC has introduced multi axle buses like Scania on wet lease basis from its dealers and operating in inter-State routes. As of March, 2022, the number of buses on wet lease basis is 6. The number of buses owned by KSRTC is given in **Appendix 11.1.18**, age-wise details of buses owned by KSRTC are given in **Appendix 11.1.19** and major internal indicators of KSRTC are given in **Appendix 11.1.20**.

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. During the first phase

of JnNURM Thiruvananthapuram and Ernakulam corporations were selected for 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. 479 Low floor buses under KURTC are deployed as of August, 2022. The operational efficiency of KURTC is given in **Appendix 11.1.21**.

The performance indicators of KSRTC shows that 48 per cent of buses owned by the Corporation are ten or more year's old (2,348 out of 4,786 buses). Average fleet operated by KSRTC in 2021-22 is 2,509 and average age of fleet is 10.22 years. There are 26,801 staffs in KSRTC as per the details furnished for the year 2021-22. The Driver per bus and Conductor per bus ratio is 2.52 and 2.5 respectively and is 0.24 and 1.16 when the ratio comes to ministerial and mechanical staff respectively. The average occupancy per bus/month is 68 as on August, 2022. The major indicators showing operational efficiency and District-wise operational statistics of KSRTC are given in **Appendix 11.1.22** and **Appendix 11.1.23** respectively.

The gross revenue earning of KSRTC has increased from ₹620.93 crore in 2020-21 to ₹1,095.52 crore in 2021-22 showing a positive indication that the industry is reviving from the impact of the COVID-19 Pandemic. During the month of April-August, 2022, the corporation could earn revenue of ₹802.36 crore. The gross revenue expenditure in 2021-22 is ₹2,707.66 crore compared to

₹1,485.84 crore in 2020-21 and operating loss in 2021-22 period is ₹1,012.14 crore compared to ₹864.91 crore in 2020-21.

For revitalising the entity, KSRTC introduced new projects such as Logistics, Shop one wheel, 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'. However since many years, the financial situation 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. Heavy losses due to operational inefficiency, high bus-staff ratio, operation in uneconomic routes and unviable depots are posing great challenges to KSRTC. KSRTC is looking forward to a radical change in its operations. It intends to provide amenities to the travelling public and increase profitability of the Corporation during the 14th Five-Year Plan period.

In a bid to revive the reeling sector and to extend support to the private players, an ambitious project has been rolled out by the Kerala State Road Transport Corporation, named '*Grama Vandi*' which has brought private bus operators within the ambit of KSRTC. Details about the new initiative 'Gramavandi' by KSRTC is given in **Box 11.1.2**.

Another novel initiative by the corporation is the '*City Circular*' (CC) Service which intends to provide a convenient and robust solution to the general public, who visit various offices, shop, markets, etc. inside cities. The service is operated in circular routes at fixed intervals on a hop-on hop-off (Ho-Ho) fashion targeting the daily commuters.

Box 11.1.2 Gramavandi

In an effort to address the connectivity issues in rural areas, KSRTC has launched Gramavandi services with the cooperation of Local Governments in July, 2022 at Kollayil Grama Panchayat of Parassala in Thiruvananthapuram District. Under the project, the 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 has to be borne by the Local Body. The project is conceived as a solution to rural bus service that is financially burdensome.

The project is a unique model and first of its kind in the country. Further, the Gramavandi service of KSRTC bagged the Award of Excellence in Urban Transport in November, 2022 under the category of Transport planning with the best public participation instituted by the Union Ministry of Housing and Urban Affairs (MoHUA).

Source: KSRTC

Challenges

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. In the case of National Highways, only about 12 per cent of the roads have four lane capacities while the remaining roads have only two lanes 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 huge need for upgradation 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 massive 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 four laning, highways, coastal highways and bypasses needs to be completed during 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 route length of 1,745 km including running track. Railway in the State comes under Thiruvananthapuram and Palakkad divisions of the Southern Railways. Palakkad Division has a total route length of 577.74km and operates 99 mail/express and 60 passenger trains and 64 freight trains. Thiruvananthapuram division has a total route length of 623km and operates about 170 mail/express/passenger trains

and eight goods trains per day. All the railway lines passing through the State have been converted into broad gauge. There are about 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 some new lines are also underway in the rail 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. KRDCL has initiated preliminary surveys of proposed Broad Gauge (BG) line between Thalassery and Mysore (via Mananthavady) and Nilambur to Nanjangud. It has proposed a common gateway across Western Ghats to meet the requirements of both the lines. The agency has completed Kerala side survey of the Thalassery and Mysore line and the concessionaire. M/s Konkan Rail Corporation Limited has prepared the revised feasibility report for 200km corridor. The estimated cost of the project is ₹13,987 crore. Consent from Government of Karnataka is awaited.

The DPR for the development of new terminus station at Ernakulam with Commercial Development Plan has been submitted to Railway Board in December, 2017 for approval. KRDCL has also submitted feasibility report for development of Ernakulam marshalling yard as a world class coaching terminal with feasibility of integration with the proposed Silver Line and existing Kochi Metro and commercial exploitation of land. The SPV is also waiting for a green signal for Angamaly-Erumeli-Sabari new railway line which was included in the 1997-1998 works programme of Indian Railways. Details about the Semi High Speed Rail Project (Silver Line) is provide in the **Box 11.1.3**.

The Kerala Rail Development Corporation Limited (KRDCL) has prepared the DPR for the proposed Silver Line Project through M/s Systoa, Paris and this has been approved by the Government of Kerala. The report estimate the project cost to be ₹63,941 crore and expects to complete by 2025.

Box 11.1.3 Semi High Speed Rail Project (Silver Line)

The 530 km long Semi High Speed Rail Corridor (Silver line) connecting Kasaragod and Thiruvananthapuram, will enable trains to run 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 10-12 hours. The project is envisaged as 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.

Present Status

The DPR of the project was submitted to the Ministry of Railways on June 17, 2020, with the recommendation of State Cabinet and is under the scrutiny of the Railway Board. As part of the examination of DPR, detailed technical studies were conducted and report was submitted to Southern Railway for onward submission to Railway Board.

Out of the total project cost for ₹63,941 crore, the debt component of the project is ₹33,700 crore, for which the loan application has been submitted to the Department of Economic Affairs with the recommendation of NITI Aayog, Department of Expenditure and Ministry of Railways.

Environment Impact Assessment

Silver Line will divert road vehicles and trucks from road, and reduce emissions of carbon dioxide approximately equivalent to 2,87,994 tonnes by 2028 and 5,94,636 tonnes by 2051. Aggregate services and feeder services are proposed for last mile connectivity and Ro-Ro service for mobility of goods. It is anticipated that over 500 goods vehicles will avail Silver Line as part of Ro-Ro services and expected to carry 79,934 people per day, thereby facilitating a mode shift from polluting personal road vehicles to pollution free Public Vehicle.

The Line does not traverse through ecologically fragile zones or wildlife areas. The project design is based on high flood-level data for last 100 years. The natural flow of water is unobstructed in rivers and streams culverts shall be provided to enable free flow of water. In order to preserve the paddy fields and wetlands in its pristine form, it is proposed to construct viaducts over them. Out of the 530km length of Silver Line, 137km will be covered in tunnels and over pillars. The present free movement of people would not be obstructed. At points of intersection between roads and Silver Line, either ROB or RUB will be provided to ensure uninterrupted road traffic. Provision of passageways within every 500m is planned to allow people to move across.

The environment and social management plan monitoring mechanism is planned as part of all the tenders being floated as part of Silver Line Project work. The multilateral funding agencies also have stringent environmental and social safeguards in place. KRDC is being conducted Coastal Regulation Zone (CRZ) Mapping and Preparation of Mangrove Conservation Plan. Clearances as mandated from Ministry of Environment, Forest and Climate Change (MoEFCC) for similar projects which include CRZ clearance.

Source: Kerala Rail Development Corporation Ltd. (KRDC)

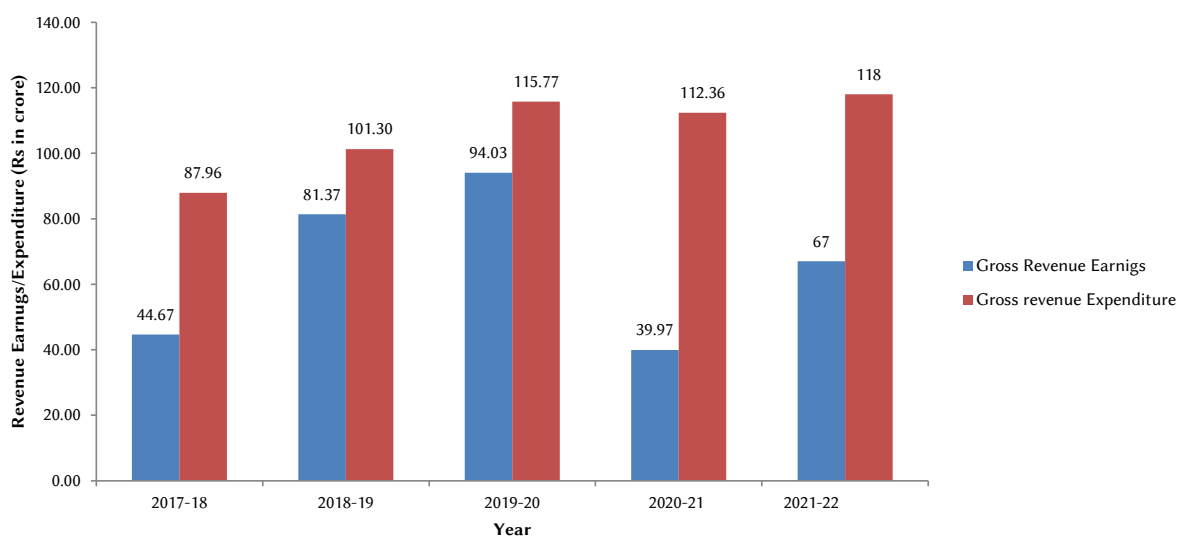
Kochi Metro Rail Project (KMRP)

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 via duct with 22 stations for 25.2km stretch from Aluva-Petta at a

total cost of ₹6,218.14 crore (revised) and this was commissioned on June 19, 2017.

The Extension of Phase-I (Petta to Tripunithura Terminal) consists of two Phases, Phase-IA from Petta to SN Junction and Phase-IB from SN Junction to Thripunithura Terminal. The approved cost of Phase-IA Phase and Phase-IB is ₹7,10.93 crore and ₹448.33 crore (revised) respectively. Phase-IA from Petta to SN Junction

Figure 11.1.6 Revenue Earnings and Expenditure of Kochi Metro Rail Project, 2017 to 2022, ₹ in crore



Source: Kochi Metro Rail Ltd. (KMRL)

(1.8km) has two stations one at SN Junction and the other one at Vadakkekotta and the stretch was inaugurated on September 1, 2022. Land acquisition for Phase-IB extension from SN Junction to Thripunithura Terminal (1.20km) has been completed and the work is in progress.

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 Rail Project from JLN Stadium to Infopark via Kakkanad (11.2) at the cost of ₹1,957.05 crore and foundation stone for the project was laid on September, 2022.

The revenue earnings and expenditure of Kochi Metro Rail Project for the period from 2017-2022 is depicted in the **Figure 11.1.6**.

The gross revenue earnings of Kochi Metro have increased from ₹39.97 crore in 2020-21 to ₹67 crore in 2021-22. An amount of ₹45 crore was earned during the period from April to August, 2022 by the Kochi Metro Rail Ltd. The gross revenue expenditure in 2021-22 of Kochi Metro is ₹118 crore in 2021-2022 as compared to ₹112.36 crore in 2020-21. The number of passengers carried also increased to 97 lakh in 2021-22 as compared to 38 lakh in the year 2020-21. In September, 2022 average ridership of KMRL is 72,484 and the average daily revenue earned is

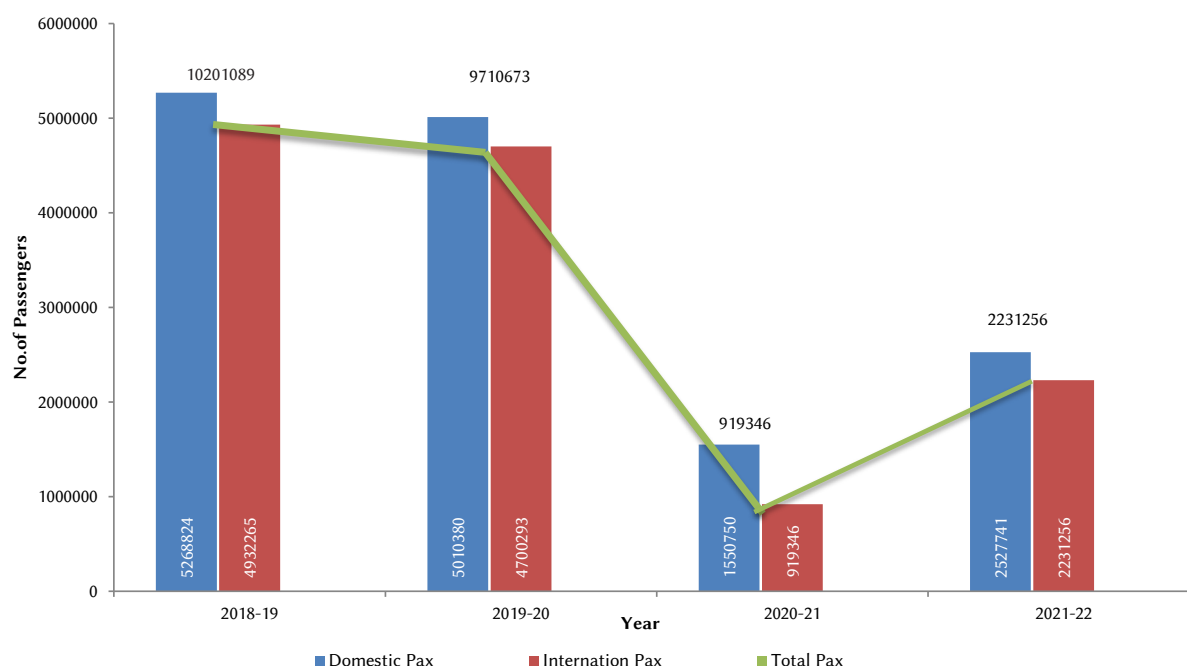
₹22,56,640, the major indicators showing the operational efficiency of Kochi Metro are given in **Appendix 11.1.24**.

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 has 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.

Water Metro Project

Kochi Water Metro Project envisaged creating modern water transport infrastructure in the Greater Kochi region by inducting 78 State-of-the-art electric hybrid boats covering 76.2 route km along 15 routes and traversing 38 terminals connecting 10 islands. Total revised project cost is ₹1,064.83 crore of which ₹908.76 crore is funded by KfW (Germany) and ₹156.07 crore by GoK. The project scope also includes development of waterways, access roads to the terminals, boat yards, emergency response vessels, an operation

Figure 11.1.7 Passenger Traffic in Cochin International Airport, 2018 to 2022



Source: CIAL

control centre, as well as necessary communication infrastructure for safe and efficient operation of the Water Metro. Water metro has two types of boats viz. 100 pax and 50 pax. These boats are climate friendly battery powered electric boats. Presently, 23 nos of 100 pax boats are under construction at Cochin Shipyard Limited and the project is expected to start operation with five boats and five terminals by the end of the year 2022.

Air Transport

The civil aviation industry in India has emerged as one of the fastest growing industries in the country during the last three years and can be broadly classified into scheduled air transport service which includes domestic and international airlines, non-scheduled air transport service which consists of charter operators and air taxi operators, air cargo service, which includes air transportation of cargo and mail.

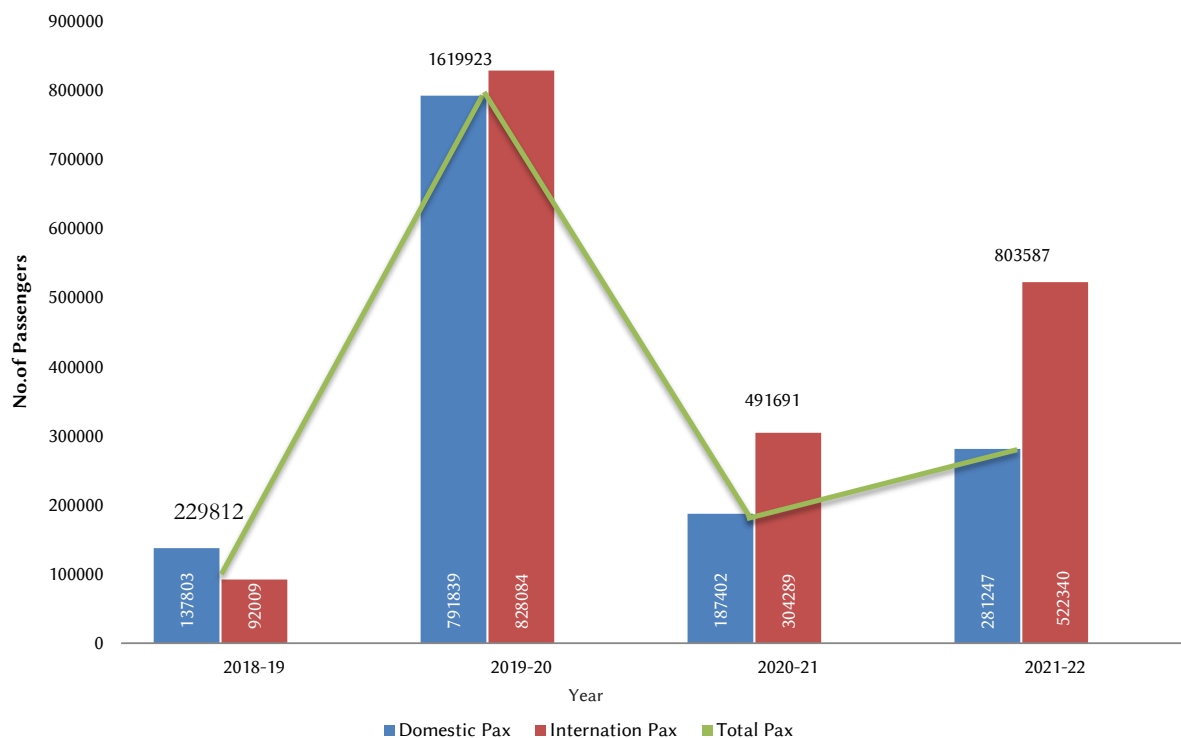
The industry has partially recovered from the COVID-19 pandemic shock as indicated by the air traffic movement which stood at 6,13,566 in the first quarter of the financial year 2022-23 compared to 300,405 in the same period last year, an increase of 104.24 per cent.

Cochin International Airport Limited (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 a runway of 3,400m length with 45m 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 during peak hours. CIAL handled 4.3 million passengers in 2021 and became the third largest airport in the country in the international sector. As the country resumed scheduled commercial international flights on 27th March, 2022, CIAL is set to see more traffic in both international and domestic destinations. The details of passenger movement though Cochin International Airport (domestic and international) from 2018 to 2021 is illustrated in the **Figure 11.1.7**.

In 2021-22, 17,546 international and 25,649 domestic flights were operated from the airport as compared to the 8,129 international and 18,857 domestic flights in 2020-21. With regard to the passenger movement at the airport, CIAL handled

Figure 11.1.8 Passenger Traffic in Kannur International Airport, 2018 to 2022



Source: KIAL

22,31,256 international and 25,27,741 domestic passengers resulting a 92.66 per cent increase in the passenger movement over 2020-21 which stood at 9,19,346 international and 15,50,750 domestic passengers. In 2021-22, the airport handled 46,042 MT of international and 13,540 MT of domestic cargo as compared to 35,642 MT international 10,202 domestic cargo movement in 2020-21. As on March, 2022 KIAL has earned a revenue of ₹418.69 crore. The company earned an operating profit of ₹217.34 crore in 2021-22 as against ₹67 crore in 2020-21 with an increase of ₹224.39 per cent.

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 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. The Board of Directors decided to extend the length of runway from 3,050m to 3,400m and the land acquisition process is in progress.

In 2021-22, the airport witnessed an increase in the passenger traffic of about 63.43 per cent compared to the previous year. The total number of passengers handled in 2021-22 is 8,03,587 which includes the domestic passenger traffic of 2,81,247 and international passengers traffic of 5,22,340 passengers.

In 2022-23 (up to September, 2022) the airport handled a total passenger traffic of 96,012 passengers which comprises of 34,016 domestic and 61,996 international passengers. The passenger traffic (domestic and international) of the Kannur International Airport is illustrated in the **Figure 11.1.8**.

In 2022-23 (up to August, 2022), the airport handled 1,787 MT (Export) and 2,541 MT

(Import) cargo. The revenue earnings of KIAL in 2021-22 financial year is 74.62 crore and during the current financial year up to August, 2022, the earnings is 41.59 crore.

Thiruvananthapuram International Airport

Thiruvananthapuram International Airport located in the city of Thiruvananthapuram in Kerala. Established in 1932, it is the first airport in the State of Kerala. Thiruvananthapuram International Airport operates 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 (3,407m) long. Thiruvananthapuram International Airport spread over an area of 700 acres (280ha) 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 Asian countries.

The Airports Authority of India (AAI) has handed over airports namely, Ahmedabad, Jaipur, Lucknow, Guwahati, Thiruvananthapuram and Mangalore to M/s Adani Airport Holdings Ltd. for operations, management and development under Public Private Partnership (PPP) for 50 years. The formal transfer of the airport to Adani Thiruvananthapuram International Airport Ltd. (ATIAL) was held on October, 2021.

Sabarimala Airport Project

Sabari Airport project aims to build a Greenfield airport at Erumely of Kottayam District for the convenience of Sabarimala pilgrims. The proposed site spread over 2,263 acres (9.16 Sq. km) of land at Cheruvally Estate in Manimala Panchayat of Kanjirappally Taluk which is located on the way to the hill shrine. Government has appointed a committee to identify the most suitable area in the Malayalam Plantation known as Cheruvally estate for setting up the project and appointed a special officer for land acquisition. It has also been decided to appoint Kerala State Industrial Development Corporation (KSIDC) as the nodal agency for land acquisition.

Air Strips

Besides the four international airports, Kerala may soon have a string of airstrips-heliports, which can operate small, single-engine aircraft connecting major tourist destinations. The objective of the

initiative is the comprehensive development of the State's aviation sector. The airstrip-heliports are planning to commence airline service connecting the State's major tourist spots by operating tiny single-engine aircraft having 8-10 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 played a very 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 United Nations Conference on Trade and Development (UNCTAD) in its publication Review of Maritime Transport 2022 states that ships carry more than 80 per cent of the global trade. The Review adds that International Maritime Trade flows, which had declined in 2020 by 3.8 per cent, bounced back in 2021 with 3.2 per cent growth, to a total of 11.0 billion tons – only slightly below pre-pandemic levels. The revival in maritime trade was still constrained, not just by recurring COVID-19 disruptions but also by unprecedented port congestion and a global logistics logjam. Compounded by shortages of equipment and labour, these constraints also resulted in higher freight rates and less reliable services. For 2022, UNCTAD expects maritime trade growth to slow to 1.4 per cent.

Table 11.1.3 Summary of projects under Sagarmala Programme

Sl No	Project Theme	Total		Completed		Under Implementation	
		No. of Projects	Project Cost ₹ in crore)	No. of Projects	Project Cost ₹ in crore)	No. of Projects	Project Cost ₹ in crore)
1	Port Modernisation	241	260419	78	27019	56	35471
2	Connectivity Enhancement	208	136331	56	19489	69	84410
3	Port Led Industrialisation	33	119846	9	45865	21	72706
4	Coastal Development Community	76	8434	18	1423	15	1373
5	Coastal Shipping and IWT	244	28918	24	993	50	15869
	Total	802	553948	185	94789	211	209829

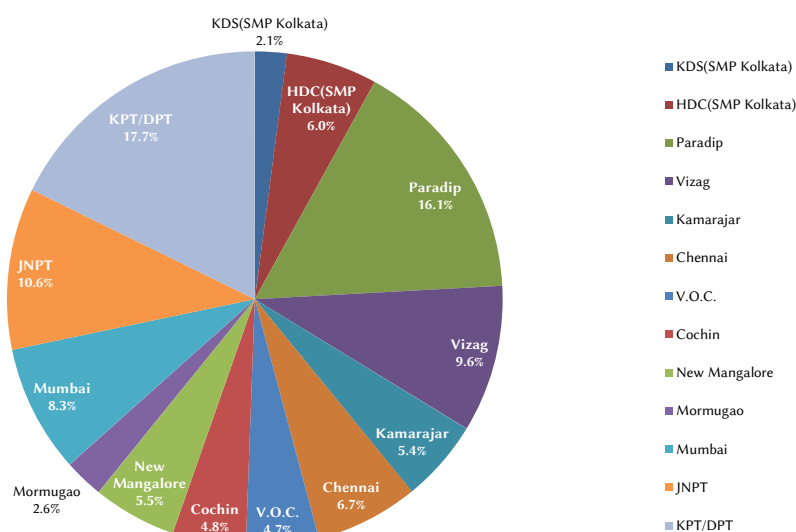
Source: Annual Report 2021-22, Ministry of Ports, Shipping and Waterways

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 approximately 200 minor and intermediate ports. As per the Ministry's Annual Report 2021-22, 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 1,561million tonnes per annum (MTPA) as on March 31, 2022.

In 2020-21, major and non-major ports in India handled a total cargo of approximately 1,251.38 million tonnes.

To harness India's 7,517km long coastline, 14,500km 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 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 ₹5.54 lakh crore for

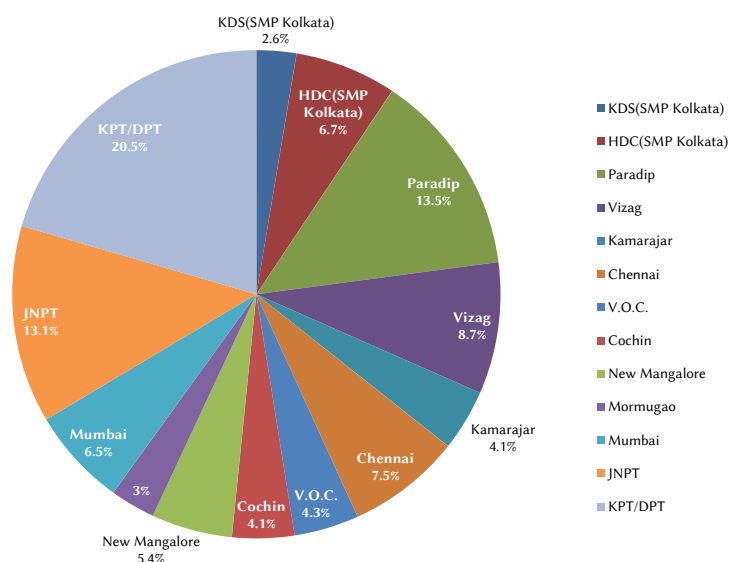
Figure 11.1.9 Major Port-wise Share of Total Cargo Handled in 2021-22

implementation under the Sagarmala Programme. Out of which, 185 projects worth ₹94,789 crore have been completed and 211 projects worth ₹2.09 lakh crore are under implementation. In addition to the above, 406 projects worth ₹2.49 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-

Figure 11.1.10 Major Port-wise share of Coastal Cargo handled in 2021-22

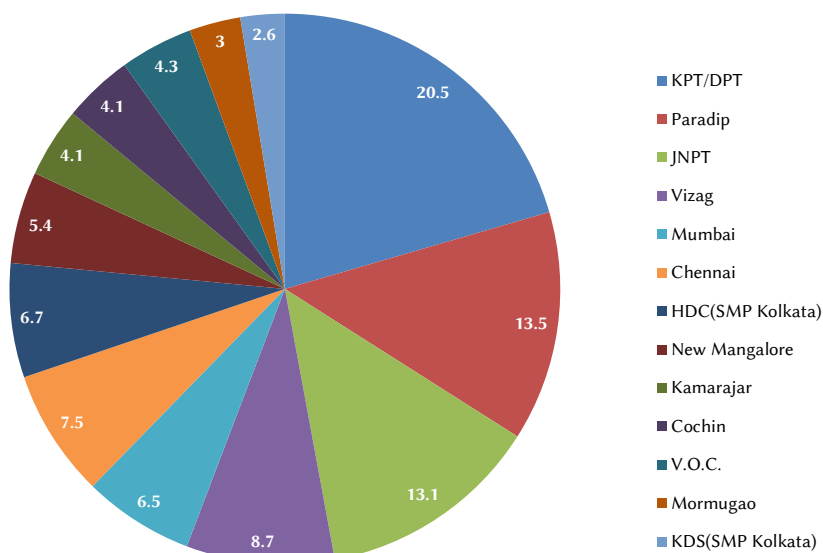


HDC –Haldia Dock Complex, KSD-Kolkata Dock System

note: Major ports of Goa, Kerala and Andaman and Nicobar Islands recorded 0 Per cent Overseas cargo traffic in 2021-22.

Source: Ministry of Ports, Shipping and Water ways

Figure 11.1.11 Major Port-wise share of Overseas Cargo handled in 2021-22



HDC –Haldia Dock Complex, KSD-Kolkata Dock System

note: Major ports of Goa, Kerala and Andaman and Nicobar Islands recorded 0 Per cent Overseas cargo traffic in 2021-22.

Source: Ministry of Ports, Shipping and Water ways

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/State Maritime Boards (SMBs) and SPVs and the SDCL will provide a funding window and/or implement only those residual projects that cannot be funded by any other means/ 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 7.2 per cent in 2021-22, to 720.29 million tonnes. This consist of 524.07 million tonnes of Overseas Cargo (5 per cent increase) and 147.75 million tonnes of Coastal Cargo (15.2 per cent increase).

In 2021-22, Kamarajar (Ennore) Port recorded highest growth of 49.3 per cent in traffic handled at Major Ports, followed by JNPT (17.3 per cent), Mumbai Port (12.3 per cent), Chennai Port (11.5 per cent), Cochin Port (9.7 per cent), Deendayal

Port (8.7 per cent), NMPT (7.7per cent), VOC Port (7.3 per cent) and Paradip Port (1.4 per cent). Major Ports that recorded negative growth in traffic are Mormugao Port (-)16.0 per cent, SMP Haldia Dock (-)5.7 per cent, Vizag Port (-)1.2 per cent and SMP Kolkata (-)0.8 per cent in 2021-22.

In 2021-22, Deendayal Port handled the maximum cargo of 127.78 million tonnes (17.7 per cent) in 2021-22, followed by Paradip Port (16.1 per cent), JNPT (10.6 per cent), Vizag Port (9.6 per cent), Mumbai Port (8.3 per cent), Chennai Port (6.7 per cent), SMP Haldia Dock (6.0 per cent), NMPT (5.5 per cent), Kamarajar Port (5.4 per cent), Cochin Port (4.8 per cent), VOC Port (4.7 per cent), Mormugao Port (2.6 per cent) and SMP Kolkata (2.1 per cent). The share of total traffic handled by Major Ports is shown in **Figure 11.1.9.**

The Overseas cargo handled at Major Ports increased by 5.0 per cent, from 524.07million tonnes in 2020-21 to 550.06 million tonnes in 2021-22. Amongst the Major Ports, Deendayal Port handled the maximum Overseas Cargo of 112.63 million tonnes with a share of 20.5 per cent, followed by Paradip Port (13.5 per cent), JNPT (13.1 per cent), Vizag Port (8.7 per cent), Chennai Port (7.5 per cent), SMP Haldia Dock (6.7 per cent), Mumbai Port (6.5 per cent), NMPT (5.4 per cent), VOC Port (4.3 per cent),

Figure 11.1.12. Port-wise cargo traffic Handled at Non-major Ports in 2021-22 (April-November)

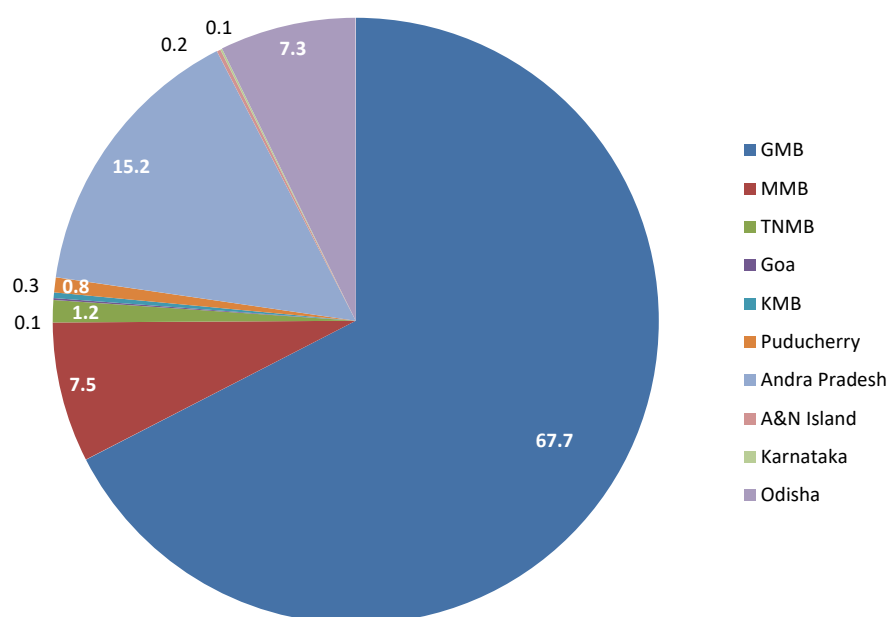


Figure 11.1.13 Port-wise Share of Overseas Cargo in 2021-22 (April-November)

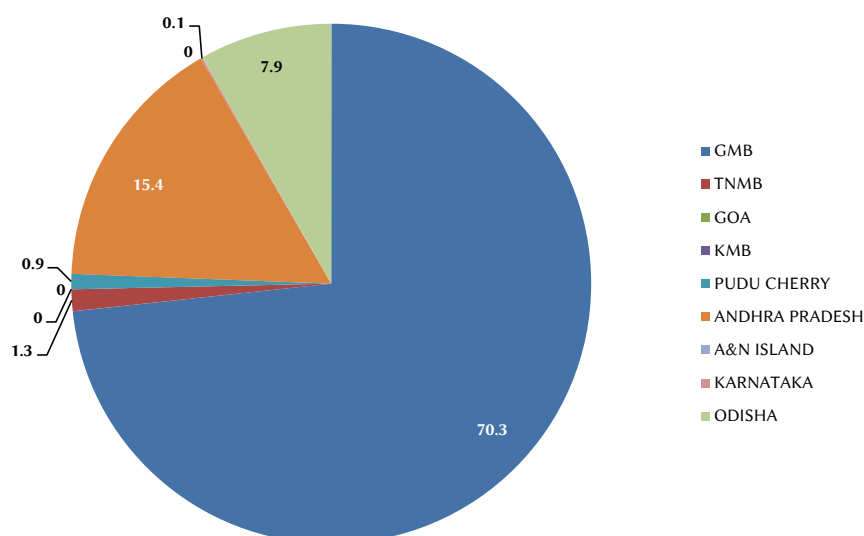
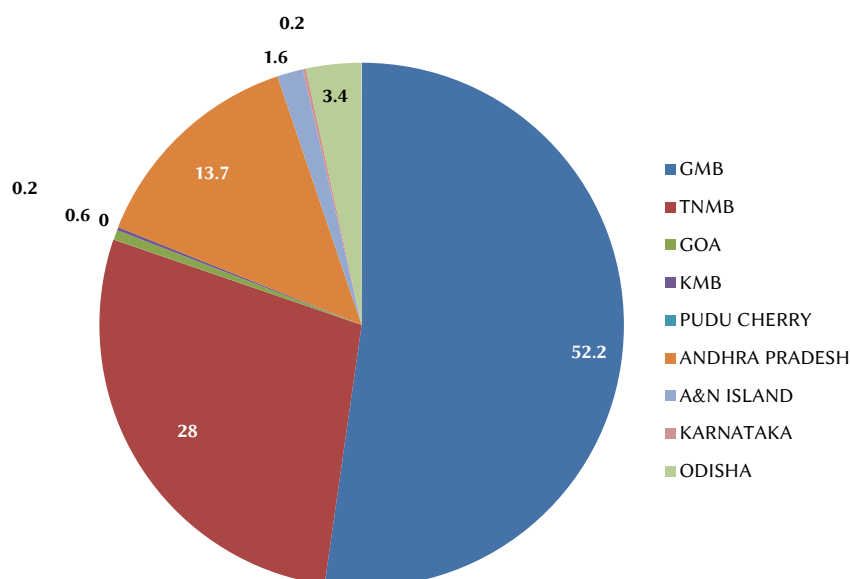


Figure 11.1.14 Port-wise Share of coastal cargo in 2021-22 (April-November)



* Non major ports in Goa handled nil Coastal cargo traffic during the period.

Source: Ministry of Ports, Shipping and Water ways

Cochin Port (4.1 per cent), Kamarajar Port (4.1 per cent), Mormugao Port (3.0 per cent) and SMP Kolkata Dock (2.6 per cent). April-March, 2021-22. The share of Overseas Cargo handled by major ports is shown in **Figure 11.1.10**.

The Coastal Cargo handled at Major Port increased by 15.2 per cent from 147.75 million tonnes in 2020-21 to 170.23 million tonnes in 2021-22. Amongst the Major Ports, Paradip Port handled the maximum coastal cargo of 41.76

million tonnes with a share of 24.5 per cent followed by Mumbai Port (14.2 per cent), Vizag Port (12.4 per cent), Kamarajar Port (9.6 per cent), Deendayal Port (8.9 per cent), Cochin Port (7.0 per cent), VOC Port (6.2 per cent), NMPT (5.8 per cent), Chennai Port (4.2 per cent), SMP Haldia (3.4 per cent), JNPT (2.4 per cent), Mormugao Port (1.2 per cent) and SMP Kolkata (0.2 per cent). The share of coastal cargo handled by major ports in 2021-22 is shown in **Figure 11.1.11**.

Port-wise traffic at Major Ports in 2021-22 and 2020-21 is given in **Appendix. 11.1.25**.

Cargo Traffic at Non Major Ports in India

Cargo traffic at Non-Major Ports in 2021-22, increased by 8.1 per cent to 392.21 million tonnes from 362.85 million tonnes handled in 2020-21 (April-November). Amongst the State Maritime/ State Directorate, Gujarat Maritime Board handled the maximum Cargo of 265.69 million tonnes with a share of 67.7 per cent followed by Andhra Pradesh Maritime Board (15.2 per cent), Maharashtra Maritime Board (7.5 per cent), Directorate of Ports, Odisha (7.3 per cent), Tamil Nadu Maritime Board (1.2 per cent), Directorate of Ports, Puducherry (0.8 per cent), A&N Islands (0.2 per cent) and Directorate of Ports Karnataka (0.1 per cent) in 2021-22 (April-November). 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 2021-22 (April-November) increased by 6.2 per cent to 337.56 million tonnes from 317.78 million tonnes in 2020-21 (April-November). Amongst the Non-Major Ports, Gujarat Maritime Board handled the maximum overseas cargo of 237.14 million tonnes with a share of 70.3 followed by Andhra Pradesh Maritime Board (15.4 per cent), Directorate of Ports, Odisha (7.9 per cent), Maharashtra Maritime Board (4.1 per cent), Tamil Nadu Maritime Board (1.3 per cent), Puducherry (0.9 per cent) and Directorate of Ports, Karnataka (0.1 per cent) in 2021-22 (April-November). 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 2021-22 increased by 21.2 per cent to 54.65 million tonnes from 45.08 million tonnes handled in 2020-21. Amongst the Non-Major Ports, Gujarat Maritime Board handled the maximum Coastal Cargo of 28.55 million tonnes with a share of 52.2 per cent followed by Maharashtra Maritime Board (28.0 per cent), Andhra Pradesh Maritime Board (13.7 per cent), Directorate of Ports, Odisha (3.4 per cent), A&N Islands (1.6 per cent), Tamil Nadu Maritime Board (0.6 per cent), Kerala Maritime Board and Directorate of Ports, Karnataka (0.2 per cent) each in 2021-22 (April-November). 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 2020-21 is given in **Appendix. 11.1.26**.

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, development of road and rail connectivity etc. 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 major port at Vizhijnam. 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. There is also an inland port at Nattakom in Kottayam.

Kerala Maritime Board (Directorate of Ports)

The Port department under the Government of Kerala administers the non-major ports in the State. The main function of the Kerala Maritime Board is to conserve the assets of the non-major ports in the State. Optimum and sustainable utilisation of maritime resources would unveil enormous opportunities for economic growth in the State. To achieve this, the maritime activities need to be enhanced at other locations along the entire coast. Thus, a project for the development of coastal shipping was designed and a business plan for the strategic implementation of the same was prepared. The project envisaged the diversion of significant volume of cargo/passenger from road/ rail to coastal waterways through the non-major ports of Kerala. The project was planned in such a way that it would transform the transportation/ logistics sector of the State. Coastal shipping project, being implemented under Kerala Maritime Board, is the first of its kind in the country and would secure cross sectoral gains by integrating it with fisheries, industries, maritime education and tourism. The Chief Executive Officer, Kerala Maritime Board is also responsible for the implementation of Kerala Inland Vessels Rules (KIV Rules) in the State.

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, six 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 2021-22.

- Inspected around 1,500 inland vessels under KIV rules.
- Renovation of break water in seaward wharf at Vizhinjam completed.
- Renovation of break water in Leaward wharf at Vizhinjam completed.
- Established crew changing facility at Vizhinjam port.
- Renovation of signal station at Vizhinjam port completed.
- e-office implementation at Head office is completed as part of First phase.
- Replenishment of break water at Azheekkal Port 50 per cent completed.
- Procure a 450 HP tugg at Azheekkal Port
- Ponnani dredging completed.
- Construction Maritime training hall at Alapuzha completed.
- ISPS survey completed at Beypore port for Port security.
- Established EDI facility at Beypore and Azhikkal Port.
- Construction of ISPS compound wall at Beypore port is in progress.

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 six port of registries including Vizhinjam, Kollam, Alappuzha, Kodungallur, Beypore and Azhikkal. As per the KIV Rules, the registration period of vessels is decided as five years and the annual survey certificate is valid for one year. These two certificates are essential for operation of the vessel. In addition, the vessels should be surveyed in dry dock once every three years. As per the KIV Rules, survey certificates should be provided to house boats only on providing viability certificate for three years from pollution control board and third party insurance for one year period.

Registered Vessels

616 vessels arrived at various ports of Kerala in 2021-22. They are at Vizhinjam (1), Kollam (103), Beypore (501), and Azhikkal (11). Details are shown in **Appendix 11.1.29**.

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 2021-22, 535 vessels were inspected, 369 vessels were found perfect and 166 were defective vessels. 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**.

Table 11.1.4 Details of inspection conducted for KIV implementation

Sl.No.	Item	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
1	No. of Vessels inspected	825	737	724	632	415	535
2	No. of Vessels found perfect	558	455	474	383	280	369
3	No. of Vessels found defective	267	266	224	239	135	166
4	No of detention orders issued	86	42	21	73	16	17

Source: Kerala Maritime Board

Table 11.1.5 Number of vessels registered in Kerala (As per KIV Rules)

Sl.No.	Item	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
1	Cat A	0	0	0	0	0	0
2	Cat B	34	5	13	28	23	34
3	Newly constructed vessel	34	5	13	28	23	34
4	Registration Name changed	76	49	37	52	71	102

Source: Kerala Maritime Board

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 four 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.

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 human power for the sector.

51 surveys were carried out by the Hydrographic Survey Wing up to 30th September 2022. Details of the survey are given below **Table 11.1.6**.

Table 11.1.6 Details of Survey conducted by Hydrographic Survey wing

Sl. No.	Department	No. of survey
1	State Water Transport Department (SWTD)	11
2	Cochin Shipyard Limited (CSL)	7
3	Harbour Engineering Department (HED)	17
4	Kerala Maritime Board (KMB)	3
5	Irrigation department	1
6	Kochi Metro Rail Limited (KMRL)	11
7	Cochin Port Trust (CPT)	1
Total		51

Source: Hydrographic Survey Wing

Cargo Handled in Intermediate Ports and Minor Ports in Kerala

Table 11.1.7 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 exports from Kerala was 1,26,619 tonne in 2018 and 2,65,538 tonne in 2022.

In Kerala, four ports have cargo handling capacity. They are, Beypore, Azhikkal, Kollam and Vizhinjam (Details are shown in **Appendix 11.1.27**).

Revenue from Ports in Kerala

Details of revenue collected in the intermediate and minor ports of Kerala from 2018 to 2022 is given in **Table 11.1.8**. The total revenue declined considerably in 2018. In 2020, it recorded an increase, though not up to the previous-level.

Table 11.1.7 Cargo Handled at the Intermediate and Minor Ports of Kerala 2018 to 2022, in tonne

Year	Import			Export			Total
	Coastal	Foreign	Total	Coastal	Foreign	Total	
2018	12174	0	12174	126619	0	126619	138793
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
Total	207381	5486	212867	671074	4385	675459	888326

Source: Kerala Maritime Board

Table 11.1.8 Category-wise break up of Revenue collected at the intermediate and Minor Ports of Kerala from 2018 to 2022, ₹ in crore

Year	Port Dues		Export Import dues		Merchant Overtime Charges		Dredged Material		All Others		Total
	Amount	per cent of total	Amount	per cent of total	Amount	per cent of total	Amount	per cent of total	Amount	per cent of total	
2018	0.08	0.53	0.31	2.06	0.15	1.00	11.69	77.8	2.79	18.56	15.03
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

Source: Kerala Maritime Board

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 75 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 2021-22 is given **Appendix 11.1.28**.

Port Activities/Operations (Non-Major Ports in Kerala)

Out of the 17 non major ports, four ports were operational for trade in 2021-22. Kollam port had inward and outward transport of rice and rocks, Vizhinjam had overseas transportation of vegetables, Azhikkal and Beypore (Kozhikode) ports also had trade activities in 2021-22. Details are given in **Appendix 11.1.27**.

In 2021-22, an amount of ₹52.20 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 (₹39.51 crore.). The total import export dues in 2021-22 were ₹55 lakh. Details of revenue earned by intermediate and minor ports of Kerala are given in **Appendix 11.1.28**.

Beypore (Kozhikode) port is the busiest port among the four operating ports in Kerala in terms of number of steamers and vessels. 305 steamers and 311 sailing vessels visited the non-major ports of Kerala in 2021-22. Out of this, 202 steamers and 299 sailing vessels visited Beypore port. Details are given in **Appendix 11.1.29**

The Beypore port has the largest facilities among

the four operating ports in Kerala. Beypore has 310 m wharf, and 800 square metres of godown area. Details of facilities available in non-major ports of Kerala are given in **Appendix 11.1.30**

Cochin Port

Cochin Port is the only major port in Kerala. It spreads over 827 hectares. It has a water frontage of 7.5km. 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. Completion of the prestigious Vallarpadam Container Terminal project would make the Cochin Port a major hub port in the Indian Ocean region.

Cochin Port has 21 Berths including one Single Point Mooring SPM with an effective rated capacity of 73.67 MTPA. From April to March, 2021-22, Cochin port handled 4.8 per cent of the total cargo handled by India's 12 major ports are given in **Table 11.1.9**.

Vizhinjam International Seaport Limited (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 will the implementation agency for all obligations and responsibilities of the

Table 11.1.9 Year-wise Cargo Handled at Cochin Port (In thousand tonnes)

Financial Year (2020-21)			Financial Year (2021-22)	
	Cargo handled	per cent Share of total Major ports	Cargo handled	per cent Share of total Major ports
Overseas	20402	3.8	22704	4.1
Coastal	11101	7.5	11846	7.0
Total	31503	4.6	34550	4.8

Source: Transportation Research, Ministry of Ports, Shipping and waterways, Government of India portal

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. With regard to funding for the development of VISL, the largest share comes from the State Government which accounts for about 57.5 per cent out of the total funding followed by concessionaire (Adani Vizhinjam Port Private Ltd.) which accounts for 31.8 per cent and the remaining 10.62 per cent is contributed

by the Government of India. Over all progress of construction work given in **Appendix 11.1.31**

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. 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 three phases – capable of handling up to Panamax size ships (capacity of 4,000 to 4,500 containers). A 500-metre berth is planned in Phase-I, a 300-metre berth in Phase-II and another 300-metre berth is planned in Phase-III. Once the port becomes fully operational, Azhikkal port will handle even internationally plying ships of around

Box 11.1. 4 Vizhinjam International Seaport Ltd (VISL)

Vizhinjam international seaport is being developed by the Government of Kerala (GoK) primarily for catering to the container transshipment needs of the country. The project is implemented on a Public Private Partnership (PPP) format 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 implementing/ nodal agency for the project, which is responsible to meet all the obligations and responsibilities of the Authority (GoK) in respect of the project and Concession Agreement.

Vizhinjam International Seaport Ltd is a game-changer in developing the country's maritime potential, going by its strategic location and natural advantages. A substantial share of freight movement takes place through the international shipping route south of the Indian peninsula, which passes 10 nautical miles off Vizhinjam. India do not have a deep-water container transshipment terminal at present, and is dependent on Colombo, Singapore and Salalah ports. This results in significant loss of foreign currency and revenue, estimated to be about ₹2500 crore a year. The completion of the Vizhinjam port will help overcome this serious lacuna. Vizhinjam Port prominently figured in the Maritime India Vision 2030 released in 2021, and identified it as a priority project.

Source: Vizhinjam International Seaport Ltd (VISL)

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	
	Kottapuram-Kozhikkode portion of WCC	160	
2	Alappuzha-Changanassery	28	NW-8
3	Alappuzha-Kottayam-Athirampuzha	38	NW-9
4	Kottayam-Vaikkam	28	NW-59
5	Poovar-Erayumanthurai-AVM canal (Major portion in TN)		NW-13
Total Length (excluding AVM canal)		459 km	

Source: Inland Water Ways Authority, Kochi.

4,500 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/break-bulk cargos etc.

Initially the port is to be developed with around 60 ha of Government land, available and surveyed. Additional land for the port, rail, road, and SEZ/ industrial parks will be attached by reclamation and land acquisition. The estimated project cost as per the Techno Economic Feasibility Report of 2019 is ₹3,698 crore altogether in three Phases (₹2,263 crore + ₹688 crore + ₹747 crore respectively) and the estimate for road to NH is ₹103 crore (₹48 crore + ₹2 crore + ₹53 crore) in 3rd Phases. Rail connectivity is proposed in the 3rd Phase. DPR preparation and EIA Studies are in the final stage of preparation.

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, inadequate navigational aids, facilities and IT systems, insufficient dredging capacity, lack of technical expertise and a lack of equipment for handling large volumes. 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, the policies 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 and agro machinery production centres to utilise the coastal transport facility of the State.

INLAND WATER TRANSPORT

Inland Water Transport is fast emerging as one of the viable supplementary modes 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 Water ways 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

The cargo traffic movement through operational national water waterways was 83.61 Million Metric Tonne (MMT) in 2020-21. A quantity of 96.31 MMT cargo traffic movements has been recorded till February 2, 2022. As per Maritime India Vision (MIV) 2030 document, cargo movement on National Waterways is targeted as 200 MMT by 2030.

National Waterways in Kerala

As part of a programme for developing waterways by the Central Government, the portion of West Coast Canal from Kollam to Kottapuram and Udyogamandal and Champakara Canals were declared as National Waterway three 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 three 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**.

Waterways in the State include the main arterial West Coast Canal (WCC) and feeder canals. The total length of the potential Inland Waterways in the State is 1,700km. Total length of WCC is 612.45km. There are 1,100 km feeder/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 (74.18km), (2) Kollam-Kottappuram (Kodungallur) (168km), (3) Kottappuram-Kozhikode (160km), (4) Kozhikode-Neeleswaram (187.82km) and (5) Neeleswaram-Kasaragod (22.45km) respectively. Three portions between Mahe and Valapattanam having total

length of 26km are uncut portions. Further extension for 41km from Neeleswaram to Bakel 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 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 three in the last five years is given in **Table 11.1.11**.

Table 11.1.11 Cargo Movement in NW-3 during last five years in lakh million tonnes (MMT)

Financial Year	Cargo Movement (in M.MT)
2018-19	0.42
2019-20	0.55
2020-21	0.73
2021-22	1.70
2022-23*	1.06

Source: Inland Water Ways Authority of India, Kochi

The Financial Performance of the Department/Agencies

The financial performance of department/Agencies is given in **Table 11.1.12**.

State Waterways

Though development activities in this stretch started 15 years back only have been partially completed due to paucity of funds and encroachments in canal banks, the works progressed slowly. Kozhikode-Vadakara stretch is partially navigable. The canal formation of Vadakara-Mahe stretch (17.61km) is developed utilising funds from NABARD, 13th Finance Commission and State Plan funds. This reach is developing in National Waterway Class-3 standards. The Mahe – Valapattanam stretch of canal has a length of 58.51km. The reaches of water way north of Valapattanam up to Neeleswaram is presently navigable as per State waterway standards. Further for extending WCC up to Bekal, Neleswaram river and Chittari river

Table 11.1.12 Department-wise Plan outlay and Expenditure from 2020-21 to 2021-22 and 2022-23* (₹ in lakh)

Department/Agency	Annual Plan 2020-21		Annual Plan 2021-22		Annual Plan 2022-23*	
	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure
SWTD	2610.00	1384.70	2761.00	1265.52	2979.00	603.90
CSIND	7482.00	4341.60	10982.00	6773.65	10356.00	4068.70
KSINC	1018.00	1059.00	867.00	272.00	831.00	0

*Expenditure till October

Source: Budget (volume I), Finance Department, Government of Kerala, and Plan Space

are to be connected with new canal for a distance of 6.5km. The Government of Kerala has given priority for the development of west coast canal. The Present status of reaches of WCC is given in **Appendix 11.1.32.**

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. Construction of four no's of temporarily steel bridge at Varkala in Thiruvananthapuram District, Kollamthodu Reach-II in Kollam District, Chain Link fencing and construction of boat jetties at various locations in certain districts as per requirement, and boundary stone laying from Kovalam to Pallithura are completed. The construction of Lock Cum Bridge at Veliyancode (Phase-II) in Malappuram District and cleaning of Varkala tunnel, construction of Karikkakam steel lifting bridge and St.Andrews bridge, and development of TS Canal in Vettoor Panchayat in Thiruvananthapuram District is in progress.

Kerala Shipping and Inland Navigation Corporation Limited (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 (I&II) 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, Construction of one 300 MT carrying capacity Oil tanker barge (under construction. Launched another 300 MT carrying capacity barge during the period and finishing works are in progress. The barge will be operational by the end of November, 2022. Diversifying into the area of FRP Boat construction, KSINC has supplied eight FRP Boats of a total amount of ₹4.57 crore for operation in Inland waters of Kerala to various Government departments and agencies. A solar or electric powered vessel is planned to be introduced at Kozhikode on similar line of Sagararani. Nefertiti – a new 200 pax sea going day cruise Vessel is already launched. Operational statistics of the Inland Water Transport Agencies in Kerala is provided in **Appendix 11.1.33.**

Kerala Waterways and Infrastructures Limited (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 funds are the funds provided by (Kerala Infrastructure Investment Fund Board (KIIFB). Between 2017 and 2021, 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 (SWTD)

The State Water Transport Department is an essential service department under the State

Government and is committed to cater to the transportation needs of the people residing in the waterlogged areas of Alappuzha, Kottayam, Kollam, Ernakulam, Kannur and Kasaragod districts. The department ferries 160 lakh of commuters annually with wooden/steel/solar based fiber glass passenger vessels covering a total route length of 1,971.30km in 116 identified routes. The financial performance of the department is given in **Table 11.1.12** and the operational Statistics of the department is given in **Appendix 11.1.34**.

The State water transport department has not confined its operation merely to 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 backwaters 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 average collection of nine days is ₹3,25,000 and the expected revenue per annum is 130 lakh. Buoyed by the success of its See Kuttanad Project, the department is gearing up to launch the '*See Ashtamudi*' project. The project will have double deck passenger cum tourist vessel designed for both normal commuters and tourists enjoying the beauty of Ashtamudi Lake in Kollam District.

The department has also stepped into taxi services in water logged areas to provide more fruitful service to the public residing in these areas. It has built four water taxis, two of which (Thejas-I and Thejas-II) are ferrying in Alappuzha and Payyannur routes respectively. These vessels handle 75,000 number of passengers fetching a monetary inflow of rupees 32 lakh annually.

Recognising the crucial role and scope of inland water transport and inland tourism, the department is now forging ahead to build 7 no. of 100 passenger capacity catamaran boats with modern safety systems. Two of such catamarans had been operationalised in 2020-21. With the maintenance of passenger boats with diesel engines turning costlier, the department is planning to build and operate solar-electric vessels on various routes across the State. Unlike the diesel-operated heavy vessels with 75 seats, the solar boats will be smaller in size with only 30 seats.

Water transport is inherently efficient than 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/Electric/CNG vessels needs to be focussed. The success story of India's first solar ferry '*Aditya*' is a model for other States. It has been successfully ferrying between Viakkom and Thavanakadavu since 2017, handled 17 lakh commuters till date, 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 mid-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, determining work force required for each ship etc. 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

Universal access to affordable power in a sustainable manner is the guiding principle for the Power sector. Sources of power in India range from conventional sources to viable non-conventional sources. Almost 80 per cent of India's energy requirements are met by coal, oil, natural gas and solid biomass (Source: International Energy Agency). India's per capita emission is quite low but in absolute terms, it is the 3rd largest greenhouse gas emitter (country-wise) in the world. Per Capita Electricity Consumption of India in general and Kerala in particular is much below the world average.

India is ranked 63rd in the World Energy Trilemma Index (WETI) 2022, which annually measures the energy system performance of 127 countries based on Energy Security, Energy Equity, Environmental Sustainability and Country Context

Dimension. India is one of the countries that occupies the centre stage in the world's quest for clean energy transition and mitigation of climate change, and ranked 8th as a high-performing country in the Climate Change Performance Index (CCPI 2023).

Power Sector – Indian Scenario

The national grid has an installed capacity of 4,03,759 MW as on June 30, 2022. In India, electricity from thermal energy is the dominant source of power. It constitutes nearly 58 per cent of the total installed capacity in the country as on June 30, 2022. 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.

Table 11.2.1 Installed Capacity (MW) in India 2021-22

Fuel	Installed Capacity (MW)			
	As on March 31, 2022	%	As on June 30, 2022	%
1	2	3	4	5
Thermal	2,36,108.72	59.10	2,36,065	58.46
Hydro	46,722.52	11.69	46,850	11.60
Nuclear	6,780.00	1.69	6,780	1.67
Renewable Sources	1,09,885.38	27.50	1,14,064	28.25
Total	3,99,496.62		4,03,759.00	

Source: Central Electricity Authority (CEA)

Table 11.2.2 Installed Capacity (MW) in India 2021-22, Sector-wise

Sector	Installed Capacity (MW)			
	As on March 31, 2022	%	As on June 30, 2022	%
Central Sector	99,004.93	24.78	99,005	24.52
State Sector	1,04,854.98	26.24	1,04,969	25.99
Private Sector	1,95,636.71	48.97	1,99,785	49.48
Total	3,99,496.62		4,03,759	

Source: Central Electricity Authority (CEA)

In the sector-wise breakup of total energy generation as given in **Table 11.2.2**, as on June 30, 2022, the contribution of the State sector is 1,04,969 MW (25.99 per cent), Central sector 99,005 MW (24.52 per cent) and private sector 1,99,785 MW (49.48 per cent).

Power Sector in Kerala

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 for improving the energy sector. In Kerala, electricity consumption is predominantly in domestic and commercial sector where as in other states, a major portion of the energy consumption is in industry and agriculture. State is meeting approximately 30 per cent of its present requirement from renewable energy sources.

Taukte cyclone during the month of May 2021 severely affected the southern and central districts

causing damages to electrical installations, disrupting power in most of the places and about 38 lakh consumers were affected throughout the State.

Table 11.2.3 details growth of the power system in the State for the last five years.

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), Energy Management Centre (EMC), and Department of Electrical Inspectorate.

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

Table 11.2.3 Growth of Power System at a Glance During 2017-22

Sl.No.	Particulars	Unit	2017-18	2018-19	2019-20	2020-21	2021-22
1	Installed Capacity	MW	2975.56	3000.35	3063.15	3029.65	3145.82
2	Maximum Demand	MW	3884	4242	4316	4284	4380.04
3	Generation per annum	MU	5474.47	7593.12	5722.81	7057.90	9742.29
4	Annual Sales	MU	21159.19	21750.25	23058.91	22540.30	23983.42
5	Per capita consumption	kWh	613	626	657	619	676
6	Export per annum	MU	166.89	1030.20	323.84	633.39	2244.73
7	Import per annum	MU	18677.46	17982.15	20827.12	18708.40	19156.36
8	Consumers	Nos (lakh)	122.76	125.52	128.26	131.43	134.22
9	Street Lights	Nos.	1417639	1422764	1447820	1476776	2301556
10	E-vehicle Charging stations	Nos.			8	56	219
11	Total revenue per annum	₹ in crore	12260.00	14002.94	14718.59	15169.39	15664.92

Source: KSEBL

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 a single holding company with Distribution, Transmission and Generation strategic business units with separate accounting and is responsible for the generation, transmission and distribution of electricity in the State. The board directly supplies electricity to 99 per cent of the consumers in the State, and provides power for all on-demand without imposing any restrictions.

The implementing and regulating agencies associated with the non-conventional and renewable sources of energy in Kerala are (i) 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 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)

EMC is the State-designated agency of Bureau of Energy Efficiency, MoP, GoI for promoting energy conservation, energy efficiency and enforcing Energy Conservation Act, 2001 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

The Electrical Inspectorate and Meter Testing and Standards Laboratory (MTSL) also functions under the Department of Power, GoK. Safety inspection, and sanction for energisation of 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. At present, calibration facilities are available for voltage, current, resistance, frequency, power, power factor, and energy. The testing facilities include pre-commissioning tests for protection relays and instrument transformers. Also, pre-commissioning tests are conducted for power transformers, cables, and circuit breakers. All calibrations and tests are conducted as per national and international standards. The Electrical Inspectorate also enquires into all electrical accidents occurring in the State, forwards the reports to the State Government, and takes actions against the responsible person/ authority.

The outlay and expenditure of these departments in Annual Plan 2021-22 and Annual Plan 2022-23 are shown in **Table 11.2.4**.

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

Table 11.2.4 Outlay and expenditure in the Annual Plan 2021-22 and Annual Plan 2022-23, ₹ crore

Sl. No	Department/Agency	Annual Plan 2021-22			Annual Plan 2022-23		
		Outlay	Exp	%	Outlay	Exp*	%
1	KSEBL	1093.75	898.28	82.1	1093.75	590.48	53.9
2	ANERT	43.13	20.04	46.5	44.44	6.55	14.7
3	EMC	7.63	3.98	52.2	9.14	2.20	24
4	Electrical Inspectorate	5.60	1.96	35.0	5.60	0.61	1.3
Total		1150.11	924.26	80.36	1152.93	599.84	52.03

*up to December 1, 2022

Source: Plan space

Table 11.2.5 Energy Sources and Quantum Procured in 2021-22

Sl. No.	Particulars		Energy (MU)
1	Gross generation KSEBL (excluding auxiliary consumption)	A	9763.05
2	Power purchase from CGS at Kerala periphery	B	9505.47
3	Power purchase through long term/medium term/short term contracts/swap at Kerala periphery	C	8628.08
4	Total Power purchase from IPPs/CPPs inside the State	D	753.74
5	Total power purchase at Kerala periphery [Row 2+3+4]	E = B + C + D	18887.67
6	Energy injected by Private IPPs at generated end for sale outside the State through open access	F	49.28
7	Energy availed through open access at Kerala Periphery	G	268.69
8	Auxiliary consumption	H	20.77
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	2244.73
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	26703.19

Source: KSEBL

stations owned by KSEBL, Independent Power Producers (IPPs), Captive power plants (CPPs), and prosumer. Details are given in **Table 11.2.5**.

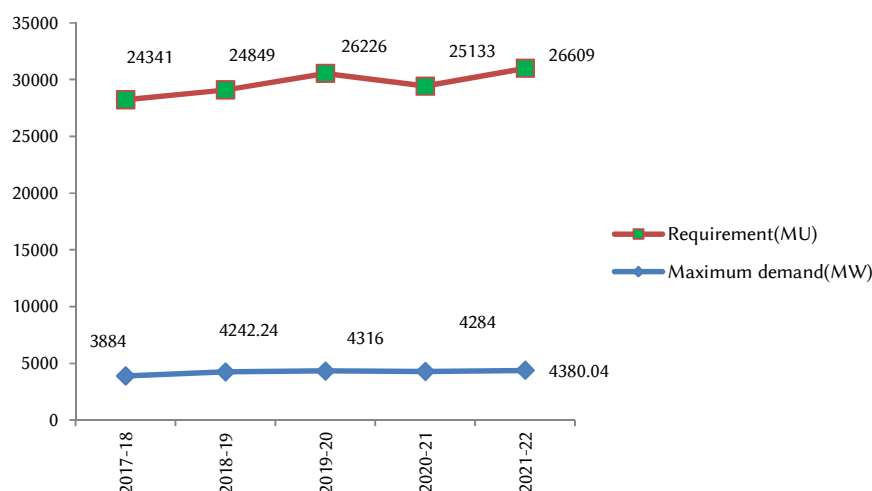
Power Demand

Peak demand of the State in 2021-22 was 4,380.04 MW (on March 17, 2022), indicating 2.24 per cent increase from 4,284 MW in 2020-21. Morning peak demand was 3500 MW, Average demand was 3,337.44 MW and average day demand was 2,885.40 MW for 2021-22. **Figure 11.2.1** shows the energy requirement and maximum demand for energy during the last five years.

Pattern of Power Consumption

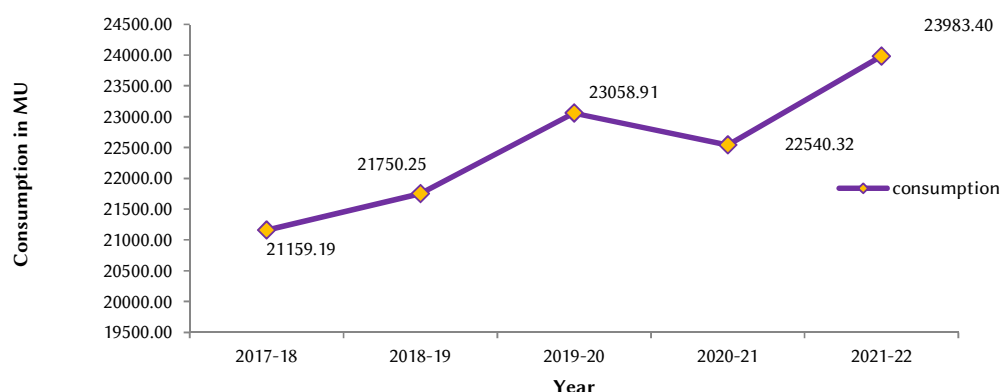
The electrical energy consumption in the State has increased to 23,983.42 MU (includes open access consumption) in 2021-22 from 22,540.32 MU in 2020-21, an increase of 6.40 per cent. Electrical energy consumption in Kerala from 2017-18 to 2021-22 is depicted in **Figure 11.2.2**. The total number of consumers as on March 31, 2022 was 1,34,22,642.

In Kerala, the electricity consumption is predominantly in domestic (76.34 per cent) and commercial (12.34 per cent) sector where

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 During 2017-18 to 2021-22



Source: KSEBL

as in other states, a major portion of the energy consumption is in industry and agriculture.

KSEB has sold 23,499.59 MU power within the State, which includes own consumers and also sale to other bulk licensees. An amount of ₹15,766.34 crore was collected as revenue from the sale of power in 2021-22. The details of the pattern of power consumption and revenue collected in 2021-22 are furnished in **Appendix 11.2.1**.

Aggregate Technical and Commercial (AT&C) Losses

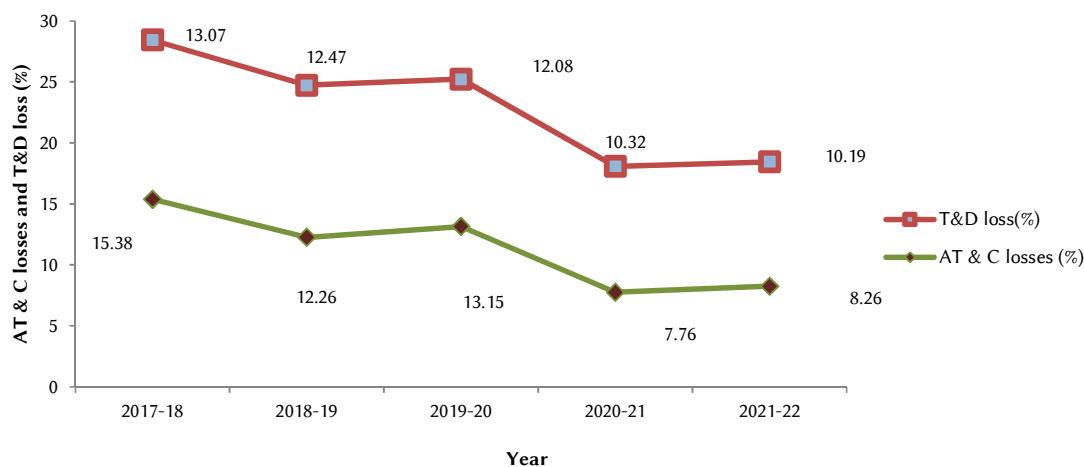
In 2021-22, AT&C loss has increased to 8.26 per cent from 7.76 per cent and transmission and distribution (T&D) loss decreased to 10.19 per cent from 10.32 per cent.

The infrastructure development of distribution system included in the Dyuthi project made decisive strides towards achieving project goals, the most tangible among them being the drastic reduction in power system T&D losses from 13.07 per cent in 2017-18 to 10.19 per cent in 2021-22. This transforms to savings of more than 700 MU. The impact of AT&C loss reduction during the last five years is shown in **Appendix 11.2.2**, and **Figure 11.2.3** illustrates the AT&C loss and T&D loss from 2017-18 to 2021-22.

Generation

Total installed capacity of power in the State as on March 2022 is 3,145.82 MW, of which, hydel power contributed the major share of 2,136.91 MW (67.92 per cent); while 529.54 MW was contributed by thermal projects (16.83 per cent), 409.09 MW (13 per cent) from solar and 70.28

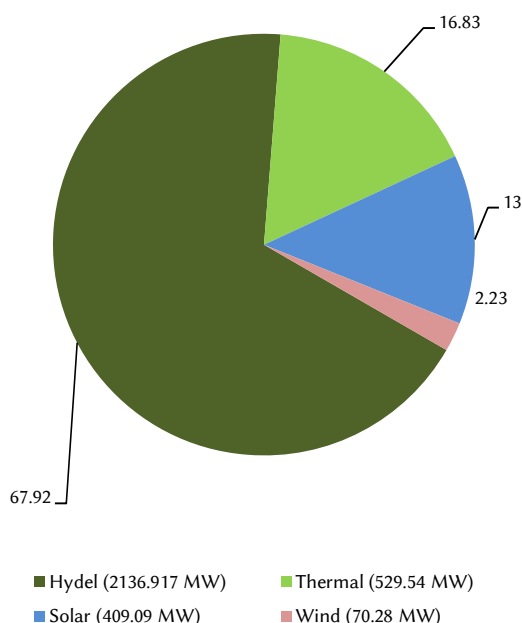
Figure 11.2.3 Aggregate Technical and Commercial (AT&C) losses, and Transmission and Distribution (T&D) losses During 2017-18 to 2021-22, in per cent



Source: KSEBL

MW from wind (2.23 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.

Figure 11.2.4 Total Installed Capacity (MW) in Kerala in 2021-22 in per cent



Source: KSEBL

Of the total installed capacity of 3145.82 MW in 2021-22, the contribution of State sector is 2258.47 MW (71.97 per cent), Central sector 359.58 MW (11.40 per cent), and private sector 527.77 MW (16.77 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 40 hydel stations of capacity 2066.20 MW, two thermal plants of 159.96 MW, solar plants of 30.28 MW, and one wind farm of 2.03 MW with an installed capacity of 2258.47 MW. Details are shown in **Table 11.2.6**. However, there was no internal generation of thermal in 2021-22 due to high unit cost.

The details of nine ongoing hydroelectric projects with installed capacity of 201.5MW 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**. The details of existing solar plants of KSEBL are listed in **Appendix 11.2.8**.

Table 11.2.6 KSEB Internal Generation

Sl. No.	Particulars	Capacity as on March 31, 2022 (MW)	Total Internal Generation in 2021-22 (MU)
1	2	3	4
1	Hydel	2066.20	9836.91
2	Thermal	159.96	0
3	Solar	30.28	20.20
4	Wind	2.03	1.16
Total		2258.47	9858.27

Source: KSEBL

Transmission

Kerala has 434 transmission substations, with 14,837 circuit km lines, and 24,911.50 MVA transformation capacity. Of these, 428 substations are owned and operated by KSEBL. A total of 8 transmission substations and 1,106.78 ckt. km lines were commissioned in 2021-22.

Kerala's transmission infrastructure consisting of substations, targets and achievements and network details as on March 31, 2022 are given in **Appendix 11.2.9** and **Appendix 11.2.10**.

Distribution

The distribution network as on March 31, 2022 has 66,486 circuit km of 11kV lines, 3,00,439 circuit km of LT lines, and 85,594 distribution transformers with step down capacity of 10,448 MVA. The target and achievement of the distribution infrastructure in 2021-22 are given in **Appendix 11.2.11**.

There are 12 Distribution Licensees in Kerala, of which the State DISCOM is KSEBL, and 8 licensees procure power from KSEBL for distributing within their areas of distribution. KSEBL services more than 99 per cent of the total electricity consumers in the State. Details are given in **Table 11.2.7**.

Table 11.2.7 Distribution Licensees in Kerala

Sl. No.	Distribution Licensee	Consumption 2021-22 (MU)
1	KSEBL	22992.66
2	Smart City	3.93
3	Military Engineer Services (MES)	67.04
4	Chamundeswari Electricity Corporation, Karnataka (CESCK)	0.89
5	Thrissur Municipal Corporation	137.59
6	KDHPCL Munnar	48.40
7	Cochin Port Trust	36.36
8	Technopark	51.01
9	Infopark	7.11
10	Cochin Special Economic Zone Authority (CSEZA)	54.04
11	KINESCO Power and Utilities Pvt. Ltd (KPUPL)	67.40
12	Rubber Park India Private Limited (RPIL)	33.14
Total		223499.57

Source: KSEBL

Electrical Accidents

About 450 electrical accidents occur every year in the State, and this annual figure remains without much variation over the last 10 years. In 2021-22, 476 humans/animals affected by electrical accidents were reported in the State and the details are shown in **Table 11.2.8**.

Of the total accidents that occurred in 2021-22, about 50 per cent are fatal (human), 31.93 per cent are non-fatal (human), and 18.49 per cent are fatal (animal) accidents.

Major Physical Achievements of Power sector Agencies

KSEBL

- The total income of KSEB in 2021-22 was ₹16,985.62 crore, indicating a 7.21 per cent increase over 2020-21. The board recorded a profit of ₹736.27 crore in 2021-22.
- Achieved 20.77MW capacity addition in Generation, of which 8.77MW is rooftop solar through the SOURA project.
- Commissioned Projects in 2021-22: Upper Kallar Small Hydro Electric Project (2MW), Chathankottunada Small Hydro Project – Stage-II (6MW), Ground Mounted Solar Plant at Agali (1MW) and Kanjikkode (3MW).
- The total number of new service connections effected during the period under review is 3.62 lakh.
- In the transmission sector, two 220kV substations, five 110kV substations, one 33kV substation, and 553.43 ckt.km of lines in the voltage levels including 33kV and above were constructed.
- Constructed 2391 km of 11KV lines, and 3,984 km of LT lines.
- Installed 2,355 new distribution transformers
- KSEB won the Rooftop Solar Enabler award

Table 11.2.8 Electrical Accidents in Kerala 2021-22

Sl.No.	Reasons	Human		Animals		Total
		Fatal	Non-Fatal	Fatal	Non-Fatal	
1	Snapping of conductors	14	14	51	0	79
2	Accidental contact with live electric wire/equipment	92	62	19	0	173
3	Violation/neglect of safety measures/ lack of supervision	38	52	2	0	92
4	Defective appliances/apparatus/tools	28	5	3	0	36
5	Inadequate/lack of maintenance	5	4	9	0	18
6	Unauthorised work	16	7	0	0	23
7	Others*	43	8	4	0	55
Total		236	152	88	0	476

*Temporary extensions, misuse etc.

Source: Electrical Inspectorate

from EQ International Magazine.

- Four works were completed under the TransGrid 2.0 project.
- Kerala Lords Despatch Centre, managed by KSEB, was awarded the LDC Excellence award at the 9th International Conference on Power Systems(ICPS)-2021, in recognition of excellence in discharging the responsibility in ensuring integrated operation of the power system in the State.
- Provided free electricity connections including one post to 574 Anganawadis.
- 280 complaints were settled through the three Consumer Grievance Redressal Forums (CGRF) set up by KSEB.
- The Anti Power Theft Squad (APTS) of KSEB carried out 33,591 inspections and detected 2,517 irregularities, 358 power theft, and 1,181 malpractice cases.
- A Pilot project of 10 charging poles for three wheelers and two wheelers was commissioned in Kozhikode.
- A total number of 26,01,253 LED bulbs were sold as part of 'Filament Free Kerala', the sub project under Urja Kerala Mission.
- Completed Phase-I of the project NILAAVU, a project of LSGD targeting replacement of all conventional street lights with LED street lights. Two lakh LED street lights were installed in 411 Grama Panchayats and 35 Municipalities.
- Phase-I of the Dam Rehabilitation and Improvement Project (DRIP), a World Bank assisted project, has been completed.

ANERT

- Converted existing Off-Grid Power Plants to On-Grid Power plants (248kW) in 15 institutions.
- Solar Powered Cold Storage for storage of vaccines in Govt. Medical College, Kozhikode, and Solar inverter test facility at STIC (CUSAT) were set up.
- Completed 1MW solar Plant with indigenously developed power conditioning unit at Ramakkalmedu.
- A model project for solarisation of public buildings in the State was successfully implemented in 4 LSGs.
- Installed Grid connected Solar power plants of 212KW at 36 sites in the flood affected areas of 8 Districts. Hybrid power plants of 98KW were installed at 20 sites in 8 Districts in the flood affected areas with high rates of grid failure.

- Solar power systems were installed in 54 remote hamlets of Idukki, Palakkad and Wayanad districts covering 2,300 households as part of the total electrification campaign.
- As part of the project for electrification of ST colonies in the State, one solar power plant of 50KW and 10 plants of capacity 1.5KW were installed at Thazhae Thudukki tribal hamlet in Silent Valley Reserve and Velappankandi Tribal Colony in Wayanad, respectively.
- A total number of 146 electric vehicles were provided on hire for various departments and agencies under the State Government, as part of the Carbon Neutral Governance Project.
- Commissioned 10EV charging stations as part of the project for setting up EV charging stations, with the support of Energy Efficiency Services Limited (EESC) under Ministry of Power, GoI, and in coordination with various government departments.
- Installed a 25KWP capacity solar power plant at Palakkad as part of the Integrated Solar Agro Farm Project.
- Provided internship to 30 students in 14 batches.
- A total number of 109 Soura Suvidha kit, the portable device developed for the tribes, were distributed in Nilakkal, Sabarimala.
- 2,310 electricians, and 30 Arts and Science students were trained through various training programme of ANERT.

EMC

- Two Small Hydro Projects were commissioned with capacity addition of 8 MW (Anakompil SHP) and 4.5 MW (Arippara SHP) in Kozhikode District.
- Carried out 620 energy efficiency programmes which included 367 awareness programmes, 52 workshops/trainings, 135 energy conservation rallies, 66 women-oriented programmes. Over 50,000 people benefited, in total.
- Energy conservation efforts resulted in saving 621 MU of electricity and 45,345 ToE of oil.
- Implemented energy efficiency projects in Government hospitals (2 Nos) and Government buildings (2 Nos).
- Carried out energy audits of 34 Government buildings, 111 LSGIs in Thrissur District, all Government buildings in Aranmula Grama Panchayat, 166 pumping stations of Kerala Water Authority, and more than 50 schools.
- Launched Clean Energy Innovation and Business Incubation Centre.

- EMC was awarded the second position in the category of State Designated Agency in the State Energy Efficiency Index instituted by the Ministry of Power, GoI.

Department of Electrical Inspectorate

- Regional Meter Testing and Standards Laboratory as per National Accreditation Board for Testing and Calibration Laboratories (NABL) was set up in Alappuzha District.
- NABL Accreditation for Regional Meter Testing and Standards Laboratory at Idukki.
- Department achieved Sevottam Certification as per IS 15700: 2018 from Bureau of Indian Standards.
- Conducted more than 100 safety awareness campaigns.
- Revenue from the department for 2021-22 was ₹67.64 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 97 hearings and disposed 101 petitions in 2021-22.

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. Of the 93 petitions disposed in 2021, 45 appeals were in favour of the consumers, and 98 sittings were conducted in 2021-22.

Challenges

- Delay in commissioning of projects.
- Obtaining environmental and forest clearance, a major bottleneck in hydro power generation.
- Lack of transparent policy on power procurement from Renewable Energy sources
- Increasing financial burden due to arrears receivable to KSEB.

Way Forward

Kerala being a small State with large part of it falling under the Ecologically Sensitive Zone, generation of electricity has its own limitations. 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. Kerala requires more energy in the near future to meet the changing development scenario, and to bring in more industries. Additional load on the electric power is expected as the State switches to more electric vehicles. Therefore, the State must identify a large number of small power generating systems with the resources available.

11.3 COMMUNICATION

Telecommunication

Telecommunications and associated information infrastructure plays a critical role in building a modern industry and service sector which are responsive to global demands. The telecom industry in India is the second largest in the World with a subscriber (Wireless + Wire line subscribers) base of 1.16 billion as of March, 2022. India has an overall tele density of 84.88 per cent as of March, 2022, of this, tele density of the rural market which is largely untapped, stands at 58.07 per cent while tele-density of the urban market is at 134.94 per cent

Telephone Subscriber Base

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 and 4G, evolving consumption patterns of subscribers and conducive regulatory environment.

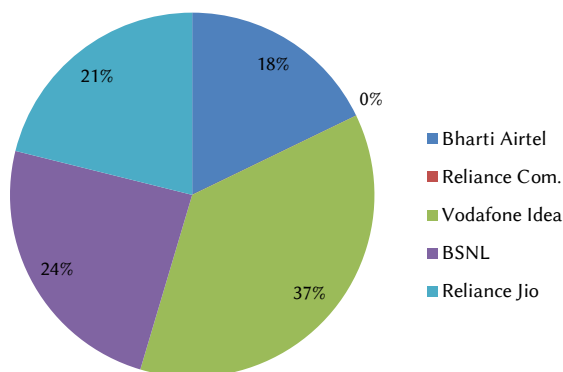
The number of fixed line telephone subscribers in India decreased from 1,178.41million at the end of December, 2021 to 1,166.93 million by the end of March, 2022, thereby showing a quarterly decline of 0.97 per cent. The Urban telephone subscription decreased to 647.11 million in March, 2022, which was 655.20 million at the end of December, 2021. The rural subscription also decreased from 523.21 million to 519.82 million

during the same period. The quarterly growth rates of urban and rural telephone subscription during the quarter were (-)1.23 per cent and (-)0.64 per cent respectively.

The overall tele-density in India has come down to 84.88 per cent at the end of March, 2022 which was 85.91 per cent at the beginning of the quarter in December, 2021. The urban tele density decreased from 137.26 per cent at the end of December, 2021 to 134.94 per cent by the end of March, 2022. However, Rural tele-density has remained almost stable at 58 per cent during the quarter. The share of urban and rural subscribers in total number of telephone subscribers at the end of March, 2022 was 55.45 per cent and 44.55 per cent respectively.

The overall tele density of Kerala as of March, 2022 is 125.15 per cent, which was 128.01 per cent at the end of December, 2021. The State has a subscriber base of 44.68 million (43.37 wireless and 1.31 wire line). The total number of wireless subscribers in the State is 4,33,74,472 as of March, 2022. Vodafone Idea (VI) has largest wireless connectivity with 1,59,53,380 numbers, followed by BSNL with 1,05,20,191 subscribers. Reliance Jio has 91,66,678 subscribers and Bharti Airtel (including Tata tele services) has 77,34,058 subscribers

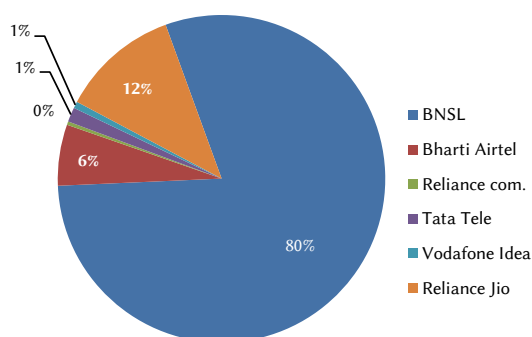
Figure 11.3.1 Market share of wireless service providers, as on March 31, 2022



Source: Press Release, 2022, TRAI

while Reliance communications has only 165 subscribers. The market share of various wireless service providers is illustrated in the **Figure 11.3.1** Total number of wire line subscribers in the State as on March, 2022 is 13,19,942. BSNL has largest wire line Subscriber base of 10,54,283 connections, followed by Reliance Jio with 1,53,820 subscribers. Reliance communications is the telecom service provider with least subscriber base of 4,666 connections. The wire line market share of service providers is given in **Figure 11.3.2**.

Figure 11.3.2 Market share of wire line service providers, as on 31.03.2022



Source: Press Release, 2022, TRAI

Internet subscriber data

The total number of internet subscribers in India stood at 824.89 million at the end of March 2022. The number of subscribers accessing wireless internet connection constitutes the major chunk of over 797.61 million subscribers contributing 96.69 per cent to the total number of internet subscribers while the wire line subscriber base is at 27.27 million which forms 3.31 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) and BSNL (6,012).

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. 1,355 telephone exchanges are working under the Circle with an equipped capacity of 21,51,842 numbers. Number of working connection under the Circle as on October, 2022 is 1,07,27,633 (1,01,84,966 Mobile and 5,42,667 Landline connections). District-wise details of telephone network of BSNL Kerala as of October, 2022 are given in **Appendix 11.3.1**.

Communication Infrastructure

Core infrastructure for e-governance in the State consist of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network, State Data Centre, State Service Delivery Gateway and public WiFi 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 Government offices through wireless and a large number through leased lines and Local Area Network. KSWAN is seamlessly integrated with two State Data Centres which enable the network to provide large number of Government to Government (G2G), Government to citizens (G2C) services hosted in State Data Centres to the Government institutions through a secure intranet.

Kerala Fibre Optic Network (KFON) 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 ₹1,061.73 crore. The Phase-I of the

project is envisaged to provide internet connection to 30,000 Government institutions with a total fibre route length of 30,000km and 375 point-of-presence (POP). The Phase-I of the project is nearing completion and 25,000 connections have so far been provided.

Postal Network

Kerala Postal Circle serves the entire State of Kerala and the Union Territory of Lakshadweep islands and Mahe of Puducherry. In Kerala, every village has at least one post office. As of March 2022, there are 5,063 Post offices in the Circle, of which 1,509 are 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 for a population of 7,175 people. In the Kerala circle, 82.2 per cent of Post offices are in the rural areas. The District-wise distribution of the post offices in Kerala as of October, 2022 is given in **Table 11.3.1**.

Table 11.3.1 District-wise distribution of post offices, as on October, 2022

Sl. No	Name of District/ Union Territory	Number of Post Offices
1	Kasaragod	231
2	Kannur	382
3	Wayanad	163
4	Kozhikode	407
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 Puducherry (Mahe only)	4
16	UT of Lakshadweep	10
Total		5063

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

Given the vast reach of the network in the State, continuous efforts are being made to increase access to postal facilities in newly developed urban/rural areas by opening new post offices or by upgrading existing Extra Departmental Branch Offices (EDBOs) to full time post offices. All Post Offices in Kerala have improved their functioning as a citizen hub. Every citizen now has access to this hub close to his/her doorstep. 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 centers under five national hubs to facilitate technology induction for the purpose of monitoring and to provide track and trace facilities from the point of booking to delivery thereby increasing the quality of service. In the category of registered mails also, track and trace facility is now offered to customers.

As part of the national policy, the Circle has also revamped the network for processing ordinary mails to ensure better quality of service in this sector. All the 1,509 departmental post offices in the Circle are computerised. The e-based and value added services offered by Kerala postal Circle is give in **Table 11.3.2**.

Business initiatives undertaken by Kerala Circle

- Tie-up with APJ Abdul Kalam Technological University for the collection, booking and delivery of sensitive examination materials of the university to 152 engineering colleges throughout Kerala.
- Tie-up with Controller of Technical Examinations, Kerala for booking and dispatch of sensitive examination materials from 73 Polytechnic colleges, 11 Technical High Schools and 17 Government Commercial Institutes.
- Post Office Passport Seva Kendra's have been established at Pathanamthitta, Kavarati, Kasaragod, Chengannur, Kattappana, Olavakkode, Attingal and Nemmara to facilitate the process of getting passport to the customers.
- In collaboration with UIDAI, Aadhaar Enrollment cum Updation Centres has been started.
- Sale of Ganga Jal sourced at Gangotri is being done.
- Kerala Postal Circle has entered into an agreement with M/s Energy Efficiency Services

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, a total of 1,334 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/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 30kg anywhere in the world. Parcel Packaging facility is made available to the customers in major Post Offices.
9	Parcel and Logistic services	<p>(i) Parcel Service: The facility is for parcels up to 5kg to be delivered by Postmen to customers at their door step. For parcels weighing more than 5kg, a delivery fee of ₹5 is collected for any weight up to 20kg. Parcel can be booked from any departmental post office and approved extra departmental post office, located even in the remote areas.</p> <p>(ii) Business Parcel: "Business Parcel" is a very popular parcel product which offers surface transport; launched w.e.f December 02, 2013 in Kerala Postal Circle.</p> <p>(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, Ernakulum, Aluva, Thrissur and Kozhikode.</p>

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

- Ltd. for sale of LED bulbs, tube lights and energy efficient fans distributed under UJALA scheme.
- Introduced a business product named 'Gift Post' along with a campaign titled "Acharya Devo Bhava" to commemorate the efforts put forth by the teachers. Under this service, the students can either send e-Post messages to their teachers or fill up an order form in the nearby Post Office, from which he/she can select some gifts from the catalogue.
- Agreement with Travancore Devaswom Board for booking and delivery of Sabarimala Swamy Prasadam through Speed Post to the devotees of Lord Ayyappa all over India.
- Special bookings for NDA, State PSC, UPSC, SSC are done by arranging special speed post booking counters at the post offices of choice of the organisations.

- Department has undertaken the project of distribution of Census material of Registrar General of India for Census 2021 to the administrative authorities up to Tehsil/Taluk-level addresses throughout India.

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 the promotion of Philately. Four philatelic bureaus have been set up for this purpose at Trivandrum GPO, Ernakulum H.O, Thrissur H. O and Kozhikode H. O.

My Stamp

'My Stamp' is the brand name for personalised stamp sheet. It is a 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 printed 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

Postal Department organises Philatelic exhibitions at all levels viz. State and District-level as a part of its Philately promotion programme. 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 two 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 ₹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 citizens 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, Local bodies, State PSUs and scheduled/ commercial banks and defence personnels. 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 women, by way of insuring their lives with Rural Life Insurance.

11.4 DRINKING WATER

Universal access to drinking water, sanitation and hygiene is critical to health. As per UN Sustainable Development Goals 2022, to reach global universal coverage by 2030, current rates of progress would need to increase fourfold. Demand for water is rising due to rapid population growth, urbanisation and increasing pressure from agriculture, industry and the energy sector. Decades of misuse, over-extraction and contamination of freshwater and groundwater resources have exacerbated water stress and deteriorated water-related ecosystems. This, in turn, affects human health, economic activities, and food and energy supplies.

The 2021 United Nations World Water Development Report on “Valuing Water” has laid stress on the proper valuation of water by considering five interrelated perspectives: water sources, water infrastructure, water services, water as an input to production and socio-economic development, and sociocultural values of water. As per UN Sustainable Development Goals Report 2022, the proportion of the global population using safely managed drinking water services increased from 70 per cent in 2015 to 74 per cent in 2020. At the current rate of progress, the world will reach 81 per cent coverage by 2030, missing the target and leaving 1.6 billion people without safely managed drinking water. From 2015 to 2020, the world population using safely managed sanitation services increased from 47 per cent to 54 per cent. If historical rates of progress continue, the world will reach 67 per cent coverage by 2030, leaving 2.8 billion people without access.

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 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 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. However, as on August 31, 2022 66.26 per cent population of Kerala has 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

Box No.11.4.1 Working Group for 14th Five-Year Plan on Drinking Water and Sewerage

The State Planning Board had constituted Working Group on Drinking Water and Sewerage for the 14th Five-Year Plan Period. The Working Group identified priority areas/targets to be achieved for the 14th Five-Year Plan.

Major targets to be achieved under different heads are the following.

Drinking water supply

- It is proposed to cover 100 per cent household with Functional Household Tap Connections (FHTCs) by the year 2024 in rural areas with a service-level of 100 lpcd and to achieve 100 per cent coverage by the year 2026 in the urban areas with a service-level of 150 lpcd.
- Ensure that all drinking water supplied conforms to the Indian Standard on drinking water quality (IS:10500, 2012).
- Convert all city water supply systems in to 24X7 systems by 2026 by optimising the operation of the systems together with capacity additions, NRW (Non-Revenue Water) management and use of technology in the distribution system management.
- Achieve 50 per cent reduction in NRW so that Kerala can reach the benchmark figure of 20 per cent in the next five years.
- Groundwater-based mini/micro schemes may be adopted in areas where surface water-based schemes are not feasible.
- Promote entrepreneurship among women and students in water sector, especially in O&M of water supply schemes and establish network of educational institutions for Water Quality Monitoring and Surveillance (WQM&S).

Sewerage

- It is proposed to build appropriate sewerage systems in all towns with a population density of 1500 per sq.km on priority and build septage treatment systems in all areas with a population density of less than 1500 per sq.km.
- Promote the use of treated effluent for industrial use and non-domestic purposes and introduce dual pipe system, one for drinking water and another for industrial use.
- The concept of Reduce, Re-use and Recycle technique has to be promoted to achieve zero discharge systems in major industries.

Water Conservation

- It is proposed to build minimum five RWH structures in Government buildings in each Grama Panchayat/Municipality/Corporation every year.
- Promote dug wells as backup source through recharge and sanitary protection.

Revenue Models

- Tariff rationalisation to achieve breakeven levels.
- Promote non water revenue to enhance income.
- Sewerage service to be charged at par with water supply and optimise revenue expenditure.

Water Management Index (CWMI) ranking. Specific targets are identified under drinking water supply, sewerage, water conservation, revenue improvement, etc. for time bound achievement 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. 82 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 undersised 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 damage, 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 to take up new small-scale projects taking 2 to 3 wards as a cluster so as to provide small decentralised treatment plants of various capacities to treat sewerage up to 20 mld. 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 2021-22, 37 works which include replacing the old sewer lines, extension of sewerage network, rehabilitation of old manholes and construction of new manholes were completed. The total expenditure in 2021-22 was ₹1,758.07 lakh out of the budgeted outlay of ₹2,460.00 lakh.

Water Supply Coverage

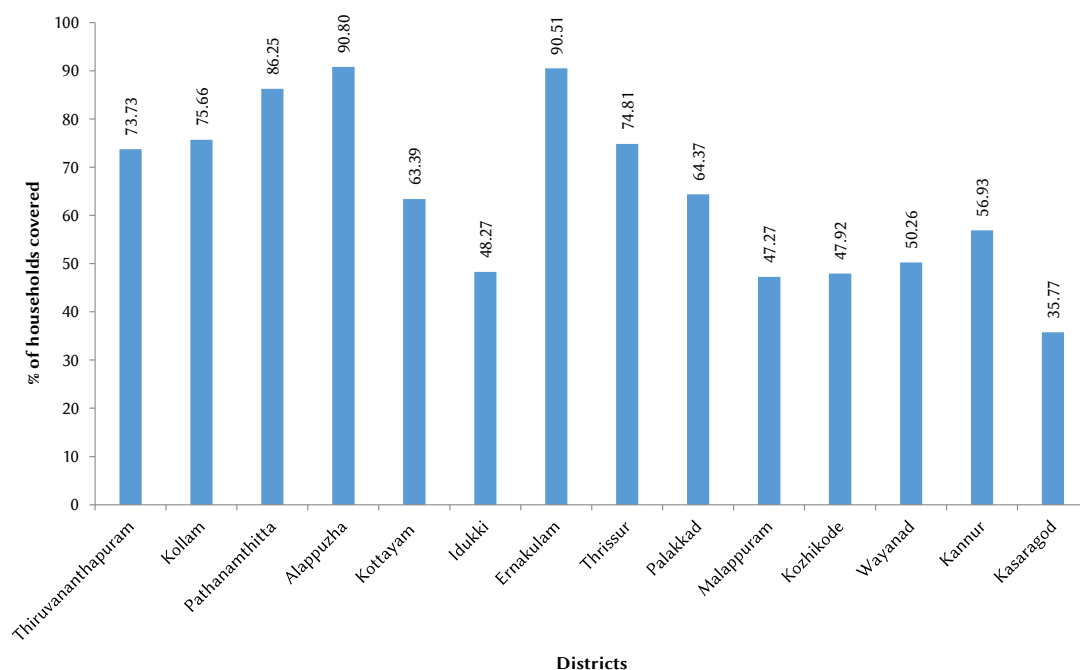
KWA provides water supply to nearly 2.46 crore people from its 911 Water Supply Schemes maintained by it, through 40.76 lakh connections and 1.81 lakh public taps in Kerala. The average per capita availability of piped water is 83 litres per day (the lpcd is varying in different habitations in all the 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 ₹14,000 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. New projects have been sanctioned under KIIFB and RKI in addition to projects being taken up under State Plan and NABARD. In 2021-22, one new project under AMRUT and two projects under RKI were sanctioned. 19 schemes under State Plan, 6 projects under NABARD, 45 projects under AMRUT, 2 projects under RKI and 2 water supply projects and 16 replacement works under KIIFB were completed in 2021-22. 6.63 lakh Functional Household Tap Connections (FHTCs) were provided under Jal Jeevan Mission (JJM). As on August 31, 2022, 66.26 per cent population of Kerala has been covered with piped water supply from the existing KWA schemes (62.15 per cent in rural and 79.62 per cent in urban).

District-wise percentage of population covered by water supply schemes as on August 31, 2022 is shown in **Figure 11.4.1**. Alappuzha District with coverage of 90.80 per cent population shows highest coverage among 14 districts of Kerala, followed by Ernakulam (90.51 per cent). In Kasaragod, the coverage is the least (35.77 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 (22). Kozhikode has the highest number of urban water supply schemes (16) while Palakkad has the lowest number (1) as on August 31, 2022 (**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 38,10,577, 2,63,271 and 2,869 respectively. Out of the total 1,81,622 street tap connections, 1,37,320 are in Panchayats, 27,981 in Municipalities, and 16,321 in Corporations (**Appendix 11.4.3**) as on August 31, 2022. The total number of rural water supply schemes of KWA transferred to local bodies as on August 31, 2022 is 698 and the total population coverage

Figure 11.4.1 District-wise Proportion of Households covered by Water Supply Schemes as on August 31, 2022



Source: KWA

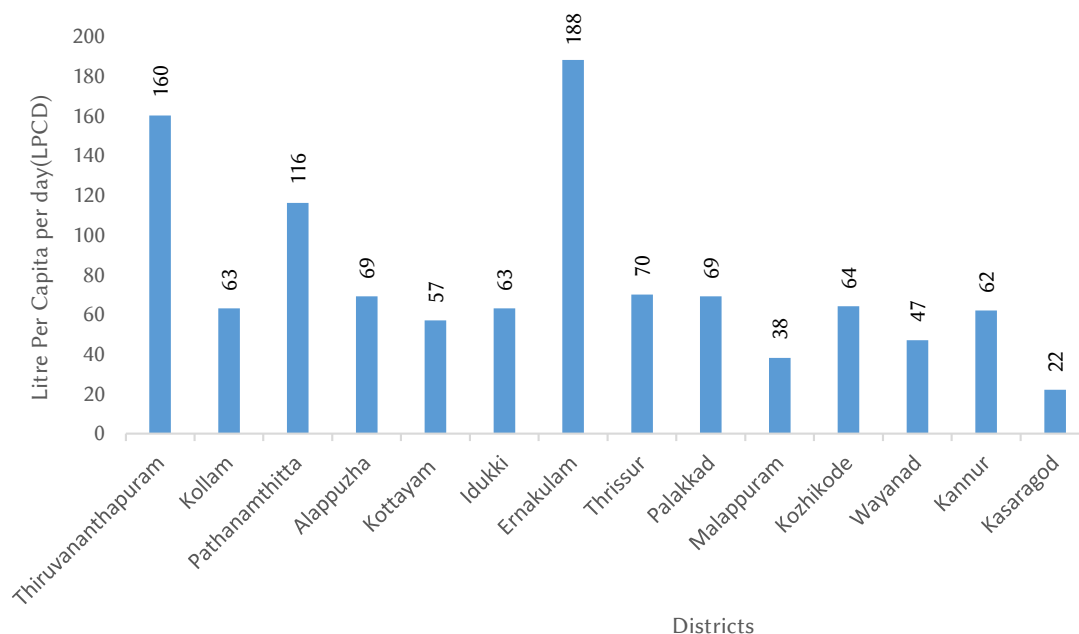
in all the 14 districts is 11,01,160. District-wise details of water supply schemes transferred to Local Governments are given in (Appendix 11.4.4). As per District-wise water availability data as on August 31, 2022 shown in Figure 11.4.2, Ernakulam District has the highest availability (188

lpcd) and Kasaragod has the lowest availability (22 lpcd) (Appendix 11.4.5).

Revenue

The major income for KWA is from the sale of water and Kerala is the only State in the country

Figure 11.4.2 District-wise per capita water availability as on August 31, 2022



Source: KWA

with 100 per cent metered water connections. The water tariff is uniform across the State with block tariff structure (increasing rate with increasing consumption). The last revision in water tariff was on October 1, 2014. The total revenue collected in 2021-22 was ₹583.24 crore. The major sources of income for KWA includes revenue from sale of water, Non-Plan Grant from GoK and other income.

In 2021-22 and 2022-23 (upto August 31, 2022) income from water charges of domestic, non-domestic and industrial schemes was ₹48,679 lakh and ₹22,487 lakh respectively and that from street taps was ₹9,645 lakh and ₹3,674 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 2021-22, fourteen works were completed and a total expenditure of ₹90.90 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 29 projects sanctioned, 11 projects have been completed and 4 projects were dropped as on March 31, 2022. One project has been completed in 2022-23(as on August 31, 2022). It is expected that eight projects will be commissioned in this financial year 2022-23. (Balance work of tranche XX and XXII and some works in tranche XXIII and XXIV).

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, Vithura, and Tholicode were sanctioned under NABARD. WSS to Muttam, Karimkunnam and Kudayathoor Panchayats and WSS to Melila Panchayat were the two major sanctioned schemes in 2020-2021 under Tranche XXVI. Sanction was again obtained in 2021-22 as the schemes could not be taken up in 2020-21 because of COVID-19. WSS to Kunnathur Poruvazhi and Sooranadu North Panchayats of Kunnathur Taluk and Thazhava Thodiyur 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.

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 like 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 ₹300 lakh in 2021-22, 26 works including maintenance of office buildings, guest houses, tanks and pump houses located in various districts have been completed. The expenditure incurred was ₹767.48 lakh.

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. 17 works were completed in 2021-22. The works included the installation of solar panels in the roof top of KWA building, automation of pump houses, purchase of new and highly sophisticated instruments for the State Quality Control Lab at Nettoor, Ernakulam, installation of surveillance camera and flow meters.

Human Resource Development, Research and 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. A major achievement in 2021-22 is that 224 in-house and outstation training courses were conducted in which 6,088 persons participated.

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 2021-22, four works were completed and the total expenditure in 2021-22 was ₹645.44 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 by 2024. New rural schemes, completion of ongoing rural schemes, revamping of existing schemes are proposed under this head. In 2021-22, 4 projects were completed. The total expenditure in 2021-22 was ₹5,618.96 lakh.

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 2021-22, four works were completed viz. Extension of pipe line in Pala Koothattukulam Road near K.R Narayanan Hospital in Uzhavoor Panchayat, Medical College, Kottayam, providing water supply facilities to Government College at Vidyanagar, Kasaragod and Civil Station, pipeline extension and providing water connection to central prison and correctional home at Trikanapuram in Thavanur Panchayat.

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. The entire budgeted amount in 2021-22 (₹100.00 lakh) has been expended.

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 2021-22, 191 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 2021-22 was ₹14,773.64 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 2021-22, 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. Thirteen works were completed in 2021-22 and for that an expenditure of ₹179.84 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 2021-22, 218 works were given administrative sanction and 55 number of works have been completed. An expenditure of ₹997.44 lakh was made out of the budgeted amount of ₹1,000.00 lakh in 2021-22.

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 to achieve 24x7 water supply in the above areas by considerable reduction of Non-Revenue Water (NRW) and overall improvement of efficiency. The existing production facilities are 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:

eAbacus: the Enterprise Billing Application having

online transaction processing system for consumer management by Kerala Water Authority has been rolled out to all subdivisions. A total of 37.83 lakh consumers are enrolled in the application. All consumers of KWA have been brought under the system and this is a remarkable mile stone.

Comprehensive IT Solution: KWA plans to implement a Comprehensive IT solution for managing day-to-day business activities in the organisation such as accounting, procurement, project management, risk management and compliance and supply chain operations by bringing all the functional softwares existing as well as newly planned under one umbrella. Single sign on facility that is, one user name for one employee, one gateway to all functional softwares is the major highlight of the solution. Also, all the data will be stored in a single Relational Database Management System (RDBMS). All functional modules will be placed over the RDBMS layer. Development of comprehensive IT solution is in progress.

Geographic Information System (GIS) is an important tool that will help the Kerala Water Authority in managing the water distribution system in the State. GIS based asset mapping of KWA has been completed and new customised GIS portal has been launched in which in-house updation is possible. KWA bought five Arc GIS licenses for further strengthening the GIS activities.

KIIFB Projects

Government of Kerala (GoK) had accorded sanction for 72 drinking water projects of KWA under KIIFB. Approval has been given for funding of 72 projects for an amount of ₹4,498.98 crore. This includes 61 water supply projects amounting to ₹4,091.36 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 ₹407.62 crore. Of this, 14 water supply projects amounting to ₹335.65 crore and 40 replacement works amounting to ₹103.08 crore have so far been completed. In addition to the above, Government of Kerala had accorded administrative sanction for Phase-II of five projects amounting to ₹521.2 crore.

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 nine cities in Kerala. The KWA – Water Supply projects are spread across six Corporations namely, Thiruvananthapuram, Kollam, Kochi, Thrissur, Kozhikode and Kannur and three 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 five MLD STP at Medical College, Thiruvananthapuram in addition to 12 MLD STP at Kureepuzha in Kollam Corporation and five 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, 2023. An administrative sanction of ₹1,477.48 crore has been accorded to KWA for executing 173 water supply works (₹1,156.03 crore) and 116 sewerage projects (₹321.45 crore) in the above cities. The funding pattern is such that the total project fund is divided among Central, State and respective ULBs, as 50:30:20 share respectively. Out of this, 158 Water Supply schemes for an amount of ₹799.26 crore and 90 Sewerage schemes amounting to ₹65.64 crore has been completed so far and the balance works are in different stages of execution.

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 4,800 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 ₹3,500.00 crore. Out of which ₹1,713.40 crore is for water supply and ₹1,638.32 crore for sewerage/

septage management and the balance amount is assigned for rejuvenation of water bodies and developing green spaces and park projects. As part of AMRUT 2.0 for 93 ULBs, proposals have been submitted for ₹1971.177 crore. The mission 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), 11 water supply projects have been sanctioned for an Administrative Sanction (AS) amount of ₹202.32 crore. They include the improvement of WSS to Cheranalloor Panchayat, distribution network for RWSS to TV Puram Panchayat, WSS to Kaduthuruthy and adjoining villages, WSS to Erumely zone (I, III and V part) distribution system, WSS to Pavaratty and Mullassery Panchayats in Chavakkad Taluk Phase-2, CWSS to Sulthanbathery municipality, Noolpuzha and Muttill Grama Panchayat in Wayanad District, WSS to Erumely Panchayat for laying distribution system in zone 4 Kanakapallam.

In 2021-22 two works, ie, Topographical Survey in 28 Selected Urban Local Bodies (ULBs) and Detailed Engineering Report (DER) preparation including Topographical Survey for 4 Municipal Corporations, viz, Kollam, Kochi, Kozhikode and Kannur, for implementing Sewerage System and Automation of Rural Pump houses amounting to ₹6 crore and ₹11.42 crore respectively have been sanctioned under RKI. Among the above RKI works, four works – Improvement of WSS to Cheranalloor Panchayat, Distribution network for RWSS to TV Puram Panchayat, WSS to Erumeli Panchayat-Laying Distribution system in Zone 4 – Kanakapallam and the Energy audit of the pumping stations 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 effected to the beneficiaries. The distribution networks envisaged for Thiruvananthapuram, Cherthala and Pattuvam have been completely laid. The rehabilitation

Box 11.4.2 Major Digital Initiatives of Kerala Water Authority(KWA)

To ensure “accuracy, speed and efficiency” IT Wing of KWA has initiated various digital initiatives. They are as follows:

- Implemented the 24x7 Toll free number for registering consumer complaints (1916).
- AQUALOOM: A 24-hour complaint redressal unit has been established at the Head Office at Jalabhavan to resolve consumer and public issues. To improve the quality of the complaint redressal mechanism, “AQUALOOM,” a software for tracking and monitoring the progress of registered public complaints, has been installed.
- E-TAPP: Online water, sewerage connections and consumer services portal is rolled out across the State.
- For ensuring quality control, online payment system for checking water quality samples has been implemented in KWA.
- Paperless e-office software (DDFS) has been rolled out in all offices across the State. All bills, receipts, payments are made optionally paperless as a part of Green office initiative.
- Implementation of Central Government initiative “Ease of doing business” has been successfully completed. Making the department entrepreneur friendly, application for water supply for industrial and non-domestic purpose has been integrated with kswift – State portal of KSIDC.

Source:KWA

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 by 2036.

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) by 2024 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.

In 2021-22, projects for an amount of ₹24,642.12 crore aiming to provide 25.51 lakh household connections were sanctioned under JJM. The State received ₹1,353.44 crore from the Government of India as Central share. Out of the total, ₹957.44 crore has been utilised from Central share including the opening balance. The total fund utilised under JJM including the State matching share in 2021-22 was ₹2,017.01 crore. Kerala provided 6,63,862 rural household connection under JJM in 2021-22.

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 pivotal 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 the scaling up 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. The assistance of the programme is now extended to schools belonging to both Government and aided sector. The programme named as 'Jala Sowhrudha Vidyalayam' was implemented State wide in selected Government/aided schools to construct RWH structures. Further KRWSA is appointed as Water and Sanitation Support Organisation (WSSO) of Government of Kerala to coordinate water related activities in the State. Government of Kerala has selected KRWSA as one of the implementing agency for the implementation of Jal Jeevan Mission in the State during the period 2020-2024.

District-wise details of water supply connections of Jananidhi as on August 31, 2022 are given in **Table 11.4.1**.

Project Achievements

In Jananidhi Phase-1, 3,694 small water supply schemes and 16 large water supply schemes were commissioned benefiting 10.56 lakh population altogether. In addition to water supply schemes other components like ground water recharge activities, latrines, environmental sanitation measures and rain water harvesting were also undertaken and successfully completed under the project. The project was implemented in 112 Grama Panchayats (GPs) and ₹411 crore was expended.

Jananidhi Phase-II Project was implemented in 115 Grama Panchayats. 2,174 water supply schemes were commissioned and transferred to beneficiary groups for operation and maintenance after imparting necessary capacity building. The water woes of 11.70 lakh people have been addressed by the project. ₹1,360 crore has been spent for the project.

Table 11.4.1 District-wise details of Water Supply Connections of Jananidhi as on August 31, 2022

Sl.No.	District	Domestic Connections
1	Thiruvananthapuram	4,572
2	Kollam	22,235
3	Pathanamthitta	5,977
4	Alappuzha	0
5	Kottayam	52,541
6	Idukki	40,160
7	Ernakulam	2,173
8	Thrissur	66,123
9	Palakkad	50,631
10	Malappuram	95,040
11	Kozhikode	50,890
12	Wayanad	39,340
13	Kannur	24,404
14	Kasaragod	22,416
TOTAL		4,76,502

Source: KRWSA

At present, Kerala has 23 lakh Jananidhi beneficiaries in 227 Grama Panchayats, both Jananidhi Phase-1 and 2 put together. Jananidhi model has successfully demonstrated that communities, including the poorest and the vulnerable groups, can demand, plan, design, implement, and manage water supply and sanitation schemes, contribute to partial capital investment and bear total cost of operation and maintenance. Jananidhi schemes are no more a burden on the public exchequer as the entire operation and maintenance cost are borne by the communities. Jananidhi demonstrated efficient and sustainable rural drinking water supply management for the last 20 years.

Considering the District-wise rural population covered by the water supply schemes of Jananidhi, 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 23,14,743 rural persons are covered by 5,884 schemes of Jananidhi (as on August 31, 2022). Out of the total 4,76,502 water supply domestic connections as on August 31, 2022 Malappuram has the highest number (95,040) and Thrissur

Box11.4.3 Water Quality Monitoring and Surveillance through NABL Accredited Laboratories

Access to clean drinking water is one of the key determinants of public health. Water quality monitoring is a fundamental tool in the management of safe drinking water supply. As defined by ISO – Water quality monitoring is the programmed process of sampling, measurement and subsequent recording or signaling, or both, of various water characteristics, often with the aim of ensuring conformity to specified objectives.

Kerala Water Authority has a well-established system for monitoring water quality through a network of laboratories at various levels. The main function of Quality Control Wing is surveillance and monitoring of the quality of water supplied through various water supply schemes. The quality of water in river sources, wells, private samples and so on is also tested in the labs under the quality control wing. In addition to this, quality certification of chemicals used in water treatment is also being done in these labs.

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. There is facility for heavy metal analysis and pesticides analysis in addition to the physical, chemical and bacteriological parameters being tested in district labs which come to around 29 parameters. It is proposed to upgrade the lab for testing more parameters by resorting to high end equipment such as Atomic Absorption Spectrophotometer, Gas Chromatograph MS/MS, Ion chromatograph, LCMS.

Apart from the State lab and 14 district labs, 70 sub-district laboratories established under erstwhile NRDWP and JJM are now functioning in the State for testing private water sources in rural habitations. Water testing labs being the backbone of monitoring and surveillance activities have till now attained 98 per cent achievement under accreditation. These labs are located geographically along the length and breadth of our State.

All the 14 districts have District-level laboratories and all the 14 are upgraded and have obtained NABL accreditation under JJM 2020-21/JJM 2021-22. Also 67 sub-district labs are now NABL accredited. These labs are accredited for parameters such as pH, colour, odour, turbidity, electrical conductivity, acidity, total alkalinity, sulphate, total dissolved solids, total hardness, Calcium, Magnesium, Chloride, Fluoride, Iron, Nitrate and Residual chlorine.

4-7 sub-district labs are set up in each District in the State in order to make the quality monitoring and surveillance more effective and to enable the public for an easy access for testing their water samples. The Laboratory networks under Kerala Water Authority has been elevated to international-level conforming ISO/IEC 17025:2017 by 2022 and needs to be maintained.

The State lab shall be upgraded gradually to obtain BIS certification for water quality testing. It is also envisaged to set up Material testing laboratory and pipe testing laboratory as a part of new building being constructed for State Referral Institute (SRI). Thus KWA can enter into a new arena of testing along with meter testing facilities.

Source: State Referral Institute (SRI), KWA

has the second highest number of connections (66,123). As per Jalanidhi project guidelines, after commissioning of schemes, entire operation and maintenance management has to be done by beneficiary groups. So 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 ₹100 in most of the schemes. The lpcd water availability of water supply schemes of Jalanidhi in all the districts is 70 lpcd.

Performance assessment conducted by Comptroller and Auditor General of India (CAG) in 2015 found that nearly 35 per cent of the schemes have become partially or fully non-functional after being handed over to the beneficiary groups in 2008 with technical, social and financial issues cropping up during continued operation for more than a decade. In order to ensure sustainability of investments made, Government of Kerala has introduced a project named “sustainability support project” to reinstate all partially or fully defunct community driven schemes to functional schemes and allocated Budget provision from 2018 onwards. KRWSA could reinstate 891 schemes as on August 31, 2022 under this project. Restoration works are ongoing in another 221 schemes.

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, 2022 (**Appendix 11.4.7**). Total number of Ground Water Recharge (GWR) structures as on August 31, 2022 was 2,912. Most GWR structures are in Kottayam (988). Similarly, total number of rain water harvesting (RWH) tanks installed by KRWSA in the State is 33,865 as on August 31, 2022. The highest number is in Idukki (10,297) and the lowest is in Wayanad (251) (**Appendix 11.4.8**). As per KRWSA data, as on August 31, 2022, out of 5,884 schemes, 5,353 small water supply schemes and 42 large/bulk water supply schemes are functional and the schemes cover 4,76,502 households (**Appendix 11.4.9**).

The provision of drinking water and waste water services is critical for ensuring public health and well-being of society. Both the Central and State Governments have focussed on management of water and waste water since independence and have proposed various programmes. Our State, though

falling short on piped water supply coverage, is better placed with respect to access to water, thanks to the millions of traditional dug wells in backyards. Kerala State also needs to develop better sewerage/septage management services, if it has to sustain its highly acclaimed development indices.

11.5 HOUSING

On the social side, housing is, after food and medical care, the first need of vulnerable populations. Housing is a key input in economic, social, and civic development. Good housing builds wealth by appreciating in value, providing a hedge against inflation, providing secure premises for income-generating activities, and opening the door to credit. Kerala a unique State acquired unprecedented achievements in human development due to the extra ordinary policies in the preceding years. Housing is central to basic human needs and the economic life of the people is well reflected in the housing conditions. Over last five years, the Government of Kerala has paid special attention to provide better homes to the needy and ensuring better housing quality. Kerala has launched a massive people's housing programme, namely LIFE Mission.

I. Livelihood, Inclusion and Financial Empowerment (LIFE) Mission

The Government of Kerala initiated LIFE Mission in 2016 as a flagship programme to provide decent housing for the homeless and landless poor in the State. It is envisioned as a time-bound programme with a multi-pronged approach to address various practical issues involved in the pro-poor housing programmes implemented in the State. This massive Mission not only intends to provide houses to the poor, but also proposes to institute a comprehensive rehabilitation programme to ensure sustainable livelihood through skilling, which

would lead to financial self-reliance and inclusive development. Apart from the completion of incomplete houses, the Mission would also restore existing dilapidated houses. Homeless poor who own land would be provided financial support to construct houses, and the landless homeless would be rehabilitated in apartment complexes.

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. 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), as of 31st October 2022.

The second phase of the Mission provides financial assistance for constructing houses to those who have their own land. In this segment, a total of 1,02,542 beneficiaries were found eligible, out of which 98,234 beneficiaries have signed agreement with the respective Local Governments. Those who have signed agreement are provided a financial assistance of ₹4.00 lakh in four instalments, based on the progress of construction of their houses. ST beneficiaries who are living in remote ST hamlets are provided ₹6 lakh in five instalments. As of October 31st, 2022, as many as 94,501 (96.2 per cent) beneficiaries have completed the construction, and the remaining are in progress.

The achievement of the LIFE Mission includes the 74,527 houses completed under LIFE – Pradhan Mantri Awas Yojana (Urban), 23,074 houses completed under LIFE – Pradhan Mantri Awas Yojana (Grameen), 21,386 houses completed by Scheduled Castes Department, 10,692 houses completed by Scheduled Tribes Department, 6,009 houses completed by Fisheries Department, and 2,363 houses completed by Minorities Department. Out of the additional list of beneficiaries under SC, ST, and Fisheries departments, 12,009 houses have been completed.

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. In this category, 16,214 houses have been completed. Thus, under the LIFE Mission, a total of 3,13,455 houses have been completed in the State.

District-wise details of houses constructed by the LIFE Mission as of October 31, 2022 are given in the **Table 11.5.1**.

Departments of SC, ST and Fisheries together have prepared an additional list of 30,119 eligible beneficiaries consisting of 21,859 SC beneficiaries, 4,991 ST beneficiaries and 3,269 fisherman beneficiaries. Adding up the number of beneficiaries in these lists, there are a total of 1,58,470 eligible beneficiaries in the category of landless-homeless. Out of this, 32,376 beneficiaries have acquired land. Measures are being taken to find land for the remaining applicants.

LIFE Mission aims to construct one lakh houses every year from 2022-23 to 2026-27, thereby meeting the target of constructing five lakh houses within five years. This would include 3.00 lakh houses under General category, 1.50 lakh houses for Scheduled Castes, and 25,000 houses each for Scheduled Tribes and fishermen. In response to the notification (GO (MS) No. 112/2020/LSGD dated 27/07/2020) to submit new applications for houses under the LIFE Mission, 9,20,260 applications have been received. On scrutiny, 5,65,213 beneficiaries were found eligible. Of these, 3,68,422 beneficiaries are homeless with land, and 1,96,791 are landless-homeless.

The Mission also plans to rehabilitate the landless homeless beneficiaries in housing complexes. All

Table 11.5.1 Details of houses constructed by the LIFE Mission as on 31.10.2022

District	Phase I	Phase II	Phase III	PMAY (U)	PMAY (R)	SC Dept.	ST Dept.	Fisheries Dept	Minority Dept.	Additional List	Total
Thiruvananthapuram	6050	15357	908	10837	3790	2399	351	2007	152	744	42595
Kollam	3618	8483	2831	5960	2065	1986	152	824	107	929	26955
Pathanamthitta	1176	2034	667	1469	1045	1195	42	25	75	653	8381
Alappuzha	2728	9310	816	4536	1131	1324	89	822	193	1327	22276
Kottayam	1102	4280	1671	2222	722	959	61	104	81	684	11886
Idukki	3138	10151	1110	1744	982	855	940	71	97	567	19655
Ernakulam	1059	5651	1617	9879	946	1965	107	420	79	1125	22848
Thrissur	2997	5159	1467	7413	2103	2264	50	180	118	775	22526
Palakkad	7628	12562	1090	5932	3174	2812	526	53	127	749	34653
Malappuram	2735	6479	1445	9750	2664	2158	3497	509	678	1223	31138
Kozhikode	6484	5079	393	5840	1687	1340	330	398	124	1107	22782
Wayanad	8440	3927	638	2724	1169	948	2533	0	218	888	21485
Kannur	2645	2489	804	4539	805	558	917	372	176	851	14156
Kasaragod	2880	3540	757	1682	791	623	1097	224	138	387	12119
Total	52680	94501	16214	74527	23074	21386	10692	6009	2363	12009	313455

housing complexes in the third phase are proposed to be constructed using Prefab technology to save time and labour. As a pilot, a seven-storeyed housing complex with 217 independent apartments constructed by Bhavanam Foundation at Adimali Grama Panchayat in Idukki District was taken over by LIFE Mission at a cost of ₹24.82 crore, and 163 apartments have been allotted to beneficiaries. Each apartment is of 460 sq.ft size and has common facilities like lift, washing area, compost plant, health sub-centre, Kudumbasree counselling centre, youth club, gender club, crèche, etc. The beneficiaries will also be provided with training program on various livelihood options.

LIFE Mission has initiated the construction of 36 apartment complexes using prefab technology in different locations across the State. While the construction of two LIFE towers (Kadambur – Kannur and Punalur – Kollam) has already been completed, the construction of 27 apartment complexes using prefab technology is progressing steadily. Another 14 apartment complexes too would be constructed across the State under Care Home project of the Co-operative Department.

LIFE Mission is integrated with the employment generation programmes implemented in the State. While houses are constructed under LIFE Mission, 90 person days of labour could be availed under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in rural areas, and Ayyankali Urban Employment Guarantee Scheme (AUEGS) in urban areas. In another remarkable attempt, Kudumbashree established women's construction units to assist the Mission to complete housing at a lower cost.

The high cost of construction materials is a significant issue faced by LIFE beneficiaries. LIFE Mission has deliberated on this with various vendors, and arranged for the distribution of material at rates 20-60 per cent lower than MRP. Electrical fittings, wiring material, paint, ceramic material, tap fittings, water tanks, and cement are distributed to LIFE beneficiaries at this low rate. This venture has hugely benefitted LIFE beneficiaries by helping them save between ₹50,000 and ₹1,00,000.

A serious issue that affects the implementation of the project is the legal restrictions on land use at different places. For instance, there are several cases where land owned by beneficiaries is under the

CRZ/wetland zone, and any kind of construction on that land is prohibited. The Mission is facilitating legal amendments to tackle this issue. Given the high population density and increasing pressure on land, it has become very difficult to find suitable land to meet the requirements of the beneficiaries under the third category. It is against this backdrop that the State has begun a campaign 'Manasodithiri Mannu' to promote philanthropic contribution of land parcels to construct houses for the landless, homeless poor.

LIFE Mission has made significant strides in providing safe and secure shelter with sustainable livelihood options to the homeless and landless poor of Kerala. In this pursuit, the Mission has devised a unique and unprecedented model of providing housing for the poor through the convergence and integration of various institutional mechanisms and programmes. This has attracted national as well as global attention as an innovative strategy and mechanism to accomplish universal housing for the homeless, and a great leap towards attaining sustainable development goals in this sector.

Apart from this, other agencies implementing housing schemes in the State include i) Kerala State Housing Board, ii) Housing (Technical Cell) Department (Housing Commissionerate), and iii) Kerala State Nirmithi Kendra. SC Development Department, Kudumbasree, Rural Development Commissionerate and the Local Self Government Institutions are also involved in the implementation of the housing scheme in the State.

II. 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 apart from cash loan assistance for house construction. In 2021-22, a total of 138 houses were constructed through various housing schemes. In 2021-22, Kerala Housing Board implemented the schemes like 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 1071 houses have been constructed from 2017-18 to 2021-22. KSHB had also constructed 12 Working Women's Hostels upto March 31, 2021. The construction

of Working Women's Hostel at Madhur, Kasaragod District is nearing completion. In 2021-22, Administrative sanction was obtained for constructing a three storeyed 106 bedded building in 50 cents of land owned by Kannur Medical College under the scheme Aswas Rental Housing.

III. Housing (Technical Cell) Department (Housing Commissionerate)

Housing (Technical cell) Department, formed in 1980 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 is engaged in providing data support and technical guidance, review of policies and programme, setting targets, facilitating decision-making in the housing sector and extending technical and other support related to housing to all agencies working in this sector. In 2021-22 under the Plan scheme '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 GIS platform. Work is in progress for another three Grama Panchayats namely Kumbala, Pallikkara and Valiyaparamba in Kasaragod District. The assets and schemes of Kerala State Housing Board are also mapped into the GIS platform.

IV. 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, like undertaking construction projects; conducting training programmes for skill development to unemployed youths in construction related trades, general public and technocrats; production of cost effective and environment friendly building materials; sale of building materials at subsidised rates; and providing facilities for building material testing through its testing labs for assurance of quality in the construction works. KESNIK is constructing a model sustainable village at Kattakkada comprising of 30 dwelling units with livelihood options. KESNIK has completed 16 dwelling units in the first phase, which was handed over to the Kattakkada Grama Panchayat, and the remaining dwelling units are underway.

In 2021-22, KESNIK conducted artisan training for imparting skill development in the construction sector, benefitting 270 beneficiaries. KESNIK Kalavaras sell building materials for BPL/LIFE Mission beneficiaries at a subsidised rate of 15 per cent for construction and repair of houses under Government schemes. KESNIK also conducted certificate course of duration 3 months for 40 students at Thiruvananthapuram and Ernakulum under the programme 'finishing school for skill improvement for Civil and Architecture engineering graduates' to make them expert professionals in the construction field. A building material production unit run by women was set-up at Maranallur Grama Panchayat at Thiruvananthapuram District, aided by Panchayat and Kudumbasree unit. As part of KESNIK's future initiatives to promote innovative building materials, a pre-fab production unit was set-up at Chathamangalam, Kozhikode District. This was implemented in Public-Private Partnership (PPP) mode. In addition to the above, KESNIK conducted awareness programmes for professionals, engineering students, and the general public on sustainable construction, environmental protection and climate change. A College of Architecture, Thiruvananthapuram (CAT) Laurie Baker International School of Habitat Studies (LaBISHaS) Design Lab (CLDL) was setup in LaBISHaS of KESNIK to develop detailed architectural designs and to provide guidance for building constructions. In 2021-22, CLDL has designed projects worth ₹50 crore.

V. 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 share capital contribution from member societies and the Government of Kerala and borrowings from LIC, National Housing Bank and other Commercial Banks. Kerala State Co-operative Housing Federation provided house loan to EWS, MIG and for repair/maintenance. From 2017-18 to 2022-23 (up to August 31, 2022), 8,312 housing loans was sanctioned by Kerala State Co-operative Housing Federation. Details are given in **Appendix 11.5.1**.

VI. 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, own fund of Panchayats, Local Government shares and loans. All the major scheduled banks coming 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 Nationalised Banks, Kerala Gramin Bank, Private Sector Commercial Banks, Kerala State Co-operative Banks, 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 GoI and the Reserve Bank of India. The interest rates on housing loans of various financial institutions as on March 31, 2022 are given in **Appendix 11.5.2**.

Way Forward

Considering the significant role of housing in ensuring the well-being of people and upward social and economic mobility, the housing requirements of the poor should be addressed with utmost priority. At the same time, housing requirements of small and middle-income groups should also be addressed. A robust and dynamic database on the State's housing sector is required to assess demand and optimise resources. Providing specific advice on housing options, technologies, materials, and prices are also essential. Instituting facilities to procure quality building materials and other inputs at reasonable rates would greatly benefit low-income groups.

11.6 REBUILD KERALA INITIATIVE

Kerala experienced extreme rainfall events, flooding, and mudslides in 2018 and 2019. In order to build a disaster resilient Kerala, Government of Kerala started the Rebuild Kerala Initiative which envisions a green and resilient Kerala with higher and ecologically safe standards of infrastructure, improved conditions of living which ensure that people and assets can withstand the onslaught of future disasters.

The Rebuild Kerala Initiative aims to develop, coordinate, facilitate and monitor the Rebuild Kerala Development Programmes (RKDP). The RKDP is the State's strategic approach covering a range of cross-cutting and sectoral policies, regulatory and institutional interventions, along with priority investment programmes, in a sustainable and resilient manner. 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, Health and Nava Keralam. 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 ₹36,500 crore for the development period from 2019 to 2027. The State has earmarked Plan fund of ₹1,000.00 crore each in 2019-20 and 2020-21, ₹1830 crore in 2021-22 and ₹1600 crore in 2022-23 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.

World Bank Development Policy Loan (DPL)

The World Bank has offered financial assistance for Kerala's resilient recovery programme by a Development Policy Loan (DPL) through two Development Policy Operations (DPO). The Prior Actions (PAs) for availing first tranche of loan under DPO-1 were completed by various departments and the World Bank approved DPL-1 and released US \$250 million in 2019. DPO1 has triggered policy and institutional reforms to enhance resilience to enable holistic river basin management, sustainable and climate-resilient agriculture, risk-informed land-use planning and multi-year capital planning, and disaster management plans at all levels. The World Bank expressed its willingness to support Development Policy Operation (DPO)-2 as the 2nd phase of its partnership with the Kerala State. However, due to the COVID-19 outbreak and a change in India's strategy in using World Bank financing, the GoI dropped its request for DPO-2. DPO-2 was subsequently restructured as Programme for Results (PforR).

As majority of key policy actions were achieved by the Government of Kerala, a joint World Bank-KfW team proposed financial assistance to the State. In 2020, the Government of India and the German Bank (KfW) signed a loan agreement of €100 million and a grant agreement of €2 million, under the Climate Loan Kerala Programme. The assistance is Policy Based Loan (PBL) of €100 million as general budget financing towards the implementation of the Prior Actions identified within the Policy Matrix and, a grant of €2 million as Accompanying Measure (AM) to support the longer-term impacts and deepening of reforms through achieving directly some of the targets and results outlined in the DPO1 Policy Matrix.

Programme for Results (PforR) financing

The PforR is intended to translate the policy actions under the DPO1 into results on the ground. It provides financing-linked incentives for a range of stakeholders at all levels to converge on an integrated and multi sectoral resilience framework and platform, towards achieving an agreed set of results. The relevant sectors of the PforR are agriculture, Disaster Risk Financing and Insurance (DRFI), Disaster Risk Management (DRM), fiscal and governance, health, road, urban, and water resource management. The programme supports the strengthening of public health systems in the State to tackle the impacts of COVID-19 and to prepare the State against future pandemics and disease outbreaks.

The programme is being implemented over a period of five years (2022-27). It is financed by a total amount of \$370 million, including an amount of US \$125 million by the International Bank for Reconstruction and Development (IBRD), US \$125 million by Asian Infrastructure Investment Bank (AIIB), and €100 million (or US \$120 million equivalent) by the French development bank Agencies Francaise de Development (AFD). Agreements have been signed with the World Bank on July 2021 and with AIIB on August 2021. An

additional \$120 million funding from AFD is currently being processed by the Department of Economic Affairs (DEA), Ministry of Finance, GoI. As on June 30, 2022, the State received disbursements worth US \$14 million from World Bank and AIIB, and disbursements worth US \$9.2 million is in progress.

Implementation of RKDP

As on November 15, 2022, Administrative Sanction has been issued for ₹8,082.20 crore for projects under 14 Departments. The administrative sanction issued for Public Works Department projects accounts 64 per cent and that of Local Self Govt. Department and Revenue and Disaster Management are 10.9 per cent and 7.9 per cent respectively. Out of this projects worth ₹5,590.73 crore were tendered and RKI released ₹2,356.45 crore. The total expenditure as on date is ₹2,098.33 crore. Details are given in **Table 11.6.1**.

Completed Projects under RKI

As on November 15, 2022 an amount of ₹376.3 crore was expended exclusively for the completion of projects under the sectors viz. Agriculture, Environment, Animal Husbandry and Dairy Development, Livelihood, Fisheries, Irrigation, Water Resources and Roads and Bridges. Under Agriculture, a total amount of ₹55.61 crore was expended including ₹5 crore for strengthening agro service centres and karshika karma sena units and, ₹49.99 crore for livelihood enhancement through integrated farming with special focus to Idukki and Wayanad. An amount of ₹4 crore was utilised by the department of Environment for the database of tradable/commercially potential bio-resources, riverine biodiversity rejuvenation and conservation of agro biodiversity. For the support of livelihood package under Animal Husbandry and Dairy Development, ₹77 crore was expended. An amount of ₹77 crore was expended by State Kudumbashree Mission towards community enterprises fund, vulnerability reduction fund, and crisis management

Table 11.6.1 Details of projects for which administrative sanction has been issued and expenditure incurred as on November 15, 2022 (₹ in crore)

Sl. No.	Sectors	Department	Implementing Unit	AS Amount	Expenditure
1	Roads and Bridges	Public Works Department	Public Works Department – Roads and Bridges Kerala State Transport Project (KSTP)	5200.29	1401.49
2.1	Roads and Bridges	Local Self Govt. Department	LSGD-Project Management Unit/Roads	590.04	64.96

2.2	Livelihoods	Local Self Govt. Department	State Kudumbashree Mission	250.00	201.74
2.3.1	Sanitation	Local Self Govt. Department	Clean Kerala Company Ltd.	21.25	2.68
2.3.2	Sanitation	Local Self Govt. Department	Impact Kerala Limited	22.34	0.00
3.1	Integrated Water Resources Management	Water Resources Department	Irrigation department	152.05	56.18
3.2	Water Supply	Water Resources Department	Kerala Water Authority	201.77	67.48
3.3	Sanitation	Water Resources Department	Kerala Water Authority	14.36	0.60
4	Agriculture	Agriculture Development and Farmer Welfare	Agriculture Development and Farmer Welfare	522.00	161.65
5.1	Animal Husbandry	Animal Husbandry Department	Animal Husbandry Department	157.88	77.09
5.2	Dairy Development	Dairy Development	MILMA	5.40	3.00
6.1	Fisheries	Fisheries and Ports	Fisheries Department	6.35	4.82
6.2	Fisheries and Ports	Harbour Engineering Department	Harbour Engineering Department	52.90	0.37
7	Forest and Wildlife	Forest Department	Forest Department	130.41	19.85
8	Environment and Climate Change	Environment	Kerala State Biodiversity Board	5.00	3.97
9	Disaster Risk Management	Power	Kerala State Electricity Board	53.55	0.46
10	Disaster Risk Management/ Open Data	Electronics and Information Technology	Electronics and Information Technology	3.49	1.04
		Finance	Kerala State IT Mission (KSITM)	34.32	2.51
11.1	Disaster Risk Management	Revenue and Disaster Management	Department of Revenue and Disaster Management	198.38	20.30
11.2	Land	Revenue and Disaster Management	Survey and Land Records Department	438.46	0.84
11.3	Disaster Risk Management	Revenue and Disaster Management	Kerala State Disaster Management Authority (KSDMA), Kerala Institute of Local Administration (KILA) and Centre for Development of Imaging Technology (C-DIT),	7.30	7.30
12	Disaster Risk Management	Women and Child Development Department	Women and Child Development Department	8.19	0.00
13	Health	Health and Family Welfare	Directorate of Health Services	1.28	0.00
14	Nava Kerala Karma Padhadhi	Haritha Kerala Mission	Haritha Kerala Mission	5.19	0.00
Total				8082.20	2098.33

fund. For the fish production in cages through participatory approach with beneficiaries of scheduled tribe in Banasurasagar reservoir, Wayanad District, ₹2.78 crore was utilised. Completed post flood repair and maintenance of dams/Regulators/canals/irrigation structures (62 nos.). Reconstruction of LSGD roads (196 nos.) and 2 flood damaged bridges were completed by expending an amount of ₹68.51crore. Under Revenue and Disaster Management Department, reconstruction of

33 village offices and 20 revenue buildings were completed by utilising an amount of ₹35.2 crore. The details of completed projects under RKI is given in **Table 11.6.2**.

Table 11.6.2 Details of completed projects under RKI as on November 15, 2022 (₹ in crore)

Sl. No	Sectors	Department and Implementing agency	Project	AS Amount	Fund Utilisation	Status of Project completion
1	Agriculture	Directorate of Agriculture Development and Farmer Welfare – Kerala State Agriculture Mechanisation Mission (KSAMM)	Support to Zone-wise Service Delivery by Strengthening Agro Service Centres and Karshika KarmaSena Units	5.00	5.00	completed
2	Agriculture	Directorate of Agriculture Development and Farmer Welfare – Kerala State Agriculture Mechanisation Mission (KSAMM)	Enhancing Livelihood through Integrated Farming with special focus to Idukki and Wayanad	50.00	49.99	completed
3	Agriculture	Directorate of Agriculture Development and Farmer Welfare	Human Resource diagnostics in Agriculture Development and Farmers' Welfare Department	0.4	0.13	completed
4	Agriculture	Directorate of Agriculture Development and Farmer Welfare	Study on agricultural insurance penetration in Kerala,	0.4	0.34	completed
5	Agriculture	Directorate of Agriculture Development and Farmer Welfare-Vegetable and Fruit Promotion Council Kerala (VFPCCK)	Comprehensive study of the current Technical Gaps and specific infrastructural requirements for promoting exports from the State	0.15	0.15	completed
6	Environment	Department of Environment	Database of tradable/ commercially potential bio-resources	5.00	4.00	completed
7	Environment	Department of Environment	Riverine Biodiversity Rejuvenation			completed
8	Environment	Department of Environment	Conservation of Agro biodiversity			completed
9	Animal Husbandry and Dairy Development	Animal Husbandry and Dairy Development	Livelihood Support Package	77.00	77.00	completed
10	Livelihood	LSGD – State Kudumbashree Mission	Community Enterprises Fund	18.47	18.47	completed
11	Livelihood	LSGD – State Kudumbashree Mission	Vulnerability Reduction Fund	26.00	26.00	completed
12	Livelihood	LSGD – State Kudumbashree Mission	Crisis Management Fund	32.53	32.53	completed

13	Fisheries	Department of Fisheries and Ports	Fish production in cages through participatory approach with beneficiaries of scheduled tribe in Banasurasagar reservoir, Wayanad District.	3.2	2.78	completed
14	Irrigation	Water Resources Department-Irrigation Design and Research Board (IDRB)	Post Flood Repair and Maintenance of Dams/Regulators/Canals/Irrigation Structures-99 nos.	40.33	34.96	62 works out of 99 works completed
15	Water Supply	Water Resources Department – Kerala Water Authority (KWA)	Completion of nearly completed KWA schemes-7 nos.	35.3	19.05	3 out of 7 completed
16	Water Supply	Water Resources Department – Kerala Water Authority (KWA)	Energy optimisation and replacing inefficient pumping systems of 16 HT pumping stations	0.3	0.28	completed
17	Roads	Local Self Govt. Department-Project Management Unit	Conducting investigation/data collection of roads identified in 7 districts.	4.57	1.15	7 out of 77 roads completed
18	Roads	Local Self Govt. Department-Project Management Unit	Rebuilding LSG Roads in 4 districts viz., Alappuzha, Kottayam, Ernakulam and Thrissur.	53.136	24.47	15 out of 25 roads completed
19	Roads	Local Self Govt. Department-Project Management Unit	Consultancy services for design and DPR preparation of flood affected roads in Pathanamthitta, Idukki and Wayanad districts.	1.605	0.775	completed
20	Roads	Local Self Govt. Department-Project Management Unit	Rebuilding LSG Roads in 5 districts viz., Alappuzha, Kottayam, Ernakulam, Thrissur and Wayanad.	40.00	7.07	3 out of 21 roads completed
21	Roads	Local Self Govt. Department-Project Management Unit	Rebuilding 19 number of LSGD Roads in 6 districts viz., Pathanamthitta, Kottayam, Ernakulam, Alappuzha, Thrissur and Wayanad	42.32	4.67	2 out of 19 roads completed
22	Roads	Chief Engineer – Local Self Govt. Department	Reconstruction of 194.63 km of flood damaged Category B (RoW <5mtrs) Packages. LSGD roads in seven districts	67.9	31.00	176 out of 248 roads completed
23	Roads	Chief Engineer – Local Self Govt. Department	Reconstruction of 5 flood damaged bridges of Local Self Government Department (LSGD)	2.535	1.3	2 out of 5 bridges completed
24	Revenue	Revenue and Disaster Management Department	Reconstruction of 255 Village Office and 38 Revenue Buildings	198.381	35.2	33 out of 255 VO and 20 out of 38 RBs completed
Total				704.53	376.3	

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 the Government of Kerala. Envisaging a broader role and mandate for KIIFB in infrastructure development, the Government amended the Kerala Infrastructure Investment Fund Act in 2016. The Act articulated the role and the terms of operations of KIIFB in infrastructure development of the State. KIIFB has now transformed to become the nodal infrastructure funding agency of the State Government, focussing on strategic projects that are crucial for the economy.

KIIFB facilitates planned and sustainable development of physical and social infrastructure (including major land acquisitions) that are integral to development, using financial instruments approved by Securities and 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 Vehicle (SPV) to support the administrative departments in developing infrastructure.

Panorama of Projects

KIIFB undertook various infrastructure development projects as well as projects exclusively for land acquisition. As of March, 2022, it approved 962 (including seven land acquisition projects) infrastructure projects to the tune of ₹70,762 crore in sectors such as health care, education, roads and transportation, irrigation

and water supply, power, ports, inland navigation, drainage and solid waste management. Under the land acquisition pool, seven massive land acquisition projects worth ₹20,000 crore have been approved. In 2020-21, KIIFB had approved 206 infrastructure projects with an aggregate outlay of ₹9,340.03 crore and in the financial year 2021-22, it approved 60 projects worth ₹8,027.09 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**.

One of the major projects approved by KIIFB in 2021-22 is the Anakkampoyil-Kalladi-Meppadi (AM) Tunnel Road between Kozhikode and Wayanad districts in Kerala. It is an 8.73km (including approach roads on either side) long four-lane tunnel road. The length of the tunnel is 8.11km. The tunnel would provide a reliable, safe, all-weather road connectivity alternative to the Thamaraserry Ghat road. KIIFB has approved ₹2,134.5 crore for the Project.

The new industrial policy released by Industries Department suggests measures to bring 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 Industrial Manufacturing Cluster (IMC) in 1,351 acres at Palakkad at a cost of ₹1,038 crore. As part

Table 11.7.1 Consolidated details of KIIFB Approved Projects, as on March 31, 2022, ₹ in crore

Type of Project	2020-21		2021-22		Total (2016-22)	
	Number	Outlay	Number	Outlay	Number	Outlay
Infrastructure Projects	206	9,340.03	60	8,027.09	955	50,762.00
Projects under Land Acquisition Pool					7	20,000.00
Total					962	70,762.00

Source: KIIFB

of the project, a non-manufacturing cluster called 'Global Industrial Finance Trade (GIFT) City' is proposed to be developed as a business centre in Angamaly in Ernakulam District. KIIFB has accorded sanction for an amount of ₹850 crore for acquiring 144.9759 hectares of land in Ayyampuzha village for the project.

Major share of KIIFB fund has been set aside for the roads and road transport sector, which is ₹33,027.75 crore as of March, 2022. The Board has accorded sanction for ₹32,523.28 crore for various road projects including Anakkampoyil Kalladi Meppadi Tunnel Road. For improving public transport system in the State, the Board has sanctioned an amount of ₹3,60.91 crore to KSRTC towards the purchase of 310 CNG and 50 electric buses, besides approving the conversion of 400 diesel buses into LNG. KIIFB has approved a total of ₹2,548.84 crore for the Hill Highway project and the stretches of Hill highway in Kollam and Kasaragod districts have already been completed by Kerala Road Fund Board (KRFB). The Board 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**.

Huge land acquisition costs posed major hurdle to the National Highway development in the State. This was resolved to a great extent with State deciding to bear 25 per cent of the land acquisition cost of National Highway development through KIIFB. Out of the total approved outlay of ₹6,769.01 crore, an amount of ₹3,016.24 crore has been transferred to the National Highway Authority of India (NHAI) for land acquisition in the financial year 2021-22. KIIFB has transferred ₹5,580.74 crore to the NHAI as of March, 2022.

Water resources (₹5,876 crore) and Power (₹5,200 crore) sectors follow the Road and Road Transport sector in terms of share of allocation of KIIFB funds. Reformation of damaged sunken sea wall and construction of groyne field project at Chellanam is one of the important project undertaken in water resources sector costing ₹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 funding. The board has sanctioned Urban Regeneration and Integrated Water Transport System in Kochi for ₹556.51 crore. Moreover, ₹915.84 crore has been allotted for the development of West Coast Canal in 2022-23. Details of sector-wise KIIFB funding is illustrated in **Figure 11.7.1**.

Table 11.7.2 Funding in Road and Road Transport Sector, as on March 31, 2022, ₹ in crore

Sl. No	Name of Project	Amount
1	Coastal Highway	2,620.63
2	Hill Highway	2,548.84
3	Anakkampoyil Kalladi-Meppadi(AM) Tunnel Road	2,134.5
4	Other Road Projects	25,219.31
5	Road Transport Projects	504.47
	Total	33,027.75

Source: KIIFB

KSEBL initiated the plan for 'Transgrid 2.0' with a mission to enhance the reliability and security of electricity transmission and to reduce system losses with minimum disturbance to the environment and the public and a green vision for better energy management with KIIFB funding. KIIFB allocated ₹5,200 crore for the Transgrid plan. It is expected that the implementation of the projects will bring about a reduction in peak load system loss of about 107.8 Mega Watt (MW) and corresponding annual energy savings of 522.21 Million Unit (MU). Construction of Substations at Kothamangalam, Kaloor, Chalakkudy and Thalassery has been completed so far.

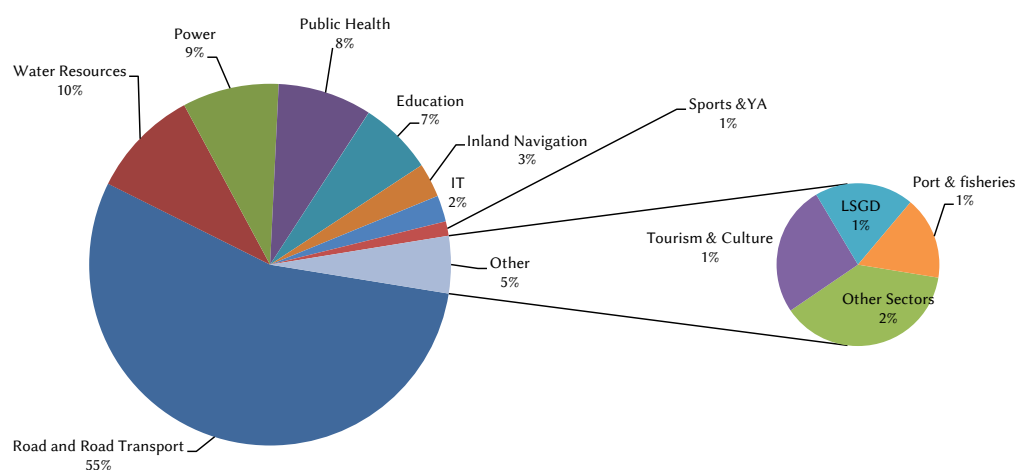
KIIFB has approved ₹5,064 crore for health and family welfare, including projects in Ayush. This is 9.97 per cent of the total projects approved by the KIIFB. It includes projects for the development of 55 Hospitals across the State, including Taluk Hospitals, General Hospitals, District Hospitals, Medical Colleges and Speciality hospitals like Cochin Cancer Centre and Speciality Hospital at Matannur. In 2021-22, construction of super speciality block and allied infrastructures at Ernakulam General Hospital, Punalur Taluk hospital and Phase I improvement to the External Infrastructure of Thiruvananthapuram Medical College was completed. 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 Assembly Constituencies is also approved for ₹236.30 crore in 2021-22 and the work in progress.

KIIFB earmarked an amount of ₹3,972 crore to the education sector, of which ₹1,100 crore is for Higher Education Sector. Projects are approved for the renovation of 55 Arts and Science Colleges. Of these, five colleges will be developed as part of the development of heritage colleges scheme. Projects to the tune of ₹560.43 crore has been earmarked for the development of four Engineering Colleges, eight polytechnics, five universities. Among the five Universities taken up for development, Cochin University of Science and Technology (CUSAT) receives the major share of ₹241.72 crore for upgrading it as a Centre of Excellence in Academics and Research.

In the General Education sector, an amount of ₹702.29 crore has been earmarked for the upgradation of one school in each constituency under the PPE (Protection of Public Education) Mission. KIIFB has spent an amount of ₹785 crore for various hi-tech projects in the educational sector which includes the completion of 45,000 Hi-Tech classroom in secondary and Higher Secondary schools and 1,1250 Hi-Tech labs in all LP and UP schools in the State.

The KFON (Kerala Fiber Optic Network) project was approved by KIIFB in 2017-18 with a total outlay of ₹1,061.73 crore. The project is conceived to provide better network connectivity to rural areas 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

Figure 11.7.1 Sector-wise KIIFB funding, as on March 31, 2022, in per cent



Source: KIIFB

to all service providers and will connect 30,000 government institutions and provide free internet to economically backward families and subsidised internet service for others. The project is progressing at a fast pace and the first phase is nearing completion.

KIIFB is also funding in the IT sector for the development of two IT Parks (at Kalamassery and Kazhakootam) with a total outlay of ₹351.13 crore.

KIIFB funds 37 projects worth ₹773.74 crore in the Sports sector, including the construction of an aquatic sports complex, 43 stadiums and development of two sport schools. As of March, 2022, KIIFB has approved tourism projects worth ₹417.02 crore which includes rejuvenation of Akkulam Lake and its watershed at a cost of ₹117.51 crore apart from the Alappuzha and Thalassery Heritage Projects. It also funds culture projects like construction of 9 theatre complexes and 8 cultural complexes and development and expansion of Chitranjali studio into a film city.

KIIFB has approved an amount of ₹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.

Mobilisation of Fund

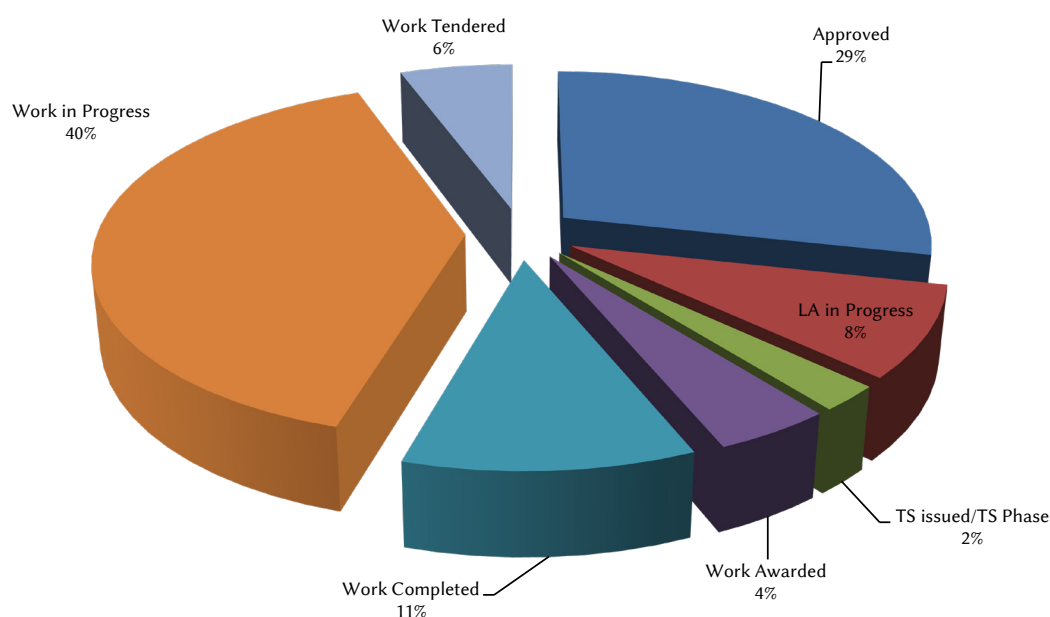
Borrowings: KIIFB has put in place a system/process of computation of Asset Liability Management (ALM). The fund mobilisation plan of KIIFB is currently based on this system.

Performance of Project Implementation

KIIFB has completed 101 out of 928 construction works sanctioned and 369 works are in progress. In the financial year 2021-22 (as on October, 2022), Technical Sanction (TS) has been issued for 16 works and 6 Projects are in TS phase whereas 41 works have been awarded and 53 works have been tendered. The physical performance of KIIFB projects is depicted in the **Figure 11.7.2**.

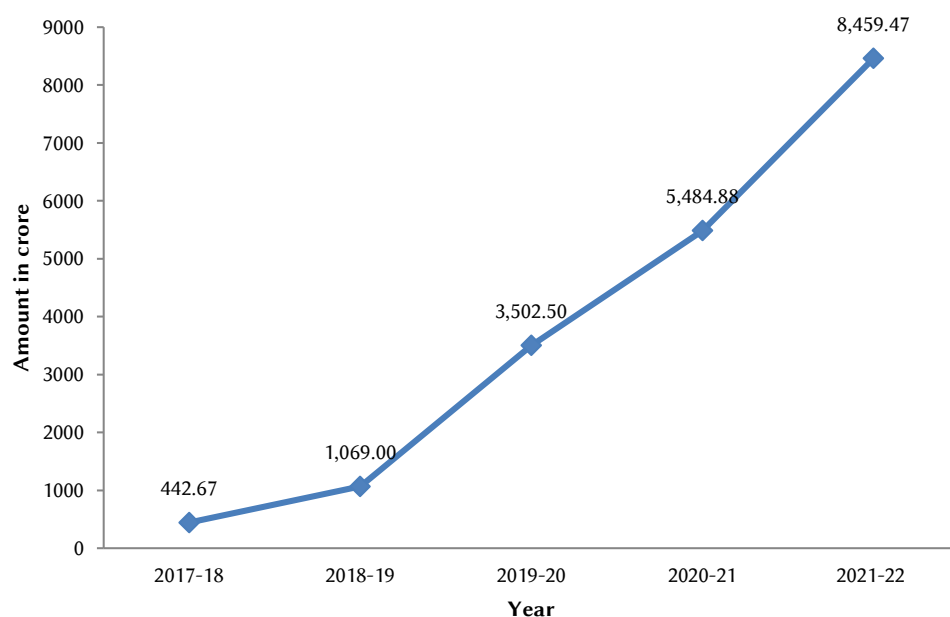
In the financial year 2021-22, KIIFB has released ₹8,459.47 crore for project funding compared to ₹5,484.88 crore in the previous financial year.

Figure 11.7.2 Physical Performance of KIIFB projects, 2021-22 (up to October 2022), in per cent



Source: KIIFB

Figure 11.7.3 Financial Performance of KIIFB, as on March, 31, 2022



Source: KIIFB

Table 11.7.3 Disbursement of KIIFB Approved Projects under Infrastructure Projects and Land Acquisition pool, ₹ in crore

Projects	No. of projects	Outlay	Amount disbursed*
Infrastructure Projects	955	50,762.00	12,522.1
Projects under Land Acquisition Pool	7	20,000.00	7,932.53
Total	962	70,762.00	20,454.63*

*Details as on 31.03.2022

Source: KIIFB

The total disbursement towards various KIIFB approved projects (including land acquisition) have reached ₹20,454.63 crore as on March, 2022. Fund disbursement details are provided in **Table 11.7.3**.

KIIFB has disbursed an amount of ₹7,932.53 crore till March, 2022 exclusively on land acquisition projects which is over 33 per cent of the total disbursement. Of which, ₹5,580.74 crore was for National Highways, ₹1,756.26 crore for three Industrial Parks, ₹145.60 crore for taking over the land from Hindusthan Newsprint Ltd. and ₹850 crore for Kochi-Bangalore Industrial Corridor. Financial performance of KIIFB as on March, 2022 is given in **Figure 11.7.3**.

Global rating agency Standard and Poor's (S&P) in September, 2022 has affirmed 'BB-/B' ratings on Kerala Infrastructure Investment Fund Board (KIIFB), affirming that the outlook is stable. KIIFB received the best performance award of Housing and Urban Development Corporation (HUDCO) in the category 'Best Performing Borrowing Agencies' for the outstanding performance in infrastructure development sector in April, 2022.

11.8 KASARAGOD DEVELOPMENT PACKAGE

The Kasaragod package envisions overall development of the District through infrastructure activities spread across sectors. The 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 ₹11,123.07 crore covering various sectors of which ₹2,524.56 crore is proposed as share of Government of Kerala, ₹756.19 crore as share of Government of India, ₹543.00 crore as share of external agencies, ₹7,264.16 crore as share of Central PSUs and ₹35.16 crore as share from other sources.

The projects mentioned in the Kasaragod Development Package commenced in 2013-14. An amount of ₹77,695.00 lakh was allocated in the State Budget for the implementation of Kasaragod Development Package up to 2022-23. From 2013-14 to October 2022, a total number of 558 projects with an outlay of ₹77,930.54 lakh were sanctioned under the package of which 394 projects have been completed and 164 projects are in the various stages of completion. Year on year variation is shown in few years in the expenditure and physical target set depending up on the completion of work.

The major projects undertaken in the financial year 2021-22 in the agriculture and allied sectors were irrigation and water conservation for ensuring the availability of water in the summer season and for agricultural activities. The total value of the projects for the sector is ₹948.47 lakh. In the education sector, infrastructure development of schools and colleges were given prime importance with sectoral allocation of ₹2,546.00 lakh. In the health sector, priority was given to infrastructure development of Family Health Centres (FHCs), Primary Health Centers (PHCs) and Taluk Hospitals and for providing basic facilities to health institutions.

The Government constituted a District-level committee of 16 members under the chairmanship of District Collector for granting administrative sanction for projects below ₹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 financial status of implementation of Kasaragod Development Package is given in **Tables 11.8.1 and 11.8.2.**

Table 11.8.1 Kasaragod Development Package – Financial Progress as on October 31, 2022

Financial Year	Budgeted Outlay (in lakh)	A.S Amount	Expenditure
2013-14	2500.00	2790.67	2309.05
2014-15	7500.00	9332.94	5367.07
2015-16	8500.00	9751.49	4778.21
2016-17	8798.00	14299.84	5638.33
2017-18	9000.00	7629.72	2468.71
2018-19	9500.00	7882.22	275.27
2019-20	9065.00	9048.73	2102.91
2020-21	7500.00	7500.00	4932.17
2021-22	7832.00	7892.57	6480.64
2022-23	7500.00	1802.37	2908.70
Total	77695.00	77930.54	37261.06

Table 11.8.2 Kasaragod Development Package – Physical progress, as on October 31, 2022

Financial Year	Projects Sanctioned	Projects Completed	On-going Projects
2013-14	28	28	0
2014-15	24	23	1
2015-16	76	74	2
2016-17	81	80	1
2017-18	62	55	7
2018-19	80	63	17
2019-20	55	32	23
2020-21	73	31	42
2021-22	62	8	54
2022-23	17	0	17
Total	558	394	164

CHAPTER

12

LOCAL GOVERNMENTS AND DECENTRALISED PLANNING

LOCAL GOVERNMENTS AND DECENTRALISED PLANNING

Experiences of 25 Years of Decentralisation – An Overview

The year 2021 marked the 25th anniversary of the inauguration of People's Plan Movement, which brought about fundamental changes in the structure, functions, roles, and objectives of Local Governments in the State. With the introduction of decentralised planning, which involved devolution of authority and financial resources, Local Governments were empowered to address the needs of the people and devise solutions at the grassroots level. They have also become instrumental in implementing programmes to ensure social welfare, social justice, and social security. Local Governments have also succeeded in asset creation in various sectors. The interventions of Local Governments in health, education, housing, and infrastructure development have been remarkable. The institutional strengthening and community ties of Local Governments in the past 25 years have been so rich, that in the face of large-scale emergencies such as the 2018 floods and the COVID-19 pandemic, Local Governments held great public trust and were successful organisers of vast and unprecedented efforts of civic cooperation.

The process of decentralisation in Kerala was launched during the 9th Five-Year Plan period as a "People's Plan Campaign" emphasising the concept of participatory planning. This was a

new four the period, people's representatives, and officials in Local Governments. During the 10th Plan the decentralisation programme in Kerala was restructured and named "Kerala Development Plan" (KDP). During the 11th Five-Year Plan, the process was again revamped by bringing back the concept of 'People's Planning', with focus on completing the institutionalisation of decentralisation. The 12th Five-Year Plan approach envisaged some steps to strengthen the planning process by leveraging information technology. The 13th Five-Year Plan emphasised de-bureaucratisation of the planning process so that there would be enough room for greater and more meaningful participation of the people at the grassroots level. During the 13th Plan, there were efforts to improve the quality of projects by expediting the planning process by providing necessary sanctions at the beginning of the financial year, so that Local Governments could avail more time for implementation. The 14th Five-Year Plan envisages greater participation of people, promotion of local economic development, employment generation, infusion of newer technologies and management concepts to enhance productivity and performance of various development sectors, better linkages with research and development institutions, widening the social welfare interventions, addressing issues related to climate change, managing waste, and accomplishing sustainable development goals.

At present, there are 1,200 Local Governments in Kerala, which include 941 Grama Panchayats, 152 Block Panchayats, 14 District Panchayats, 87 Municipalities and 6 Municipal Corporations.

Funds are devolved to Local Governments in three streams, as per the recommendations of State Finance Commissions. They are: General Purpose Fund for meeting the expenditure on traditional functions and establishment expenses, Maintenance Fund for the maintenance of assets of Local Governments including those transferred as part of decentralisation, and Development Fund (Plan allocation) for meeting the development expenditures.

In 2021-22, the State transferred four per cent of its Own Tax Revenue as General Purpose Fund and 6.5 per cent of its Own Tax Revenue as Maintenance Fund to Local Governments. The Government has accepted the recommendation of the 6th State Finance Commission to increase the Development Fund to 26 per cent of State Plan Outlay in 2021-22 (from 25 per cent in 2020-21), and then by half a per cent every year until it touches 30 per cent. In accordance with this, 26 per cent of the State Plan Outlay is devolved to Local Governments in 2021-22, and 26.5 per cent in 2022-23.

The allocation of development funds to Local Governments is being done under 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.

Review of the 13th Five-Year Plan

Navakeralathinu Janakeyasoothranam –Peoples' Plan for Sustainable Development

In the beginning of the 13th Five-Year Plan, some drastic and innovative changes were made in the Plan guidelines. These changes included rescheduling of the Plan process to enable the Local Governments to prepare their plans on time, integration of Plan and Budget, timely implementation and better utilisation of funds, opportunity for formulation and effective implementation of innovative projects, increasing allocation of funds to the productive sector, preparation of District plans and planning with the District as focus, formation of District Resource Centres, and efficient disaster preparedness in the wake of natural disasters. Over the last five years, the scoped roles of Local Governments have increased as never before.

The Budget allocation (Development Fund, Maintenance Fund and General Purpose Grant) to Local Governments in the 13th Five-Year Plan are outlined in **Table 12.1.1** and **Table 12.1.2**. The figures show that the Development Fund increased from 23.5 per cent of State Plan to 26 per cent, and there is remarkable increase in Maintenance Fund and General Purpose Grant.

Performance of 13th Five-Year Plan

Local Governments allocate their Plan funds mainly to productive, service, and infrastructure sectors. The productive sector includes agriculture and allied sectors, soil and water conservation, irrigation, and

Table 12.1.1 Budget allocation (Development Fund) to Local Governments, during 13th Plan period (2017-18 to 2021-22) (₹ in crore)

Year	State Plan Outlay	Allocation to Local Governments					% to State Plan Outlay
		General Sector			Tribal Sub Plan	Total	
		Normal share	Central Finance Commission Award	Scheduled Caste Sub Plan			
2017-18	26,500	3,371.57	1,507.88	1,172.05	176.00	6,227.50	23.5
2018-19	29,150	3,777.58	1,739.56	1,289.26	193.60	7,000.00	24.0
2019-20	30,610	3,604.62	2,338.55	1,353.84	202.99	7,500.00	24.5
2020-21	27,610	3,534.60	1,964.15	1,221.15	183.10	6,903.00	25.0
2021-22	27,610	3,421.75	2454.00	1,221.15	183.10	* 7,180.00	26.0
Total	1,41,480	17,710	10,004	6,257	939	27,630.50	25.0

* Including Health Grant of ₹559 crore awarded by Fifteenth Finance Commission

Source: Budget Documents, various years

Table 12.1.2 Devolution of Maintenance Fund and General Purpose Fund to Local Governments during 13th Plan period (2017-18 to 2021-22). (₹ in crore)

Year	Maintenance Fund			General Purpose Fund	Total
	Non-Road	Road	Total		
2017-18	655.03	1,528.41	2,183.44	1,364.66	3,548.10
2018-19	703.16	1,640.72	2,343.88	1,426.71	3,770.59
2019-20	822.34	1,918.78	2,741.12	1,626.09	4,367.21
2020-21	883.15	2,060.68	2,943.83	1,717.23	4,661.06
2021-22	1,218.62	1,949.80	3,168.42	1,949.80	5,118.22
Total	4,282.83	9,098.39	13,380.69	8,084.49	21,465.18

Source: Budget Documents, various years

industries. The service sector consists of education and allied sectors, health and allied services, development of women and children, welfare of elderly etc. The infrastructure sector includes energy, transportation, and buildings. The total Plan grant-in-aid with Local Governments for allocating funds to various development sectors during 13th Plan was ₹34,810.50 crore. Out of the total fund, ₹27,797.13 crore was utilised for different sectors. The details of Budget outlay and expenditure of Plan fund during 13th Plan is given in **Table 12.1.3**.

Scheduled Castes Sub Plan and Tribal Sub Plan during 13th Five-Year Plan

The Scheduled Castes Sub Plan and Tribal Sub Plan are implemented in Kerala to provide special protective measures to safeguard the interest of people of Scheduled Caste (SCs) and Scheduled Tribe (STs). This ensures social equality through comprehensive measures of social justice. Social equality means ensuring equity between marginalised sections on the one hand, and socially advanced castes on the other, in all parameters of life – economic, occupational, educational, residential facilities, health, nutrition etc. As one of the major objectives of decentralised planning is to ensure social equity and to improve the socio-

economic status of people of Scheduled Castes and Scheduled Tribes and enhancing their quality of life, the devolution under SCSP and TSP has prime importance.

The allocation of Plan funds to SCSP and TSP from State Plan outlay is done according to the ratio of population of SCs and STs to total population of the State. In Kerala, a notable features is that the State allocates more funds in these two sectors to ensure socio-economic upliftment. Out of the total SCSP/TSP Plan outlay, a certain percentage of funds are earmarked to Local Governments for implementation of schemes under decentralised planning. The projects under the SCSP/TSP can be categorised into two – the beneficiary oriented schemes and infrastructure development schemes. The outlay and expenditure for each category is shown in **Table 12.1.4**. The data shows a clear upward trend in expenditures in SCSP and TSP over the years. In the last two years, there has been remarkable increase in expenditure. `

Performance of SCSP and TSP in 13th Plan (2017-18 to 2021-22)

During the 13th Plan period, an increasing trend in expenditure of SCSP and TSP sectors is seen. In

Table 12.1.3 Budgeted outlay and Expenditure of Development Fund during 13th Plan Period (2017-18 to 2021-22 (₹ in crore)

Year	Budgeted outlay	Expenditure	Percentage
2017-18	6,227.50	5292.71	84.99
2018-19	7,000.00	5696.08	81.37
2019-20	7,500.00	4027.44	53.70
2020-21	6,903.00	6927.83	100.36
2021-22	* 7,180.00	5853.07	*88.38
Total	34,810.50	27,797.13	79.85

* Health grant of ₹559 crore was not released

Source: Budget Documents, various years and LSGD website

Table 12.1.4 SCSP and TSP Budget Allocation and Expenditure during 13th Five-Year Plan (2017-18 to 2021-22), (₹ in crore)

Sl. No	Year	SCSP			TSP		
		Budgeted Outlay	Expenditure	%	Budgeted Outlay	Expenditure	%
1	2017-18	1196.377	938.598	78.45	178.737	157.098	87.89
2	2018-19	1289.260	1070.070	83.00	193.600	164.735	85.09
3	2019-20	1353.902	748.533	55.29	202.990	115.691	56.99
4	2020-21	1221.210	1147.062	93.93	183.200	179.411	97.93
5	2021-22	1221.150	1131.307	92.64	183.100	186.413	101.81
Total		6281.89	5035.57	80.16	941.62	803.34	85.31

Source: Information Kerala Mission 2022

2017-18, the expenditure in SCSP was 78.45 per cent, which increased to 92.64 per cent in 2021-22. However, the year 2019-20 witnessed a reduction in expenditure, due to COVID-19 and the related circumstances. Similarly, TSP expenditure increased from 87.89 per cent in 2017-18 to 101.81 per cent in 2021-22, including spill-over expenditures. This is shown in **Figure 12.1.1**.

Expenditure Performance in Production, Service and Infrastructure sector during 13th Five-Year Plan

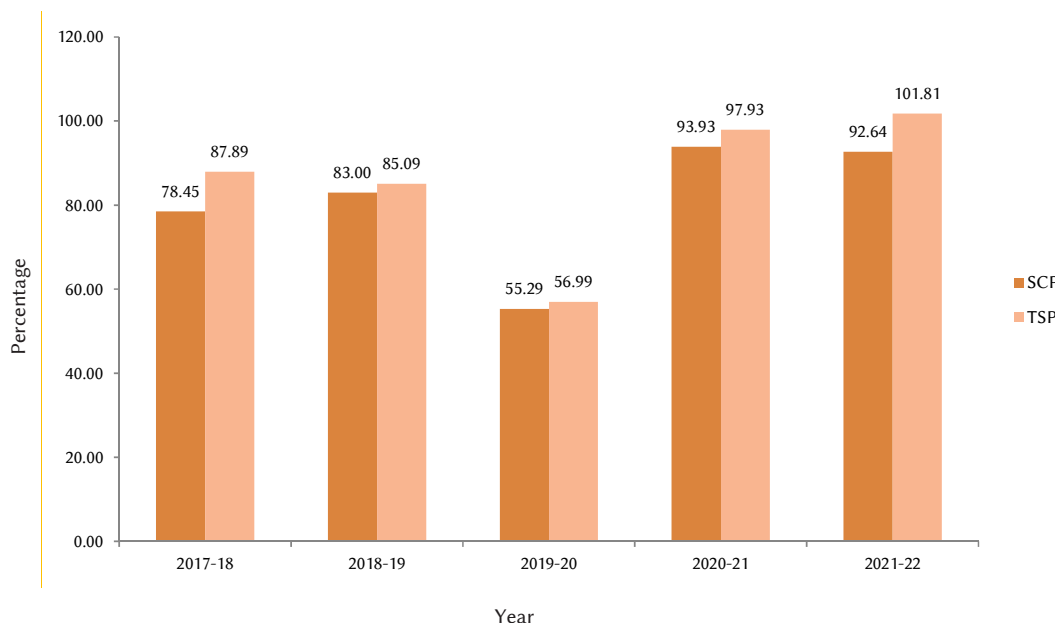
The expenditure performance of production, service, and infrastructure sectors against total expenditure from 2017-18 to 2021-22 is shown in

Figure 12.1.2. In the production sector, expenditure in 2017-18 was 14.08 per cent of the total expenditure. This has stayed mostly stable over subsequent years. The proportion of expenditure in service sector showed an increase from 56.84 per cent in 2017-18 to 72.19 per cent in 2021-22. In the infrastructure sector, it was 29.08 per cent in 2017-18 and 14.18 per cent in 2021-22. However, expenditure in infrastructure has ups and downs in various years. The details are shown in **Figure 12.1.2** and in **Appendix 12.1.1**.

Performance in Production Sector during 13th Plan Period (2017-18 to 2021-22).

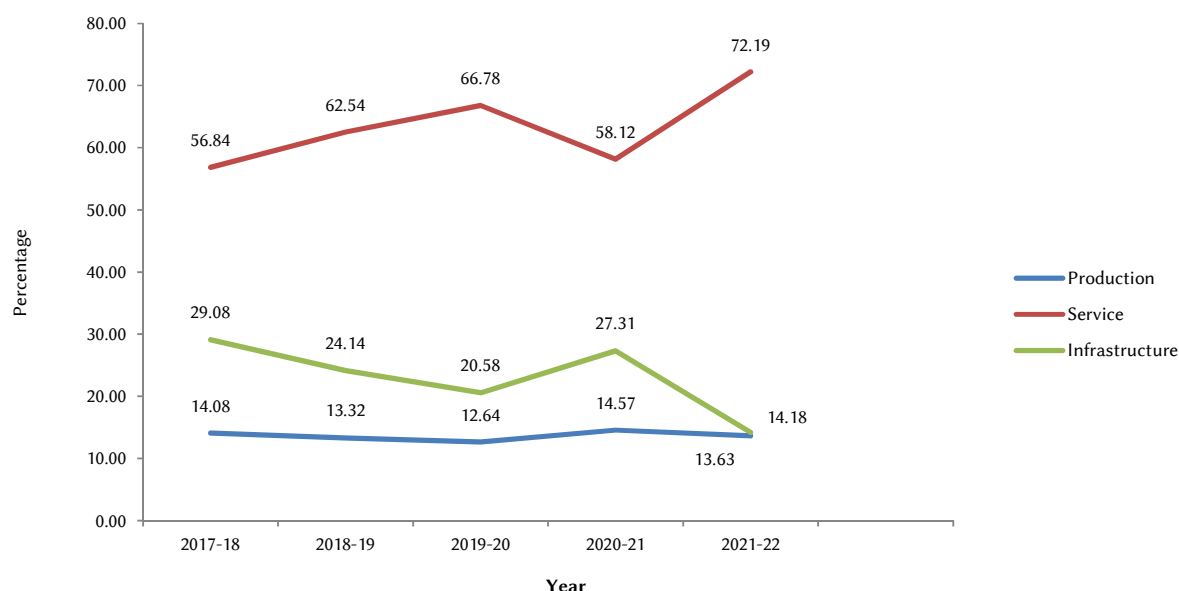
On further analysis of the total expenditure in

Figure 12.1.1 Sector-wise performance in SCSP and TSP from 2017-18 to 2021-22 (in percentage)



Source: Information Kerala Mission 2022

Figure 12.1.2 Expenditure Performance in Production, Service and Infrastructure sector during 13th Plan period (2017-18 to 2021-22), (in percentage)

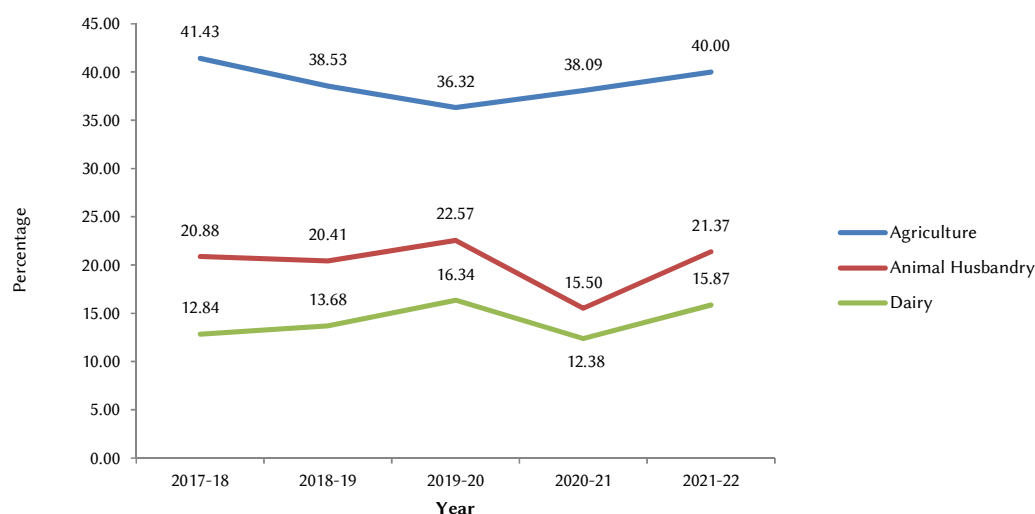


Source: Information Kerala Mission 2022

production sector, it is seen that expenditure by Local Governments in the agriculture sector has remained stable, with slight ups and downs during the 13th Five-Year Plan. In 2017-18, the expenditure in agriculture was 41.43 per cent, and 40.00 per cent in 2021-22. Likewise in animal husbandry, in 2017-18, expenditure was 20.88 per cent and 21.37 in 2021-22. In dairy sector, the expenditure was almost stable with as much as 12.84

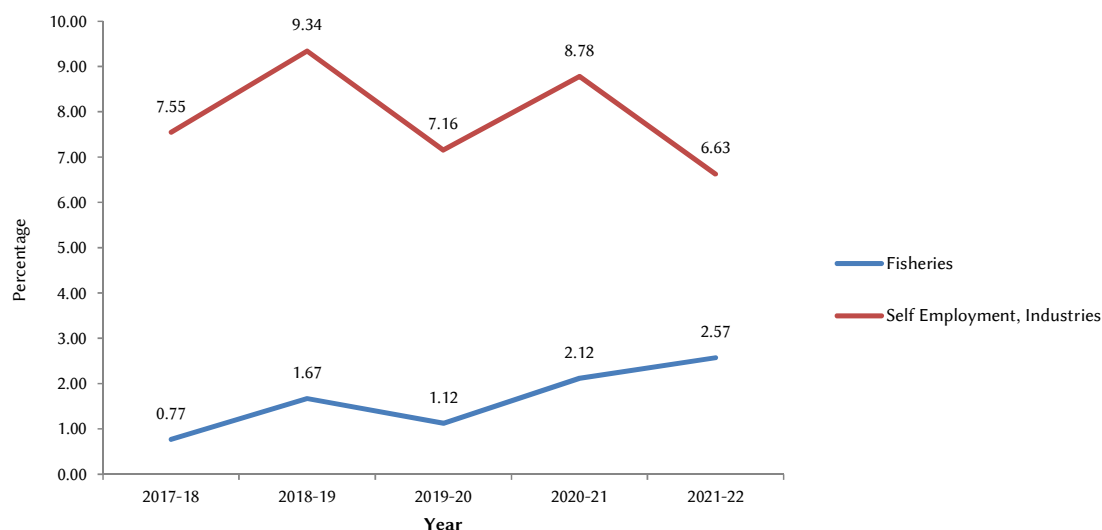
per cent in 2017-18 and 15.87 per cent in 2021-22. In fisheries sector, the expenditure was 0.77 per cent in 2017-18 which increased to 2.57 in 2021-22. On the other hand, expenditure in sectors like self-employment, industries etc., was 7.55 per cent in 2017-18 and 6.63 per cent in 2021-22. The details are shown in **Figures 12.1.3 (a), 12.1.3 (b)** and in **Appendix 12.1.2**.

Figure 12.1.3 (a) Sub-sector-wise expenditure Performance under Production Sector during 13th Plan (2017-18 to 2021-22), (in percentage)



Source: Information Kerala Mission 2022

Figure 12.1.3 (b) Sub-sector-wise Expenditure Performance under Production Sector during 13th Plan (2017-18 to 2021-22), (in per cent)



Source: Information Kerala Mission 2022

Plan Performance of Local Governments – 2021-22

As mentioned, Development Fund is the main source of funding for Local Governments. In 2021-22, the total budgeted outlay under Development Fund for Local Governments was ₹7,180.00 crore. The health grant of ₹559.00 cores was not released. The expenditure was ₹5,853.07 crore, which was 88.38 per cent of the budgeted outlay excluding the Health Grant.

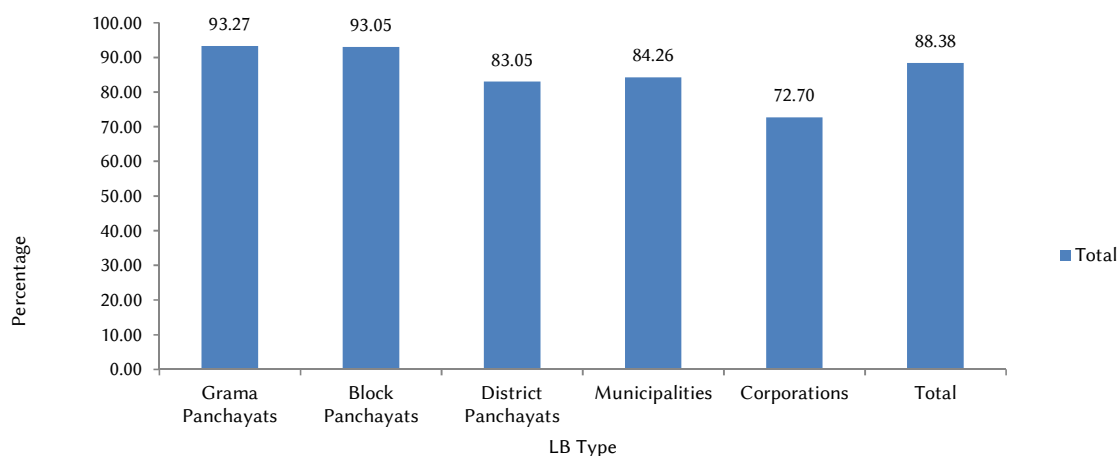
The overall expenditure performance of Grama Panchayats and Block Panchayats has been above 90

per cent, and 83.05 per cent in District Panchayats. Municipalities have achieved 84.26 per cent. The expenditure of Municipal Corporations has been above 70 per cent. The tier-wise expenditure details are given in **Figure 12.1.4**.

Category-wise Expenditure in 2021-22

The allocation of Development Fund to Local Governments falls in three categories – General Sector, Scheduled Caste Sub Plan (SCSP) and Tribal Sub Plan (TSP). On analysing the total expenditure of ₹5,853.07 crore, it is seen that ₹4,535.35 crore

Figure 12.1.4 Expenditure per cent against Budget amount in 2021-22 (in percentage)



Source: Information Kerala Mission 2022

was in general sector, ₹1,131.30 crore in SCP, and ₹186.41 crore in TSP including spill over. In Grama, Block, and District Panchayats in 2021-22, it is remarkable that the expenditure performance of SCSP and TSP is higher than of General Sector funds. Urban Local Governments (both Municipalities and Municipal Corporations) have incurred higher expenditure under SCP as compared to General Sector funds. The details are given in **Figure 12.1.5** and **Appendix 12.1.3**.

Sectoral Analysis of Expenditure in 2021-22

The Annual Plan guidelines require Local Governments to allocate funds in three sectors- production, service and infrastructure, based on sectoral norms. Accordingly, Grama Panchayats, Block Panchayats, and District Panchayats should allocate at least 30 per cent of Normal Share under General Sector Fund to the production sector (Urban Local Governments should allocate 10 per cent for production sector). All the Local Governments should earmark at least 10 per cent of the total Development Fund (other than Fifteenth Finance Commission Grant) for the Women Component Plan, five per cent for the welfare and development of children, differently-abled and transgender, and at least five 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 development fund to the

infrastructure sector. It is 25 per cent and 45 per cent for Block and District Panchayats, respectively. In Urban Local Governments, it is 50 per cent.

The sector-wise performance is given in **Figure 12.1.6**. Of total expenditure of ₹5,853.07 crore, ₹797.97 crore was in the production sector (13.63 per cent), ₹4,225.17 crore in the service sector 72.19 per cent), ₹829.92 crore in infrastructure (14.18 per cent). Details are given in **Appendix 12.1.4**.

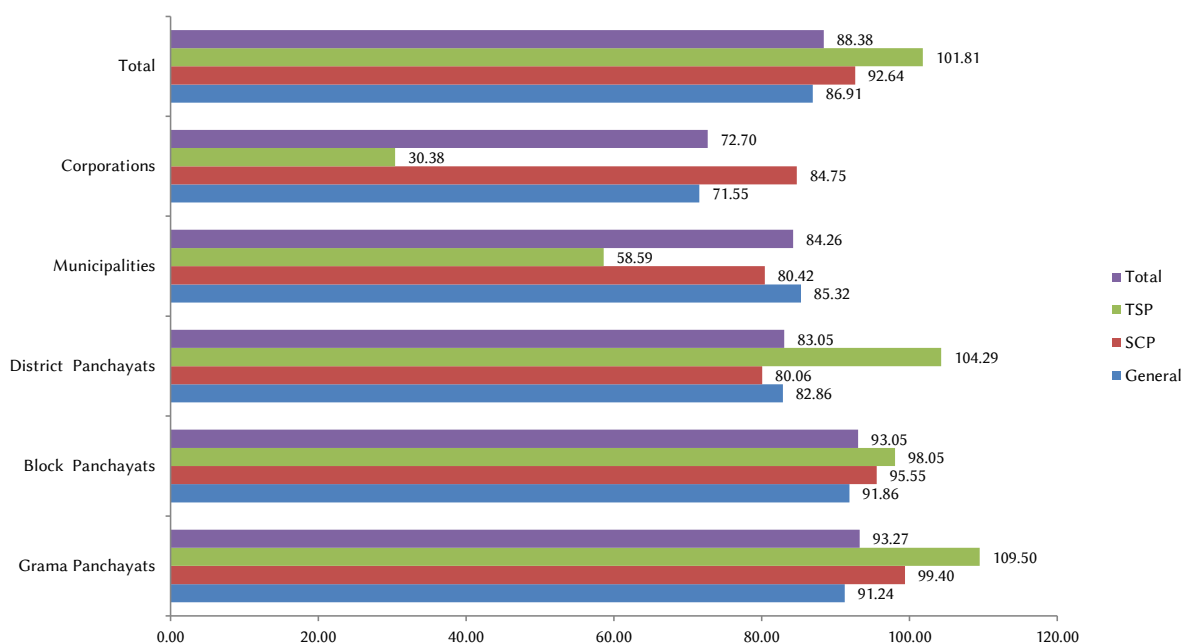
Production Sector Expenditure in 2021-22

Figure 12.1.7 shows the sub sector-wise expenditure of Local Governments in production sector. Of the total expenditure incurred in production, 40.85 per cent was in agriculture followed by animal husbandry (21.80 per cent), dairy development (16.31 per cent), soil and water conservation (8.04 per cent), industry and self-employment (5.86 per cent), fisheries (2.74 per cent), and irrigation (2.55 per cent). Details are in **Appendix 12.1.5**.

Service Sector Expenditure in 2021-22

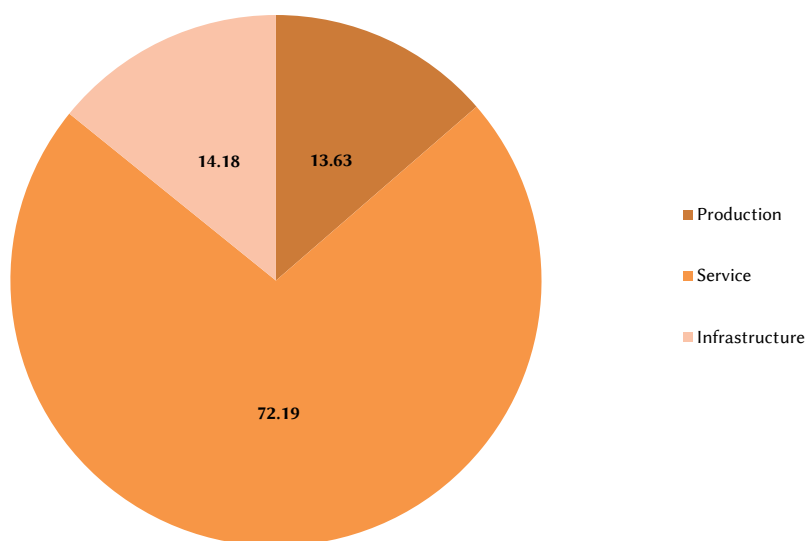
The sub sector-wise expenditure in Service Sector undertaken by Local Governments is shown in **Figure 12.1.8**. There are 19 sub sectors under service sector including housing, education, social welfare, sanitation and waste processing, health etc. Out of the total expenditure in the service sector, 38.03 per

Figure 12.1.5 Category-wise expenditure of Local Governments against Budget in 2021-22 (in per cent)



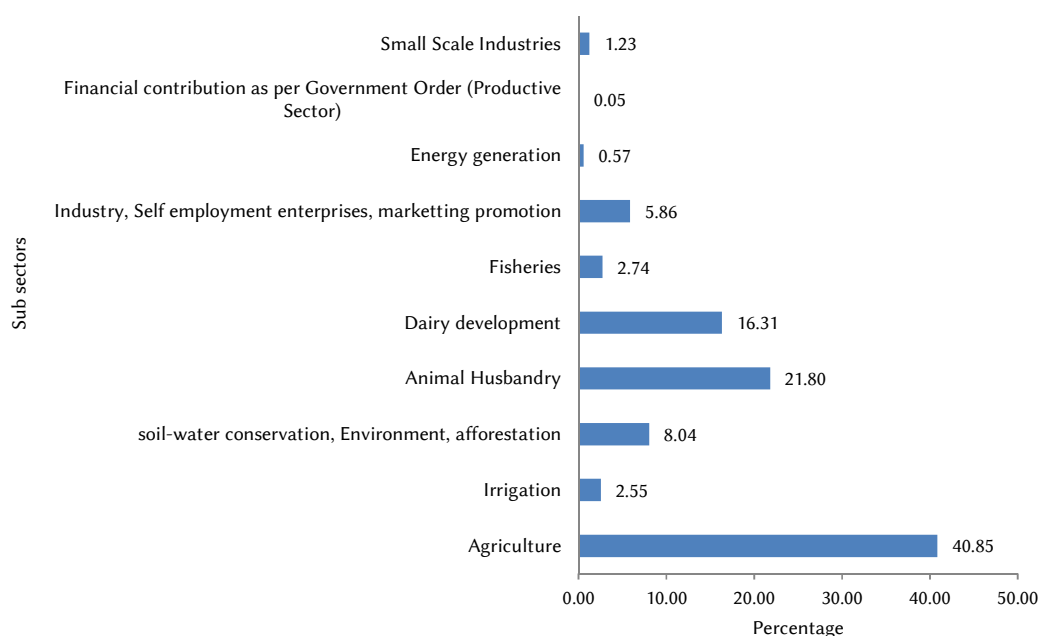
Source: Information Kerala Mission 2022

Figure 12.1.6 The share of various sectors in the total expenditure incurred by the Local Governments in 2021-22 in per cent.



Source: Information Kerala Mission 2022

Figure 12.1.7 Sub-sector-wise productive sector expenditure incurred by the Local Governments in 2021-22 (in per cent)



Source: Information Kerala Mission 2022

cent of expenditure was incurred in housing and house electrification, followed by 10.82 in sanitation and waste processing, 9.62 in education, and 8.41 in drinking water sector. The mandatory allocation towards housing by all Local Governments explains

the high expenditure in housing. Local Governments 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 Local Governments 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 Central Finance Commission. Details are given in **Figure 12.1.8** and **Appendix 12.1.6**.

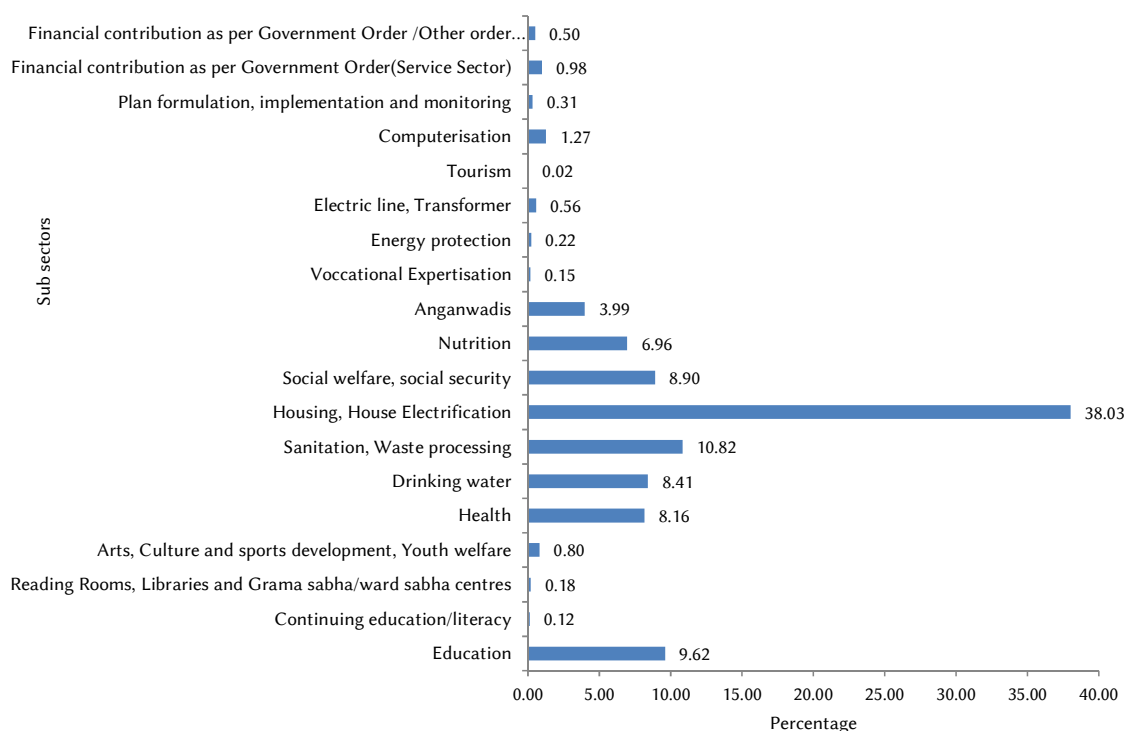
Infrastructure Expenditure in 2021-22

There are 7 sub sectors in the infrastructure sector, including transport, public buildings, street lights etc. In 2021-22, of the total expenditure in the infrastructure sector, a major portion (64.65 per cent) has been utilised for transport which includes roads and bridges. Public buildings with 16.96 per cent, and street lights and electrification with 14.77 per cent are the next highest. Sub sector-wise expenditure details under infrastructure sector in 2021-22 are given in **Figure 12.1.9** and **Appendix 12.1.7**.

Performance under Special Sector Plans in 2021-22

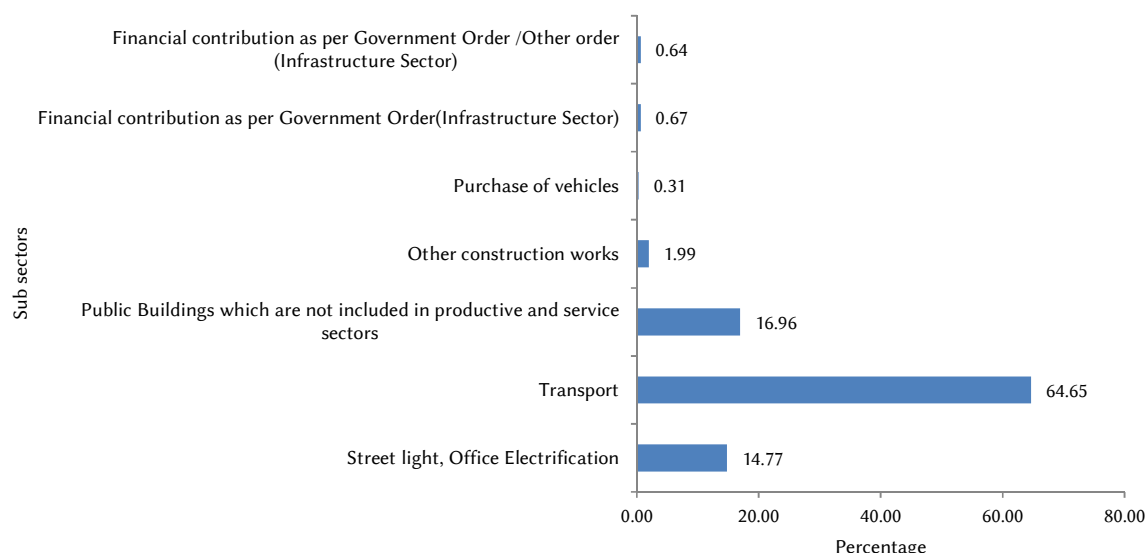
The Women Component Plan (WCP) and Plans for disadvantaged groups (aged, children, differently abled, palliative care, and transgender) by Local Governments are noteworthy features of Kerala's decentralised planning. Local Governments have to earmark 10 per cent of the total Normal share of General sector funds, SCP, and TSP towards Women Component Plan (WCP), and five per cent for children, persons with disabilities, and transgender, and another five per cent for the development of elderly and palliative care projects. The expenditure on WCP in 2021-22 was ₹327.44 crore. For the special programme for children and for persons with disabilities, ₹164.76 crore and ₹81.95 crore respectively, was spent. Expenditure on projects for the elderly was ₹107.36 crore, and ₹88.06 crore for palliative care. On projects for transgenders, the expenditure was ₹0.07 crore. The details of expenditure for special sector Plans in 2021-22 are given in **Table 12.1.5** and **Appendix 12.1.8**.

Figure 12.1.8 Sub-sector-wise expenditure share of service sector in 2021-22, in per cent



Source: Information Kerala Mission 2022

Figure 12.1.9 Sub-sector-wise Expenditure Share of Infrastructure Sector in 2021-22, in per cent



Source: Information Kerala Mission 2022

Table: 12.1.5 Expenditure for Special Sector Plan 2021-22 (₹ in crore)

Sl. No	Special Sectors	Expenditure
1	Women Component Plan	327.44
2	Special Plan for children	164.76
3	Special Plan for the aged	107.36
4	Special Plan for the differently abled	81.95
5	Palliative care projects	88.06
6	Special Plan for the Transgender	0.07

Source: Information Kerala Mission, 2022

Women Component Plan during 13th Five-Year Plan (2017-18 to 2021-22)

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.

WCP projects are mainly basic livelihood activities in the primary sector. Over five years, animal

husbandry has had the largest number of projects (16,353), followed by agriculture (9,496), self-employment and industries (7,236), dairy (1,347), and small industries (1,170). Very few projects were taken up in fisheries (346). Of the total expenditure under WCP over 5 years, animal husbandry has the largest share (47.22 per cent), followed by agriculture (22.75 per cent), self-employment and industries (20.24 per cent), and dairy 6.94 per cent. The details are shown in **Table 12.1.6 (a)** and **12.1.6 (b)** and in **Appendix 12.1.9**.

As the State gives high priority to the upliftment of women, formulation and implementation of projects under WCP needs to be evaluated thoroughly. Rather than conventional projects which distribute various inputs to beneficiaries, comprehensive growth-oriented projects that address specific gender concerns and facilitate employment generation and entrepreneurship development must be formulated. This would require more guidance and training to be provided to the Local Governments to ensure outcome-based quality planning of WCP projects.

Disaster Management Plans

Over the last few years, frequent natural disasters such as flood, coastal erosion, drought and landslides, and climatic variations have been affecting the State, posing serious challenges to livelihood security and economic development. To mitigate the impact of such disasters and to improve disaster preparedness, all Grama Panchayats and Urban Local

Table 12.1.6 (a) Women Component Plan – Project Number and Expenditure Percentage Details in Agriculture, Animal Husbandry and Dairy (2017-18 to 2021-22)

Year	Agriculture		Animal Husbandry		Dairy	
	No of Projects	Exp %	No of Projects	Exp %	No of Projects	Exp %
2017-18	1616	21.78	3015	53.07	202	5.41
2018-19	1803	21.60	2968	47.52	208	5.23
2019-20	1744	19.70	3272	51.68	261	7.90
2020-21	2436	25.24	3738	39.01	362	7.21
2021-22	1897	23.54	3360	48.82	314	8.69
Total	9496	22.75	16353	47.22	1347	6.94

Source: Information Kerala Mission, 2022

Table 12.1.6 (b) Women Component Plan – Project Number and Expenditure Percentage Details in Fisheries, Small Scale Industries and Self Employment (2017-18 to 2021-22)

Year	Fisheries		Small Scale Industries		Self Employment, Industries	
	No of Projects	Exp %	No of Projects	Exp %	No of Projects	Exp %
2017-18	37	0.38	0	0	1457	19.37
2018-19	32	0.17	46	0.64	1785	24.83
2019-20	24	0.07	267	1.63	1443	19.02
2020-21	100	0.41	463	4.74	1476	23.39
2021-22	153	0.80	394	3.86	1075	14.28
Total	346	0.40	1170	2.45	7236	20.24

Source: Information Kerala Mission, 2022

Governments in the State prepared Local Disaster Management Plans in 2019-20, for the first time in the Country. The Disaster Management Plan of the Local Government includes: a) profile of Local Governments, b) hazard and vulnerability profile, c) capacity and resources of the Local Government, d) response plan, and e) preparedness, mitigation and community resilience plan. It has been insisted that Local Governments must include projects of 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 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 pathways to achieve it. The details of disaster management projects in 2021-22 are shown in **Table 12.1.7** and **Appendix 12.1.10**.

Table 12.1.7 Local Governments-wise Disaster Management Projects 2021-2022, (₹ in crore)

Sl No	LB Type	No of Projects	Expenditure
1	Grama Panchayat	1883	28.00
2	Block Panchayat	122	4.75
3	District Panchayat	35	6.01
4	Municipality	215	8.98
5	Corporation	84	2.04
Total		2339	49.79

Source: Information Kerala Mission 2022

COVID-19 Pandemic and Local Government Initiatives

Local Governments played a crucial role in managing COVID-19 in the State. As part of colossal efforts to restrict the spread of the pandemic and mitigate its impact on the lives of people, Local Governments formulated special projects as part of their Annual Plan in 2021-22. These were for creating infrastructure, procuring medicine, formulating

post-COVID treatment initiatives, improving hospital amenities, providing aid to patients, ensuring food and medicine to the poor, etc. The details are shown in **Table 12.1.8** and **Appendix 12.1.11**.

Table 12.1.8 COVID Special Projects – Local Governments-wise Consolidated Details 2021-2022 (₹ in crore)

Sl No	LB Type	No of Projects	Expenditure
1	Grama Panchayat	2095	42.42
2	Block Panchayat	357	9.93
3	District Panchayat	79	16.44
4	Municipality	262	27.10
5	Corporation	36	6.50
Total		2829	102.39

Source: Information Kerala Mission 2022

In 2020-21, a total of 784 projects were taken by various tiers of Local Governments. This has increased to 2829 projects in 2021-22.

Award of 15th Union Finance Commission Grants to Local Governments (2021-22) – a move towards more tied activities.

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 provided grants to Village Panchayats only. In a major departure from previous practice, 15th UFC recommended grants to Urban Local Governments under two categories for the first time: (a) Million-plus urban agglomerations/cities and (b) all other cities and towns with less than one million population. The guidelines issued by the Government of Kerala for the utilisation of 15th Finance Commission Award stipulated that each Local Government 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 UFC, flexibility in spending has been reduced considerably. The 14th Finance Commission gave the bulk of 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 has made all grants to million-plus cities and 60 per cent of grants to other cities and rural local bodies, conditional. In addition, these tied grants can be utilised only for two critical services, water and sanitation, with a condition of 50 per cent each. Imposing conditionalities for grants to Local Self Governments through the States is not in accordance with the spirit of co-operative federalism. Levels of development differ across States and this necessitates complete flexibility in the use of grants. The details are shown in **Tables 12.1.9** and **12.1.10**.

Table 12.1.9 15th Finance Commission Untied Grants – Local Governments-wise Consolidated Details of Projects 2021-2022 (₹ in crore)

Sl. No.	Type of Local Bodies	No of Projects under Untied fund	Expenditure (untied)
1	Grama Panchayats	15656	334.32
2	Block Panchayats	1875	76.03
3	District Panchayats	677	64.49
4	Municipalities	4105	117.74
5	Corporations	0.00	0.00
Total		22313	592.57

Source: Information Kerala Mission 2022

Table 12.1.10 15th Finance Commission Tied Grants – Local Body-wise Consolidated Details of Projects 2021-2022 (₹ in crore)

Sl. No.	Type of Local Bodies	No of Projects under Tied fund	Expenditure (tied)
1	Grama Panchayats	19706	385.25
2	Block Panchayats	2374	86.60
3	District Panchayats	1149	65.07
4	Municipalities	3759	154.25
5	Corporations	932	59.94
Total		27920	751.11

Source: Information Kerala Mission 2022

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 Local Governments. A key objective of decentralised planning is to analyse a specific problem in an area and formulate appropriate solutions based on the resource potential of that area. However, many of the projects thus conceptualised may be difficult to implement in accordance with the existing norms. A District-Level Expert Committee chaired by the District Collector was constituted to

examine and approve innovative projects of the Local Governments. **Table 12.1.11** shows the details of innovative projects taken by local bodies in 2021-22. In the innovative project category, there were 85 projects in the production sector with an expenditure of ₹4.21 crore, and 72 projects in the service sector with an expenditure of ₹4.33 crore. There were no innovative projects in the infrastructure sector. Local Governments have not fully utilised the possibilities of drawing up innovative ideas and projects, and should be oriented on concept and project development.

Table 12.1.11 Innovative Projects – Local Governments-wise Consolidated Details of Projects 2021-2022 (₹ in crore)

Sl No	LB Type	Production		Service		Total	
		No of Projects	Expenditure	No of Projects	Expenditure	No of Projects	Expenditure
1	Grama Panchayat	34	0.32	26	0.17	60	0.49
2	Block Panchayat	28	2.05	28	1.31	56	3.35
3	District Panchayat	16	1.83	13	2.62	29	4.45
4	Municipality	6	0.00	4	0.25	10	0.25
5	Corporation	1	0.00	1	0.00	2	0.00
Total		85	4.21	72	4.33	157	8.55

Source: Information Kerala Mission 2022

Box 12.1.1 Health Grant

The 15th Central Finance Commission, in its final report (Chapter 7 – Empowering Local Government), has recommended a total grant of ₹4,27,911 crore for Local Governments, for the award period 2021-22 to 2025-26. Of this, the Commission has inter-alia decided to provide grants amounting to ₹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 and 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. In order to achieve the objective of universal health, Rural and Urban Local Governments can play a key role in the delivery of primary health care service, especially at the 'cutting edge' level. Strengthening Local Governments in terms of resources, health infrastructure, and capacity building can enable them to play a catalytic role in health care delivery, including in times of crisis. Therefore, involving Panchayati Raj Institutions as supervising agencies of these primary health care institutions would strengthen the overall primary health care system, and involvement of Local Governments would also make the health system accountable to the people.

In the light of this, the 15th Finance Commission has decided to earmark a part of the Grant to support of primary health care. The components identified for upgradation of primary health care infrastructure in Rural and Urban areas in Kerala are listed in **Table 12.1.12**.

Table 12.1.12 Details of 15th Finance Commission Health Sector Grants to Kerala (₹ 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

14th Five-Year Plan (2022-27) – Towards Sustainable Development and Local Economic Growth

In the 14th Five-Year Plan period, the State envisages revitalisation of the system of democratic governance based on the experiences of the past. The year under review witnessed major changes in the approaches of Local Governments, in accordance with the approach of the 14th Five-Year Plan of the State.

The 14th Five-Year Plan marked the completion of twenty-five years of People's Plan movement, which was launched as part of decentralisation of power in Kerala. This experience has significantly increased the efficiency of Local Governments in the State and enhanced their capacity to plan and implement diverse development programmes. The 14th Five-Year Plan aims to further increase the capacity and efficiency of Local Government institutions in dealing with several emerging challenges. One of the major objectives is to simplify and streamline the planning, execution, and associated activities of development projects, by minimising unnecessary delay in procedures and other restrictions. Focus is also given to ensure co-ordinated activities of development departments and other institutions at various levels of planning and implementation of development projects by Local Governments.

The general approach of the 14th Five-Year Plan

is to develop Local Governments as centres of sustainable regional economic growth. The 14th Five-Year Plan envisages an active role of Local Governments in enhancing production and productivity in the primary sector, creating and catalysing growth and employment generation in the secondary and service sectors, encouraging scientific natural resource management, promoting inclusive development and poverty alleviation, and enhancing the quality of service delivery.

Kerala is the only State that transfers more than 25 per cent share of the Plan Budget to local bodies. In fact, rural development, urban development, Centrally Supported Schemes implemented through Local Governments, and related programmes take up about 40 per cent of the Plan Budget. In fact, Local Governments play a central role in implementation, and are crucial to the success of a wide range of schemes and programmes of the Government of Kerala.

More specifically, the 14th Five-Year Plan will support efforts by Local Governments to enhance production and productivity in agriculture, animal husbandry, dairy development, and fisheries. Local Governments would also facilitate the growth of employment in industry and services, and are crucial to simplifying the procedures associated with investment, thus encouraging the growth of industrial and other forms of capital investment at all

levels in the State. Kudumbashree programmes will be further strengthened by integrating them with the development programmes of Local Governments and expanding the spectrum of development interventions and enterprises that they undertake.

Local Governments plan to integrate the provisions of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) with local-level development programmes for production in the primary sector and for community asset creation. Kerala pioneered urban employment guarantee programmes in the country, and will strengthen the Ayyankali Urban Employment Guarantee Scheme (AUEGS) in the 14th Five-Year Plan period.

Local Governments have a special duty in planning for the welfare of the people of the Scheduled Castes and Scheduled Tribes. The 14th Five-Year Plan will support the efforts of Local Governments to utilise Scheduled Caste Sub-Plan, Tribal Sub-Plan, and Local Government development funds to enhance welfare, employment, and income generation in this sphere.

Local Governments implement a range of special-sector programmes, which include programmes designed to serve the special needs of women, children, transgenders, persons with disabilities, and senior citizens, and persons under palliative care. The 14th Five-Year Plan will continue to support these measures.

The Government of Kerala has unified the 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). Local Governments are crucial to its successful implementation.

The 14th Five-Year Plan will support efforts by local bodies to sustain and improve the accomplishments of the State with respect to the Sustainable Development Goals (SDGs) of the United Nations.

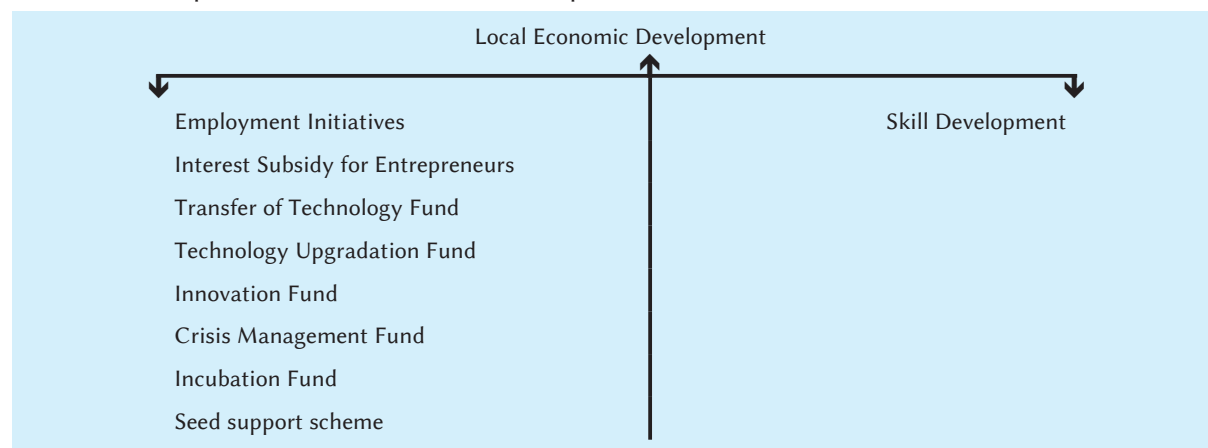
The 14th Five-Year Plan of the State Government places special emphasis on the issues arising due to rapid urbanisation in Kerala. It recognises the importance of developing appropriate strategies and programmes to cope with challenges and opportunities thrown up by the process of urban growth.

District Resource Centres

District Resource Centres were formed to enhance the knowledge content of the Plans prepared by the Local Governments, and to make the planning process more participatory. District Resource Centres are expert committees formed in the Districts under the leadership of District Planning Committees to ensure the services of experts, academic institutions, professionals from development/research/technical institutions and government departments, in order to improve the quality and knowledge content of Local Plans, to

New Initiatives in 14th Five-Year Plan

Box 12.1.2 Components of Local Economic Development



Box 12.1.3 Thozhil Sabhas

As part of the Kerala's initiative to lead the youth towards employment and entrepreneurship, Thozhil Sabha has been launched. Thozhil Sabha will be micro-level platforms to identify job seekers on ward-basis, organise them on Gram Sabha model, and enable job planning on Local Government 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 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 Local Governments.

This new concept of organising youth locally and bringing them to work under the leadership of Local Governments will be the first of its kind in the world. Thozhil Sabhas are intended to improve the skills of job seekers by identifying local enterprises and employment opportunities, and to make them more employable through skill development. A new phase of the State Government joining hands with the Local Governments to take up local economic development programs for the comprehensive growth of Kerala has been started through these activities.

infuse new technologies and knowledge, and to provide the services of experts and educational and research institutions in the formulation of Local Plans. In September 2019, the Government directed all District Planning Committees (DPC) to form District Resource Centres consisting of professionals from development, research, and technical institutes, as well as retired experts from Government departments. The main functions of DRC are:

- a. To conduct studies in areas and topics required by the DPC, as well as the Local Governments.
- b. Give technical advice to improve the knowledge content of Local Government Plans.
- c. To prepare DPRs on projects as required by Local Governments.
- d. To scrutinise the Plans prepared by Local Governments, point out weaknesses, and suggest measures to improve it.
- e. To study model projects and bring it to the attention of the State, and
- f. Revision of the District Plan every year.

This is expected to help improve quality of Plans of Local Governments, and in turn give emphasis to areas that require core attention.

Extreme Poverty Eradication and Micro Plan preparation

During the 14th Five-Year 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. The task of identifying the extreme poor in the State has been accomplished with people's participation. A total of 64,006 families have been identified as extremely poor in the State, of which 12,763 belong to SC, 3,021 belong to ST, and 48,222 belong to others. Food, shelter, income, and medical assistance were the criteria based on which the extreme poor were identified. Local Governments have started drawing up micro-level plans to address each of the factors that contribute to extreme poverty after collecting further details of these families. The guidelines insist that the ideas and suggestions of the identified families should also be considered while preparing the Micro Plan. 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. Services like providing the families with ration cards, Aadhaar card, health insurance, food, health care etc., have been included under this plan. The services or schemes that can be provided in a span of three months to two years have been included under Intermediate Plan. Basic facilities, educational assistance, rehabilitating people living in streets to care homes, continuous medical help, connecting the identified families to various government health schemes, are included under this category. In cases

where immediate or intermediate intervention would not be adequate, the Local Government has to prepare Long-Term Comprehensive Plan.

At the Local Government-level, various interventions identified in the Micro Plan would be grouped across sectors, and projects would be formulated by the concerned Working Group under the respective implementing officer. The implementation process will be initiated after vetting and approval by District Planning Committee. Kudumbashree has been entrusted with the responsibility of assisting the Local Governments in preparation of the Micro Plans as well as their implementation and monitoring.

As per the latest data from Extreme Poverty Eradication Cell, ration cards have been issued to 2,516 people, Aadhaar cards have been issued to 2,262, Voters ID have been issued to 6,770 people, 22,233 have been connected to health systems, and 14,618 have been provided food.

Way Forward

Kerala has been a leader in participatory and decentralised development, and has been recognised highly nationally and internationally, as a model of Local Governance. The formulation of District Plans with a long-term vision with the co-operation of all Local Governments, periodic social audits, District Resource Centres, revitalising Grama sabhas and Ward sabhas and greater community participation in local-level planning can take the current accomplishments to new heights. The Ministry of Panchayati Raj, Government of India now introduced Peoples Plan Campaigns in all States to prepare annual Grama Panchayat Development Plans (GPDP). This directive is based Kerala's experience in Decentralisation.

With the implementation of the Fourteenth Plan, there will be major changes in local economic growth and employment generation at the Local Government-level. Massive changes are also envisaged 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, focussed urbanisation, etc., also will lead to next-level development in the State of Kerala.

Review of Central and State Programmes Implemented by Local Governments

The 14th Five-Year Plan of the State aims at sustaining the accomplishments of the State in various development sectors, and further increasing the standard of living of the people by enhancing economic growth. This is being done by reinvigorating the productive forces in the State, and garnering investments in various development sectors. In this process, the State focuses on building a knowledge economy by boosting higher education, research and development institutions, and fostering innovation. These efforts call for better and more efficient mobilisation of resources from various schemes and programmes of the State and Central Governments, apart from private investment. In this regard, Local Governments have a key role to play in harnessing resources, as they are responsible for implementing many of the State and Centrally sponsored programmes in key sectors. To make this effective, Local Governments must devise strategies for integration of activities of development departments and Local Governments aimed at convergence of development programmes. Local Governments receive funds from centrally sponsored programmes for establishing urban amenities, creating rural connectivity, establishing sanitation and waste management infrastructure, construction of houses in rural and urban areas, and generation of employment and livelihood options. The Centrally Sponsored Schemes invariably insist on substantial and mandatory State share for implementation. Hence, convergence of the activities of implementing agencies is essential to make such programmes effective. The details of centrally sponsored and State sponsored programmes implemented by Local Governments in different development sectors are given below:

Infrastructure Development

Kerala's decentralised planning has enabled higher investment in social and service infrastructure, comparable with that of many advanced countries. Local Governments have made substantial progress in housing and other basic amenities such as drinking water, sanitation, and drainage facilities, which determine quality of life and decent standards of living.

Housing

Government of Kerala is implementing a massive programme to provide housing for the houseless in the State through LIFE Mission. This programme

envisages integration of various housing schemes by State and Central Governments, with the aid of Local Self-Government institutions. This was required as the assistance provided by housing schemes of the Central Government was not sufficient to meet the housing needs of the poor in the State. The houseless poor also need assistance to sustain their livelihoods and overcome factors that contribute to impoverishment. It was based on this realisation that the State Government adopted the comprehensive programme to ensure Livelihood, Inclusion and Financial Empowerment (LIFE) of the houseless poor in Kerala.

Pradhan Mantri Awas Yojana (PMAY)-Gramin:

The programme PMAY consists of schemes for rural and urban areas, namely PMAY-Gramin and PMAY – Urban, respectively, and aims at providing pucca houses with basic amenities to all houseless households living in kutcha and dilapidated houses in rural and urban areas, by 2024. Though the minimum size of the house insisted by GoI is 25 sq. mt, in Kerala it has been fixed at 36 sq. mt with all required facilities. The construction of house should be completed within 12 months from the date of sanction. The unit assistance of a house under PMAY-G fixed by MoRD is ₹1.20 lakh, which is shared between Central and State Governments in the ratio 60:40. As part of integration with LIFE Mission the assistance has been enhanced to ₹4 lakh, the amount required for which is shared between Grama, Block and District Panchayats in the ratio 25:40:35. The beneficiary selection by GoI was based on Socio Economic and Caste Census (SECC) 2011. Identification and selection of the beneficiaries is done through Grama Sabhas based on homelessness and other parameters of social deprivation. The cost of house construction is disbursed in three instalments directly to the Aadhar-linked bank accounts of beneficiaries.

As part of this scheme, a willing beneficiary is to be facilitated to avail institutional finance of up to ₹70,000 from financial institutions. A PMAY-G beneficiary is also entitled to get wages for 90 days of unskilled work from MGNREGS in rural areas for house construction. For the construction of toilets, an amount of ₹12,000 is provided from Swachh Bharat Mission (Gramin).

Though PMAY-G had targeted to construct 42,431 houses in the Phase-I (32,559 new houses in 2016-17 and 9,872 new houses in 2017-

18), it could not be achieved as the norms of beneficiary selection insisted by GoI was not generally suitable for Kerala. In 2020, the target was revised from 42,431 to 28,905, of which 21,995 houses were sanctioned and 20,427 houses were completed. Sanction has not been accorded to 503 beneficiaries as they are landless. In this regard, Block Panchayats have initiated action to find suitable land for them. In the Phase-II, out of the approved GoI target of 13,307 houses, sanction was given for 12,649 houses and as of September 2022, 979 houses have been completed. Construction of the remaining 658 houses are pending for sanction due to various issues of entitlement, documentation etc. The financial and physical progress of PMAY-G in 2020-21 and 2021-22 (up to September 30, 2021) are given in **Appendix 12.1.12** and **12.1.13** respectively.

Pradhan Mantri Awas Yojana (Urban)

This programme which was intended to address the housing requirement of urban poor, including slum dwellers, with the mandate of providing 'housing for all' by 2022 has been extended up to December 31, 2024. The approved total project cost for PMAY (Urban), till 18th November, 2022 is ₹5,222.48 crore, out of which the Centre and State have released ₹1,194.90 crore and ₹414.84 crore respectively. During 2021-22 and 2022-23 (up to 18th November), an amount of ₹240.90 crore was released as Central share and ₹9.23 crore was released as State share.

This programme has several distinct components. Under the major component of beneficiary led construction (new), 742 Detailed Project Reports (DPRs) prepared by 93 urban Local Governments and 34 Grama Panchayats under the purview of three Development Authorities (Greater Cochin Development Authority, Goshree Islands Development Authority and Thiruvananthapuram Development Authority) for the construction of 1,30,562 dwelling units were approved by the MoHUA, GoI. Out of this, the construction of 3668 dwelling units comes under the purview of Development Authorities. Based on these DPRs, construction of 97,394 have been initiated and 75,154 houses have been completed up to 18th November, 2022.

Under the 'Affordable Housing in Partnership' component, 11 DPRs for constructing housing complexes consisting of 970 units at a total project cost of ₹14.55 crore were approved. This

component is being implemented under the LIFE Mission with enhanced contribution by the State Government to construct housing complexes with all required facilities. In this category, construction of 938 houses has initiated, and of which 316 houses have been completed.

Under Credit Linked Subsidy Scheme (CLSS) component, interest subvention was provided for eligible urban poor for acquisition or construction of house. As part of this 33,293 beneficiaries were identified and subsidy was released to 28,715 beneficiaries. However, the Central Government discontinued this component which had aimed to expand the institutional credit flow to the housing needs of urban poor from March 31, 2021 onwards.

As per the norms of the Government of India, the unit assistance under PMAY (Urban) for house construction is ₹1.50 lakh and funds are released by Central Government in three instalments (40 per cent, 40 per cent, 20 per cent). The financial progress of PMAY (Urban) as on 18th November 2022 is given in **Appendix 12.1.14** and urban Local Government-wise progress of beneficiary-led construction component and affordable housing component of PMAY (Urban) up to 18th November, 2022 are given in **Appendix 12.1.15**, **Appendix 12.1.16** respectively.

The State Government has tried to integrate various programmes in such 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 National Urban Livelihood Mission (NULM) and Ayyankali Urban Employment Guarantee Scheme (AUEGS). Provisions of National Urban Livelihood Mission could be used for enhancing the quality of life of urban homeless by means of skill upgradation and setting up of self-employment ventures. As part of this programme, 968 members of PMAY (Urban) beneficiary families were given orientation under the skill training and placement component of NULM. With the assistance from self-employment component of NULM, 335 beneficiary family members have started new enterprises. Through convergence with Ayyankali Urban Employment Guarantee Scheme (AUEGS) of the State Government, employment of 90 person days was provided to PMAY (Urban) beneficiaries. The

State has bagged two national awards for the best model of convergence of PMAY (Urban) scheme with other livelihood projects, and for the best community oriented projects implemented under the scheme.

The unit assistance of PMAY for house construction as per the norms of the Government of India is only ₹1.2 lakh for rural areas and ₹1.5 lakh for urban areas. The assistance under LIFE Mission for houseless having land was enhanced to ₹6 lakh for ST beneficiaries in remote ST hamlets and ₹4 lakh for all other beneficiaries. The details are discussed in Chapter 11.5 (Housing) of this Review.

Sanitation and Waste Management

Sanitation and waste management have emerged as critical problems faced by the State, particularly in the context of increased urbanisation. In the absence of appropriate mechanisms to process, recycle or dispose waste, it is heavily contaminates the environment and increases chances of exposure to several diseases. Since waste management is an important issue with serious implications on development prospects of the State, the Government of Kerala has been keen on addressing issues related to waste management and has formulated several strategies at the State as well as at the local levels. In addition to State-wide campaigns and programmes, waste management has been mainstreamed in the Plans of Local Governments, as well. The Centrally sponsored and State sponsored programmes and schemes on waste management are implemented through Local Governments. Suchitwa Mission is the nodal agency for evolving the implementation strategy and providing technical support to the State Government and Local Governments for solid and liquid waste management policies and projects.

It is estimated that Kerala generates 10,044 tonnes per day (TPD) of solid waste, out of which 3,472 TPD are generated by urban Local Governments and 6,572 TPD by Grama Panchayats. It has been further estimated that 49 per cent of the waste is generated in households, 36 per cent in institutions, and 15 per cent in public places. Out of the total waste generated, 77 per cent (7,732 TPD) is biodegradable, 18 per cent is non-biodegradable, and five per cent is inert waste. The 7,732 TPD biodegradable waste and 1,808 TPD of non biodegradable waste are the major segments of solid waste which need to be handled on priority

In Kerala, 75 per cent of the biodegradable waste is treated at households, institutions and at community-level centres. With the proposed projects in Local Governments for installing 14,99,000 household-level composting or bio-methanation units, waste treatment capacity will increase to 85 per cent. Non-biodegradable waste is collected from the door-steps of 48.05 lakh sources (36.35 lakh in rural Local Governments and 11.70 lakh in urban Local Governments) by Haritha Karma Sena units and other partner collection agencies. This non-biodegradable waste collected from households and other sources is temporarily stored in MCFs and Mini MCFs operated across the State. The plastic waste stored in MCFs is then 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 to be reused, particularly for road tarring. The Government has made it mandatory to use shredded plastic for road tarring as part of public works. There are 1,170 operational MCFs, 184 Resource Recovery Facilities (RRF), and 10,578 mini MCFs across the State. Haritha Karma Sena operations have been undertaken by 1,033 LSGIs. District-wise details of Haritha Karma Sena, MCF centres, Mini MCFs, and RRFs as of 31st October 2022 are given in **Appendix 12.1.17** and **12.1.18** respectively.

Suchitwa Keralam (Rural and Urban)

The State Government gives utmost priority to source-level treatment of waste in the management of solid waste. Through Suchitwa Keralam, the Government provides partial funding for projects undertaken by Local Governments. This includes the pre-monsoon cleaning activities to control the spread of infectious diseases are spearheaded by Local Governments, and is implemented in collaboration with the Directorate of Health Services, National Health Mission, and Haritha Keralam Mission. In 2021-22, 11 urban Local Governments implemented solid waste management projects under Suchitwa Keralam-Urban scheme, with a total outlay of ₹7.40 crore. Under Suchitwa Keralam-Rural, 22 GPs implemented projects with an outlay of ₹3.84 crore.

In addition, awareness campaigns were conducted with the aid of audio-visual and print media to promote scientific waste management practices by the general public. In 2021-22, the slogan “My waste is my responsibility” was propagated

massively, and State-wide arrangements were made to treat the waste at source. There are mini, medium and major bio-waste treatment systems at the household, institutional and community levels respectively and they serve the waste management needs of 2,13,962 households and institutions in the State.

Swachh Bharat Mission (Grameen)

This Mission aims to ensure that all rural families have access to safe toilets. The State was declared Open Defecation Free (ODF) way back in November 1, 2016 in rural areas, by constructing 1,74,720 Individual Household Latrines (IHHL) in villages. The focus is now on ODF sustainability and ‘ODF Plus’ activities. The incentive amount provided under Swachh Bharat Mission (Grameen) SBM (G) to Below Poverty Line (BPL)/identified APL households is up to ₹12,000 for construction of one unit of IHHL, and to provide for water availability including storage for hand-washing and cleaning of the toilet. Central share of this incentive for IHHLs from SBM (G) is ₹7,200 (60 per cent), and the State share is ₹4,800 (40 per cent). During the period from April 01, 2021 to September 30, 2022, a total number of 6,261 IHHLs have been constructed and 4,135 IHHLs are in progress.

ODF Plus

Grama Panchayats are now endeavouring to achieve ODF Plus status by meeting all the criteria set by Department of Drinking Water and Sanitation, GoI. The conditions for ODF Plus include the following: all the 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 to 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 September 30, 2022, 554 villages have been declared ODF Plus. ODF Plus status is being targeted for all villages in a phased manner.

Solid and Liquid Waste management

A total sum of ₹41.11 crore has been spent on 8,683 solid and liquid waste management projects across the State till 30, September 2022. Out

of this, 269 projects costing ₹6.11 crore were completed during the period from April 01, 2021 to September 30, 2022. Altogether, 170 sanitary complexes/public toilets have been constructed for which ₹2.29 crore have been spent till 30, September 2022 as part of community sanitary complexes/public toilet components. Various IEC/capacity building activities for ODF sustainability have also been undertaken in 2021-22.

In the first phase of SBM (G) the total assistance for solid and liquid waste management projects was worked out on the basis of total number of households in each Grama Panchayat (GP), subject to a maximum of ₹20.00 lakh for GPs with more than 500 households. Funding for solid and liquid waste management project under SBM (G) is provided by the Central and State Governments in the ratio 60:40. The first phase of SBM (G) has been concluded and the projects are nearing completion. Now, GPs have started projects under the second phase.

Under Swachh Bharat Mission (Grameen) Phase-II, solid and liquid waste treatment is a major component, which would lead to setting up of systems for scientific disposal of waste. The community/Grama Panchayat has to 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. Till September 30, 2022, 43 such projects are under various stages, incurring a cost of ₹33.89 lakh.

Swachh Bharat Mission (Urban)

Swachh Bharat Mission (Urban), which intends to ensure hygiene, waste management and sanitation, has five components – individual household latrines, public toilets, solid waste management,

capacity building, and information education and communication activities.

In urban areas, 29,578 IHHLs were constructed and 92 ULBs got ODF certificates from Quality Council of India. The Central Government incentive for the construction of individual household toilets is ₹4,000, and States will contribute a minimum of ₹2,667. To retain ODF sustainability, 1,350 individual household toilets have also been constructed. Now, 32 ULBs have ODF+ certification, and Kalpetta Municipality has ODF ++ certification.

The Central Government incentive for the construction of public toilets and urinals will be in the form of 40 per cent grant or viability gap fund (VGF) for each toilet block constructed. Under the first phase of Swachh Bharat Mission (Urban), 658 public toilets have been completed. In the same period, 1,97,303 household-level waste management devices were distributed, and 224 community-level plants, 25 RRFs, and 665 MCFs/Mini MCFs were installed. In Swachh Bharat Mission (Urban) 2.0, the unit cost of public toilets and community toilets has been increased to ₹1,50,000 per seat from ₹98,000 per seat.

Solid Waste Management (SWM) under SBM (U)

In 2021-22, 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 ₹295.09 crore, with Central share of ₹103.28 crore, State share of ₹68.75 crore, and ULB share of ₹123.05 crore). The Ministry of Housing and Urban Affairs (MoHUA), Government of India has approved all 82 DPRs. Central Government incentive for the SWM projects are in the form of a maximum of 35 per cent grant. A total of ₹78.53 crore was released to 82 ULBs as first instalment, and these ULBs have taken up 633 projects with a total outlay of ₹295.09 crore, the progress of which is being monitored on a monthly basis.

Projects for the supply of more than four lakh source-level waste management devices have been formulated by ULBs in the State, as per approved DPRs under Swachh Bharat Mission-Urban. Out of this, 1,38,983 units have been supplied, which forms 33 per cent of the envisaged target. When

Box 12.1.4 Take a Break (TAB)

As in any other development sector, the Government of Kerala is keen to devise exclusive and innovative programmes to enhance the impact of various schemes in waste management and sanitation as well. 'Take a Break' was an innovative programme envisioned by the State Government to establish refreshment facilities and toilet complexes to address the 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 utensils, coffee shops, and rest-area are included in some TABs. It is planned to have 1,842 TABs across the State in a phased manner. So far, Local Governments in the State have taken up 1,783 TAB projects, and tendering procedures of 1,453 are completed. The construction of 646 TABs has been completed and 630 TABs are under construction. 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.

the target is fully achieved, more than 10 per cent of urban households will have their own waste management devices through SBM Urban project.

Swachh Bharat Mission (Urban) 2.0 was launched on October 01, 2021 with the objective of ensuring 100 per cent source-level segregation, door-to-door collection, scientific waste management, legacy dumpsite remediation, and disposal of used water and 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.

Smart Garbage Management

Smart Garbage Management is yet another innovation devised by the State Government to effectively manage garbage collection by Local Governments. It is an IT enabled waste management monitoring system that creates a complete database of the origin of waste and provides solutions to reduce waste, and segregate for proper processing. It would act as an online platform for citizens to participate and ensure cleanliness across the State. This would be a centralised online aggregation platform with a centralised control room for the State and a call-centre facility at each Local Government-level. Technical support to the programme is provided by Keltron.

During the reviewing period, a total of 374 Local Governments (4 Corporations, 58 Municipalities, and 312 Grama Panchayats) have issued work

orders and signed the tripartite agreement with Keltron and Suchitwa Mission. The App will soon be functional in these 374 Local Governments. Remaining LSGs will also avail the services of this App by the end of 2022-23. A total of 158 Local Governments (52 Municipalities and 106 Grama Panchayats) have launched the Smart Garbage App by initiating customer enrolment. A total of 1.93 lakh assets have been mapped through the app by Haritha Karma Senas. In Kannur, over 1.03 lakh of assets have been mapped. The District-wise progress of the project in 2022-23, as on September 30, 2022, is given in the **Table 12.1.13**.

Urban Infrastructure

Economic development of the State depends, among other factors, on its capacity to develop better infrastructure for sustained urban growth. For improved service delivery, urban Local Governments need to function as facilitators, and development projects must utilise options of public-private-social/community-partnership modes.

Urban infrastructure covers schemes such as water supply, waste management systems, city sanitation plans, establishment and enhancement of public comfort facilities, implementation and improvement of sewerage schemes, storm water drainage schemes, effective parking policy and modern mechanised parking systems, beautification of cities and creation of green cities, and non-motorised urban conveyance. The State has initiated and implemented various programmes for developing urban infrastructure. They have been planned to complement already existing programmes in the sector. Major infrastructure

Table 12.1.13 The District-wise progress of the Smart Garbage Management App in 2022-23, as on September 30, 2022

Sl. No.	District	Corporations	Municipalities	Grama Panchayats	Total
1	Thiruvananthapuram	1	4	25	30
2	Kollam	1	4	27	32
3	Pathanamthitta		4	12	16
4	Alapuzha		6	37	43
5	Kottayam		3	18	21
6	Idukki		1	26	27
7	Ernakulam		9	25	34
8	Thrissur	1	5	16	22
9	Palakkad		5	11	16
10	Malappuram		5	29	34
11	Kozhikode	1	7	35	43
12	Wayanad		1	8	9
13	Kannur		2	31	33
14	Kasaragod		2	12	14
	Total	4	58	312	374

Box 12.1.5 Thelineerozhukum Nava Keralam Campaign

A State-wide people's campaign titled '*Thelineerozhukum Nava Keralam*', which literally means 'the new Kerala, where pure water flows' was implemented as a major initiative to manage the issue of water pollution in the State. The State has abundant water resources in the form of 44 rivers, 34 lakes, 5 freshwater lakes, 81 dams, and lakh of ponds and wells, along with an average annual rainfall of 3000 mm. However, studies show that most of these water bodies are polluted with solid waste dumped indiscriminately, and from faecal contamination in areas where septage flows into them. *Thelineerozhukum Nava Keralam* campaign was inaugurated on 22nd April 2022 – International Earth Day.

This programme was facilitated by *Thelineer*, an Android application developed by Suchitwa Mission for collecting and analysing data on water quality of all the water bodies in Kerala. Based on GIS technology, the App provided data to enable planning liquid waste management projects in each LSGI. LSGI engineers and other technical staff were able to get objective information on polluting sources, polluted water points, and exact locations.

Officials, elected representatives, volunteers, and resource persons participated in the campaign. In one of the biggest water testing drives, 62,398 water points of the water sources across the State were tested using Bacteriological Field Test kits, by means of H2SVials Strip Method. As many as 25,680 persons participated in the campaign at LSGI-level, 7,900 at District-level, and 732 at the State-level. Water walks were organised in each ward of LSGIs by ward-level water committees to map polluted points in rivers, streams, canals, ponds, etc. This programme has attracted overwhelming public participation, with community representatives and volunteers manifesting genuine concern on the sustainability of water bodies in the State. Jala Sabhas, or water forums, were also organised as part of this campaign. After identifying polluted water bodies and points of pollution, water committees organised community-led water sanitation drives to clean them and prevent further pollution, as far as possible. As much as 939.67 tonnes of solid waste was collected from water bodies through 8,438 cleaning drives conducted across the State. After the collection of solid waste, it was segregated into biodegradable and non-biodegradable waste for further processing.

development programmes being implemented in the State are discussed as follows.

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. Six Municipal corporations and three Municipalities (Alappuzha, Palakkad, and Guruvayoor) in the State have been selected under AMRUT. The duration of the Mission was five years (2015-2020), and now it has been extended up to March 2023. Under AMRUT, 1,000 projects costing ₹2,357.69 crore were approved in three State Annual Action Plans (SAAPs of 2015-16, 2016-17, and 2017-19).

The fund sharing pattern between Centre, State, and ULB is in the ratio of 50:30:20. Out of 1000 sub projects, 999 projects have been tendered, 985 projects have got work awarded, and 827 projects have been completed as on September 30, 2022. The total project expenditure as on September 30, 2022 is ₹1,405.74 crore including completed and ongoing projects. The priority sectors are water supply, septage and sewerage.

Water supply projects aim to ensure that every household has access to a tap with assured supply of water. The project comprises of works such as rejuvenation of water sources, construction of water treatment plants, water tanks, laying new pipe lines, and replacing old pipes. Administrative sanction was accorded for 172 projects costing ₹1134.88 crore under this sector. Kerala Water Authority is implementing 163 projects, and the remaining by the ULBs. So far, 135 projects have been completed and the expenditure for completed projects under the sector is ₹566.70 crore.

Septage and sewerage management aims to manage liquid waste in AMRUT cities scientifically and to ensure that every household has access to a sewerage connection. Administrative sanction worth ₹648.85 crore has been accorded for 138 projects under septage and sewerage. Kerala Water Authority (KWA) is implementing 118 projects, and the remaining is being implemented by the urban Local Governments. Out of the projects implemented by KWA, 90 projects have been

completed and the expenditure for completed projects under the sector is ₹41.82 crore.

Storm water drainage projects aim to eliminate flooding in cities by the construction and improvement of drains and storm water drains. It comprises of 495 projects costing ₹349.56 crore, out of which, 459 projects have been completed and the expenditure for completed projects under the sector is ₹208.60 crore.

Urban transport sector aims to facilitate non-motorised transport in cities. It includes the construction of skywalks, footpaths/walkways, sidewalks, foot over-bridges and multi-level parking. There are 123 projects costing ₹212.04 crore, of which, 87 projects have been completed and the expenditure for completed projects under the sector is ₹53.34 crore.

Under green space and parks sector, 72 projects costing ₹48.59 crore have been proposed for development of green spaces and parks with special provision for child-friendly components. Of this, 56 projects have been completed and the expenditure for completed projects under the sector is ₹26.91 crore. The financial progress of AMRUT projects up to September 30, 2022 is given in **Appendix 12.1.19**. The progress of AMRUT project in nine cities is shown in **Appendix 12.1.20** and sector-wise progress is shown in **Appendix 12.1.21**.

As part of AMRUT, various projects have been completed in AMRUT cities. Prominent among them are a multi-storey parking system in the Thiruvananthapuram Corporation compound with the facility to park 102 cars, and a sewage treatment plant of 5 MLD at Government Medical College, Thiruvananthapuram. In Kollam, under storm water drainage sector, construction of dams at Uliakovil, Kavanad, and Shaktikulangara, and a water supply project of 100 MLD have been completed. In Alappuzha, construction of water treatment plant, and construction of footpaths have been completed. In Kochi, construction of a 10-lakh litre capacity water reservoir in Thevara, and a sewage treatment plant of 5 MLD at Elamkulam have been completed. In Thrissur, implementation of 'water efficient' Thrissur project is progressing, and construction of Achuthamenon Park has been completed. In Guruvayur, construction of a multilevel car parking complex, and the Pookodu Samskarikanilayam Park have

been completed. In Palakkad, a water treatment plant with a storage capacity of 45 lakh litres, and construction of parks at Maitri Nagar, Salamath Nagar, and Nilanagar have been completed. In Kozhikode, 30 per cent of the construction of the liquid waste management plant being built at the Kozhikode Medical College has been completed. In Kannur, all water supply projects and the construction of a park at Chelora have been completed.

Incentive for reforms in urban governance is an important component of the Mission. During the Mission period, 11 reforms were to be implemented. Ten per cent of the annual Budget allocation is given to the States/Union Territories (UTs) as incentive for achievement of these reforms. The Mission gives incentives for the previous year at the start of the succeeding financial year. The National Mission Directorate, on receipt of the self-assessment, announces the award of incentive to States. Kerala has received reforms incentives continuously for the last four years, and bagged 7th rank at the National-level. Till September 2022, the State has received an amount of ₹59.52 crore as part of reform incentives.

As an extension of AMRUT, AMRUT 2.0 was launched on 1st October 2021, with the aim to reduce water scarcity and thereby sustainably increase consumption of clean water and augment water distribution in ULBs. The project will be implemented in all the 93 ULBs in the State. Also, the Mission aims to complete sewerage/septage management in AMRUT cities (six Corporations and Alappuzha, Guruvayoor, Palakkad Municipalities). The project period of AMRUT-2.0 is five years, 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 total project outlay is ₹3,495 crore, out of which, Central assistance would be ₹1,372 crore. The funding under AMRUT 2.0 is population-based, and the Central assistance for AMRUT 2.0 is such that for cities with less than one lakh population, 50 per cent of the project cost would be borne by the Centre. For cities with population one lakh to ten lakh, 33.3 per cent of the project cost, and for cities with population 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) which includes the details of the 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 ₹1,938.52 crore (including 199 water supply projects and 23 sewerage projects) and obtained sanction. SWAP-II projects amounting to ₹683.08 crore have also been submitted, which is under consideration for approval.

Smart Cities Mission

Smart Cities Mission is a major infrastructure development programme launched by the 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 up to June 2023.

Smart City, Kochi

The total estimated project cost of the Smart City Kochi is ₹2,076.00 crore. Of this, the State and the Centre would contribute ₹500.00 crore each. Kochi Corporation would provide ₹70.00 crore, and ₹1,006.00 crore would be realised by converging other projects. An amount of ₹592.00 crore has been received as Central and State share and ₹446.86 crore was spent till September 2022.

The Smart City project of Kochi aims at planned and integrated development of the Kochi corporation area by improving the civic infrastructure. Smart City Kochi envisages 70 projects, of which 18 projects have been completed, 19 projects are under implementation, and 19 projects are in tendering stage. Also, funds for implementing 14 projects worth ₹68.73 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 from Durbar Hall ground to Mangalavanam. The Integrated Command Control and Communication Centre set up as part of this project was extensively used as a District COVID Cell for patient transfers, oxygen cylinder monitoring, tele-medicine etc. The projects transferred to other agencies include multi-storeyed housing project at Turuthy tower, rejuvenation of Mullassery canal, renovation of Kaloore market, establishment of smart water meters, renovation of various parks, etc.

Smart City, Thiruvananthapuram

The total estimated project cost of the Smart City Thiruvananthapuram is ₹1,538.20 crore. The project has a Central share of ₹500.00 crore and State share of ₹500.00 crore. Thiruvananthapuram Corporation would provide ₹135.7 crore. An amount of ₹260.10 crore would be realised from convergence of other projects, and ₹142.40 crore would be drawn from public private participation. An amount of ₹492.24 crore has been received as Central and State shares, and ₹363.49 crore was spent till September 2022.

Smart City Thiruvananthapuram Limited (SCTL) envisages 42 projects, out of which 23 projects have been completed and 19 projects are in progress. 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.

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. Integrated road network also facilitates farm mechanisation, better mobilisation of human power, 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 Local Governments were to be restored as part of the Chief Ministers' Local Road Rebuild Project (CMLRRP). Out of the 5,046 works that were sanctioned, 4,171 were completed to the extent of 92,570.46 km.

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, and 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, deserts and the tribal areas, the objective would be to connect eligible unconnected habitations with a population of 250 persons and above. It is insisted that the 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 have to 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'.

In Kerala, during the 13th Plan, construction of 1,850km of road was targeted, and the achievement was 934.7km. The District-wise details of laying of roads under PMGSY scheme in 2021-22 (up to September 30, 2022) are given in **Appendix 12.1.22**. The year-wise achievement of the scheme with respect to length of the road in km is shown in the **Figure 12.1.10**. It is to be noted that the implementation of the scheme was constrained due to the difficulty in complying with the construction norms stipulated by GoI under the specific circumstances in the State.

Stipulations such as maintaining a gradient of one in ten, and limiting the length of candidate road to 5km apart from others, were difficult to comply with given the undulating topography and population density of the State. Moreover, the dense built-up areas close to road boundary makes the compliance difficult. This calls for a relook at

the stipulations by GoI, and to allow flexibility to customise the norms as per local geographical features and State priorities.

Natural Resource Management

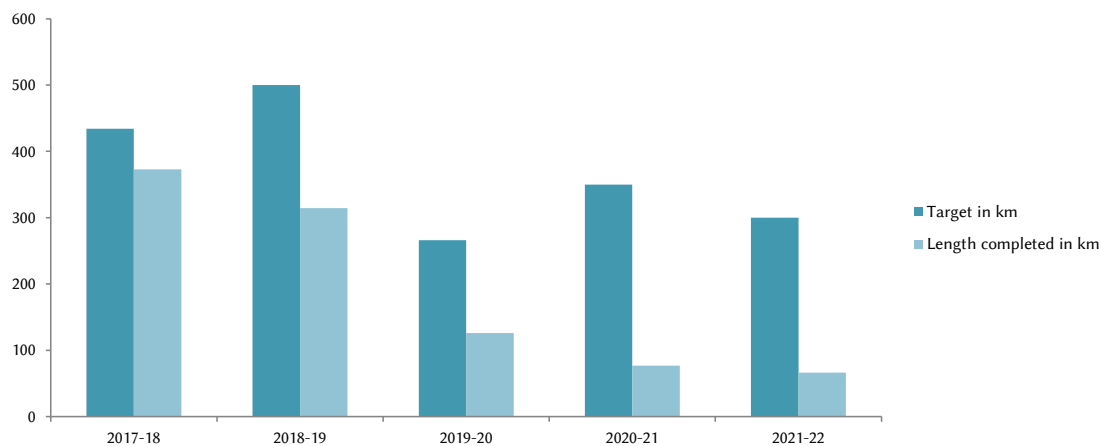
The emphasis on natural resource management has not significantly increased, as evident from the number of schemes in this sector. The Government of India has merged the erstwhile Integrated Watershed Management Programme (IWMP) with the Pradhan Mantri Krishi Sinchai Yojana (PMKSY) in 2015-16 and thereafter IWMP is implemented as the watershed component of the PMKSY.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) – Watershed Development Component (WDC)

The funding pattern of the scheme between Central and State Governments is in a 60:40 ratio. Rural Development department is the nodal department for the watershed 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 specially constituted for the purpose.

The activities envisaged in the programme include prevention of soil erosion, regeneration of natural vegetation, rain water harvesting, recharging of ground water, and reclamation of cultivable

Figure 12.1.10 Physical Achievements of PMGSY during the 13th Plan Period



Source: Commissionerate of Rural Development

wasteland. 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 is a cluster of 5-10 micro watersheds with area ranging from 4,000 to 6,000 ha. This project is implemented in Block Panchayats. The project cost varies from ₹12,000 per ha for plain areas, to ₹15,000 per ha for hilly areas. The project period is three to five years. Even though the programme was started in 2009-10 in Kerala, the projects were sanctioned only in 2010-11. Up to 2014-15, a total of 83 projects were sanctioned covering an area of 4.23 lakh ha at a total cost of ₹581.61 crore. Out of these 83 sanctioned projects, 69 projects were completed by March 2022. Though the project outlay was ₹581.61 crore, only ₹249.98 crore has been released, out of which, ₹237.79 crore was expended. The nature of activities under the scheme includes construction of check dams, percolation tanks, farm ponds and drainage line treatment activities. Around 99,676 person days of employment was generated, and 33,897 farmers benefitted from the scheme. 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 water availability in horticultural plantations to ensure regular additional income to farmers were given emphasis.

In 2021-22 PMKSY 2.0 was launched. A total of 37 micro-watersheds with a project area of 26,163 ha were sanctioned, at a project cost of 73.26 lakh. The work components of the scheme are grouped under three major categories: a) natural resource management, b) production system, and c) livelihood support and micro enterprises. Implementation of PMKSY 2.0 has been initiated and the entry point activities have almost been completed. All the required administrative and technical sanctions have been accorded to start the planned activities.

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, 363.29 crore person days were generated in FY 2021-22. Of the total person-days, women got 54.7 per cent, SC got 19.17 per cent, and ST had 18.32 per cent. The average number of days of employment provided per household is 50.07, and total households that completed 100 days of employment is 59.17 lakh. Employment was also provided to 5.73 lakh disabled persons. It is also reported that 65.22 per cent of the expenditure was on natural resource management related works. As much as 99 per cent of wages were paid electronically into the accounts of the MGNREGS workers in 2021-22.

Kerala always gives MGNREGS great importance. In 2021-22, the State generated a total of 10.59 crore person days of employment, of which 18.31 per cent was generated by Scheduled Castes and 6.34 per cent by Scheduled Tribes. It is striking to note that majority of the beneficiaries in Kerala are women. The number of women persondays constituted 89.57 per cent of the total persondays, compared to the national figure of 54.70. Average days of employment provided per household were 64.41, and 5.12 lakh households had completed 100 days of employment.

With regard to financial progress, ₹4,106.05 crore was expended, which included ₹3,115.22 crore for unskilled wages and ₹797.98 crore (19.4 per cent) for material component, semi skilled and skilled wages. The financial and physical progress of MGNREGS in 2021-22 and 2022-23 (upto September 30, 2022) is given in **Appendix 12.1.23, 12.1.24, 12.1.25 and 12.1.26** respectively.

Table 12.1.14 Review of Employment Generation and Performance

Indicator	2021-22	2020-21	2019-20	2018-2019
Approved person days in LB (in lakh)	1000	1000	700	700
% of Achievement against Total LB	105.96	102.3	114.61	139.32
% of women person days generated	89.57	90.49	89.80	90.41
% of person days generated by SC families	18.31	18.41	15.52	15.94
% of person days generated by ST families	6.34	6.54	6.89	5.54
Average PD/HH	64.41	63.25	55.75	65.97
Families provided 100 days	5,12,823	4,70,410	2,51,141	4,41,479

Source: MGNREG website

As stated above, 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 MGNREGS have also been duly integrated with other State sponsored programmes. From 2017-18 onwards, MGNREGS activities in the State has been converged with the activities of the 'Haritha Keralam Mission', which is the flagship programme of the State Government for natural resource management.

A review of the performance of the scheme in the last five years (**Table 12.1.14**) shows that there has been consistent improvement in the performance of the scheme in Kerala. The scheme has provided the much needed social safety net, especially in the times of COVID pandemic and resultant lockdown. The number of SC and ST households securing employment under the scheme has also consistently increased.

The scheme has been of great help to the State as it has been instrumental in creating assets in rural areas, particularly in the production sector. The material component as a percentage of the total expenditure has increased from 8.51 per cent in 2018-19 to 19.43 per cent in 2021-22, highlighting the special focus that the State gives on generating assets.

With the aim of augmenting the production sectors of agriculture, irrigation, animal husbandry, fisheries, dairy development and forest, thrust is given to generate individual as well as public assets for maximising production and development in these areas. Construction works to generate public assets such as compound walls and playgrounds for schools, and Anganwadi construction have also been taken up. Individual livelihood assets

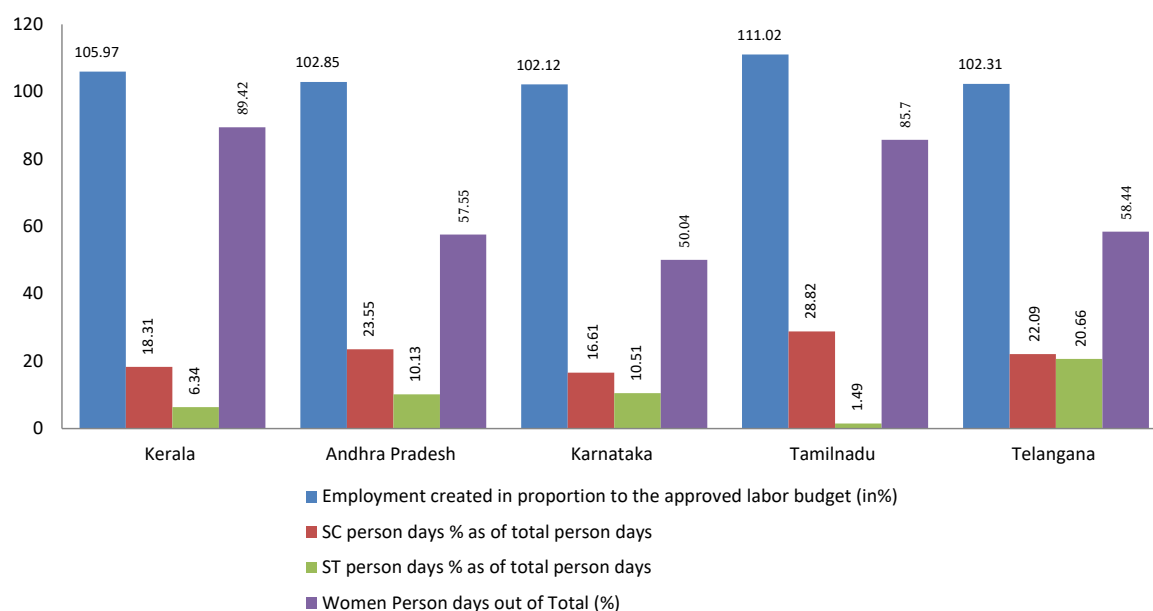
like cattle sheds, goat sheds, and poultry sheds were also provided to the rural poor. In 2019, the Government of Kerala, issued orders to take up MGNREGS works in Geographic Information System (GIS) based integrated planning at Grama Panchayat-level, incorporating all permissible works. In this regard, 100 Grama Panchayats were selected for preparation of GIS based integrated plans under MGNREGS on a pilot basis. When the special programme for enhancing food security of the State, Subhiksha Keralam, was launched in the backdrop of COVID-19, special emphasis was given to create productive assets to strengthen the livelihood resource base of the poor, using of the provisions of MGNREGS.

A comparison of the performance of South Indian States in the implementation of MGNREGS (**Figure 12.1.11**) shows that with regard to women person days generated, Kerala comes first with 89.57 per cent of the employment provided to women. For employment generated against the approved labour budget, Kerala is second in position, achieving 105.96 per cent of the labour budget.

However, with regard to employment generation among Scheduled Caste and Scheduled Tribe the State has not registered much improvement. The reasons for this trend need to be closely examined.

The efficiency of implementation of MGNREGS in Kerala is also evident from the fact that while the State provided 64.41 days of employment per household on an average, the highest in this region, other States could provide only less than 50 days of employment to workers. Around five lakh households in Kerala were provided 100 days employment, with all the other States in the region recording a lower average.

Figure 12.1.11 Performance of MGNREGS – Comparison of states in South India (2021-22)



Source: MGNREG website

Box 12.1.6 Special assistance to Scheduled Tribes (State sponsored component)

As stated earlier, 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 introducing the Tribal Plus Scheme to provide additional employment to tribal workers.

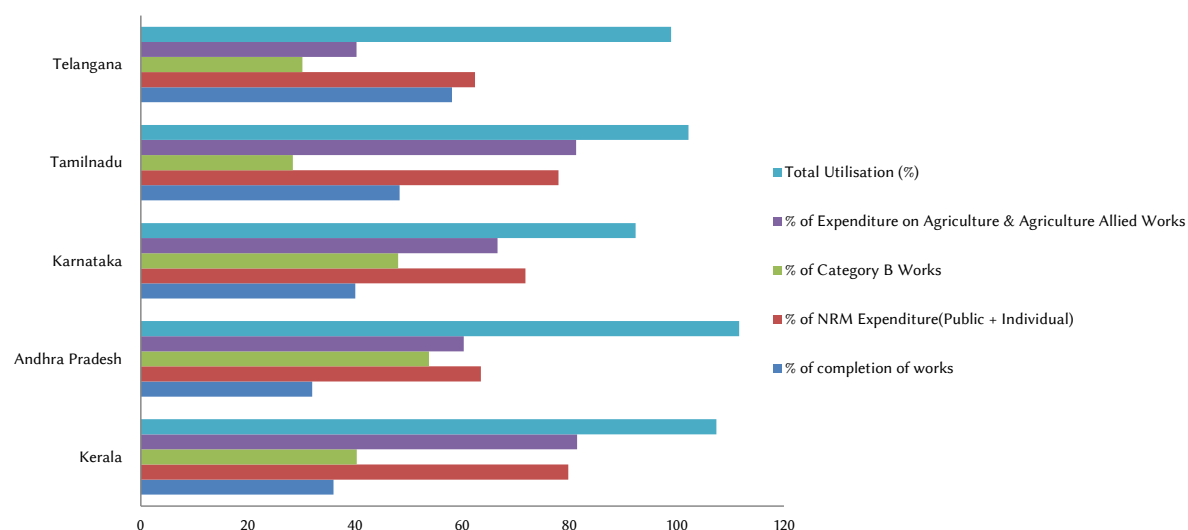
Tribal Plus Scheme – In addition to the 100 days guaranteed by the Mahatma Gandhi National Rural Employment Guarantee Scheme, Government of Kerala started ‘Kerala Tribal Plus’ Scheme in 2017-18 to provide an additional 100 person days for all Scheduled Tribe families in Kerala. The cost for this scheme is borne by the Kerala State Tribal Development Department. All ST families in Kerala who complete 100 days of employment under MGNREGS are eligible for the additional benefit. Moreover, in order to enhance the participation of ST workers under the scheme, State Government has initiated an exclusive system to pay wages in advance to ST workers from State Plan fund of Scheduled Tribes Development Department through Kudumbashree. The State Government has devised a system to pay unskilled wages every week to the beneficiaries using a corpus fund set apart by the Scheduled Tribes Development Department, and to recoup the already paid advance amount from the beneficiaries’ bank accounts, with their consent, as soon as the wages under MGNREGS is credited to the respective bank accounts. As a result of these innovative programmes, there is substantial improvement in the participation of ST families under MGNREGS. The number of person days of employment for Scheduled Tribes increased from 55.27 lakh in 2019-20 to 67.15 in 2021-22. The number of families who completed 100 days of employment in 2021-22 is 29,644.

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.

Inter-State comparison of works undertaken in these categories show that Kerala had the highest percentage of works under natural resource management and agriculture and allied works.

Figure 12.1.12 Inter-State comparison of the nature of works under MGNREGS (2021-22)



Source: MGNREG website

However, in category B works and in completion of works committed, the performance of the State has room for improvement. (Figure 12.1.12).

Kerala has faced several functional constraints in the implementation of MGNREGS. One was the cap of 20 on the number of simultaneous works that can be taken up in a Gram Panchayat. Following the continued demands from the Kerala Government, the Union Ministry of Rural Development raised the cap to 50. The second issue was the stipulation that wages of Mates are to be paid from the material component. 75 per cent of the material component is paid by the Union Government, and releases are erratic, with bureaucratic delays and chronic fund crunches. However, wages of unskilled workers are to be paid within 15 days, and if there is a delay in payment, the Centre has to compensate them. Due to this, Mates had started listing themselves as unskilled workers to get wages on time. After repeated demands from States, MoRD has streamlined the process by which the attendance and wages of Mates are recorded, and stipulated that the muster roll for Mates must be issued soon after generating the muster roll for unskilled workers. It also stipulates that reports on day-wise pendency in payments to Mates may be generated, and that States will have to clear the payments to Mates before they can disburse funds to vendors.

Skilling of labourers and their upgradation to fetch higher wages, linking of the MGNREGS

programmes with the Plans of the Local Governments, etc are also to be addressed.

Ayyankali Urban Employment Guarantee Scheme (AUEGS),

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 to be utilised for creating durable assets in urban Local Governments.

In 2021-22, an amount of ₹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 general category, 51,425 workers in Scheduled Castes, and 3,995 in 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 employment.

In 2022-23, the outlay provided was ₹125.00 crore. As on 31st October, 2022, ₹78.20 crore was expended and 20,62,951 person days were created.

Up to 31st October, 2022, 48,495 households and 48,228 women were provided employment and 4,667 families completed 100 days employment. During this period, job cards were issued to 2,02,834 persons in general category, 53,816 in Scheduled Castes, and 3,673 persons in Scheduled Tribes. The beneficiaries included 52,061 men and 2,08,262 women.

The major activities taken under AUEGS include Subhikshakeralam project, waste management activities, pre-monsoon cleaning, water conservation, afforestation, and house construction under PMAY. Since the financial year 2016-17, there has been remarkable progress in implementation of the Ayyankali Urban Employment Guarantee Scheme. In 2015-16, only ₹15.00 crore was allocated for the Scheme. However in 2022-23, the Budget allocation has been increased to ₹125.00 crore. It is remarkable that by the end of the financial year 2021-22, 46.33 lakh person days have been created as against three lakh person days in 2015-16, and 8,46,432 in 2017-18. Now, out of the 3,50,000 families that have registered under the scheme, 1,00,000 workers are permanently dependent on the scheme. **Figure 12.1.13** shows the progress of the scheme.

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 providing not less than 10 litres of milk per

day to the 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 2021-22 and 2022-23, up to 30th September, 2022, is given in **Appendix 12.1.27**. District-wise details of physical achievements of the scheme are given in **Appendix 12.1.28**.

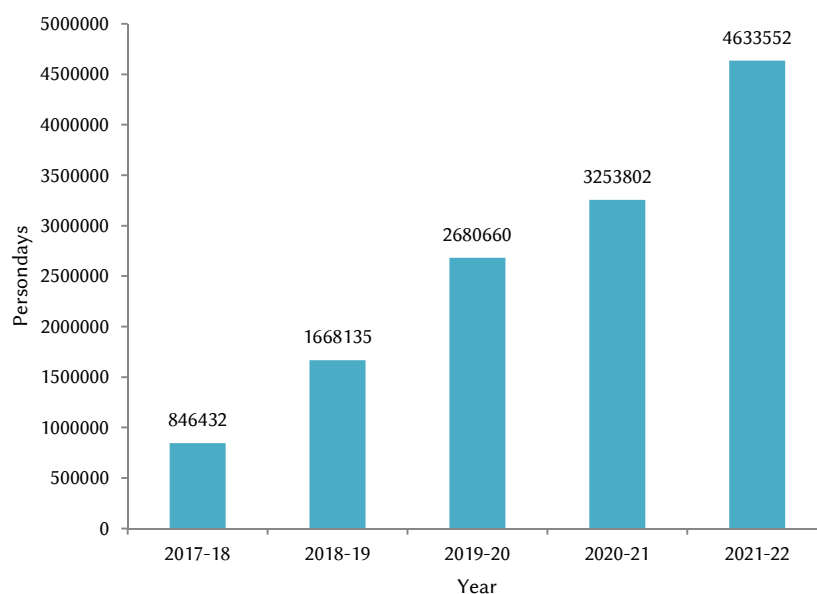
Development of Livelihoods of the Poor

While MGNREGS and AUEGS guarantee wage employment, due emphasis has been given to livelihood development, as well. 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 Grameen Kausalya Yojana (DDU GKY), Start-up Village Entrepreneurship Programme (SVEP), and Mahila Kisan Sashaktikaran Pariyojana (MKSP).

Figure 12.1.13 Physical progress of the Ayyankali Urban Employment Guarantee Scheme, from 2017-18 to 2021-22



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.

Until August 31, 2022, 65,495 persons have completed training and 47,387 have been employed.

SVEP provides support to start rural enterprises in order 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 31, 2022, a total of 26,844 enterprises are supported by them.

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 four consecutive years, and has received an additional financial assistance of ₹65.94 crore above the normal allocation.

DAY-NULM has identified 3,196 homeless persons in the Shelter to the Urban Homeless component of the programme. Till September 30, 2022, total 25,834 street vendors have been identified in the Support to Urban Street Vendors component, and identity cards were issued to 18,491 street vendors. Under the component Employment through Skill Training and Placement, 4,290 candidates have been enrolled,

out of which 3,278 candidates were certified and 1,453 candidates got placement in 2021-22 and 2022-23 (up to September 30). Skill training has been imparted to the unemployed urban poor youth in 74 trades in sectors such as cyber security, accounting, health care, automation, plastic technology, electronics, electrical, ayurveda nursing, hospitality, telecom, and food processing. Under the Self-Employment Programme of DAY-NULM, 1,494 individual micro-enterprises and 509 group enterprises were established. Under the Social Mobilisation and Institution Development component of DAY-NULM, opportunities are given to set up neighbourhood groups. Through this, 2,954 new NHGs were formed, and 5,488 NHGs and 120 Area Development Societies (ADSs) were supported with Revolving Funds.

Financial and physical achievements of DAY-NULM scheme during 2021-22 and 2022-23, up to 30th September 2022, are given in **Appendix 12.1.29** and **Appendix 12.1.30** respectively. List of District-wise Micro Enterprises and details of bank linkage loans of NHGs are given in **Appendix 12.1.31** and **Appendix 12.1.32** 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, with 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 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 achievements of Kudumbashree with respect to components allocated in the State Budget.

For the rehabilitation of the poorest of the poor, 'Asraya' was scaled up and renamed as 'Agathirahitha Keralam' Destitute Free Kerala

(DFK). The needs of the destitute were assessed by Local Governments, and based on it detailed micro-projects were prepared. Forty per cent of the total project cost, subject to a maximum of ₹40 lakh in the general category and ₹50 lakh in ST category are met through the Kudumbashree Challenge Fund. Through this project, 1.57 lakh beneficiary families are supported. Since inception, a total of 1,034 Local Governments have started implementing DFK. So far, Kudumbashree has released the Challenge Fund to all the approved projects to meet basic care services of beneficiaries, such as food, medicine and education.

BUDS institutions for children with disabilities

BUDS institutions for children with disabilities, functioning under LGs, are monitored through Kudumbashree machinery. In 2018-19, Kudumbashree allocated ₹12.5 lakh to 200 LGs to start new BUDS institutions. Till September 2022, a total of 342 BUDS institutions had been started. An online class for BUDS children and online therapy programme for the parents and BUDS children were started with the support of Composite Regional Centre, Kozhikode. The programmes include new interventions such as an agri-therapy programme named 'Sanjeevani', which envisages mental and physical development of the individuals. Through BUDS/Buds Rehabilitation Centres, the children were given training on vegetable cultivation. In this project, a minimum of two cents of land was used for cultivation by the students. A total of 342 BUDS institutions (177 Buds school for children with disabilities under 18 years of age) and 165 BRC (for intellectually disabled persons above 18 years of age) are functioning under LGs.

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 ₹1 lakh.

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 28,690 Balasabhas, covering 3,88,348 children. Pencil Camp, an initiative put forward by Haritha Kerala Mission in connection with the Kudumbashree Balasabha program aims to encourage a healthy lifestyle in children, thereby to build a healthy

family and society. Pencil Camp programme has completed training sessions at the District, Block, Village Panchayat, and City Corporation levels.

Weekly Markets

Over 456 weekly markets/Nattuchanthas have been provided with infrastructure support and other revolving funds, resulting in sales realisation of ₹14 crore, and more than 2,918 tonnes of vegetables, banana and tubers by the JLGs. As part of Subhiksha Keralam campaign, 4,481 new JLGs were formed and 1,575 inactive JLGs were activated. As much as 2,130.21 ha of land was made arable, and 1,787.49 ha of fallow land were brought under cultivation. With regard to entrepreneurship in the productive sector, 631 micro enterprises and 2,714 units were formed in the area of animal husbandry, as part of the campaign.

To scale up and strengthen agricultural activities among the tribal communities, tribal JLGs and tribal Joint Liability Group Evaluation Agent (JEVA) were formed. As part of this, 1,057 new tribal JLGs and 34 JEVA have been formed across Kerala, which practice traditional agriculture. In order to support these JLGs financially, revolving fund was given to the 188 newly formed JLGs at, ₹15,000 per JLG.

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/bed ridden patients. Under this scheme, 520 micro enterprises were formed which benefited total of 668 women entrepreneurs.

Training

Kudumbashree provides training to the members of Haritha Karma Sena in Local Governments for undertaking waste management activities. Through this, 28,000 women have been trained and 19,911 Haritha Karma Sena members are working across 917 Local Governments.

In order to grab opportunities in the construction sector, Kudumbashree members who are interested in construction activities are identified, trained, and registered in their respective Local Governments, to be entrusted with construction projects of Local Governments. As of now, 288 women construction groups (257 rural groups and 31 urban groups) with 2,376 members have been

formed across the State, and given training. These groups have constructed 512 houses under various State Government schemes.

'Relationship Kerala' programme was designed for including persons with disabilities, transgenders, and the elderly. Various campaigns, medical camps, meetings, and tours were conducted as part of this. 16,195 elderly NHGs (1,78,902 members), 1,847 NHGs of Persons With Disabilities (15,001 members), and 12 Transgender NHGs (140 members) were formed.

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 utilised. 707 new NHGs (8,730 members) were formed and 179 defunct coastal NHGs were revived. As many as 1,761 coastal NHGs were bank-linked, by which they availed a loan of ₹107.00 crore. 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 and 1,312 children from coastal areas benefitted. Kaayika theeram formulated programmes to create opportunities for the coastal youth to take part in sports and games.

Janakeeya Hotels

During the pandemic period, 1,196 *Janakeeya Hotels* (network set up by Kudumbashree in convergence with Local Government to provide meals at ₹20) were started to achieve the Government's mission to make Kerala hunger free. On an average, these hotels sell 1.65 lakh meals per day. This initiative attracted great public attention and was immensely helpful to the rural poor.

Kudumbasree Auxiliary Groups

Auxiliary Groups, a new generation system of Kudumbashree has been formed with the aim of creating a new space for the social, cultural, livelihood upliftment of young women. Auxiliary Groups aim at adding more young women to the Kudumbashree fraternity, in order 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 Cooperative Department, thereby creating opportunities for sustainable livelihoods.

Every CDS would form Women Auxiliary Groups in all wards in their limits. 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. It is planned to form 20,000 groups. 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 on September 2022, 19,555 auxiliary groups have been formed and 3,02,595 members have joined them.

Kerala Chicken

Kudumbasree Kerala Chicken was initiated to ensure availability of good quality broiler chicken meat at reasonable price to consumers throughout Kerala. It is a scheme implemented by Kudumbasree in convergence with the Department of Animal Husbandry, as well as KEPSCO. In this scheme, one day old chicks are given to farmers along with feed and medicines, and after 40 days they are bought back. As of now, there are 248 farms and 84 outlets supplying Kerala Chicken across the State. As part of these, 152 farmers were given training in farm management and contract farming. Across the State, 350 women have found their livelihood through farming and setting up network of outlets under 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

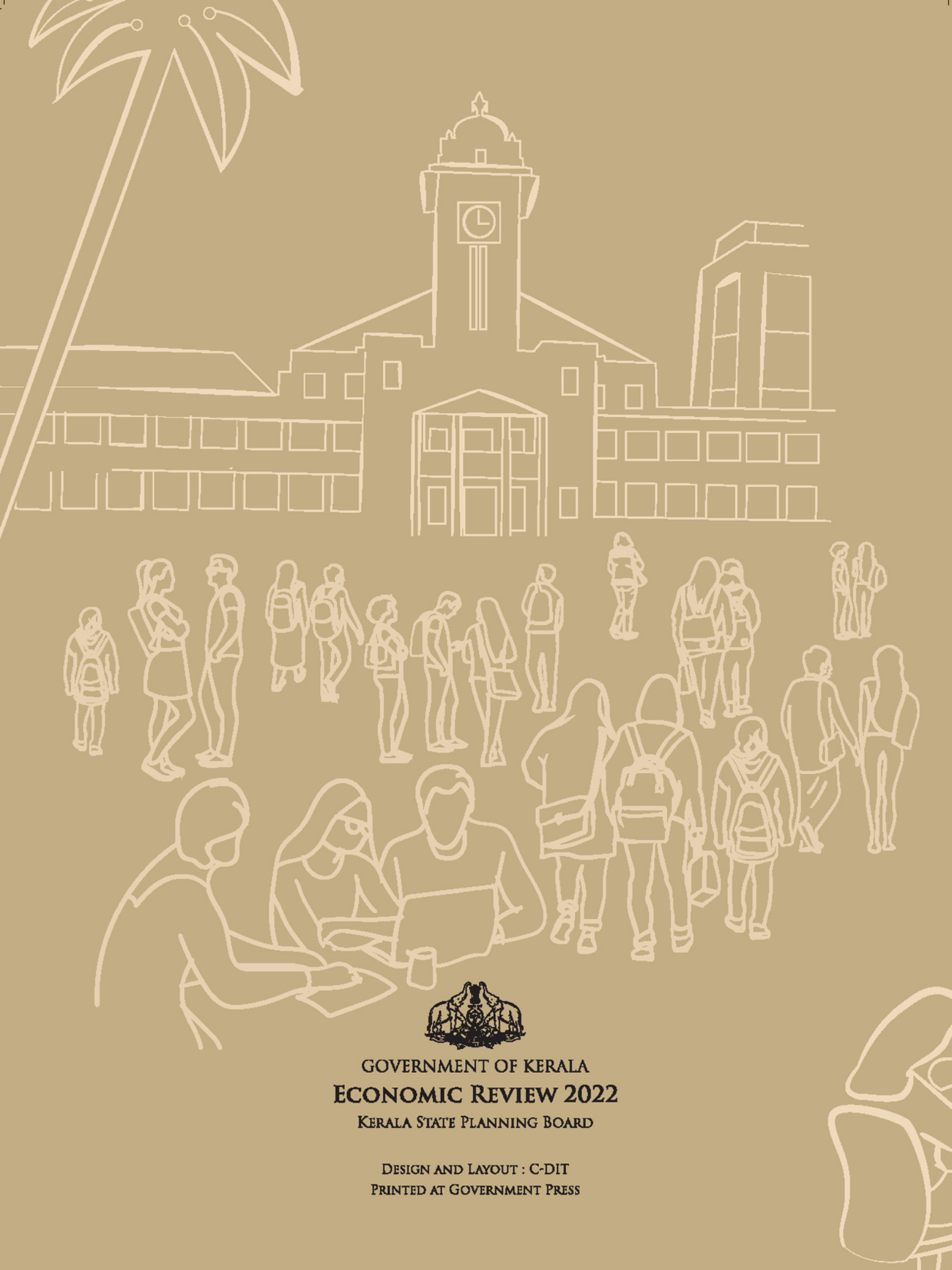
AAV	Anthyodaya Anna Yojana	CHC	Custom Hiring Centre
ADB	Asian Development Bank	CHIS	Comprehensive Health Insurance Scheme
AHIDF	Animal Husbandry Infrastructure Development Fund	COTPA	Cigarettes and Other Tobacco Products Act
AI	Artificial Insemination	CPC	Centralized Processing Centre
AIIB	Asian Infrastructure 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
VFPCK	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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