



FOURTEENTH KERALA LEGISLATIVE ASSEMBLY

**COMMITTEE
ON
PUBLIC UNDERTAKINGS
(2016-2019)**

FIFTY FIFTH REPORT
(Presented on 24th January 2018)

**SECRETARIAT OF THE KERALA LEGISLATURE
THIRUVANANTHAPURAM
2018**

FOURTEENTH KERALA LEGISLATIVE ASSEMBLY

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PUBLIC UNDERTAKINGS
(2016-2019)**

FIFTY FIFTH REPORT

**On
KERALA FOREST DEVELOPMENT CORPORATION LIMITED**

**(Based on the Report of the Comptroller and Auditor General of India for
the year ended 31st March, 2015)**

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COMMITTEE ON PUBLIC UNDERTAKINGS (2016-2019)

COMPOSITION OF THE COMMITTEE

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Shri V. K. Babu Prakash, Secretary

Shri Mathewkutty, G., Joint Secretary

Shri P. B. Suresh Kumar, Deputy Secretary

Smt. Deepa, V., Under Secretary.

INTRODUCTION

I, the Chairman, Committee on Public Undertakings (2016-2019) having been authorised by the Committee to present the Report on its behalf, present this Fifty Fifth Report on Kerala Forest Development Corporation Limited, based on the Report of the Comptroller and Auditor General of India for the year ended 31 March, 2015 relating to the Public Sector Undertakings of the State of Kerala.

The aforesaid Report of the Comptroller and Auditor General of India for the year ended 31 March, 2015 was laid on the Table of the House on 28-6-2016. The consideration of the audit paragraphs included in this report and the examination of the departmental witness in connection thereto was made by the Committee on Public Undertakings constituted for the years 2016-2019 at its meetings held on 7-12-2016 and 13-12-2016.

This Report was considered on 22-8-2017 and reconsidered and approved by the Committee (2016-2019) at its meeting held on 17-1-2018.

The Committee places on record its appreciation for the assistance rendered by the Accountant General (Audit), Kerala in the examination of the Audit Paragraphs included in this Report.

The Committee wishes to thank the officials of the Forest & Wildlife Department of the Government Secretariat and Kerala Forest Development Corporation Limited for placing the materials and information solicited in connection with the examination of the subject. The Committee also wishes to thank in particular the Secretaries to Government-Forest & Wildlife and Finance Departments and the officials of the Kerala Forest Development Corporation Limited who appeared for evidence and assisted the Committee by placing their views before it.

Thiruvananthapuram,
17th January, 2018.

C. DIVAKARAN,
Chairman,
Committee on Public Undertakings.

REPORT
ON
KERALA FOREST DEVELOPMENT CORPORATION LIMITED

AUDIT PARAGRAPH

2.1 Raising forest plantations and implementation of Eco-tourism projects by Kerala Forest Development Corporation Limited.

2.1.1. *Introduction:* Kerala Forest Development Corporation Limited (Company) was incorporated in January 1975 as a joint undertaking of Government of India (GoI) and Government of Kerala (GoK) with the main objectives of acquiring and purchasing reserved/unreserved forests and other land to raise plantations of industrial use and cultivating cash crops. The Company is also engaged in ecotourism activities.

Forest Plantations of the company comprised of eucalyptus, acacia auriculiformis and acacia mangium (pulpwood for newsprint and paper industries), albizia and casuarina (softwood for matchbox/plywood industries), medicinal plants and teak. Cash crops of the Company comprised of cardamom, cashew, coffee, green tea leaves, pepper and rubber.

2.1.2 *Organisational set up:* The registered office of the Company is located at Kottayam with six Divisions at Thiruvananthapuram¹, Punalur², Gavi³, Munnar⁴, Thrissur⁵ and Mananthavady⁶. A Board of Directors comprising of five official and five non-official directors manages the Company. Managing Director is the Chief Executive of the Company, who is assisted by Assistant General Manager and seven Divisional Managers⁷.

-
- 1 Anakulam, Arippe, Kottoor and Palode are the subunits under Thiruvananthapuram.
 - 2 The four subunits under Punalur are Achankovil, Karavoor, Pathanapuram and Punnala.
 - 3 There are four subunits under Gavi Division viz. Gavi, Meenar, Pampa and Kochupamba.
 - 4 Subunits under Munnar Division are Silent Valley, Mankulam, Kadalar and Koottakuzhy.
 - 5 Chembamkandam, Mayannur, Pakuthipalam and Pothumala are the subunits in Thrissur.
 - 6 There are two subunits viz, Kambamala I and Kambamala II under Mananthavady.
 - 7 One Divisional Manager is posted at registered office and six at respective divisions.

2.1.3 Audit Objectives : The main objectives of the Performance Audit were to ascertain whether:

- the forest plantations raised through efforts of the Company were effective and economic to meet the domestic and industrial needs for forest produce; and
- implementation of ecotourism projects led to bringing projected revenues to the Company.

2.1.4 Scope of Audit : The working of the Company was last reviewed and the audit results were included in the Report of the Comptroller and Auditor General of India for the year ended 31 March, 2001 (Commercial)-GoK. Committee on Public Undertakings (CoPU) discussed the Report in January 2005 and included recommendations in its 76th Report (2004-2006).

The present Performance Audit covered the activities of the Company during the period from 2010-11 to 2014-15 with reference to the above audit objectives.

2.1.5 Audit Methodology : The methodology adopted for attaining the audit objectives, with reference to audit criteria, consisted of review of files and various records maintained by the Company pertaining to planting, extraction and ecotourism activities.

The audit objectives, audit criteria and scope of the Performance Audit were explained to the Management and Government in the Entry Conference held on 11th May 2015. The audit of records of the Company was conducted during February 2015 to September 2015.

Audit findings were issued to Management/Government in October 2015. Audit findings were also discussed with Forest and Wild Life Department, GoK and Management of the Company in an Exit Conference held on 16 November 2015. The views and replies expressed by them have been given due consideration while finalising the Report.

2.1.6 *Audit Criteria* : The source of audit criteria was derived from the following :

- Forest (Conservation) Act, 1980;
- Management Plans of the Company;
- Plantation Journals⁸ maintained in the Divisions of the Company;
- Guidelines/standards prescribed by various Boards/Agencies;
- Best practices prevailing in the plantation sector;
- Orders and circulars issued by Governments; and
- Detailed project reports of ecotourism projects.

2.1.7 *Audit Findings* : The Company was incorporated with the main objective of raising man-made forests to meet the domestic and industrial needs for forest produce. Audit analysed the economy and effectiveness of the plantation activities of the Company in meeting the demand for forest produce. Similarly, the efforts of the Company to augment revenue through ecotourism activities were also examined. Audit findings are discussed in the succeeding paragraphs.

Share of the Company in meeting demand for pulpwood and teakwood in the State

2.1.8 Total demand for pulpwood and teakwood in the State during the period from 2010-11 to 2014-15 was as given in Table 2.1:

Table 2.1: Statement showing demand and supply of pulpwood and teakwood

Particulars	2010-11	2011-12	2012-13	2013-14	2014-15
Demand for pulpwood ⁹ (Stacked on)	1,75,532	1,75,532	1,75,532	1,75,532	1,75,532
Company's production (Stacked on)	22,979	26,927	17,155	18,764	18,004

- 8 Plantation journals are maintained for each plantation, where in all the details such as history of earlier plantation, raising of nursery, planting, maintenance, inspections conducted, measurements of trees, harvesting, etc., are recorded.
- 9 Worked out based on the annual pulpwood requirement of Hindustan Newsprint Limited.

Percentage of Company's share	13.09	15.34	9.77	10.69	10.26
Demand for teakwood ¹⁰ (M ³)	63,000	63,000	63,000	63,000	63,000
Company's production (M ³)	835.43	36.43	0.00	162.98	32.11
Percentage of Company's share	1.33	0.06	0.00	0.26	0.05

It could be seen from the above Table that the Company could meet only 9.77 to 15.34 *per cent* of total pulpwood demand in the State, while in respect of teak, the Company could meet less than two *per cent* of total demand in the State. The State Government had not fixed any target for the Company for supply of pulpwood and timber in the State:

Government replied (November 2015) that share of the Company against total pulpwood demand was not negligible, considering the area under pulpwood plantation in the Company. Similarly, the extent of teak plantation with the Company was only 1.57 per cent as compared to teak plantations under Forest Department, GoK.

The reply was not acceptable as there were deficiencies in land management and plantation activities which also contributed to negligible share in meeting the demand for timber and cash crops, as discussed below :

2.1.9 Land Management : To meet the raw material requirements of wood based industries, it was proposed to raise and maintain large scale man-made forests of economically useful species. Land for the envisaged plantation activities was expected to be transferred by the Forest Department, GoK. The issues noticed in land management are discussed below:

¹⁰ In the absence of demand figures, total production during the year 2010-11 in the State has been adopted.

2.1.10 *Transfer of land and its utilisation* : As per the project report prepared by the Company, a programme of raising plantations in a vast area of 74650 hectares (Ha.) was envisaged which was to be transferred by GoK. GoK, however, leased¹¹ out only 9583.22. Ha. (13 per cent) of land to the company up to 1980 which consisted of trees of natural growth in reserved forest. The Company clear-felled the natural grown trees and afterwards, wood plantations and cash crops were raised in the area. However, with the enactment of Forest (Conservation) Act, 1980, GoK took a policy decision not to clear-fell natural forests even for afforestation activity. Therefore, GoK did not transfer forest land to the Company after 1980 and the activities of the company were truncated to 9583.22. Ha.

Thus, non-availability of sufficient land was a major impediment in furtherance of plantation activities of the Company.

2.1.11 *Underutilisation of land* : In addition to the land of 9583.22 Ha leased out by GoK, the Company also possessed an area of 454.32 Ha consisting of four estates¹² (rubber and coffee plantations) in Thrissur Division entrusted by the GoK for management. Besides, GoK had transferred an area of 16.47 Ha for operating orchidarium, floriculture centre and sandal oil factory at Wagamon, Munnar and Marayoor respectively. Utilisation of land by the Company was as detailed in Table below:

Table 2.2: Statement showing utilisation of land by the Company

Particulars	Area (Ha)
Timber plantations	6886.35 ¹³
Cash crops	1695.47 ¹⁴

11 The Government fixed [GO(MS)No.2/2002/F&WLD dated 5-1-2002] the lease rent as ₹ 50 and ₹ 200 per Ha. per annum for tree plantations and cash crops respectively with effect from 01 April 2001.

12 Vettiyl, Meiraflores, Beatrice and Rosary estates.

13 Pulpwood 4622.64 Ha., Bamboo 694.58 Ha., teak 1257.46 Ha, softwood 86.65 Ha, Medicinal; Plants 147.61Ha and Residual miscellaneous growth 77.41 Ha.

14 Cardamom 623.38 Ha., coffee 597.42 Ha., rubber 57.94 Ha, cashew 312.26 Ha., tea 100.67 Ha., and pepper 3.80 Ha.

Orchidarium, offices and other infrastructures	32.49
Grassland in high elevation area utilised for ecotourism activities	668.07
Unproductive area (rocky patches, marshy land, etc.) inside their plantations	358.58
Unutilised old cardamom plantations and reed patches	413.11
Total	10054.07

The details of 413.11 Ha. of unutilised land are given in Table below:

Table 2.3: Statement showing unutilised land with the Company

Particulars	Area (Ha)
Old cardamom plantations (Gavi division)	330.80
Old cardamom plantations (Munnar division)	49.34
Sub Total	380.14
Reed patches	32.97
Total	413.11

The area of 380.14 Ha. comprised of erstwhile cardamom plantations planted before 1980 in Gavi and Munnar Divisions. The Company did not utilise the area (330.80 Ha.) in Gavi Division due to high wildlife grazing and hence, the area turned out to be dense forest. Similarly, cardamom plants in the old cardamom plantations measuring an area of 49.34 Ha. in Munnar Division were also prone to wildlife attack. Hence, these areas required power fencing before replanting which was not done.

Further, the Company had not included the reed patches measuring an area of 32.97 Ha. in the schedule of harvesting and consequently, did not harvest the reeds.

During the Exit Conference (November 2015), the Government stated that it would not be desirable to construct power fencing around the area of 380.14 Ha. as some of the area fell under elephant corridors. Similarly, power fencing would not be effective against small animals like bonnet macaques, etc., which were common in the area and caused damage to cardamom plantations.

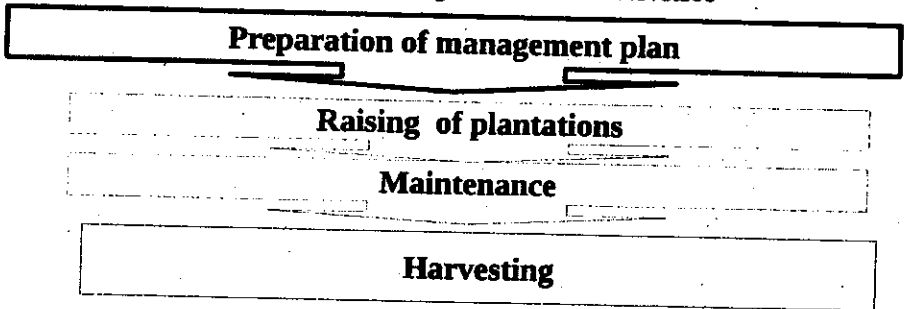
The contention of the Government was not acceptable as the entire area was cardamom plantations earlier. Besides, the Company did not make any effort to identify the areas suitable for cardamom cultivation within the 380.14 Ha. Moreover, as the Company carried out Cardamom cultivation in areas adjacent to 380.14 Ha. of land, damage of small animals, as pointed out by the Government, for not constructing power fencing could not be justified.

Recommendation No.1: Effective steps may be taken to construct power fence to utilise the unutilised area

Plantation activities

2.1.12 *Planting Operation* : The timber plantations of the Company comprised of pulpwood, bamboo, teak, softwood and medicinal plants. The activities involved inplanting operations are given in *Chart 2.1*.

Chart No.2.1 : Chart Showing Plantation activities



Since the land under possession of the Company for plantation activities was limited, choice of espacement¹⁵, timely replanting, selection of species to plant, selection of site, protection and early maintenance, etc., assume greater importance. There were, however, lapses on the part of the Company in respect of the above as discussed in the succeeding paragraphs.

¹⁵ Denotes the distance from one plant to another in all directions in a plantation.

2.1.13 Preparation of Management Plan : As per the Forest (Conservation) Act, 1980, prior approval of Central Government is mandatory before undertaking works in forest area including clearing of trees for reforestation, for which, Management Plans are required to be submitted to the Ministry of Environment and Forest (MoEF), Government of India for approval. No plantation activity can be carried out in any forest area without an approved Management Plan.

Plantations activities during 2010-11 to 2014-15 were covered by three Management Plans. The Management Plan for the five year period ended 2011-12 covered 2010-11 and 2011-12. The modified Management Plan for the five year period commencing from 2012-13 was submitted to Government of Kerala in June 2012, which was forwarded to MoEF in July 2012. Final approval was received in June 2013 for two years, i.e. 2012-13 and 2013-14. For the year 2014-15, proposal was sent by the Company in August 2014, which was approved by MoEF in September 2014.

It was noticed that even before getting formal approval from MoEF, the Company continued plantation activities in 2012-13 in violation of Forest (Conservation) Act, 1980.

Government replied (November 2015) that though there was delay in obtaining approval for Management Plan in all the five years, separate approvals were not required for carrying out replanting activities in the areas harvested as per approved Management Plan.

The reply was not acceptable because the Government had not addressed the issue on unapproved harvesting which is a violation of Forest (Conservation) Act, 1980.

Replanting activities

2.1.14 Shortfall in replanting : The basic objective of replanting scheme is to undertake timely replanting so that clear-felled areas are replanted in the next planting season. The replanting carried out by the Company was at variance with those specified in the Management Plan approved by MoEF. Plantations targeted for replanting in each year and actual replanting done in these plantations was as given in Table 2.4:

Table 2.4: Replanting-Target Vs Achievement

(Area in Ha.)

Species	2010-11		2011-12		2012-13		2013-14		2014-15	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual
pulpwood	626.16	133.94	695.37	41.77	432.49	81.91	1125.78	42.83	211.68	48.01
Teak and albizia	86.74	21.54	47.26	36.60	61.99	46.24	167.40	5.00	8.00	Nil
Total	712.90	155.48	742.63	78.37	494.48	128.15	1293.18	47.83	219.68	48.01
Percentage of shortfall	78		89		74		96		78	

Audit observed (April to July 2015) that the shortfall in replanting was due to delay in harvesting. The delay on the part of contractors/user companies in completing the harvesting and failure to ensure availability of workers for replanting also affected the replanting schedule. These issues are discussed in detail in succeeding paragraphs.

2.1.15 *Loss of replanting season* : In the forestry sector, climate largely dictates the timing of replanting operations since plant seedlings are to be planted as early as possible during the monsoon season so that the plant can establish deep roots system before the onset of next dry season. As per the policy of the Company, replanting has to be done in the month of June, i.e. in the beginning of monsoon.

Audit noticed that the Company could not carry out replanting in the immediate replanting seasons in eight plantations measuring an area of 143.78 Ha. as detailed below:

- The user companies HNL¹⁶ and TNPL¹⁷ and contractors did not hand over the plantation area on due dates. In five pulpwood plantations measuring an area of 92.14 Ha., there were delays ranging from 1 to 5 years. Though the Company levied penalty of ₹ 2000 per Ha. of

16 Hindustan Newsprint Limited.

17 Tamil nadu Newsprint & Papers Limited

unfelled area for failure to complete the harvesting in a timely manner, it did not prevent the user companies/contractors from delaying the extraction activities beyond the due date.

- An area of 11.50 Ha. (Punalur Division) comprising teak plantation was returned by the contractor in July 2009 against the stipulated month of April 2009, resulting in loss of one replanting season. Replanting was done only in 2011 due to failure to ensure availability of workers for replanting, resulting in loss of one more replanting season.
- Teak plantation measuring an area of 33.14 Ha. in Pathanapuram subunit of Punalur Division was awarded (December 2009) for extraction to two individuals. Though the extraction was completed in April 2010, replanting in this area with teak seedlings was carried out only during May-July 2011. As the raising of seedlings require one year, the nursery works should have been commenced in 2009. Audit, however, noticed that the Division started nursery works only in May 2010. As a result, the planting was delayed by one year.
- For the optimum utilisation of available land, it was very important to replant failed plantations without further lapse of time. Audit, however, noticed that there was inordinate delay of six years in replanting one failed albizia plantation in Palode subunit of Thiruvananthapuram Division as detailed in Table below:

Table 2.5: Statement showing delay in replantation

Species	Area(Ha.)	Year in which plantation failed	Reason for failure	Year of replanting	Delay (in years)
Albizia	7.00	2006	Fire in plantation in 2006	2013	6

Audit noticed that due to loss of replanting seasons, the yield from the plantation raised subsequently was also extended correspondingly. The potential loss of yield has been worked out as 2318.05 MT of pulpwood valuing ₹ 0.80 crore¹⁸.

¹⁸ Worked out by multiplying number of replanting seasons lost with proportionate average yield. Proportionate average yield is the yield per Ha divided by rotation period. Teak plantations are excluded as the rotation period fixed is 50 years.

Government stated (November 2015) that it was difficult to stick to the schedule of operations due to various reasons and that the Company had completed replanting and regeneration in all the harvested area as of July 2015. It was also assured that felling activities would be stopped by April end in the currency of new Management Plan so that the area could be replanted in the same replanting season.

2.1.16 *Short Planting of seedlings due to wrong espacement* : Espacement is the initial spacing between plant seedlings which is adopted to avoid intense competition leading to mortality in densely stocked plantations. The standard espacement of eucalyptus(2mx2m) allows to plant 2500 seedlings in a hectare.

Audit observed (April to July 2015) that the DM, instead of following the standard espacement given in the Management Plan, followed increased espacement of 2.5m x 2.5m in the effective area¹⁹ in one plantation measuring 8.55 Ha in Thrissur Division. This resulted in short planting of 7775 seedlings. Considering the average yield of 80 MT per Ha in the eucalyptus plantations, the short planting of 7775 seedlings would result in shortfall in yield of 248.80²⁰ MT valuing ₹9.70 lakh at the rate of ₹3900²¹ per MT.

While admitting audit observations, the Government stated (November 2015) that action would be taken to ensure adoption of prescribed espacement for all the species.

Failure of Plantation due to selection of wrong species

2.1.17 Albizia and acacia species are susceptible to wildlife attack. Planting of these species in areas where browsing of wild animals is high ought to be avoided. Despite this, during June 2011 and July 2012, the Divisional Manager, Thiruvananthapuram, planted these species in areas where browsing of wild animals was high. This resulted in failure of two plantations as shown in Table below:

19 Effective area is actual area available for replanting excluding rocky patches, streams, marshy lands, roads etc.

20 80MTx(7775/2500)

21 Notified price as on 31st March 2015.

Table 2.6: Details of expenditure incurred on failed plantations

Sl. No.	Subunit	Species	Year of planting	Area (Ha)	Expenditure incurred (₹ in lakh)
1	Kottoor	Acacia auriculiformis	2012	4.64	3.47
2	Arippa	Albizia	2011	2.50	2.31
Total				7.14	5.78

Thus, wrong selection of species resulted in wasteful expenditure of ₹ 5.78 lakh and loss of potential yield. Further, Divisional Manager had not taken any efforts to utilize 4.64 Ha in Kottoor subunit by replanting suitable species.

Government stated (November 2015) that acacia auriculiformis was planted because it was generally less affected by wildlife damages compared to albizia and a successful acacia auriculiformis plantation of 2006 was present on the boundary of this area. It was further stated that albizia plantation in 2.50 Ha was taken up as the earlier albizia plantation in the area was successful and the area was having private revenue land and office cum quarters in its surrounding area.

The reply was not acceptable since the Management Plan had proposed to replant such areas with other species. This proposal was mooted after considering high rate of damages to albizia and acacia plants in the area due to grazing by wild animals. Despite this, the Company went ahead with planting albizia and acacia auriculiformis species which were susceptible to wildlife attack.

Harvesting activities

2.1.18 The rotation period for each species is fixed after considering the growth, qualitative requirements of users and economy in marketing. Since replanting activities depend on harvesting, it is very important to adhere to the rotation period fixed in the Management Plans for harvesting.

In this connection, it was also observed that CoPU, in its 76th Report, on an earlier audit observation, had recommended for taking serious, practical and vigilant management steps to avoid delay in felling trees after attaining crop rotation. Scrutiny of records, however, revealed shortfall in harvesting and consequent postponement of replanting as discussed below :

Shortfall in harvesting

2.1.19 The rotation period fixed for harvesting of different species was as given in Table below :

Table 2.7: Details of rotation period fixed for different species

Species	Rotation age
Eucalyptus	Seven Years
Acacia auriculiformis	Clear felled after 14th year for timber production. Plantations not worth retaining for timber are clear-felled in 7th year for pulpwood
Acacia mangium	Seven years
Bamboo	Bamboo matures after 10 years of planting. Thereafter, four years' cycle for harvesting was followed
Albizia falcataria	Seven years

Pulpwood from plantations is harvested mainly through allotment to user companies (HNL and TNPL) as standing crop. Extraction of wood plantations for timber is done through tender cum auction method either as outright sale or departmental extraction.

During the period from 2011-12 to 2014-15, plantation in an area of 2462.34 Ha had matured for harvesting. Audit scrutiny revealed that an area of 1072.89 Ha, constituting 43.57 per cent of the matured plantation, had not been extracted so far (September 2015).

The details are given in Table below:

Table 2.8: Details of delay in extraction of matured plantations

(Area in Ha)

Sl. No.	Name of species	No. of plantations	Total matured area	Area extracted	Area pending extraction			Total area not extracted	Percentage of total area not extracted
					1 to 5 years	6 to 10 years	More than 10 years		
1	Eucalyptus	84	1638.95	734.43	628.70	255.82	20.00	904.52	55.19
2	Acacia auriculiformis	13	151.99	140.89	0.00	11.10	0.00	11.10	7.30
3	Acacia mangium	23	442.21	404.09	23.04	15.08	0.00	38.12	8.62
4	Bamboo	2	134.70	20.00	114.70	0.00	0.00	114.70	85.15
5	Albizia falcataria	9	94.49	90.04	4.45	0.00	0.00	4.45	4.71
Total		131	2462.34	1389.45	770.89	282.00	20.00	1072.89	43.57

Government replied (November 2015) that:

- i. Audit included plantations maturing in 2015 also in the Table;
- ii. Plantations with delay of more than 10 years was the only one plantation of 1978 which was of poor growth;
- iii. Oldest acacia auriculiformis plantation was planted in 1999 and therefore, observation on delay of 10 years was incorrect;
- iv. Out of the total area shown as the 'area not extracted' (acacia mangium plantations), only an area of 15.28 Ha was prior to the year 2008;
- v. 4.45 Ha of albizia plantation figured in the list of 'not extracted' plantations was a failed plantation.

The replies were not acceptable because :

- i. Audit considered plantations which were included in the schedule of harvesting for the period up to 2014-15 and plantations which reached rotation age for harvesting up to 2014-15 as per Management Plans;
- ii. As per the schedule of harvesting in the Management Plan for the period from 2015-16, moderate yield of 1000 MT was expected from the 1978 plantation (20 Ha) which was stated to be of poor growth by the Company;
- iii. Maximum delay of 10 years was noticed in 4.30 Ha of plantation (planted in 1998) in Punalur division which remained to be harvested even though included in the schedule of harvesting of Management Plan for the period commencing from 2012-13;
- iv. Government did not take into account 22.84 Ha of plantation area left out by user companies after partial extraction; and
- v. Company planned to harvest 223 MT of albizia billets from the plantation as per schedule of harvesting in the Management Plan for the period 2015-2020.

After analyzing the extraction/harvesting activities, Audit observed that following were the reasons for not extracting the matured plantations in time.

Dependence on two user companies for sale of pulpwood

2.1.20 There were at least 18 Industrial units manufacturing paper in South India, in public and private sectors²². The Company, however, depended fully on HNL and TNPL for the sale of pulpwood plantations. During the audit period, the entire pulpwood was sold to these two public sectors undertakings on allotment basis.

²² List of indigenus mills recognised by Government of India for the purpose of claiming exemption from excise duty (Source: Registrar of Newspapers for India, Government of India)

Aggravating the situation further, HNL, which on an average, had bought 10662 MT of pulpwood annually, stopped purchasing pulpwood from the Company from 2013-14 onwards due to subsidised sale of pulpwood by GoK to HNL. This made the Company solely dependent on TNPL. In the event of TNPL stopping purchase, the Company would not be able to find buyers for the pulpwood. The Company did not take any steps to find other buyers for pulpwood.

Government replied (November 2015) that it could sell entire available pulpwood quantity from all reasonably stocked pulpwood plantations to HNL and TNPL. It was also stated that they had contacted other three industrial units to sell pulpwood to them which did not materialize. Concurring with Audit observation, the Company also stated that steps would be taken to get alternate buyers.

The reply was not acceptable as there was failure on the part of the Company to harvest the matured plantations. Further, from the year 2013-14 onwards, for the sale of pulpwood, the Company solely depended on TNPL.

Deficient marketing strategy

2.1.21 As per Kerala Forest Code (Volume-I), sale of the right of felling, collection and removal of timber shall be effected only through widely advertised public auctions.

Audit noticed that though the Company was not able to find buyers for the matured pulpwood plantations, it did not resort to open tendering of these plantations. The Company followed the marketing method of Kerala Forest and Wildlife Department which allotted raw material to industries like HNL on mutually agreed terms and conditions which was also in violation of codal provisions.

Government stated (November 2015) that the MoEF, Government of India, had imposed (June 2013) ban on felling established growth of miscellaneous species in the plantation area and understocked²³ portions of softwood plantations which prevented it from going ahead with the tender floated in February 2013 to dispose of eucalyptus clonal plantations.

23 Understocking denotes low density of trees in plantations.

The reply was not acceptable since ban was applicable only for understocked plantations and the Company could have opted for tendering in other plantations with normal stock. It was also noteworthy that though the eucalyptus clones plantations were of poor growth in terms of girth, they performed well in the matter of stocking. As such, these plantations were not understocked.

Further, cancellation of the tender had nothing to do with growth of trees but was due to uneconomical rates as discussed in Paragraph 2.1.22.

Failure of the Company to dispose of plantations with poor growth

2.1.22 The Company did not extract an area of 452.45 Ha of eucalyptus clones²⁴ plantations, raised during the period 2001-2005, which were included in the schedule of harvesting of Management Plans for the period from 2010-11 to 2014-15. The growth of these plantations was very poor due to non-suitability of the clones in the climatic conditions of Kerala. The user companies did not come forward to extract the plantations at the notified price due to low girth of wood.

In March 2011, Kerala Forest Research Institute, Peechi reported that the eucalyptus clones plantations were beyond the scope of recovery and retaining or coppicing²⁵ might not yield any increment. Hence it was recommended to clear-fell and replant the area with suitable species to make the area more productive. However, the Company did not take any action on it till February 2013, when a tender was floated to dispose of the plantations. The tender did not yield results as the rates quoted were below notified price and the Government did not give permission to sell eucalyptus wood below notified price. The Expert Committee appointed by the Government²⁶ recommended (July 2014) for conducting a fresh tender cum auction sale to dispose of the eucalyptus clones plantations. The Company, however, did not invite fresh tender so far (September 2015).

24 Eucalyptus clones were raised as part of World Bank aided Kerala Forestry Project.

25 Coppicing denotes the method of felling trees to ground level after retaining the main stumps for allowing the shoots to regrow from that main stump.

26 Committee was formed under Kerala Forest Produce (Fixation of Selling Price) Act, 1978.

Audit observed (April to July 2015) that the failure to dispose of the above plantations resulted in postponement of replanting in the area. This also resulted in potential loss of yield of 16852.03 MT²⁷ of eucalyptus wood valuing ₹ 6.25 crore²⁸.

Government stated (November 2015) that the ban on felling the miscellaneous trees and understocked portions in the eucalyptus clones plantations was the reason for non-disposal of these plantations. It was also stated that there may not be any potential loss of yield as the established miscellaneous growth was growing in the area during the period.

The reply was not acceptable since the plantations were included in the Management Plans for clear-felling and replanting. The delay had caused potential loss of yield. Further the Company had not carried out any enumeration and valuation of miscellaneous trees in the plantation area.

Recommendation No. 2: The Company should evolve a system for carrying out harvesting and replanting activities as per the schedules fixed in the Management Plan. The Company should also resort to open tendering for sale of the matured plantations as per the provisions of Kerala Forest Code.

Failure to include matured plantations in schedule of harvesting

2.1.23 To get approval from Central Government, matured plantations have to be included in the schedule of harvesting in the Management Plan. Exclusion of a matured plantation from the schedule would make extraction activities in the plantation area impossible. It was, however noticed that the Company did not

²⁷ Potential loss is worked out based on the average expected yield of 60 MT/Ha from a eucalyptus plantation with the rotation age of seven years.

²⁸ Worked out on the basis of notified price of eucalyptus billets as on 31 March 2015.

include all the matured plantations in the schedule of harvesting for getting approval from the Central Government. Out of the total area of 1072.89 Ha not extracted, an area of 274.66 Ha was not included in the schedule of harvesting due to which the Company could not carry out extraction activities in these matured plantations (**Annexure 3**). Further, as these plantations were not included in the schedule of harvesting in the Management Plans, they were also excluded from the replanting schedule resulting in non-utilization of land.

Government replied (November 2015) that out of 16 plantations pointed out by Audit, 10 plantations achieved maturity in the year 2014 and were expected to get yield of 10 to 30 MT per Ha only. Due to the then prevailing ban on felling understocked softwood plantations, these plantations were excluded. Other plantations were left out due to omission/low growth/failure of plantations.

The reply was not acceptable as all the plantations had attained the rotation age as per the approved Management Plan. The Company also expected to get a yield of 30 to 60 MT per Ha from the above mentioned 10 plantations as per the harvesting schedule.

It was also noticed that the user companies had failed to harvest 149.69 Ha of matured plantation area allotted to them and returned the area.

Audit further observed (April to July 2015) that delay in harvesting of matured plantations adversely affected the replanting schedule of the Company. The Company expected to get 26041 MT of pulpwood, 2000 MT of bamboo and 178 MT of albizia timber from the plantations. The failure to carry out extraction in these plantation areas resulted in non-realization of expected revenue of ₹ 9.65 crore.

Maintenance activities

2.1.24 Audit noticed deficiencies on the part of the Company in initial maintenance of plantations leading to failure of plantations as discussed below:

Failure due to improper maintenance

2.1.25 Weeds growth is one of the challenges to the plants in the initial stages of growth. Weeds are undesired plants in the cropping system as they flourish at the cost of the desired species. The weed species may overtop the natural forest tree species and reduce the forest productivity. Hence, carrying out proper weeding according to necessity is vital for the success of plantations.

It was noticed that four plantations had failed due to improper weeding which rendered the expenditure of ₹ 2.90 crore wasteful as detailed in Table 2.9:

Table 2.9: Details of wasteful expenditure due to improper weeding

Sl.No.	Species	Year of planting	Division	Subunit	Area (Ha)	Expenses incurred (₹ In lakh)	Period from which plantation remaining unutilized
1	Teak	2009 to 2012	Punalur	Pathanapuram	197.03	261.57	March 2015
2	Teak	2011	Thrissur	Mayannur	8.28	7.78	May 2013
3	Red sanders	2010	Thrissur	Mayannur	13.00	15.55	February 2013
4	Red sanders	2011	Thrissur	Mayannur	5.80	5.01	May 2013
Total					224.11	289.91	

Reason for failure of these plantations are discussed below:

- During the period from 2009 to 2012, teak plantations were raised in an area of 197.03 Ha²⁹ in Punalur Division. The teak plantations were declared (March 2015) as failed plantations by the DM due to heavy weed growth. For the survival of the plantation raised during 2013 (27.50 Ha³⁰) also, intensive cultivation activities were required to be carried out. Similarly, the growth rate of plants in the teak plantation of 8.28 Ha. planted in 2011 in Thrissur Division was also not satisfactory due to heavy weed growth. As the stock was about 20 per cent it was decided that the plantation would not be maintained further.

Audit observed that though spade weeding had to be carried out as the first weeding in the year of planting, the Divisions carried out knife weeding³¹ only. Further, it was also noticed that 2 to 4 weedings were carried out in each year which were ineffective. Due to failure to carry out spade weeding and ineffective weedings carried out subsequently, the above mentioned plantations had failed.

The Management stated (November 2015) during the discussion in Exit Conference that not doing spade weeding during the first year was not the only reason for failure of the teak plantations as there were multiple reasons for failure which were not specified. It was, further, stated that in teak stump sprouting, spade weeding could not be considered due to chances of soil erosion.

The reply was not acceptable since the working plans of the Forest Department provided for spade weeding (during May-June) in the teak plantations raised with teak stump sprouting. Further, as per Kerala Forest Department Package of Forest practices (2009), first weeding in teak plantation after replanting should be spade weeding. It was also noticed that teak plantations raised in the same areas³² in both the Divisions subsequently were healthy and

29 Block I, II and III of Kudappanakulam coupe under Pathanapuram subunit.

30 Block III and IV of Kudappanakulam coupe under Pathanapuram subunit.

31 In spade weeding grass and weeds are uprooted but in knife weeding, only the stumps are cut and root remains.

32 Teak plantations of 42 Ha raised in 2014 and 2015 in Pathanapuram subunit of Punalur Division and 6.25 Ha raised in 2010 in Mayannur subunit of Thrissur Division.

promising which indicated that suitability of the land for teak plantation. Thus, ineffective weeding carried out during the period from 2009 to 2013 was the reason for failure of the plantations.

- Similarly, though tree weeding was carried out in the first two years of planting in the two red sanders plantations given in Table 2.9, the plantations were infested with heavy weed growth which eventually resulted in abandonment of plantation without further maintenance.

The Government stated (November 2015) that weed suppression and fire during 2012 were the reasons for failure of the red sanders plantations. The reply was not acceptable because stock of the plantation was less than 10 percent even before the fire had broken in February 2012. Weed growth was the main reason for the failure of these plantations. It was also noteworthy that the presence of excessive weeds in the plantation was catalytic in spreading fire.

Recommendation No. 3: The Company should monitor and hold officers accountable for carrying out appropriate and timely maintenance activities.

Failure to carry out thinning

2.1.26 Thinning is the process by which the number of trees is reduced gradually in various stages depending upon the growth of the crop in order to provide optimum conditions required for the better growth of the remaining plants. It provides sufficient growing space and reduces root competition. The process of thinning not only facilitates optimum productivity but also gives short term revenue to the Company through disposal of thinned trees. Thus, failure to carry out thinning in a timely manner would adversely affect the growth of existing trees. The schedule fixed for carrying out thinning for various species is given in Table 2.10:

Table 2.10: Statement showing period fixed for thinning

Species	Particulars
Acacia auriculiformis	Thinned during 6th year for pulpwood for facilitating growth of retained trees for timber production which are clear felled after 14th year.
Acacia crassicarpa	Thinned at 6th year and has a rotational age of 15 years.
Gmelina arborea	To reduce the density and to facilitate growing space for the trees, thinning is carried out in the 4th year
Teak	The Company follows a schedule of 1st, 2nd and 3rd thinning at the end of the 5th, 10th and 18th year respectively for teak plantation.

International Training Programme on Innovations in the Management of Planted Teak Forests held at Kerala Forest Research Institute, Peechi, Thrissur District (August/September 2011) counted failure to apply thinning as one of the factors causing low financial benefits from teak plantations. It advocated for encouraging farmers to carry out thinning in teak plantations for better economic benefits. Larger the deviation from the thinning schedule, lesser will be the Net Present Value of future returns. This clearly indicated the adverse effects of not applying thinning. After analysing the thinning activities of the Company during the period from 2010-11 to 2014-15, Audit noticed that thinning was not done in respect of 69.40 per cent of matured area as the expected sale proceeds from thinned material was not sufficient to meet the cost of thinning due to poor growth/stock. Besides, the Company had failed to include

acacia crassicarpa and gmelina arborea plantations in the schedule of thinning in Management Plans. The details are given in Table 2.11:

Table 2.11: Statement showing failure to carry out thinning operations

Sl. No.	Name of Species	No. of Plantations	Area due for thinning	Area thinned	Area not thinned	Percentage of total area not thinned	Range of delay in thinning (in years)
			Area in Ha				
1	Acacia auriculiformis	30	604.89	422.48	182.41	30.16	1 to 7
2	Teak	18	749.79	0	749.79	100.00	1 to 5
3	Acacia crassicarpa	1	5.00	0	5.00	100.00	3
4	Gmelina arborea	1	20.89	0	20.89	100.0	2
Total		50	1380.57	422.48	958.09	69.40	

In the absence of measurements of trees in the plantations, the impact on growth of existing trees due to not carrying out thinning could not be quantified by Audit.

Government stated (November 2015) that the Company would take earnest efforts to carry out thinning operations in the plantations as per the prescriptions. It also stated that there was no delay for thinning in gmelina arborea plantation as it was due only in the 6th year.

The reply was incorrect because Audit calculated delay in thinning with reference to approved Management Plan which prescribed thinning in the 4th year of planting, which was actually not done.

Failure to raise medicinal plants utilising Government grant

2.1.27 National Medicinal Plant Board (NMPB) sanctioned (January 2009) a grant amounting to ₹ 1.69 crore to the Company for a project of raising medicinal plantations in an area of 150 Ha. The main species envisaged in the project were *petrocarpus santalinus*, *gmelina arborea*, *garcinia guttifera*, *myristica fragrans*, *sterospermum chelonoides* and *embelia ribes* with inter planting of other varieties of medicinal plants.

NMPB released (March 2009 and March 2012) ₹ 1.35 crore in two instalments. The project had to be completed by March 2014. However, the Company carried out planting only in an area of 97.76 Ha³³ and utilised the grant amounting to ₹ 1.23 crore. This resulted in refund of ₹ 0.11 crore (February 2015) and lapse of another ₹ 0.35 crore.

It was observed that MD had failed to identify suitable area and direct the Divisions for planting medicinal plants as part of the project. As a result, in addition to lapse of grant amounting to ₹ 0.46 crore, the Company could not raise plantations of medicinal plants in an area of 52.24 Ha.

Cash Crops

2.1.28 The cash crops of the Company comprised of cardamom, coffee, tea, pepper, rubber and cashew,. Details of production of cash crops in the State *vis-a-vis* by the Company were as given in *Table* below:

33 *Petrocarpus santalinus* 75.87 Ha, *Gmelina arborea* 20.89 Ha and *sterospermum chelonoides* 1.00 Ha.

Table 2.12: Details of production of cash crops in the State vis-a-vis by the Company

(Figures in MT)

Crop	2011-12		2012-13		2013-14	
	State	Company	State	Company	State	Company
Cardamom	10,222	21.99	10,222	15.13	14,000	5.05
Cashew	36,740	26.88	37,919	43.79	33,375	25.85
Coffee	68,175	115.93	68,175	105.03	66,645	108.93
Tea	57,903	997.06	62,963	902.18	62,937	899.55

The activities carried out in cash crops plantations were not in Management Plans up to 2014-15 and hence, specific approval from Central Government under the Forest (Conservation) Act, 1980 was not obtained. It was noticed that the productivity of cash crop plantations of the Company was lower than the standard as discussed in succeeding paragraphs.

Low productivity of cardamom plantations

2.1.29 The Company had cardamom plantations spreading over an area of 623.38 Ha in Gavi, Munnar and Thrissur Divisions. Based on the intensity of agricultural operations carried out, the Company had classified its cardamom plantations as detailed in Table below:

Table 2.13: Statement showing classification of cardamom plantations

Particulars	Area (Ha)
Specially Treated Area (STA)	55.50
Treated Area (TA)	91.20
General Management Area (GMA)	476.68
Total	623.38

Intensive agricultural operations such as application of fertilisers, fungicides, insecticides and irrigation were carried out in STA and TA³⁴. These areas were also covered with power fencing. However, weeding and base cleaning before harvesting were the only operations carried out in GMA. Excluding an area of 65 Ha in Gavi, remaining area of 411.61 Ha in GMA was not covered with power fencing, leaving the area vulnerable to wildlife grazing.

Audit analysed the productivity of cardamom plantations where intensive agricultural operations were carried out (STA and TA) and noticed significant shortfall in yield of 243.81 MT valuing ₹ 17.55 crore, compared to State average productivity of dry cardamom (**Annexure 4**).

Government stated (November 2015) that the Company did not use insecticides in the cardamom plantations which were situated inside reserve forest. Hence, the productivity of plantations of the Company was not comparable with State average productivity.

The reply was not acceptable as scrutiny of work distribution registers maintained at subunits revealed that the Company had used insecticides like, ekalux, acephate, hilban, etc., in its cardamom plantations. Further, there were significant variations in productivity of plantations of the Company on a year to year basis. Compared to highest production of 21.99 MT achieved in 2011-12, there was shortfall in production during 2010-11 and 2012-2015, which ranged between 26 per cent and 78 per cent. Thus, the significant shortfall in productivity compared to State average indicated further room for improvement.

Factors adversely affecting the productivity of the plantations were as discussed below:

- The Company limited intensive cultivation to STA and TA. The average productivity of green cardamom³⁵ of STA and TA per Ha during the

34 Major difference between STA and TA is that the Company has provided mist irrigation facilities in STA while manual irrigation is carried out in TA as per requirement.

35 Green cardamom capsules collected from plantations are cured in the curing house to get dry cardamom which is the final product. The Company did not keep separate accounts of dry cardamom from STA, TA and GMA.

period from 2010-11 to 2014-15 was 2755.95 kg. and 1414.81 kg. respectively whereas productivity in GMA was as low as 121.72 kg. only.

- According to Spices Board, economic yield of cardamom plants starts from third year of planting and it continues up to 8 to 12 years. Audit, however, noticed that out of the total area of 623.31 Ha of cardamom plantations, only 106.05 Ha (17.01 per cent) would fall within the economic life span of cardamom plants.

There was budgetary provision for carrying out replanting in an area of 57 Ha. during the period from 2010-11 to 2014-15. However, the Divisional Manager did not take any steps to replant the entire area but limited to 30.20 Ha. only due to shortage of workers to carry out cultivation activities after replanting. It was noticed that 10 per cent of the workers were deployed for miscellaneous work like driving, supply of drinking water, office work, guides for ecotourism, etc.

Government stated (November 2015) that the cardamom plant varieties in GMA such as Mysore, Malabar and Vazhuka are having economic age above 12 years. Further, there was deployment of workers for other activities as per Plantation Labour Act.

The reply was not acceptable because according to Spices Board, the economic age of above three varieties was also 8 to 12 years. Similarly, engagement of workers for office work, driving, guides for ecotourism, etc., was not covered under the Plantations Labour Act, 1951. The significant shortfall in productivity of cardamom in GMA necessitates immediate replanting.

- Though it was supposed to carry out various agricultural operations in STA and TA, Audit noticed that the Divisions did not carry out the standard cultivation practices³⁶ for cardamom as detailed below:
 - Scrutiny of work distribution registers maintained at subunits revealed that mulching³⁷, one of the important activities was carried out in Munnar

³⁶ Source : Spices Board

³⁷ Mulching is covering the plant base with dry leaves for reducing evaporation loss, suppress weed growth and to maintain optimum soil temperature.

Division only in one month i.e. February 2013. Likewise, plant bases of cardamom plantations in Gavi Division were not mulched during 2011-12 and 2013-14. During 2014-15, mulching was restricted to STA and no mulching was done in TA.

- It was also noticed that forking³⁸ was not carried out in Munnar Division during 2010-11 to 2014-15. Similarly, it was also not carried out in all STA and TA in Gavi Division to the extent of *six per cent* to 73 per cent of the area during the period from 2010-11 to 2014-15.
- Pruning³⁹, another important agricultural activity, was not carried out in the STA and TA cardamom plantations of the Company during the period 2010-11 to 2014-15.

Audit observed (April to July 2015) that the Managers of the respective subunits and DMs had failed to carry out the agricultural practices recommended by Spices Board in the cardamom plantations.

Government stated (November 2015) that workers engaged for weeding work and soil application would carry out the mulching and forking works respectively. It was also stated that pruning is not a cultural operation carried out in cardamom plantations.

The reply was not acceptable as mulching and forking works carried out in the plantations were recorded in the labour distribution registers separately. Similarly, as per the accepted cultivation practices of Spices Board for cardamom plantations, pruning was one of the important cultural operations.

Low productivity of cashew plantations

2.1.30 As of March 2015, the Company had cashew plantations in an area of 312.26 Ha in Punalur and Thiruvananthapuram Divisions. Audit analysed the productivity of the cashew plantations of the Company and noticed that the productivity was far below the State average. The shortfall in yield during the period was 1278.21 MT valuing ₹ 7.21 crore (**Annexure-4**).

38 Forking is carried out at the plant base to enhance root proliferation, better infiltration of summer showers and for improving soil aeration.

39 Pruning is undertaken with sharp sickles for removing the dead and hanging leaves.

The shortfall in yield was due to inadequate maintenance and failure to replant old cashew trees as detailed below :

- A cashew tree starts bearing fruit after the third year of planting while the economic life span of a cashew tree is about 20 years. Audit noticed that out of 312.26 Ha of cashew plantations, trees in 163.39 Ha had exhausted this life span. However, no action was initiated by the Company to replant the aged trees.
- In this connection, Audit also noticed that the Company did not take any effort to avail of 50 per cent financial assistance from Directorate of Cashew and Cocoa Development to replace senile plantations and replant with high yielding varieties.
- As per the standard agricultural practices⁴⁰ in cashew plantations application of manures and fertilisers, weeding, mulching, pruning, irrigation and application of insecticides are very important activities that ensure higher productivity.

Audit, however, noticed (May 2015) that no maintenance activity was undertaken in the cashew plantations after 2011-12. During 2010-11 and 2011-12, activities like weeding, pruning, application of fungicides were carried out in an area of 162.18 Ha (out of 312.26 Ha).

Government replied (November 2015) that the Company did not use insecticides in their cashew plantations and hence, its productivity cannot be compared with State average. As weeding was carried out by the contractors who got the right to collect the cashew nuts from the plantations no budgetary provision was made.

The reply was not acceptable since very low productivity (8.01 per cent to 15.61 per cent of State average) indicates need for proper maintenance of cashew plantation. Further, there were shortfalls ranging from 38.63 per cent to 49.31 per cent in other years in comparison with maximum production achieved in 2012-13 (437.95 MT). Similarly, weeding before commencement of harvesting by contractors was not a contractual obligation on the part of the contractors and even if it was done by contractors it could not be a substitute for proper maintenance by the Company.

40 Source: Directorate of Cashew and Cocoa Development (DCCD)

Low productivity of coffee plantations

2.1.31 Coffee plantations of the Company are spread over an area of 597.42 Ha, situated in Thrissur, Munnar and Gavi Divisions. The area is inclusive of three estates handed over by the Forest Department for management and collection of crops in December 2011.

The yield obtained from the coffee plantations of the Company was lower than the State average. Again the State average productivity of 761 kg. to 809 kg. per Ha, the average productivity per Ha. of coffee plantations of the Company ranged between 93.91 kg. and 194.05 kg. during the period 2010-11 to 2014-15. Total shortfall in yield, compared to State average, during the period worked out to 1628.89 MT of raw coffee valuing ₹ 18.27 crore (**Annexure-4**).

Audit observed (April to July 2015) that inadequate maintenance of plantations was the reason for low productivity. As per the standard agronomic practices⁴¹, various activities such as growing of green manure crops such as cowpea, horse gram, etc., as intercrop, weeding, bush management, application of fertilisers, shade management, application of pesticides, etc., have to be carried out in the coffee plantations for better productivity. Weeding and desuckering⁴² were, however, the only activities, other than harvesting carried out in the coffee plantations of the Company.

Government replied (November 2015) that since the Company did not use pesticides in the plantations, its productivity cannot be compared with the State average. It also stated that as major area of the coffee plantations were handed over by Forest department for collection of usufructs only, the Company could not carry out much maintenance activities.

41 Source: Coffee Board

42 Desuckering is a maintenance activity done to maintain a single stem system and avoid competition from suckers.

The reply was not acceptable as the percentage of yield per Ha. in the coffee plantations of the Company was only 12.04 to 23.99 of the State average. Further, it was also noticed that there were shortfalls ranging from 6.03 per cent to 51.61 per cent in other years compared to maximum average productivity per Ha (194.05 kg.) achieved in 2011-12. Similarly, the Company had not taken up the matter with the Government for getting necessary permission for carrying out maintenance activities in plantations where it was required. Prescribed maintenance activities were also not carried out in the balance coffee plantations measuring 219.90 Ha which came under the direct control of the Company.

Low productivity of green tea leaves

2.1.32 The Company had an area of 100.67 Ha of tea plantation in Mananthawady Division. As per the standards of United Planters Association of South India (UPASI) if proper agronomic practices are followed, yield of 15000 kg. per Ha can be attained. Audit analysed the productivity of tea plantations in the effective area (90.50 Ha) and noticed that the yield obtained was lower than the standard in all the five years. As per the report of UPASI Tea Research Foundation, lack of maintenance foliage, shear tipping, excess shade, irregular pattern and lack of supervision were the factors that resulted in low productivity in green tea plantation. The shortfall in yield was worked out by Audit as 1919.936 MT of green tea leaves valuing ₹ 2.67 crore⁴³ (Annexure-4)

While admitting Audit observations, Government stated (November 2015) that adequate provisions had been included in the approved Management Plan for the period 2015-16 to 2019-20.

Recommendation No. 4: *The Company may carry out replanting in a phased manner to replace the aged plantations. The maintenance activities prescribed by various agencies like Spices Board, DCCD, Coffee Board, UPASI, etc., may also be carried out.*

⁴³ Computed at the weighted average price per kg received by the Company during 2010-15. 792/2018.

Ecotourism activities

2.1.33 Ecotourism is broadly defined as tourism which is ecologically sustainable. Ecotourism is promoted through people's participation without damaging the ecological status of the forests, for the benefits of the local communities.

Due to frequent market fluctuations in the price of cash crops, many a time, the plantation activities of the Company suffered heavy loss. It was in this background that the Company forayed into ecotourism on an experimental basis in two locations i.e. Gavi and Munnar in 2000-2001. Thereafter, four more locations⁴⁴ were developed between 2007-08 and 2012-13.

The Company identified (June 2012 to June 2013) 12 locations (including renovation of existing six projects) for developing ecotourism facilities. The present status of implementation of these projects is as given in *Table* below:

Table 2.14 : Status of implementation of ecotourism projects

Particulars	No. of Projects	Name of Projects/ecotourism centres	
		New Projects	Renovation of existing projects
Projects completed	5	Kottoor (Kappukad) and Kallar (Ponmudi)	Arippa, Munnar and Kochupampa ⁴⁵
Projects in progress	3	Wagamon ⁴⁶	Gavi and Nelliampathy
Projects dropped as per specific direction from MoEF	2	Sabarijalam (Punnala, Pathanapuram)	Kambamala (Wayanad)

44 Arrippa (2007-08), Kambamala (2009-10), Nelliampathy (2012-13) and Kochupampa (2012-13)

45 Commenced operations, but all works not completed

46 Project completed on 24-8-2015 i.e. after audit period

Projects stopped due to failure to acquire land	1	Gandhi Smrithivanam (Purakkad, Alappuzha)	
Project dropped due to non-suitability of the area ⁴⁷	1	Kuruva (Wayanad)	
Total	12		

Performance of existing ecotourism centres

2.1.34 The Company operated seven⁴⁸ ecotourism centres (Gavi, Kochupampa, Munnar, Nelliampathy, Kambamala, Arippa, and Kallar) across the State during the audit period. The tourism activities included night stay facility, trekking, boating, vehicle safari, etc.

All the centres were working profitably⁴⁹ except Kambamala, Nelliampathy and Kallar. The trend of tourists' visit in the State recorded steady increase during the audit period. The number of tourists who visited the State increased from 0.92 crore (in 2010) to 1.26 crore (in 2014), registering an increase of 36.35 per cent. Flow of tourists to the existing ecotourism centres of the Company was as given in Table 2.15:

Table 2.15 : Details of flow of tourists to the existing ecotourism centres⁵⁰

Ecotourism Centre	2010-11	2011-12	2012-13	2013-14	2014-15
	(Number of tourists)				
Gavi	18936	21589	27325	25063	24478
Munnar	706	731	593	960	1036
Arippa	210	119	108	209	224

47 In the meeting held (July 2014) by Additional Chief Secretary to GoK, Forest and Wildlife Department.

48 In the case of Kottoor (Kappukad) project, though works were completed, operations did not commence. Hence, not included.

49 Profitability is worked out by excluding expenditure like interest, depreciation etc.

50 Ecotourism operations in Kallar was commenced in January 2015 only and hence, not included.

Kambamala	24	140	62	31	39
Nelliampathy	-	-	10	89	188
Kochupampa	-	-	106	387	2880
Total	19876	22579	28204	26739	28845

As compared to 2012-13, the flow of tourists to Gavi ecotourism centre showed declining trend during 2013-14 and 2014-15. Similarly, in Kambamala ecotourism centre, there was declining trend from 2012-13 onwards as compared to that of 2011-12.

Further, scrutiny of occupancy in the staying facilities of the Company revealed that except Gavi, percentage of occupancy ranged between nil and 13.01. Even in Gavi, the occupancy was between 5.54 *per cent* and 42.51 *per cent*.

Government replied (November 2015) that drop in tourist foot-fall was due to opening of more ecotourism projects and destinations in the State by the Kerala Forest Department. It was further stated that the declining trend in Gavi during 2014-15 was due to stoppage (January 2015) of day package, following death of two visitors in wild elephant attack and closure of old kitchen cum restaurant block for major renovations.

The reply was not acceptable since there would be increase in ecotourism centres only if more potential was perceived by Government, not for redistributing the existing flow in more places.

Reasons for low occupancy as analysed by Audit were as discussed below:

- Though the Company's website had provision for online reservation, it could be done only for Gavi and Munnar ecotourism centres. Day package in Gavi and Munnar also could not be booked online. Online

reservation for eco-tourism centers in Nelliampathy, Arippa, Kambamala and Kallar were not provided in the website of the Company.

Accepting the audit observations, Government replied (November 2015) that measures were being taken for extending online reservation facility to Nelliampathy, Arippa and Kallar and online booking of day package in Gavi were also under consideration.

- Main attraction of ecotourism centres of the Company is the vicinity of reserved forest and the opportunity to watch flora and fauna in its natural habitat. For this purpose, safari vehicles with trained drivers are very essential. However, this vital facility was absent in ecotourism centres of Arippa, Kallar and Kambamala.
- Government replied (November 2015) that the safari vehicles with trained drivers were provided in Gavi, Munnar and Nelliampathy. But it was not provided in Arippa and Kambamala as the number of visitors in these centers were very less, wherein it was not economic to maintain.

The reply was not acceptable as it was based on opinion and not coming from experience since profitability of the centres depends on tourist arrival and therefore, provision of additional facilities like safari vehicles would attract more tourists to these destinations.

- The ecotourism centre in Kallar was depending on water from a bore well for all purposes. Audit, however, noticed that there was high percentage of impurities in the water taken from this bore well making the water unusable. Accepting the audit observation Government replied (November 2015) that measures were being taken for providing safe water in Kallar ecotourism centre.
- It is a common practice in the tourism sector to have a flexible tariff which attracts tourists during off season by reducing rates. In Gavi ecotourism project, tourist visit during tourist season (October-March) of 2010-11 to 2013-14 was higher than the off-season period (April-September). The percentage of increase during tourist season ranged between 7.92 and 83.64.⁵¹ The Company, however, did not introduce a flexible tariff by extending nominal tariff reduction during off-season to attract more tourists.

⁵¹ During 2014-15, there was no increase in arrival of tourists during season owing to cancellation of trips (February and March 2015) following death of two tourists in elephant attack.

Government replied (November 2015) that as per the suggestion of the Audit, the Company had agreed to explore the prospects of rate reduction in the next off-season period.

- Tourism sector is very competitive due to presence of large number of players. As a result, wide publicity regarding the facilities, attractive features, etc., is very important for attracting tourist to the centres. Audit, however, noticed that the publicity of the Company was limited through its website. Even in this website, details regarding ecotourism centres in Kambamala, Kallar and Kochupampa were not available.

Government replied (November 2015) that the details of Kochupampa ecotourism centre had already been uploaded in the website and action would be taken to upload the details of Kallar also in the website.

The reply was not acceptable because the website of the Company still (21 January, 2016) does not contain any mention about Kochupampa ecotourism centre.

Recommendation No. 5: The Company may update its website to include the details of all the ecotourism projects of the Company and facility for online reservation. Flexible tariff by extending nominal tariff reduction during off season may be implemented to attract tourists during off-season. Adequate publicity may also be resorted to. Similarly, basic facilities such as availability of pure water, safari vehicles, etc., may be ensured in its ecotourism centres.

Deficiencies in the implementation of ecotourism projects

2.1.35 The Company expended total capital outlay of ₹6.15 crore⁵² for implementation of 12 ecotourism projects (including renovation of six existing locations) during the period from 2010-11 to 2014-15. Audit analysed the implementation of these projects and noticed the following deficiencies:

52 Gavi- ₹ 0.22 crore, Nelliampathy - ₹0.09 crore, Kallar - ₹0.35 crore, Kochupampa - ₹0.24 crore, Munnar - ₹0.87 crore, Wagamon - ₹1.71 crore, Gandhi Smrithivanam- ₹0.06 crore, Sabarijalam - ₹0.58 crore, Arippa - ₹0.59 crore, Kottoor - ₹1.42 crore, Kamabamala - ₹0.02 crore and Kuruva- Nil.

- As per the Forest (Conservation) Act, 1980, prior approval was necessary for all non-forestry activity in the reserved forest area. The Company, however, did not approach MoEF for approval for implementing ecotourism projects. As a result, MoEF specifically directed to stop two projects (Sabarijalam and renovation project in Kambamala) and thus, ₹ 59.42 lakh⁵³ already spent on these projects became wasteful.
- The Company ventured into implementation of Gandhi Smrithivanam project without ensuring availability of land. As the land required could not be acquired in time, the project was stopped (May 2014) midway and an amount of ₹ 6.48 lakh invested in the project was also blocked up.
- Implementation of eight⁵⁴ projects was delayed beyond the scheduled date for completion due to delay in awarding works and completing the works by contractors. The delay ranged up to 24 months. Audit worked out the loss of potential revenue⁵⁵ from five⁵⁶ of these projects at ₹ 10.72 crore. Government replied (November 2015) that all the existing ecotourism projects of the Company were detailed in the approved Management Plan for the period from 2015-16 to 2019-20. Further, Sabarijalam Project was not yet abandoned by the Company.

The reply was not acceptable as the Company failed to get prior approval from MOEF for any of the projects till 2015-16 as per the provisions of the Act. Further, MOEF had directed to stop Sabarijalam Project in view of it being a non-forestry activity and works were held up since March 2015.

Recommendation No. 6: The Company should obtain prior approval from Central Government before launching any new ecotourism project. Availability of pre-requisites such as adequate land may also be ensured before venturing into new projects.

[Audit Paragraph 2.1 (2.1.1 to 2.1.35) contained in the Report of the Comptroller and Auditor General of India for the year ended 31st March 2015].

53 Sabarijalam - ₹57.52 lakh and Kambamala - ₹1.90 lakh.

54 Munnar, Kallar, Gavi, Kochupampa, Nelliampathy, Arippa, Kottoor and Wagamon.

55 Based on the potential revenue envisaged in the DPR.

56 Kallar, Gavi, Kochupampa, Kottoor and Wagamon.

The Notes furnished by Government on the Audit Paragraphs are given in Appendix II.

1. The Committee enquired about the achievements of the Forest Development Corporation in raising plantations for industrial application and the cultivation of cash crops and improvement of ecotourism activities, which were the core objectives of the Kerala Forest Development Corporation. The Additional Chief Secretary, Forest & Wildlife Department, informed that the Kerala Forest Development Corporation was established in 1975 as a rehabilitation project with the objective of rehabilitating SriLankan immigrants in Gavi, Mananthavadi regions and the Government of Kerala had decided to hand over 74650 Ha. of forest land to the Corporation for carrying out agricultural activities. Consequent of the Forest Act, 1980 which stipulates that prior approval of the Central Government is necessary for the transfer of forest land and for carrying out non-forestry activities in forest areas; the Government of Kerala was not able to transfer the whole land and transferred only 9583 Ha. of forest land to KFDC. He added that teak, coffee, tea, woodpulp, etc., were planted in the 9583 Ha. land based on the suitability of the land out of which, coffee cultivation is carried out in an area of 597 Ha., tea in 100 Ha., and species like acacia & eucalyptus in 4622 Ha.

2. The Committee criticised that the Corporation had not taken any steps to expand agricultural activities and to cultivate cash crops for domestic consumption.

3. The Committee observed that the production in the KFDC plantations is much below the state average and blamed the Corporation's inefficiency for its continuous losses. The Committee also observed that there were serious lapses from the part of the Corporation in not completing projects in time and thereby refunding budget allocations. The Additional Chief Secretary admitted that the yield in the Corporation's plantations was much below the state average and the income generated from agricultural activities was very low. He however opined that the production of cash crops like cardamom in its plantations cannot be compared with state average. Combining different types of crops like cardamom, teak and coffee in a hectare of land would adversely affect the production and likewise the productivity would also be less than the state average. He also revealed that, even though cardamom was cultivated in 954 Ha., due to lack of

cowdung manure and by adopting organic farming, production of cardamom was meagre and amounts to only 90 kg. instead of expected target of 500 kg. per hectare as stipulated by the Spices Board. He attributed it to the shortage of sufficient workers owing to the hilly terrain and added that a request had been given to the Government to create sufficient posts and to appoint casual labourers in the Corporation. He further stated that slight progress was reported in the production of cash crops in its plantations following the audit observations. The total production of cardamom increased from 5.05 MT in 2013-14 to 13.35 MT in March 2015-16.

4. The Committee opined that the incurring loss was due to the inefficiency of the Corporation and later cultivation improved and it began to make profit as a result of proper inspection and reporting. The witness claimed that the Corporation was able to make profit in the past two to three years but those were inadequate for agricultural expansion and were sufficient only for paying wages to its employees. The Committee questioned the need for the existence of a Corporation, solely for the purpose of paying wages to a few employees.

5. The Committee sought explanation with regard to the low share of the Corporation in teak wood and pulpwood production in the State. The witness replied that sanction was accorded to two companies ie, HNL and TNPL earlier and now the Corporation had resorted to online open tendering in the current year in order to attract new buyers but failed to receive good offers. The Committee observed that the Corporation had not fixed any target for its agricultural production.

6. The Committee observed that the production in the KFDC plantations was much below the state average and the State Government has not fixed any target for the Company in the supply of pulpwood and timber in the State. The Committee noted the negligible share of the Corporation in meeting the demand for pulpwood, teakwood and cash crops in the State.

7. The Committee wanted to know whether any action had been taken by the Corporation or the Government to utilise the 413 Ha. of unutilised land for plantation purposes. The Additional Chief Secretary, Forest Department pointed out that the Corporation was facing some financial problems as well as lack of skilled and experienced labourers.

8. To a query of the Committee the witness explained that the Corporation currently employs 500 permanent employees who are paid daily wages of ₹ 400. The Managing Director, KFDC explained that the Corporation has only 4 field officers as against the sanctioned strength of 32 and 2 Assistant Managers as against the sanctioned strength of 16. The vacancies had been reported to the Public Service Commission in 2011 and the PSC rank list had been published and the required appointments could be made within one month after the receipt of Advice Memo from PSC. The Committee sought to know the steps taken by the Corporation to revise its staff structure. The witness informed that the Corporation currently had an overall staff strength of 90 which is inadequate to manage the 9000 Ha. area under the Corporation and pointed out the need to recast the existing staff structure.

9. The Committee enquired whether the Corporation had been utilising the services of any external agency for obtaining technical advice regarding climate, soil, agronomic practices etc., suitable for the cultivation of crops like tea, cardamom and teak. The Additional Chief Secretary replied negatively.

10. The Committee enquired whether there were any dues pending to the Corporation from any of its clients on account of supply of softwood. The witness replied that two companies-Grasim and HNL had to pay dues to the Corporation @ ₹ 1.13 crore and ₹ 63 lakh respectively. The Committee pointed out that given the Grasim Company having been extinct, why the Corporation had not filed any claim before the Court to obtain the pending dues from the company. The witness replied that the Corporation had filed a case before the Hon. High Court in this regard but the Court had quashed the revenue recovery proceedings initiated by the Corporation against the Company on the ground that the agreement was made between the Government and the Grasim Company and hence the responsibility for taking measures in this regard rests with the Government. The witness also informed that the Court had issued an arbitration order favouring the levying of dues in this regard.

11. The Committee enquired whether the Corporation had obtained prior approval from the Central Government for the Management Plans submitted before undertaking plantation activities. The witness replied positively and agreed

that violation of the above Plans had occurred in a few instances. The Committee observed that the Corporation had resorted to harvesting without prior approval of the Central Government.

12. The Committee enquired why the Corporation resorted to sell pulpwood to only two companies-HNL and TNPL although there were abundant paper mills in the country. The witness explained that the Corporation had only been following the Government directions for supply of pulpwood to three companies Grasim, Western India Plywoods and HNL since the inception of the Corporation. Following the audit observations, attempts have been made to find new buyers by resorting to open tendering for the sale of pulpwood. The Committee pointed out that during 2013-14, the total area in which teak was replanted was limited to 5 Ha. though the targets fixed in the Management Plan was 167.40 Ha.

13. The Committee sought explanation for the huge variance between the target and the actual replanting done. The witness claimed that it was an exaggerated target prepared in anticipation with the felling of existing trees. He made it clear that during 2015-16 and 2016-17 there was no unplanted area within the Corporation's plantations.

14. The Committee sought explanation for the Corporation's non-utilisation and consequent refund of ₹ 0.11 crore out of the 1.69 crore allotted to the Corporation by the National Medicinal Plant Board (NMPB) for the purpose of raising medicinal plants. The Managing Director replied that medicinal plants like sandal and red sandal wood were planted in an area of 123.23 Ha. and not in 97.76 Ha. as pointed out in the audit report. He however confessed that KFDC had failed to implement the project efficiently even though the Central Govt. had extended the time for implementing the project upto March 2014. He explained that the NMPB's direction was to plant herbs and shrubs along with the medicinal tree species intended to be planted in the KFDC plantations. However, to avoid insects and pests causing damage to the plants, the Corporation did not plant herbs and shrubs. As a result, a portion of the allotted fund was not utilized and had to be refunded to the Board. He opined that such agronomic practices, though followed successfully in North India, couldn't be replicated in Kerala. The Committee refuted this explanation and expressed its dissatisfaction and pointed

out that the unutilized funds should have been used for planting medicinal plants in the unused land areas within the KFDC plantations and remarked it as a serious lapse on the part of the Corporation.

15. The Committee observed that there were many establishments like Plantation Corporation, Rehabilitation Plantation Corporation and Farming Corporation doing similar activities by possessing forest land. The Committee enquired about the possibility of merging these Corporations and stated that the Forest Department was not in a position to control the administration of these Corporations.

16. The Committee sought to know whether any new projects had been framed by the Corporation for the utilization of 413 Ha area of uncultivated land under the possession of the Corporation. The witness replied that agricultural activities had not been carried out in this particular area since 1990 due to the nature of the terrain and the land could not be handed over to the Forest Department as the uncultivable areas were interspersed with the cultivable areas. He further explained that only an area of 100 Ha was viable and suited for cultivation since the remaining area was currently forested and would require heavy investments for their maintenance which would offset any economic benefits gained though such cultivation. He promised that the Forest Department would revise the existing project and submit a fresh project to the Government within three months for approval and also appoint agricultural experts on deputation basis from Spices Board, Tea Board & Coffee Board to conduct studies in the plantations for providing expert advice on the cultivation of different cash crops in the KFDC plantations.

17. The Committee expresses dissatisfaction at the Corporation for not utilising 413 Ha. of land allotted to it by the Government of Kerala for cardamom and reed patches in Gavi and Munnar plantations. The Committee refutes the Corporation's explanation that the land was unsuitable for cultivation.

18. The Committee observed that during June 2011 and July 2012, the Divisional Manager, Thiruvananthapuram planted species susceptible to wildlife attack in regions of Kottur and Arippa where the grazing of wild animals was high, resulting in failure of the plantations.

19. The Committee enquired about the cardamom cultivation in the KFDC plantations. The Managing Director, KFDC explained that cardamom cultivation was done on a total area of 623 Ha. mainly in Gavi and to a limited extent in Munnar and Nelliampathy. Out of the total 623 Ha area, 146.7 Ha was being intensively managed as STA (Specially Treated Areas) and the rest areas as TA (Treated Areas). STA includes 22 Ha in Gavi, 14 Ha in Munnar and 13.5 Ha in Nelliampathy, totalling to an area of 49.5 Ha. TA included 62.2 Ha in Gavi, 29 Ha in Munnar and 6 Ha in Nelliampathy, totalling to an area of 97.2 Ha. He affirmed that there was no proper management of an area of 476 Ha which was under cardamom cultivation previously. KFDC had decided to carry out intensive management activities in this area called General Management Area (GMA). 380 Ha area had cardamom cultivation and was abandoned at the time of plantation and currently under forest cover. KFDC could not cultivate in the area as cultivation in a forested area would be a violation of the Forest Conservation Act. He asserted that both the Specially Treated Areas and the Treated Areas were completely protected with electric fencing. He further explained that electric fencing was done on an area of 55 Ha in the GMA region as per the Audit recommendations. Cash crops were included for the first time under KFDC's new Management Plan which received approval in October 2015 and had duration of 5 years upto 2020. Though the 476 Ha GMA region was included under the new Management Plan, the 380 Ha forested area being dense forest could not be included as it would have led to rejection of the Management Plan by the Govt. of India. The Committee expressed surprise over the fact that KFDC received approval for cash crop cultivation only in 2015.

20. The Committee enquired about the use of toxic insecticides in KFDC plantations. The MD replied that toxic insecticides like endosulphan were not used in any of its plantations. Pesticides were not used in Gavi region but were used in Mankulam and Kadalar in Munnar region and in Nelliampathy. The Committee observed that usually mild pesticides were used in cardamom plantations and the loss of the Corporation was due to lack of proper care to cardamom plants.

21. To a query on the coffee cultivation in the KFDC plantations, MD explained that KFDC had 597 Ha area under coffee cultivation out of which 377 Ha. in Nelliampathy was taken over by the Govt. from a private company and was later given to KFDC for harvesting. The plantations were 150 years old

and their productivity was low. The area was acquired for the sake of providing jobs to the displaced employees and the Corporation was not given the provision to replant coffee in the area. The productivity of these old plantations cannot be compared with the state average. But the production from the remaining 200 Ha of KFDC's coffee plantations is almost equal to the state average. He also stated that the Corporation had to face several difficulties in coffee cultivation as cash crops were not included in the previous Management Plans. Following the audit observation, coffee production acquired significant progress that it increased from 108.9 MT in 2013-14 to 143.42 MT in March 2015-16. At this juncture, the Committee, indicated that as a result of proactive steps taken at that time to rejuvenate the plantations by deforesting and cleaning that area and manuring coffee plants, there had been an escalation in the production of coffee by 50 per cent.

22. The Committee enquired about cashew cultivation in the KFDC plantations. The Managing Director replied that KFDC had 312 Ha area under cashew cultivation out of which 180 Ha area had good quality trees. But the remaining 132 Ha area was very old and elephant infested and so the new approved Management Plan of the Corporation prescribed that the old cashew trees in this region should be replaced with pulpwood trees and that process was started recently. The Committee opined that cashew trees should be planted in more areas in order to uphold cashew industry as well as to increase labour days of cashew workers.

23. The Committee enquired about the present status of ecotourism activities conducted by the Kerala Forest Development Corporation. Managing Director explained that ecotourism was included in the present management plan for five years. Gavi witnessed a decrease in number of tourist arrivals during the current financial year when compared to 2014-15. It was due to the drop out in tourist arrivals in day packages while number of tourists in stay package increased. In Gavi, restrictions had been imposed on traffic movement in order to avoid disturbances to wild animals in the region.

24. The Committee expressed its satisfaction on the present functioning of ecotourism in Gavi and hoped to increase the number of visitors by keeping the present status there. The Committee suggested that visitors should be restricted in

Gavi and an arrangement to divert them upto the Guest House to see the dam and natural beauty and return should be made. Managing Director, stated that the Management Plan, submitted by the KFDC to Govt. of India including ecotourism projects without permanent construction and Bamboo Hut scheme worth 245 lakh in Gavi-Kochupamba under Swadesi Darsan Scheme, got approval from the Govt. of India.

25. The Committee observed that there was sharp rise in tourist inflows in all ecotourism centres. The Committee remarked that the increasing number of ecotourism projects in the state pose serious threat to the existence of forests in the State. The Forest Department official agreed with the Committee's observation and stated that the State Government has no intention to start any new Eco-Tourism project.

26. The Committee sought explanation about the management of ecotourism projects by the Corporation. The witness explained that the ecotourism centres of the corporation are run by Forest Conservation Societies under the control of Forest Development Agencies of the State Government. Each Society has elected members including people's representatives. Each society has a Forest Circle Officer as its Chairman and a Secretary.

27. The Committee enquired about the drinking water facilities provided by the Corporation at its ecotourism centres. The MD explained that drinking water under the 'Sabarijalum' scheme was provided in all its ecotourism centres and tap water was not used anywhere. Water from the Periyar Tiger Reserve was provided to the centres with the main Plant at Moozhikkal.

28. The Committee sought explanation for not providing off season concessions to tourists. The KFDC MD replied that visitors' fee were halved during the rainy season for the period 2008-2013 in order to attract tourists. But the tourist inflow did not increase and there was a decline in income due to the reduced rates. Generally, tourist arrivals increase only on holidays and days preceding and succeeding holidays. Wednesdays and Thursdays had limited number of tourists but in vacation period there was rise in those days also. The Committee remarked that the rooms in the Gavi tourist centre are unhygienic. The KFDC official replied that the rooms have been cleaned and are hygienic at present.

29. The Committee enquired whether any new projects have been framed to expand ecotourism and to make it more effective. The Committee noted with concern that KFDC had only a few ecotourism centres under it. The Committee sought to know whether the ecotourism centres in Gavi, Mananthawady and Munnar were profitable. The MD replied that the Corporation had ecotourism centres in Munnar, Gavi, Arippa, Mananthavadi, Nellyampathi and Wagamon and large number of tourists visit the base camps in Munnar and Silent Valley and steps have to be taken to develop ecotourism there. Ecotourism and cash crops were included in the KFDC's new Management Plan which was given approval from the Central Govt. only after the submission of the Audit Report of 2014-15. He added that KFDC receives an average annual income of ₹ 6 crore from its ecotourism centres and the ecotourism centres in Gavi, Mananthawady and Munnar were profitable.

30. To an enquiry by the Committee regarding the Arippa ecotourism centre of the Corporation, the official informed that though the Arippa Centre houses a Training Institute, it was not developed yet and it was one of the undeveloped centres of KFDC. The Committee directed to improve the facilities there on a war footed manner.

Recommendations

31. The Committee recommends that the State Government should fix the share of pulpwood, teak wood and cash crops to be supplied by the Corporation in future for the needs of the State and suggests that this share should be fixed on the basis of the nature and area of land allotted to the Corporation for cultivation.

32. The Committee recommends that the Corporation should explore prospects of replanting the unutilised area and should examine the possibilities of cultivation of cash crops like rubber and cashew in the region and adopt scientific methods to increase production of Cardamom and other spices with the help of subject experts of Spices Board, Tea board and Coffee Board.

33. The Committee recommends that the Corporation should take time bound measures to harvest the 32 Ha area of reed patches within the unutilised plantations.

34. The Committee recommends that effective steps should be taken for the construction of power fences around the unutilised areas in the plantations before replanting in order to protect the plantations from wildlife attack and convert them into plantation areas.

35. The Committee recommends that the Corporation should duly submit Management Plans for approval to the Ministry of Environment and Forests, Government of India before carrying out all plantation activities.

36. The Committee demands an enquiry that the Corporation had resorted to harvesting its plantations without obtaining prior formal approval from Ministry of Environment & Forests (MoEF), Government of India in 2012-13.

37. The Committee recommends that the Corporation should avoid undue delay in felling matured trees for harvesting and should adhere to the schedules fixed in the Management Plan for harvesting and replanting activities.

38. The Committee recommends that in the case of inordinate delay in extraction/harvesting, the Corporation should enhance the fine amounts realised from defaulting contractors/user companies from ₹ 2000 per hectare to atleast ₹ 10000 per hectare of unfelled area and not to renew the permit given to the user companies beyond the stipulated period for harvesting.

39. The Committee recommends that the Corporation should appoint a consulting agency for providing expert technical advice regarding proper espacement between plants and timely weeding and other standard agronomic practices in its plantations.

40. The Committee recommends that the Corporation should ensure the adoption of prescribed espacement for all the species in its plantations.

41. The Committee blames the Corporation for planting species susceptible to wildlife attack in wildlife infested regions of Kottur and Arippa resulting in failure of the plantations and loss of ₹ 5.78 lakhs and recommends that the Corporation should take measures to plant suitable species not prone to wildlife attack in Kottur and Arippa and protect them from wildlife attacks by erecting electric fences and by digging trenches around its plantations.

42. The Committee recommends that the Corporation should resort to open tender system for the sale of pulpwood in order to find new buyers other than HNL and TNPL.

43. The Committee vehemently criticises the Corporation for its failure to realise pending dues from Grasim and HNL for the supply of softwood to these companies and recommends that legal steps including revenue recovery proceedings should be initiated against HNL and Grasim Company in order to realise pending arrears due to the Corporation on account of supplying softwood to these Companies.

44. The Committee recommends that the dues to be paid by Grasim Company, should not be brought into the accounts of the Corporation since the supply of softwood to the companies was on the basis of Government Orders and that the dues once paid by Grasim, should be brought into accounts of the Government.

45. The Committee expresses its strong displeasure on the Corporation's non utilisation and consequent refund of ₹0.11 crore out of the ₹1.69 crore allotted to it by the National Medicinal Plant Board (NMPB) for a project of raising medicinal plantations in an area of 150 Ha. and flays the Corporation for the serious lapse. The Committee recommends to take action against concerned officials responsible for the non-utilization of funds allotted by National Medicinal Plant Board for raising medicinal plants.

46. The Committee recommends to take steps to enhance production of cardamom and to achieve the expected target as stipulated by the Spices Board.

47. The Committee recommends that utmost care should be given to cardamom cultivation by proper manuring by using mild pesticides, pruning, weeding, and by replacing aged plants with high yielding varieties in the Corporation plantations.

48. The Committee recommends that proper maintenance should be done in existing cashew plantations as per standard agricultural practices and concrete measures should be taken by the Corporation to expand the cashew cultivation by fully utilizing the unutilised areas.

49. The Committee recommends that cashew plantations should be widened in more areas in order to uphold cashewnut industry and to increase labour days of cashew workers.

50. The Committee recommends that the Forest Department should examine the possibility of merging Forest Development Corporation, Plantation Corporation, Rehabilitation Plantations Ltd. and Farming Corporation and to take over the uncultivable land of these Corporations including KFDC in order to prevent encroachments and other malpractices.

51. The Committee recommends that the Corporation should explore the possibility of increasing tourist inflows into the Gavi region without causing any ecological disturbances in the region and restrictions imposed on tourists with regard to the daily permissible number of tourists should be relaxed by improving the facilities.

52. The Committee opines that the increasing number of ecotourism projects in the State pose serious threat to the existence of forests in the State and hence recommends that the concerned authorities should consider conducting detailed environmental studies before starting new ecotourism centres in forest areas.

53. The Committee recommends that the Corporation should take measures to improve the accommodation facilities provided at its ecotourism centres and provide basic facilities such as pure drinking water and safari vehicles in its centres.

54. The Committee recommends that the Corporation should update its website with the attractive features of the Ecotourism Centres and facilities for online reservation and should adopt suitable promotion strategies to enhance the popularity of these ecotourism centres.

55. The committee recommends that the Corporation should introduce a flexible tariff by reducing tariffs during off-season in order to attract more tourists during off season periods.

C. DIVAKARAN,

Chairman,

Committee on Public Undertakings.

Thiruvananthapuram,
17th January, 2018.

APPENDIX I

SUMMARY OF MAIN CONCLUSIONS/RECOMMENDATIONS

Sl. No.	Para. No.	Department Concerned	CONCLUSIONS/ RECOMMENDATIONS
1	2	3	4
1	31	Forest & Wildlife	The Committee recommends that the State Government should fix the share of pulpwood, teak wood and cash crops to be supplied by the Corporation in future for the needs of the State and suggests that this share should be fixed on the basis of the nature and area of land allotted to the Corporation for cultivation.
2	32	Forest & Wildlife	The Committee recommends that the Corporation should explore prospects of replanting the unutilised area and should examine the possibilities of cultivation of cash crops like rubber and cashew in the region and adopt scientific methods to increase production of Cardamom and other spices with the help of subject experts of Spices Board, Tea board and Coffee Board.
3	33	Forest & Wildlife	The Committee recommends that the Corporation should take time bound measures to harvest the 32 Ha area of reed patches within the unutilised plantations.
4	34	Forest & Wildlife	The Committee recommends that effective steps should be taken for the construction of power fences around the unutilised areas in the plantations before replanting in order to protect the plantations from wildlife attack and convert them into plantation areas.
5	35	Forest & Wildlife	The Committee recommends that the Corporation should duly submit Management Plans for approval to the Ministry of Environment and Forests, Government of India before carrying out all plantation activities.

1	2	3	4
6	36	Forest & Wildlife	The Committee demands an enquiry that the Corporation had resorted to harvesting its plantations without obtaining prior formal approval from Ministry of Environment & Forests (MoEF), Government of India in 2012-13.
7	37	Forest & Wildlife	The Committee recommends that the Corporation should avoid undue delay in felling matured trees for harvesting and should adhere to the schedules fixed in the Management Plan for harvesting and replanting activities.
8	38	Forest & Wildlife	The Committee recommends that in the case of inordinate delays in extraction/harvesting, the Corporation should enhance the fine amounts realised from defaulting contractors/user companies from ₹ 2000 per hectare to atleast ₹ 10000 per hectare of unfelled area and not to renew the permit given to the user Companies beyond the stipulated period for harvesting.
9	39	Forest & Wildlife	The Committee recommends that the Corporation should appoint a consulting agency for providing expert technical advice regarding proper espacement between plants and timely weeding and other standard agronomic practices in its plantations.
10	40	Forest & Wildlife	The Committee recommends that the Corporation should ensure the adoption of prescribed espacement for all the species in its plantations.
11	41	Forest & Wildlife	The Committee blames the Corporation for planting species susceptible to wildlife attack in wildlife infested regions of Kottur and Arippa resulting in failure of the plantations and loss of 5.78 lakhs and recommends that the Corporation should take measures to plant suitable species not prone to wildlife attack in Kottur and Arippa and protect them from wildlife attacks by erecting electric fences and by digging trenches around its plantations.

1	2	3	4
12	42	Forest & Wildlife	The Committee recommends that the Corporation should resort to open tender system for the sale of pulpwood in order to find new buyers other than HNL and TNPL.
13	43	Forest & Wildlife	The Committee vehemently criticises the Corporation for its failure to realise pending dues from Grasim and HNL for the supply of softwood to these companies and recommends that legal steps including revenue recovery proceedings should be initiated against HNL and Grasim Company in order to realise pending arrears due to the Corporation on account of supplying softwood to these Companies.
14	44	Forest & Wildlife	The Committee recommends that the dues to be paid by Grasim Company, should not be brought into the accounts of the Corporation since the supply of softwood to the companies was on the basis of Government Orders, and that the dues once paid by Grasim, should be brought into accounts of the Government.
15	45	Forest & Wildlife	The Committee expresses its strong displeasure on the Corporation's non utilisation and consequent refund of ₹ 0.11 crore out of the ₹ 1.69 crore allotted to it by the National Medicinal Plant Board (NMPB) for a project of raising medicinal plantations in an area of 150 Ha. and flays the Corporation for the serious lapse. The Committee recommends to take action against concerned officials responsible for the non-utilization of funds allotted by National Medicinal Plant Board for raising medicinal plants.
16	46	Forest & Wildlife	The Committee recommends to take steps to enhance production of cardamom and to achieve the expected target as stipulated by the Spices Board.

1	2	3	4
17	47	Forest & Wildlife	The Committee recommends that utmost care should be given to cardamom cultivation by proper manuring by using mild pesticides, pruning, weeding, and by replacing aged plants with high yielding varieties in the Corporation plantations.
18	48	Forest & Wildlife	The Committee recommends that proper maintenance should be done in existing cashew plantations as per standard agricultural practices and concrete measures should be taken by the Corporation to expand the cashew cultivation by fully utilizing the unutilised areas.
19	49	Forest & Wildlife	The Committee recommends that cashew plantations should be widened in more areas in order to uphold cashewnut industry and to increase labour days of cashew workers.
20	50	Forest & Wildlife	The Committee recommends that the Forest Department should examine the possibility of merging Forest Development Corporation, Plantation Corporation, Rehabilitation Plantations Ltd. and Farming Corporation and to take over the uncultivable land of these Corporations including KFDC in order to prevent encroachments and other malpractices.
21	51	Forest & Wildlife	The Committee recommends that the Corporation should explore the possibility of increasing tourist inflows into the Gavi region without causing any ecological disturbances in the region and restrictions imposed on tourists with regard to the daily permissible number of tourists should be relaxed by improving the facilities.

1	2	3	4
22	52	Forest & Wildlife	The Committee opines that the increasing number of ecotourism projects in the State pose serious threat to the existence of forests in the State and hence recommends that the concerned authorities should consider conducting detailed environmental studies before starting new ecotourism centres in forest areas.
23	53	Forest & Wildlife	The Committee recommends that the Corporation should take measures to improve the accommodation facilities provided at its ecotourism centres and provide basic facilities such as pure drinking water and safari vehicles in its centres.
24	54	Forest & Wildlife	The Committee recommends that the Corporation should update its website with the attractive features of the Ecotourism Centres and facilities for online reservation and should adopt suitable promotion strategies to enhance the popularity of these ecotourism centres.
25	55	Forest & Wildlife	The committee recommends that the Corporation should introduce a flexible tariff by reducing tariffs during off-season in order to attract more tourists during off season periods.

Appendix II

Notes furnished by Government on the Audit Paragraphs

Sl. No	Para No.	Action Taken
	2.1.1	Reply furnished by Government
	2.1.2	
	2.1.3	
	2.1.4	
	2.1.5	
	2.1.6	
	2.1.7	
	2.1.8	
		<p>A production share of 9.77 to 15.34% in the total pulpwood demand is not at all negligible, particularly considering the total extent of pulpwood plantation with the Company (4622.644 ha. of pulpwood plantations and 834.576 ha. of bamboo). The total extent of teak plantation with the Company is 1257.46 ha. as against about 80000 ha with Kerala Forest Department which is about 1.57%. The Company itself is having an age of only 40 years whereas many of the Forest Department teak plantations are of the age of above 40 years. In addition, the Company is having a total sanctioned strength of 160 employees only as against about 5000 employees in Forest Department.</p> <p>In this regard, it is quite pertinent to mention that the audit did not consider the per hectare productivity of KFDC pulpwood plantations which is much higher than the per hectare productivity of the pulpwood plantations raised by the Forest Department. For example, during the last year of the Performance Audit, (2014-15), 11 Eucalyptus plantations 179.671 ha were harvested for pulpwood and the total pulpwood quantity obtained was 15642 MT. The average per hectare productivity of Eucalyptus pulpwood plantations was 87.06 MT. On the other</p>

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		<p>hand, the average per hectare productivity of Eucalyptus pulpwood plantations of Forest Department is only about 50.MT/hectare. Similarly, the 5 Acacia manjium plantations of KFDC 66.007 ha sold for pulpwood during 2014-15 yielded 4912.776 MT (74.43 MT/ha), and the 4 Acacia manjium plantations of 58.01 ha sold out for pulpwood during 2015-16 yielded 6983.90 MT (120.39 MT/Ha). The 4 Acacia manjium plantations 83.74 ha sold out for pulpwood during 2016-17 is expected to yield a minimum of 10000 MT of pulpwood (119.42 MT/ha). Similarly, the 10 numbers of Eucalyptus plantations of the years 2006 to 2009 having an extent of 151.929 ha sold out during 2016-17 are expected to yield a minimum of 15193 MT(100 MT/ha). The Acacia auriculiformis plantations of KFDC are generally extremely good. Thinning are done in the 6th year wherein an average of 40MT/ha is obtained. Thereafter these thinned plantations are retained for another 8 more years (total 14 years of age) and the quantity being obtained from such matured Acacia auriculiformis plantations at the time of final felling is 75 M³ of timber/hectare and 50 MT of firewood per hectare. Recently, KFDC have sold out one such Acacia auriculiformis plantation of the year 2001 having an extent of 1.8 ha at a price of Rs.55.22 lakhs.</p>
2.1.9		
2.1.10		<p>The Reed patches of 32.97 ha mentioned by Audit is at Kochupamba of Gavi Division. These reed patches are subjected to heavy grassing by wild elephants. As such, extractable reeds are not available in the area. Even then, as per para 8.5.2 of the approved Management Plan of KFDC 2015-16 to 2019-20, there is a prescription to extract all the silviculturally available reeds from the reed areas. But, with respect to the unproductive cardamom area of 380.14 ha., it may not be desirable to construct power fencing and replanting with cardamom in the entire area of 380.14 ha. as some of the area falls under elephant corridors. Obstructing of elephant from their corridors may lead to very severe wildlife conflicts in the adjacent cardamom plantations. This activity is not at all desirable in any natural habitat of wild elephants. Moreover, power fencing can be effective only in small areas. In most of</p>

		<p>the unproductive cardamom areas of the Company there are large population of bonnet macaques, Nilgiri langurs, wild boars, porcupines, etc which severely damage the cardamom plants. Power fencing is not at all effective against these animals.</p>
2.1.11		<p>The 380.14 ha of area in Gavi and Munnar shown as old Cardamom Plantations are having a status of evergreen forests, without any cardamom plants. The earlier cardamom plantations in this area were abandoned during 1990s due to the very heavy wild life damages, and the non-visibility of the cardamom plantations therein. The recommendation by the Audit to construct power fencing and do fresh cardamom plantations in these area is scientifically wrong. As a matter of fact, in the current approved Management Plan of KFDC there is no prescription for replanting these 380.14 ha with cardamom plants. Even if prescribed in the Management Plan, there were absolutely no chance for getting the Government of India approval for the same since the area is a good evergreen forests devoid of cardamom plants. On the other hand, the Audit ignored the fact that there are 476.61 ha of the General Management Area (GMA) (427.61 ha in Gavi, 30.50 ha in Munnar and 18.50 ha in Thrissur) wherein the wildlife damages are lesser when compared to the above mentioned unproductive area of 380.14 ha. There is a categorical prescription in the approved Management Plan of KFDC (2015-16 to 2019-20) for "Converting suitable GMA areas in to TA (Treated Areas) and STA (Specially Treated Areas) in a phased manner and protecting the same with solar fencing". In tune with the Management Plan prescriptions, 55 ha of GMA areas were</p>

		<p>solar fenced during 2015-16 and 5 ha has been converted in to Treated Area during 2016-17. The process can continue in a phased manner.</p> <p>The number of workers available for management of cardamom, coffee and pepper are also limited (Gavi 228 Nos, Muzmar 35 Nos. and Thrissur 38 Nos. Total 301 Nos). The above number of workers have to attend the harvesting and curing also. The generally approved norm is one man mazdoor for every 1.5 ha of cardamom plantation. Mobilizing of additional labour force in highly remote areas like Gavi, Kadalar, Mankulam, Pakuthipalam and Pothumala is not at all practical.</p>
2.1.12		<p>It is quite pertinent to note that even though there was delay in getting the approval by MoEF, all the above 5 years have due approvals of MoEF. As a matter of fact, the approved Management Plan is a pre-requisite for carrying out the felling operations in the forest plantations. But, for carrying out replanting activities in areas felled as per the approved Management Plan, separate approvals are not required.</p>
2.1.13		<p>The Government of India (MOEF) have never objected to any of the harvestings as unapproved and as a matter of fact they have categorically called for list of actual activities which were carried out</p>

		<p>during 2012-13 and 2013-14 as a pre requisite for approving the Annual Plan 2014-15 which were supplied to MoEF. Moreover, the Additional Principal Chief Conservator of Forests, who is the Head of MOEF, Regional Office, Bangalore is one of the Board Directors of KFDC and as such, was regularly informed of the harvesting activities of KFDC by virtue of the attendance in the Board Meetings and through the Minutes. As such, the issue of unapproved harvesting does not arise.</p>
2.1.14		
2.1.15		<p>In forestry, it is extremely difficult to stick on to the schedule of operations due to various reasons. In some plantations the existing miscellaneous growth need to be sold after completion of the harvest of the principal species. With a view to reduce the chance of the loss of replanting season, in the current approved Management Plan (2015-16 to 2019-20), there is a</p>

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categorical prescription that "no felling can be done during the period from May to September". As such all the fellings will be stopped by April end and the area replanted during the same replanting season. It is also brought to the notice of the Audit that no harvested area of previous years are left as unplanted or as non-regenerated as on 01.07.2015. Similarly, all the clearfelled areas of the 2015-16 season were replanted during the planting season of 2016 and all the plantings were completed on 15.07.2016. At present no harvested plantation area in KFDC is left as unplanted or as non-regenerated.

2.1.16 :	<p>The Audit pointed out that the standard espacement given in the Management Plan for Eucalyptus is 2mx2m. But as per para 7.7.2 of the previous Management Plan commencing with 2012-13, the following espacement was prescribed for all the pulpwood plantations including the Eucalyptus - "after clearance of planting site, aligning and stacking at 1.5mx1.5m, 2mx2m, 2.5mx2.5m, 3mx3m espacement as the case may be, will be carried out in the field covering the feeder road portion also, leaving the main inspection road". The same prescription of espacement of 1.5mx1.5m, 2mx2m, 2.5mx2.5m is prescribed in the current approved management Plan also (Para 7.7.2). As such, the short planting of 7775 seedlings observed in 2011 Eucalyptus pellita plantation of 8.55 ha in Thrissur division cannot be considered as a deviation from the Management Plan prescriptions. As a matter of fact, a wider spacing of 2.5mx2.5m in a few of the Eucalyptus plantations can make the pulpwood fit for timber purpose by attainment of a much better girth. Some of the Eucalyptus plantations raised in earlier years also have had the 2.5mx2.5m spacing.</p>
2.1.17	<p>Acacia auriculiformis plantation Kottoor 4.64 ha. : Previously this area was having 2002 Albizzia plantation which was clearfelled and Acacia auriculiformis was planted. Since Acacia auriculiformis is generally less affected by wildlife damages when compared to Albizzia, one cannot blame the selection of planting the Albizzia clearfelled area with Acacia auriculiformis. Moreover, a successful Acacia auriculiformis plantation of the year 2006 of 26.43 ha. is present on the boundary of this 4.64 ha. This 4.64 ha. of Acacia auriculiformis plantation is destroyed primarily by wild elephants. The possibility of raising a successful plantation by change of the species in this elephant frequented area need to be studied carefully and appropriate actions will be taken, if found desirable.</p>

Albizzia Plantation Aripipa 2.50 ha. : The previous plantation in the area was 2002 Albizzia plantation of 6 ha. which was a good plantation. After clearfelling the area, 3.50 ha. was replanted with Acacia auriculiformis and 2.50 ha. was replanted with Albizzia. The 2.50 ha. replanted with Albizzia was having private revenue land in its boundary. The office cum quarters of the Field Officer is situated within this 2.50 ha. and the Managers office cum quarters is very near to it. Considering the previous successful Albizzia plantation in the area, the private holding on the boundary and the presence of office cum quarters of the staff, one cannot blame the decision to plant Albizzia in this area. The wildlife of an area change their habits as years pass by and this Albizzia area was subjected to heavy grazing by sambar. The grazed Albizzias were replaced with Acacia auriculiformis seedlings during the second year. At present, this area is not a failed plantation and contains mainly Acacia auriculiformis crop and some Albizzia crop. It is also submitted that this area does not require any replanting.

As a matter of fact, the Management Plan of 2011 and 2012 did not specify the species to be planted for the above areas. As stated above, one cannot blame the selection of planting of Acacia auriculiformis in the 4.64 ha plantation and planting of Albizzia in the 2.5 ha plantation.

Out of the total area of 904.52 ha of Eucalyptus matured plantations not extracted, an area of 452.45 ha. are the failed Eucalyptus clonal plantations raised during the period 2001 to 2005. These plantations were allotted many times but there were no purchasers. A departmental extraction of these plantations may not be fetching even the working cost. Other 6

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Eucalyptus plantations 93.513 ha were already sold in tender cum auctions. This included the 1978 Eucalyptus grandis plantation of Silent Valley in Munnar which was enumerated, evaluated and sold in outright sale (Tender cum Auction) during 2015-16. Another 8 Eucalyptus plantations (155.42 ha) were notified for tender cum auction sale, but there were not successful bidders. The expected yield of 50 MT/ha shown in the current Management Plan for the 1978 Eucalyptus plantation 20 ha. is definitely a poor yield considering the age of the plantation (37 year) Acacia auriculiformis 4 plantations (12.54 ha) are already sold. Acacia manjium plantation 10 ha has been already sold. The remaining one plantation of 9.5 ha is a failed one. The other manjium plantation is a boundary plantation of the year 2000, which is enumerated, evaluated as 4 bits and one bit could be sold out in tender cum auction. 80 ha. of Bamboo plantation has been valued as 4 bits of 20 ha each and sold in tender cum auctions. The Albizzia plantation of the year 2003 is a failed plantation with poor stock of Albizzia and supports many miscellaneous species like Vatta and Maruthi. This

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plantation was put up for tender cum auction sales, but there were no successful bidders. The expected yield of 50 MT/ha (total yield 223 MT for 4.45 ha) shown in the current Management Plan is the total expected yield from the plantation including the Albizzia and other miscellaneous trees.

2.1.20

During 2010-11 to 2014-15 the entire available pulpwood quantity from all the reasonably stocked pulpwood plantations of KFDC could be allotted to the above two Public Sector Undertakings and harvested by them. In the case of Eucalyptus, these Companies offered the notified selling prices or above during these years. Reasonable prices were offered by the above Public Sector Undertakings for Acacia mangium and Acacia auriculiformis pulpwood also during this period. Moreover, the KFDC could get the thinning in Acacia auriculiformis plantations carried out by allotting the materials to M/s.TNPL during the above period. In this connection, it is quite pertinent to inform that, KFDC could save the entire expenses on carrying out the thinnings in the Acacia auriculiformis plantations due for thinning.

As a matter of fact, KFDC had negotiated with M/s.Western India Plywoods Ltd. during 2014-15 for the sale of pulpwood plantations, but, they could offer a price much lesser than that offered by M/s.TNPL for the pulpwood. As such the pulpwood was allotted to M/s.TNPL who offered the highest price during 2014-15.

During the year 2015-16, on getting the approval of the Management Plan from Government of India on 13.10.2015, the KFDC has written to M/s.Sreshasai Papers and M/s.JTC Bhadrachalam for the sale of Eucalyptus pulpwood. M/s.ITC did not respond at all and M/s.Sreshasai Papers intimated in writing their inability to purchase the materials at the notified selling price stating that the price is very high and uneconomical to them.

As recommended by the Audit, during the current year of 2016-17 KFDC is resorting to open tendering for the sale of all the matured plantations including the Eucalyptus and Acacia for the pulpwood purposes. As per the current Management Plan there are only 4 Acacia manjim plantation (year 2009) extending to 83.74 ha which were sold on the tender held on 03.06.2016. The Eucalyptus plantations of the years 2007, 2008 and 2009 extending to 554.356 ha also were put on open tender on 03.06.2016. The above tender sale of Eucalyptus was unsuccessful. Again KFDC have done tender cum auction sale of some of the Eucalyptus plantations on 23.08.2016 and on the alternate dates of 07.09.2016 and 27.09.2016. 10 numbers of Eucalyptus Plantations of the years 2006 to 2009 having an extend of 151.929 ha. could be sold out in these tender cum auction.

2.1.21

The Management Plan approval letter of MoEF No. F(CYA/116/WP/KER/3727 dt.28.06.2013 contains specific ban on felling the established growth of miscellaneous species in the plantation area. The condition No.8 of the approval letter is reproduced herewith.

(8) "The established growth of miscellaneous species in the plantation area shall not be felled"

Similarly there is direction to avoid felling in that portion of softwood plantation wherever stock is poor, as below:

Condition (4) " In case of softwood plantations wherever stock is poor, felling in that portion may be avoided".

This statement by the Audit that the Eucalyptus clonal plantations performed well in the matter of stocking is totally untrue and against facts. As a matter of fact, all these Eucalyptus Clonal Plantations are having an espacement of 2.5m x 2.5m (maximum number of seedlings planted is 1600 seedlings/ha). The stockings of

Eucalyptus in these Eucalyptus clonal plantations vary between zero to 40% of the planted Eucalyptus seedlings. The average stocking is only below 15%.

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The established growth of miscellaneous species within the Eucalyptus clonal plantation areas and the Government of India ban on felling the same and the ban on felling the understocked softwood plantation areas were there during the period of 2012-13 to till the receipt of the approval of the current Management Plan (2015-16 to 2019-20) on 13.10.2015. As such the observation by Audit regarding the postponement of replanting and the potential loss of yield could not have been solved during the above period.

The Expert Committee for the approval of tender of the Eucalyptus clonal plantations was on 03.07.2014. But on 02.07.2014 itself vide letter No.9/288 (ii) KFDC/5539 Government of India directed that "It is informed that felling of Forestry plantations shall not be carried out without an approved Management Plan in place "

In this regard, it is also informed to the Audit that, the above Government of India ban on felling the established growth of miscellaneous species in the plantation area and the ban on felling the understocked softwood plantation areas is not figuring in the present Government of India approval letter No.F(C) A/116/4/WP/KER/7588 dt. 13.10.2015 for the current approved Management Plan 2015-16 to 2019-20.

There are prescriptions for the Eucalyptus clonal plantations as well as the miscellaneous tree growth in the current approved Management Plan. The relevant portion in para 7.2 is reproduced herewith.

"If, valuable and suitable produce is expected from the miscellaneous growth in the plantable areas, such trees will be enumerated and valued in advance and sold in public auctions as per existing procedure so that the site clearance by way of slash felling, weeding, etc be

commenced in time. Field planting without clearing the miscellaneous growth will not be successful as the seedlings of light demanding species will not establish for want of sufficient growing conditions;"

In this regard, it is also submitted that the Government of India always insists on regenerating the felled areas during the succeeding year. The current Management Plan approval letter by Government of India dated 13.10.2015 contains the following condition.

"5. Final felling shall be taken up subject to the matching budgetary provision for replanting of felled area. Without regenerating the clear felled area, no new felling shall be taken up in the succeeding year".

It is submitted that the chances of disposal of the 452.45 ha of clonal plantations in a tender cum auction is almost nil. As a matter of fact, during June 2016 KFDC have put up for tender cum auction of 25 Eucalyptus plantations having an extent of 554.356 ha after giving vide publicity. The tender notice was published in the Malayala Manorama Newspaper (International page) and English daily Decan Chronicle (all the 13 editions). The Deccan Chronicle daily is the English daily having the highest circulation in South India. The tender notice was published in Forest Department website as well as the KFDC website. And also sent by registered post to the reputed industrial pulpwood firms in Kerala, and the adjoining states. The above tender cum auction sale attempt was not successful, even though the plantations put up for the above sale were of reasonably good quality.

KFDC is planning to do the extraction of the available Eucalyptus clones and the miscellaneous growth in 3 Eucalyptus clonal plantations (38 ha) during 2016-17 departmentally and sell the produce in auctions. The above extraction of the produce is planned as part of the slash felling and pre-planting activities. The area can be replanted in the next planting season. If the attempt is found successful, the process can continue for the subsequent years.

As a matter of fact, the replanting of the entire extent of 452.45 ha of Eucalyptus clonal plantation

areas can be done only in a phased manner considering the costs involved, the staff strength available, the rotation and the yearly annual yield etc.

Recommendation No.2: *The Company should evolve a system for carrying out harvesting and replanting activities as per the schedules fixed in the Management Plan. The Company should also resort to open tendering for sale of the matured plantation as per the provisions of Kerala Forest Code.*

As recommended by the Audit all earnest efforts are taken for carrying out the harvesting and replanting activities as per the Schedules and Tables fixed in the Management Plan. All the clear felled areas of the previous years have been replanted during the planting season of 2015 (all the plantings were completed on 30.06.2015). Similarly, all the clear felled areas of the 2015-16 season were replanted during the planting season of 2016 (all the plantings were completed on 15.07.2016). As a matter of fact, at present no harvested plantation area in Kerala Forest Development Corporation Limited is left as unplanted or as non-regenerated.

As recommended by the Audit, during the current year of 2016-17 KFDC is resorting to open tendering for the sale of all the matured plantations including the Eucalyptus and Acacia manjium for the pulpwood purposes. As per the current Management Plan there are only 4 Acacia manjium plantations (year 2009) extending to 83.74 ha which were sold on the tender held on 03.06.2016. The Eucalyptus plantations of the year 2007, 2008 and 2009 extending to 554.356 ha also were put on open tender on 03.06.2016. The above tender sale of Eucalyptus was unsuccessful. Again KFDC tried for a tender cum auction sale of some of the Eucalyptus plantations on 23.08.2016 and on the alternate dates of 07.09.2016 and 27.09.2016. Altogether 10 plantations of 151.929 ha of years 2006 to 2009 were sold.

2.1.23

The 1978 Eucalyptus plantation 20 ha (Sl.No.3) has been enumerated, evaluated and sold out in tender cum auction during 2015-16. The area has

been replanted during the planting season of 2016-17. The Eucalyptus plantations under SI.No.5 (31 ha) and 7 (24.8 ha) have been sold out in tender cum auctions on 27.09.2016. The Eucalyptus plantations 6 Nos 117.56 ha (SI.No.8,9,11,12,13,14,15) were put up for tender cum auction during June, 2016, but there were no successful bidders. The Acacia manjium plantation under SI.No.1 is actually not present.

2.1.24

Not doing the spade weeding during the first year is not the only reason for a failure of the teak plantations. There are multiple reasons for failure. Spade weeding was not carried out in any of the teak plantations raised by KFDC during the years 2001 to 2014. Most of the above plantations are successful. The 8.28 ha. of teak plantation of Thrissur Division pointed out by the Audit as failed, due to the non-carrying out of spade weeding is 2011 teak plantation at Mayannur 8.28 ha. In this regard, it is quite pertinent to submit that the 2010 teak plantation at Mayannur 6.25 ha. is an excellent plantation with presently above 90% stock, good girth and height for the teak crop. The first mentioned thinning is proposed

2.1.25

in this plantation as per the approved Management Plan (2015-16 to 2019-20). This 2010 teak plantation is sharing its boundary with the 2011 teak plantation. As a matter of fact, no spade weeding was carried out in this excellent teak plantation of 2010 also.

It is submitted that prior to 2013 planting, the teak stump sprouting (stumpings) raised in polybag containers were generally used in KFDC for planting. Since the poly bag seedlings (stumpings) were planted, the plantings commenced only in the South-West monsoon, and spade weeding during the heavy rains must not have been considered desirable owing to the chances of soil erosion. As per FSR item No.92 the period of spade weeding is shown as May-June with a work content of 29.652 man mazdoor per ha. The clear knife weeding under FSR 93 with a work content of 14.826 man mazdoor per ha. was adopted, which is only half expensive.

Planting of the stumpings have been dispensed with since 2013. Use of teak stumps or teak root trainer seedlings are prescribed in the current approved Management Plan (2015-16 to 2019-20). Very detailed prescriptions are given in CHAPTER V TEAK WORKING CIRCLE of the current approved Management Plan covering 13 pages. It is prescribed in the Management Plan for the first year of planting as "The first weeding shall invariably be a spade weeding".

It is also submitted to the Audit that during 2015 we have raised 3 teak plantations extending to 45 ha. (2 plantations in Punalur 35 ha. and one in Thrissur 10 ha.) and spade weedings were carried out in all of them as the first weeding. In the one teak plantation raised in 10 ha during 2016 (Thrissur) also spade weeding was carried out.

The Audit Report states that the Working Plans of Forest Department provided for spade weeding (May-June) in the teak plantations raised with teak stump sprouting. As a matter of fact, Forest Department has never used stump sprouting (stump) for teak plantation raising.

Recommendation No.3: *The Company should monitor and hold officers accountable for carrying out appropriate and timely (plantation) maintenance activities.*

The Audit recommendation is taken in true spirit and proper monitoring mechanism is put in place. Proper instructions are given to the concerned Divisional Managers while sanctioning the estimates itself. The month/period of various operations including the weeding are specified in the sanctioned estimates. Proper species selection for the individual sites, production and availability of good quality seedlings and timely planting are ensured by constant monitoring by officers from the Head Quarters including frequent field inspections also by the Managing Director during the replanting and the planting seasons. Timely plantings are ensured and no late planting is allowed. As a matter of fact all the planting operations were completed on 30th June during 2015 and on 15th July during 2016. All the plantations raised in the year 2015 in KFDC are really successful with full stock. The Vigilance Wing of the Kerala Forest Department also is monitoring the planting and maintenance activities of KFDC. The progress on felling operations, nursery activities/seedlings production, pre-planting operations, plantings and the weeding operations are being reviewed in the meeting of the Senior Managers held in the Head Office every month. Detailed prescriptions on the plantation raising and maintenance are made in the approved Management Plan (2015-16 to 2019-20) which will be implemented meticulously. Lapses, if any, will be found out by the above mechanism together with the field inspections by

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the officers from the Head Quarters including the Managing Director. The officers found accountable for carrying out appropriate and timely plantation/maintenance activities, if any, will be held responsible for the lapses and inactions by initiating disciplinary actions and including the recovery of loss from the concerned.

2.1.26.

8 - Acacia auriculiformis plantations of the year 2008 (243.22 ha were thinned in the year 2015. 3 Acacia auriculiformis plantations (year 2001) having an extent of 38.16 ha, year 2003 with 11.875 ha and year 2008 with 5 ha were thinned in the year 2015-16. 2 teak plantations having 19.93 ha were thinned in 2016. The actions to thin the Gmelina arborea plantation is underway.

2.1.27

As a matter of fact, an extent of 127.267 ha of medicinal plantation were raised under NMPB during the period 2009-2011. The details are given in Table No.8 of the approved Management Plan. NMPB informed on 07.08.2013 that no further extension can be granted and to refund the unutilized fund. The Utilization Certificate for the amount

		<p>spent Rs.123.25 lakh for the year ended 31.03.2014 along with the Audited Statement was submitted to NMPB. Since further extension could not be obtained, the balance fund of Rs.11.35 lakhs was refunded.</p>
2.1.28		<p>The very same concept and procedure of comparing the productivity of the Cardamom Plantations of KFDC which are situated deep inside reserve forest areas to the State average productivity is not at all correct. As a matter of fact, the cardamom areas of KFDC are not at all comparable to any of the other cardamom areas of the State.</p>
2.1.29		<p>The intensive management in the cardamom plantations are prescribed under Para 15.1.4 of the approved Management Plan (2015-16 to 2019-20).</p> <p>The Audit have indicated huge shortfall in productivity in GMA. In this regard, the Audit may also consider the huge reduction in the expenditures in the GMA and also the acute labour shortages.</p> <p>Intensive management of Cardamom plantations of Gavi Division started from 2004 onwards. As a result, STA & TA plantations were raised in different years over an extent of 84.2 ha. with high yielding variety procured from outside. During the last few years, in Gavi, we are not using toxic insecticides as in private estates since our plantations are situated in the midst of Reserve Forests frequented by wild</p>

mammals, birds, insects and other wildlife. Gavi Division is on the boundary of Periyar Tiger Reserve specially managed for tiger and other wildlife. Due to the non-application of pesticides, all the cardamom from Gavi during the years 2014-15 and 2015-16 could be sold at almost double of the market prices. The same were sold at Rs.1260+tax per kg. during 2014-15 and Rs.1200+taxes per kg. during 2015-16.

Replanting is being carried out with the help of the available permanent and casual workers. Even though there was Budget provision for replanting 57 ha. only 28.2 ha. could be replanted due to the shortage of workers. The wages are being paid according to the PLC settlement as in any other private plantations. The minimum deployment of workers for other works like driving, supply of drinking water, office work, etc. are required owing to the acute shortage of other staff.

The workers engaged for weeding work will carry out the mulching work also. Therefore the mulching work alone will not be specifically shown in the work distribution register. The Audit has observed that forking work was not carried out in 5 ha. during 2014-15 out of the total area of 84.2 ha. Actually the forking and soil application is done simultaneously in the plantations. Therefore while filling up the work distribution Register the forking operations done along with soil application may not have been recorded as such. Forking work was done in all the STA & TA plantations at Gavi during 2014-15.

Audit has observed that pruning was not carried out in STA

and TA cardamom plantations of the Company during the period from 2010-11 to 2014-15. Actually pruning is not a cultural operation being practiced in cardamom plantations.

Actually "pruning means cutting of branches from the bole of trees for the improvement of timber of trees, this term is, sometimes, used for cutting branches to produce new shoots" (Principles and Practice of Silviculture by L.S.Khanna). The book on Cardamom Packages of Practices 1997 published by Spices Board does not show pruning as a cultural practice for cardamom. On the other hand, it shows "Trashing - Trashing consists of removing old billets and dry leaves and leaf sheaths. This operation may be carried out once in a year at any time one month after completion of the final harvest. These materials can also be used as mulch". The approved Management Plan of KFDC 2015-16 to 2019-20 under para 15.1.4 Intensive Management for Cardamom also prescribes for "Trashing during June-July".

It is submitted that the lowest production of 5.05 MT of cardamom during 2013-14 is because of the wide spread Azhukal disease (capsule rot) occurred in the cardamom plantations of Gavi and Munnar division during 2013-14.. At present, the cardamom productions are showing an uptrend yielding 5.73 MT in 2014-15 and 13.35 MT during 2015-16. Prior to the year 2015-16 the Management Plans of KFDC did not cover the cash crops. On the other hand, the current Management Plan 2015-16 to 2019-20 do have prescriptions for the cash crops also. As the present

Management Plan is duly approved by the Government of India, KFDC can follow the intensive management prescription for cardamom (Para 15.1.4) Replanting (Refilling) the old damaged and non yielding cardamom plants, periodically with good quality high yielding new plants, and converting suitable GMA areas into TA & STA areas in a phased manner and protecting the same with solar fencing are there in the prescriptions. Accordingly, during 2015-16 KFDC have power fenced 55 ha. of the promising GMA areas in Meenar and 5 ha out of the above 55 ha are converted into TA areas during 2016-17. The major limitations experienced by KFDC for the intensive management of the cash crops is the shortage of the workers and the acute shortage of field level staff. The present strength of the lower most field level staff viz. Field Officers is only 4 against a sanctioned strength of 32 and the present strength of the next higher level viz. Assistant Managers is only 2 against a sanctioned strength of 16. The KPSC appointment of Field Officers is expected to be completed within a few months.

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The principle and procedure of comparing the yield from the Cashew Plantations of KFDC which are situated inside the Reserve Forests with the State average yield is factually not correct. Since the Cashew plantations of KFDC has situated within the Reserve Forests frequented by wild mammals, birds, insects and other wildlife, we do not apply any insecticides in our cashew plantations.

Harvesting in cashew plantations are not being done by the

Company directly. The right to collection of cashew nuts are being auctioned and sold to contractors during December-January every year when the flowering starts. Cultural operations like weeding are being carried out by the contractors as per the agreement conditions. That is why budget provision for such activities did not figure in the Annual Plan of Operations.

In the approved Management Plan of KFDC 2015-16 to 2019-20, there are specific prescriptions for rejuvenating of cashew plantations under Para 9.3. The disease affected, purely yielding and wildlife prone cashew plantations extending to 132.184 ha. are proposed for clearfelling and replanting with pulpwood species.

While calculating the average per ha productivity of cashew, the Audit have also included the above 132.18 ha of cashew plantation area proposed for clearfelling and replanting with pulpwood species. It is submitted that one of the oldest plantations of the year 1987 at Kadassery in Punalur division with an extent of 11.60 ha has already been disposed of for clearfelling and the area will be replanted with the suitable pulpwood species during 2017 June-July.

The cashew plantations giving better yield including grafted and disease tolerant local varieties extending to 180.079 ha. are proposed for rejuvenation. Also, there are prescriptions for removal of undergrowth and interior miscellaneous growth, pollarding, prophylactic clearing, gap filling, manuring and pest and disease control etc.

The revenue fetched from the sale of the right to collection of cashew nuts from the 312.26 ha of cashew plantations show a slightly increasing trend since the year 2012-13 (2010-11 Rs.23.747 lakhs, 2011-12 Rs.20.507 lakhs, 2012-13 Rs.15.239 lakhs, 2013-14 Rs.28.47 lakhs, 2014-15 Rs.33.547 lakhs and 2015-16 Rs.35.20 lakhs).

2.1.31

The very same concept and principle of comparing the productivity of the coffee plantations of KFDC which are situated deep inside reserved forest areas to the State average productivity is not at all correct. As a matter of fact, the coffee plantations area of KFDC are not at all comparable to the other areas of the State. The KFDC is not using toxic chemicals as in private estates since our plantations are situated in the middle of reserve forests frequented by wild mammals, birds, insects and other wildlife.

Out of the total extent of 597.427 ha of the coffee plantations with KFDC, 377.527 ha were the private plantations in Nelliampathy area handed over to KFDC only on 11.12.2011 for the purpose of usufruct collection. Since these plantation areas were subjected to litigations for many number of years, the same were in an abandoned condition at the time of handing over. About 100 ha of coffee plantations in one of the estates (Meeraflores Estate) have coffee plants with an age of over 125 years, and many of which have already dried up. The Audit have included the extent of 377.527 ha of the abandoned coffee plantations handed over to the KFDC on 11.12.2011 also while calculating the average per hectare productivity.

Since major areas of the coffee plantations are handed over by the

21.32

Forest Department for collection of usufructs only, we did not carry out much maintenance activities in these plantations. Normal maintenance works like weeding pruning, etc. were being carried out in all the coffee plantations. As per the approved Management Plan for the period 2015-16 to 2019-20, intensive management is proposed for coffee plantations also as per para 15.2.2. Prescriptions are there for following the scientific recommendations by the experts of Coffee Board including the required minimum shade regulations, replanting un economical coffee areas with high yielding coffee plants in a phased manner, topping and desuckering during February-March, weeding during June-July and urea application at 100gram /plant during May-June.

The production of coffee is showing an uptrend and during the year 2015-16, a quantity of 143.42 MT was obtained as against the 81.16 MT during the year 2014-15 covered by the Audit.

The principle adopted by the Audit in comparing average per ha productivity of a tea estate in Wyanad District with state average productivity is faulty as majority of the tea estates of the State are in Munnar and other parts of Idukki district wherein the production averages were much higher than the production averages in estates of Wyanad district.

As per report of the Upasi Tea Research foundation Regional Centre Meppady, the Kambamala Tea plantation of the Company is in the 4th rank in per ha yield among 18 Tea estates in Wayanadu District during 2013 and 14.

Moreover an irrigation in the tea estate of KFDC during summer months is

		<p>not feasible owing to the fact that acute water scarcity is experienced in the area during the summer months and the local tribal people oppose any attempt for irrigation in the tea estate during the summer (since the water is used by them for domestic purposes).</p> <p>Recommendation No.4: <i>The Company may carry out replanting in a phased manner to replace the aged (cash crops) plantations. The maintenance activities prescribed by various agencies like Spices Board, DCCD, Coffee Board, UPASI etc. may also be carried out.</i></p> <p>Necessary prescriptions are already made in the approved Management Plan of KHDC for the period 2015-16 to 2019-20.</p>
2.1.33		<p>Online booking of Day Package Programme in Gavi has started from February, 2016. There is no Day Package Programme in Munnar. Bottled drinking water is supplied in all the ecotourism centres including Kallar. The borewell in Kallar is not being used and other water source and tank was developed in December, 2015 at Kallar for the other purposes.</p>
2.1.34		<p>In the ecotourism centre at Gavi we had adopted the flexible tariff system from 2008-09 to 2013-14. But there was no increase in the number of visitors due to the</p>

reduction in the rate. Generally, the working days of Wednesdays and Thursdays in a week experience low occupancies in the Tourism Centres. Appropriate rate reductions can be tried starting with 01.06.2017.

The Audit covered the details of flow of tourists from 2010-11 to 2014-15. The number of tourists during 2015-16 is as below

- 1).Gavi-12527 (Day Package could be opened only on 15.07.2015),
- 2) Munnar -1783
- 3).Arippa - 489;
- 4). Kambamala upto September 2015 - 19. The Kambamala building was utilized as the division office building since September 2015 owing to the Maoist problems, the low occupancy of tourists and to stop the functioning of the office in a rented building away from the estate.
- 5) Nelliampaty-315,
- 6) Kochupamba-2880.

The number of tourists in the various ecotourism centres during the current financial year is much better. The tourists flow from

01.04.2016 to 30.10.2016 (7 months) is as below:

Gavi	-	11722
Munnar	-	2800
Arippa	-	521
Nelliampathy	-	268
Kochupamba	-	5818

Total	-	21129
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(01.04.2016 to 30.10.2016)

Recommendation No.5: *The Company may update its website to include the details of all the ecotourism projects of the Company and facility for online reservation. Flexible tariff by extending nominal tariff reduction during off season may be implemented to attract tourists during off season. Adequate publicity may also be resorted to. Similarly, basic facilities such as availability of pure water, safari vehicles etc. may be ensured in its ecotourism centers.*

The recommendations of the Audit are taken in true spirit and will be

complied upon without delay. Online booking facility has already been extended to the day package tourism in Gavi. The tariff reduction during the off season has already been implemented for the boating in Kochupamba lake in Gavi. All steps are already taken for adequate publicity of the ecotourism programmes through the print and visual medias, FM Radio, etc.

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All the ongoing ecotourism projects viz. Gavi, Kochupamba, Silent Valley and Rodovalley in Munnar, Arippa, Kallar, Nelliampathy, Kambamala, Floriculture Centre in Munnar and Vagamon Orchidarium Project are detailed in the Management Plan approved by the Government of India in Chapter IX 14.1.

The Audit also mentioned that, a sum of Rs.59.42 lakhs already spent on Sabarijalam and renovation in Kambamala projects became wasteful. In this regard, it is submitted that the major amount of Rs.56.23 lakhs was spent on Sabarijalam Project is for creating the building infrastructure. As a matter of fact, the Sabarijalam project is not yet abandoned and it is decided to be handed over to the State Forest Development Agency of Kerala Forest

Department.

Recommendation No.6: The Company should obtain prior approval from Central Government before launching any new ecotourism project. Availability of pre-requisites such as adequate land may also be ensured before venturing into new projects.

The present ecotourism activities being carried out in KFDC are detailed in the current Management Plan for KFDC (2015-16 to 2019-20). The Management Plan has been approved by Ministry of Environment and Forest, Government of India vide letter No.F(C) A/11.6/4/WP/KER/7588 dt.13.10.2015. As per the above Government of India approval letter, the ecotourism activities of KFDC involving permanent construction alone require prior approval under Forest Conservation Act, 1980.

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Annexure 3
Appendix

Statement showing list of matured plantations which are not included in the schedule of harvesting
(Referred to in Paragraph 2.1.23)

Sl. No.	Location of plantation	Species	Year of Plantation	Year of maturity	Area (Ha.)	Subunit	Division
1	II Kumarakudy	Acacia Mangium	2002	2009	10.02	Karuvor	Punalur
2	Central Nursery	Acacia Mangium	2003	2010	0.20	Anakulam	Thiruvananthapuram
3	Aruvikkadu, Silent Valley	Eucalyptus	1978	1985	20.00	Silent Valley	Munnar
4	Aruvikkadu, Silent Valley	Eucalyptus	2002	2009	31.20	Silent Valley	Munnar
5	II Kadassery	Eucalyptus	2007	2014	31.00	Punnala	Punalur
6	III Punnala Padam	Eucalyptus	2007	2014	29.30	Pathanapuram	Punalur
7	V Punnala	Eucalyptus	2007	2014	24.80	Punnala	Punalur
8	NS&SS Chittar	Eucalyptus	2007	2014	4.25	Achenkovil	Punalur
9	Yellappatty & Pachakkadu	Eucalyptus	2007	2014	35.00	Silent Valley	Munnar
10	Central Nursery IFGTB Plot XIII 2P, 3P.	Eucalyptus	2000	2007	0.33	Anakulam	Thiruvananthapuram
11	4P, Peringamala	Eucalyptus	2007	2014	3.86	Palode	Thiruvananthapuram
12	VIII 7, Uppukuzhi	Eucalyptus	2007	2014	12.75	Arippa	Thiruvananthapuram
13	XI 3.9, Chittar	Eucalyptus	2007	2014	18.25	Palode	Thiruvananthapuram
14	XII 6P, 7P, 10P.	Eucalyptus	2007	2014	19.00	Palode	Thiruvananthapuram
15	IX Anakulam	Eucalyptus	2007	2014	28.70	Anakulam	Thiruvananthapuram
16	Central Nursery	Eucalyptus	2006	2013	6.00	Palode	Thiruvananthapuram
Total					274.66		

Annexure A

Statement showing loss due to lower productivity of cash crop plantations

(Referred to in Paragraph 2.1.29, 2.1.30, 2.1.31 and 2.1.32)

Year	Area (Ha)	Total production ¹ (kg)	Average productivity per Ha (kg)	State average production per Ha ² (kg)	Percentage of yield against state average	Shortfall in yield (kg)	Average price per kg (₹) ³	Shortfall in revenue (₹ in crore)
A. Cardamom								
2010-11	146.70	14874.32	101.39	272	37.28	25028	968.65	2.42
2011-12	146.70	17033.94	116.11	381	30.48	38859	645.94	2.51
2012-13	146.70	13720.58	93.53	383	24.42	42466	687.54	2.92
2013-14	146.70	3739.85	25.49	457	5.58	63302	649.23	4.11
2014-15	146.70	2422.24	16.51	522	3.16	74155	753.77	5.59
Total		51796.93				243810		17.55
B. Cashew								
2010-11	312.26	22200	71.09	947	7.51	273510	40.45	1.11
2011-12	312.26	26878	86.08	845	10.19	236982	71.00	1.68
2012-13	312.26	43795	140.25	898	15.62	236614	59.59	1.41
2013-14	312.26	25855	82.80	910	9.10	258302	51.80	1.34
2014-15	312.26	23845	76.36	950	8.04	272802	61.32	1.67
Total		142573				1378210		7.21
C. Coffee								
2010-11	219.90	20650	93.91	780	12.04	150871	105.10	1.59
2011-12	597.43	115930	194.05	809	23.99	367388	109.07	4.01
2012-13	597.43	105028	175.80	761	23.10	349614	125.85	4.40
2013-14	597.43	108935	182.34	790	23.08	363032	116.34	4.22
2014-15	597.43	81157	135.84	802	16.94	397982	101.68	4.05
Total		431798				1628887		18.27
D. Green tea leaves								
Year	Area (Ha)	Total production (kg)	Average productivity per Ha	Standard productivity as per UPASI(kg)	Percentage of yield against standard productivity	Shortage in yield (kg)	Weighted average price per Kg (₹)	Shortfall in revenue (₹ in crore)
2010-11	90.50	1082590	11962.32	15000	79.75	274910	12.14	0.33
2011-12	90.50	997055	11017.18	15000	73.45	360445	12.43	0.45
2012-13	90.50	902184	9968.88	15000	66.46	453316	15.34	0.70
2013-14	90.50	899547	9939.75	15000	66.26	457953	16.52	0.76
2014-15	90.50	986188	10897.10	15000	72.65	371312	11.62	0.43
Total		4867564				1919936		2.67

¹ Cardamom production from STA and TA was arrived at based on the percentage of green cardamom collected from these areas during each year. Sub Unit Kadabar in Mysore Division has been excluded for working out the percentage of green cardamom collected from STA and TA as the Sub Unit did not have separate account for green cardamom collected from STA, TA and CMA.

² Source: Sales Board, Directorate of Cashew and Cocoa Development (DCCD) and Coffee Board for cardamom, cashew and coffee respectively.

³ Whereas annual weighted average auction price of small cardamom provided by Sales Board is applied for cardamom, the average prices provided by DCCD and Coffee Board are applied for cashew and coffee respectively.

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