CHAPTER II

Performance Audits

2.1 Raising forest plantations and implementation of ecotourism projects by Kerala Forest Development Corporation Limited

Executive Summary

Introduction

Kerala Forest Development Corporation Limited (Company) is a joint undertaking of Government of India (GoI) and Government of Kerala (GoK) engaged in raising of forest plantations, cultivation of cash crops and ecotourism activities.

Replantation activities

The Company could not achieve the target fixed for replantation in any year. Replanting was not carried out in the immediate replanting seasons in eight plantations with delay up to six years. The resultant potential loss of yield of pulpwood was 2318.05 MT valuing ₹0.80 crore.

Harvesting activities

Due to dependence on two user companies, deficient marketing strategy, failure to dispose of plantations with poor growth and exclusion of matured plantations in the schedule of harvesting, wood billets worth ₹9.65 crore (28219 MT) was not harvested from an area of 1073 hectares.

Failure of plantations

Due to improper weeding and selection of wrong species, six plantations had failed resulting in wasteful expenditure of ₹2.96 crore.

Thinning activities

The Company failed to carry out thinning in 69 per cent of the area which were due for thinning.

Cultivation of cash crops

Due to failure of the Company to carry out intensive management in the entire area available, timely replanting and standard agronomic practices, there was significant shortfall in the productivity of the cash crops leading to loss of revenue amounting to ₹45.70 crore.

Ecotourism activities

Absence of safari vehicles, drinking water facilities, publicity, flexi-tariff and online booking facilities contributed to low occupancy in the ecotourism centres. Failure to get prior approval from GoI resulted in stoppage of two projects midway, resulting in wasteful expenditure of ₹0.59 crore. Third project was stopped as the land required was not available. Due to delay in implementing eight projects, there was loss of potential revenue of ₹10.72 crore.

Introduction

2.1.1 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.

Organisational set up

2.1.2 The registered office of the Company is located at Kottayam with six Divisions at Thiruvananthapuram[1], Punalur[2], Gavi[3], Munnar[4], Thrissur[5] and Mananthavady[6]. 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 Managers[7].

Audit Objectives

2.1.3 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.

Scope of Audit

2.1.4 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 (2004-06).

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.

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[1] Anakulam, Arippa, Kottoor and Palode are the subunits under Thiruvananthapuram.
[2] The four subunits under Punalur are Achenkovil, Karavoor, Pathanapuram and Punnala.
[3] There are four subunits under Gavi Division *viz.* Gavi, Meenar, Pampa and Kochupampa.
[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.

Audit Methodology

2.1.5 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 11 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.

Audit Criteria

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

- Forest (Conservation) Act, 1980;
- Management Plans of the Company;
- Plantation Journals[8] 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.

Audit Findings

2.1.7 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*:

[8] **Plantation journals are maintained for each plantation, wherein all the details such as history of earlier plantation, raising of nursery, planting, maintenance, inspections conducted, measurements of trees, harvesting, etc., are recorded.**

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 ton)	1,75,532	1,75,532	1,75,532	1,75,532	1,75,532
Companyôs production (stacked ton)	22,979	26,927	17,155	18,764	18,004
Percentage of Companyôs 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
Companyôs production (M^3)	835.43	36.43	0.00	162.98	32.11
Percentage of Companyôs 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.

Land Management

2.1.9 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.

Transfer of land and its utilisation

2.1.10 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, leased[11] out only 9583.22 Ha (13 *per cent*) of land to the Company up to 1980 which consisted of trees of natural

[9] Worked out based on the annual pulpwood requirement of Hindustan Newsprint Limited.
[10] In the absence of demand figures, total production during the year 2010-11 in the State has been adopted.
[11] The Government fixed (GO (MS) No.2/2002/F&WLD dated 05.01.2002) the lease rent as ₹50 and ₹200 per Ha *per annum* for tree plantations and cash crops respectively with effect from 01April 2001.

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.

Underutilisation of land

2.1.11 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 estates[12] (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. Utilisaton 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]
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

[12] **Vettiyil, Meiraflores, Beatrice and Rosary estates.**
[13] **Pulpwood 4622.64 Ha, Bamboo 694.58 Ha, teak 1257.46 Ha, Softwood 86.65 Ha, Medicinal Plants 147.61 Ha 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.**

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 wild life 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 by small animals, as pointed out by the Government, for not constructing power fencing could not be justified.

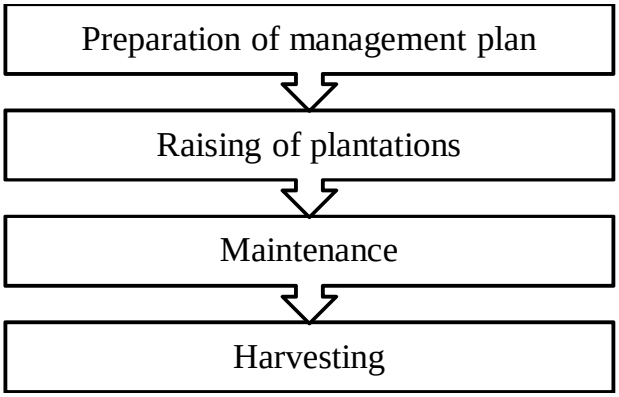
Recommendation No.1: ***Effective steps may be taken to construct power fence to utilise the unutilised area.***

Plantation activities

Planting operation

2.1.12 The timber plantations of the Company comprised of pulpwood, bamboo, teak, softwood and medicinal plants. The activities involved in planting 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 espacement[15], 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.

Preparation of Management Plan

2.1.13 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

Shortfall in replanting

2.1.14 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:*

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

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.

Loss of replanting season

2.1.15 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 HNL[16] and TNPL[17] 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 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

[16] **Hindustan Newsprint Limited.**
[17] **Tamilnadu Newsprint & Papers Limited.**

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 crore[18].

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.

Short planting of seedlings due to wrong espacement

2.1.16 Espacement is the initial spacing between plant seedlings which is adopted to avoid intense competition leading to mortality in densely stocked planatations. The standard espacement of eucalyptus (2m x 2m) 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 area[19] 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 248.80[20] MT valuing ₹9.70 lakh at the rate of ₹3900[21] 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.

[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.**

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

[20] **80MT x (7775/2500).**

[21] **Notified price as on 31 March 2015.**

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:

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 utilise 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 yearsô 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 Planta-tions	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	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 dealy 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 manjium 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 2015-20.

After analysing 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 sectors[22]. 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 sector undertakings on allotment basis.

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 materialise. Concurring with

[22] **List of indigenous mills recognised by Government of India for the purpose of claiming exemption from excise duty (Source: Registrar of Newspapers for India, Government of India).**

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 understocked[23] portions of softwood plantations which prevented it from going ahead with the tender floated in February 2013 to dispose of eucalyptus clonal 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 clones[24] 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

[23] Understocking denotes low density of trees in plantations.
[24] Eucalyptus clones were raised as part of World Bank aided Kerala Forestry Project.

or coppicing[25] 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 Government[26] 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).

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 MT[27] of eucalyptus wood valuing ₹6.25 crore[28].

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 Plans. 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 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 (***Appendix 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-utilisation of land.

[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.**
[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.**

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-realisation 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 unutilised
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**	

Reasons 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 Ha[29] 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 Ha[30]) 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 weeding[31] 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 rasied 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 areas[32] in both the Divisions subsequently were healthy and 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 three weedings were 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.

[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.

The reply was not acceptable because stock of the plantation was less than 10 *per cent* even before the fire had broken out 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	100.00	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, garcina guttifera, myristica fragrans, steropermum 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 Ha[33] 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.

[33] **Petrocarpus santalinus 75.87 Ha, gmelina arborea 20.89 Ha and sterospermum chelonoides 1.00 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:

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 TA[34]. 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

[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.**

average productivity of dry cardamom (***Appendix 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 2012-15, 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 cardamom[35] of STA and TA per Ha during the period from 2010-11 to 2014-15 was 2735.95 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 to12 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.

[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.**

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 practices[36] for cardamom as detailed below.

  - Scrutiny of work distribution registers maintained at subunits revealed that mulching[37], one of the important activities was carried out in Munnar 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 forking[38] 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.

  - Pruning[39], 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

[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.**
[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.**

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 ***(Appendix 4).***

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 practices[40] 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 (8.04 *per cent* to 15.62 *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.

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.

[40] **Source: Directorate of Cashew and Cocoa Development (DCCD).**

The yield obtained from the coffee plantations of the Company was lower than the State average. Against 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 (***Appendix 4***).

Audit observed (April to July 2015) that inadequate maintenance of plantations was the reason for low productivity. As per the standard agronomic practices[41], 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 desuckering[42] 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 are handed over by Forest department for collection of usufructs only, the Company could not carry out much maintenance activities.

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 crore[43] (***Appendix 4***).

[41] Source: Coffee Board.
[42] Desuckering is a maintenance activity done to maintain a single stem system and avoid competition from suckers.
[43] Computed at the weighted average price per kg received by the Company during 2010-15.

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.***

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 locations[44] 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 Nelliyampathy
Projects dropped as per specific direction from MoEF	2	Sabarijalam (Punnala, Pathanapuram)	Kambamala (Wayanad)
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 seven[48] ecotourism centres (Gavi, Kochupampa,

[44] **Arippa (2007-08), Kambamala (2009-10), Nelliyampathy (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.**
[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.**

Munnar, Nelliyampathy, 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 profitably[49] except Kambamala, Nelliyampathy and Kallar. The trend of touristsô 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 centres[50]

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
Kambamala	24	140	62	31	39
Nelliyampathy	-	-	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 Companyôs 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

[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.**

reservation for ecotourism centres in Nelliyampathy, 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 Nelliyampathy, 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 vehicle 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 Nelliyampathy. 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 vehicle 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 (Aprilï 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.

  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

[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.**

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 crore[52] 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:

- 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 lakh[53] 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 eight[54] 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 revenue[55] from five[56] of these projects at ₹10.72 crore.

[52] **Gavi – ₹0.22 crore, Nelliyampathy – ₹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, Kambamala- ₹0.02 crore and Kuruva – Nil.**
[53] **Sabarijalam - ₹ 57.52 lakh and Kambamala - ₹1.90 lakh.**
[54] **Munnar, Kallar, Gavi, Kochupampa, Nelliyampathy, Arippa, Kottoor and Wagamon.**
[55] **Based on the potential revenue envisaged in the DPR.**
[56] **Kallar, Gavi, Kochupampa, Kottoor and Wagamon.**

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.***

Conclusion

Kerala Forest Development Corporation Limited was formed to raise plantations and cultivating cash crops for meeting the industrial and domestic needs. But the share of the Company in meeting the demand for pulpwood and teak timber in the State was negligible due to underutilisation of land and deficiencies in plantation activities. Target for replanting could not be achieved due to delay in harvesting and failure to carry out replanting in the immediate replanting season. Deficient marketing strategy, failure to dispose of plantations with poor growth and exclusion of matured plantations in the schedule of harvesting caused significant backlog in harvesting. Thinning activity was not carried out in majority of the plantations where it was due. There were instances of failure of teak and red sanders plantations due to improper maintenance. Failure to follow standard agronomic practices and carry out timely replanting of aged plants resulted in shortfall in productivity of cash crop plantations.

Ecotourism projects did not generate projected revenue due to low occupancy rate in ecotourism centres on account of lack of basic facilities and publicity.

2.2 Material Management by Kerala State Electricity Board Limited

Executive Summary

Introduction

Kerala State Electricity Board Limited (KSEBL) is engaged in generation, transmission and distribution of electricity in the State. During 2010-15, KSEBL issued 610 Purchase Orders (PO) valuing ₹1741.33 crore. Audit examined 152 POs (₹664.99 crore) to check whether procurement and utilisation of material was effective and economic.

Planning for procurement of material

The process of material procurement begins with preparation of Annual Plan by Corporate Planning Wing and thereafter Purchase Plan (PP) by Chief Engineer, Supply Chain Management (CE, SCM). There was delay in issue of guidelines for preparation of Annual Plan. No prescribed time frame was fixed for preparation and approval of PP which resulted in delay in their preparations.

Lack of co-ordination in material procurement

Co-ordination between Corporate Planning Wing and CE, SCM was important to ensure procurement of adequate material. Lack of co-ordination resulted in short procurement of energy meters and delay in procurement of material.

Tendering process

There was no prescribed time frame for each stage of tendering process. Out of 113 tenders, 48 were invited after delays ranging from 31 to 269 days. Similarly, 36 out of 113 tenders were not finalised within the validity period of bids.

Delay in execution of work due to non-availability of material

Failure to assess the requirement with reference to available stock and average consumption led to shortage of material for up to nine months which affected the execution of various works.

Extra expenditure due to delay in finalisation of tender

Delay in finalisation of tender and subsequent cancellation and retendering resulted in extra cost of ₹16.32 crore in procurement of single phase meters at higher rate.

Procurement of additional quantity from existing suppliers

Due to delay in invitation and finalisation of fresh tender, KSEBL could not invoke price re-fixation clause which led to extra cost of ₹2.87 crore.

Absence of monitoring

There was no system to monitor the consolidated payment against a PO. Due to absence of Management Information System, utilisation of material procured by SCM Wing could not be monitored by KSEBL. Material transferred to end user section was not linked on the basis of PO.

Introduction

2.2.1 Kerala State Electricity Board Limited (KSEBL) was incorporated under the Companies Act, 1956 on 14 January 2011. KSEBL started independent operations with effect from 31 October 2013 when the Government of Kerala (GoK) revested the assets and liabilities of erstwhile Kerala State Electricity Board (KSEB), a Statutory corporation, to it. KSEBL is engaged in generation, transmission and distribution of electricity in the State.

KSEBL procures various kinds of material for carrying out its operations. Material requirement of the KSEBL and its procurement generally falls under the following categories:

Table 2.16: Category wise method of material procurement

Sl. No.	Category of material	Method of procurement
1	Steel structures, cables, conductors, etc., for construction of new transmission lines and substations	Centralised procurement
2	Material required for capital works and operation and maintenance of distribution lines and substations	Centralised and decentralised procurement

The Chief Engineer, Supply Chain Management[57] (CE, SCM), is responsible for centralised procurement of material required for both transmission and distribution works. Chief Engineers (CEs) of South, Central and North distribution regions are responsible for decentralised procurement of 48 items of distribution material with effect from 2004. Besides, Deputy CEs (Distribution) are empowered to make local purchases up to ₹10 lakh at a time subject to maximum annual limit of ₹1 crore. Details of procurement of material during 2010-11 to 2014-15 were shown in *Table* below:

Table 2.17: Details of centralised and decentralised procurement

(₹ in crore)

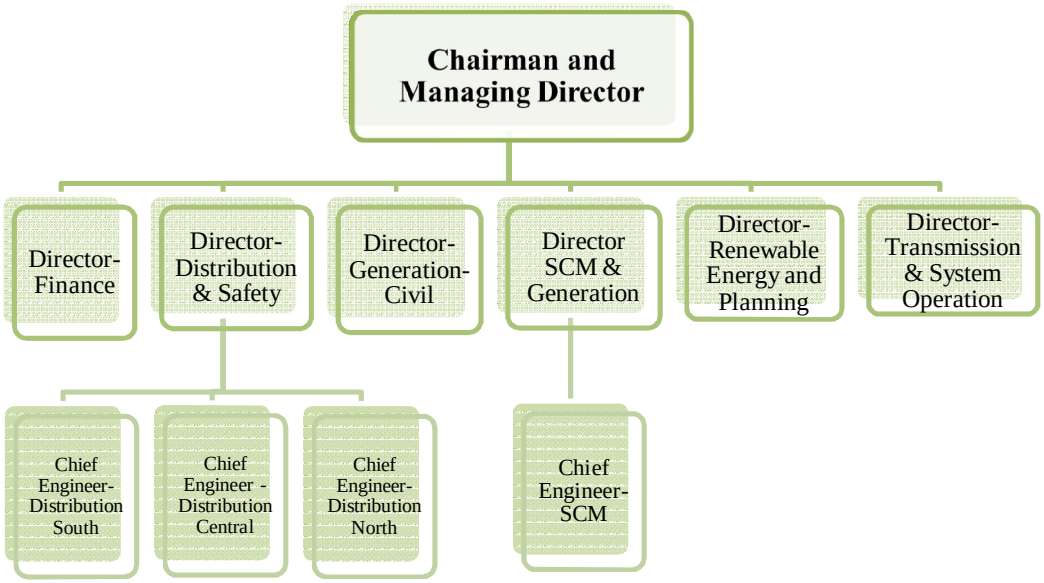
Year	Distribution material			Transmission Material	Total
	Centralised	Decentralised	Total	Centralised	
2010-11	252.57	213.36	465.93	97.48	563.41
2011-12	220.25	21.56	241.81	106.75	348.56
2012-13	267.61	18.03	285.64	30.09	315.73
2013-14	279.43	20.82	300.25	38.86	339.11
2014-15	315.04	12.94	327.98	65.28	393.26

[57] **Previously Technical Contracts and Materials.**

Organisational set up

2.2.2 The management of KSEBL is vested in a Board consisting of Chairman and Managing Director, Director (Finance), Director (Distribution and Safety), Director (SCM and Generation-Electrical), Director (Generation-Civil), Director (Renewable Energy and Planning) and Director (Transmission and System Operation). Organisational chart of KSEBL is given below:

Chart No.2.2: Chart showing organisation structure



Scope of Audit

2.2.3 The Performance Audit covered performance of KSEBL in procurement and utilisation of material required for transmission and distribution wing during the five years from 2010-11 to 2014-15. Audit also reviewed compliance to recommendations of Committee on Public Undertakings (CoPU) on earlier Audit Reports.

Audit Objectives

2.2.4 The objectives of Performance Audit were to ascertain whether:

- there was adequate mechanism in place for planning the procurement of required material after taking into account the material requisitioned and already available in stores and pipeline;
- there was co-ordination between the Corporate Planning Wing and the Purchase Department for ensuring procurement of adequate and quality material at competitive rates in a timely manner; and
- material procured was utilised in a timely manner for the purpose for which it was procured.

Audit Criteria, Methodology and Scope

2.2.5 The audit criteria were drawn from the following sources:

- Stores Purchase Manual (SPM) of GoK and Manual on Commercial Accounting System of KSEBL;
- Guidelines and circulars issued by the Central Vigilance Commission (CVC) to increase transparency in public procurement which was applicable to KSEBL; and
- Orders and Circulars issued by KSEBL and the Government.

The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of explaining the audit objectives to top management of the KSEBL and Government in the Entry Conference held on 8 April 2015, scrutiny of records of the audited entity, analysis of data with reference to criteria, issue of audit queries, discussion of audit findings with management and issue of Draft Performance Audit Report. Audit findings were also discussed in an Exit Conference held on 14 December 2015 with representatives of KSEBL. The views expressed by KSEBL and Government have been duly incorporated in the Performance Audit Report.

Field Audit involving scrutiny of records of centralised and decentralised procurement of material and their utilisation by KSEBL and joint physical verification of material in stores was conducted during February-September 2015.

During the period from 2010-11 to 2014-15, KSEBL placed 610 Purchase Orders (POs) for procurement of various material required for transmission and distribution wings. In order to evaluate the performance of the KSEBL in its procurement operations, Audit test checked 152 POs selected based on Stratified Random Sampling technique as detailed below:

Table 2.18: Details of sample selected

Type of material	POs issued during 2010-15		Sample selected for test check		
	Number	Value (₹ in crore)	Number	Value (₹ in crore)	Category (Numbers)
Distribution	436	1430.91	108	429.96	Conductors (25) Energy meters (19) Line material (39) Transformers (15) Others (10)
Transmission	174	310.42	44	235.03	Conductors (8) Line material (14) Transformers (15) Others (7)
Total	**610**	**1741.33**	**152**	**664.99**	

Acknowledgement

2.2.6 Audit acknowledges the co-operation and assistance extended by the management and staff of the KSEBL in the conduct of this Performance Audit.

Audit Findings

2.2.7 Audit noticed deficiencies in planning for procurement, tendering process and contract management resulting in purchase of material at higher rate and deficiencies in utilisation of material leading to delay in implementation of various schemes.

Audit findings are discussed in succeeding paragraphs.

Planning for procurement of material

2.2.8 Procurement process for goods and services should ideally begin with need identification and planning for procurement. This demands that assessment of bulk requirement of goods is conducted at the beginning of every financial year and action is initiated for procurement in accordance with the procedures prescribed. Existence of such a system will reduce delays in procurement of material needed for meeting operational and maintenance requirements of KSEBL.

KSEBL begins the process of material procurement through preparation of Annual Plan. The Annual Plan contains the quantity of capital and maintenance works of transmission and distribution wings proposed to be executed during the ensuing financial year. For the preparation of Annual Plan, all pending works and targeted works are classified into capital and maintenance works. The inputs required for the preparation of the Annual Plan are received from the field offices, which is reviewed and checked at various levels, such as Division, Circle and Regional Office before it reaches the Corporate Planning Wing of KSEBL. Corporate Planning Wing is responsible for the consolidation of those inputs and preparation of Annual Plan for approval of the Board of Directors (BoD). Thereafter, Purchase Plan (PP) showing quantity of material required for the capital and maintenance works is prepared by CE, SCM based on approved Annual Plan.

Following issues were noticed in the preparation of Annual Plan and Purchase Plan.

Delay in preparation of Annual Plan

2.2.9 According to Store Purchase Manual, the time allowed to bidders for submission of bid is one month and maximum validity period of bid is three months. CE, SCM takes minimum one month for preparation and finalisation of PP. Since the material to be procured is meant for utilisation during April to March of the ensuing year, therefore, considering the minimum time required

for submission of bids and its finalisation (four months) and finalisation of PP (one month), Annual Plan is to be finalised five months in advance, i.e. by October end every year.

Scrutiny of records revealed that there were delays ranging from three to four months in approval of annual plans as shown in *Table* below:

Table 2.19: Details of approval of Annual Plan by BoD

Year	Date of issue of guidelines by CE, Corporate Planning Wing	Date of approval of Annual Plan by BoD	Delay in approval of Annual Plan
2010-11	08/10/2009	06/03/2010	4 months
2011-12	11/10/2010	11/02/2011	3 months
2012-13	30/12/2011	21/03/2012	4 months
2013-14	22/09/2012	05/03/2013	4 months
2014-15	25/09/2013	12/03/2014	4 months

As evident from the above *Table*, the main reason for delay in approval of Annual Plan was delay on the part of Corporate Planning Wing in issue of guidelines for preparation of Annual Plan.

GoK replied (January 2016) that concerted efforts were being made by KSEBL to reduce the time taken for finalisation of the Annual Plan by making refinements in the software applications on a continuous basis.

Delay in preparation of Purchase Plan

2.2.10 After preparation of Annual Plan by Corporate Planning Wing, the CE, SCM prepares two centralised PPs and one decentralised PP. While the centralised PPs are meant for distribution and transmission material, to be procured by CE, SCM, decentralised PP is meant for material to be procured by three Distribution CEs. For preparation of PP, the quantity of material required for execution of works included in the Annual Plan, stock in position at sub regional stores and section stores along with details of quantity in pipeline and the quantity in tender under process are taken into account. The PP is, thereafter, placed before the Purchase Committee consisting of Chairman, full time Directors, CE, SCM and Financial Adviser for its recommendation before it is placed before BoD for approval.

Timely preparation of Annual Plans and PPs was necessary to ensure availability of material required for both capital and maintenance works in time. Yet, in the case of PP, no prescribed time frame was fixed for its preparation and approval. Consequently, the time taken for preparation and finalisation of PP ranged between 1 month and 10 months from the date of approval of Annual Plan as shown in *Table 2.20*:

Table 2.20: Time taken for preparation and finalisation of PP

Year	Approval of Annual Plan by BoD	Approval of PP		
		Centralised distribution material	Centralised Transmission material	Decentralised distribution material
2010-11	March 2010	April 2010 (one month)	March 2010[58] (one month)	July 2010 (four months)
2011-12	February 2011	May 2011 (three months)	Not prepared[58]	August 2011 (six months)
2012-13	March 2012	June 2012 (three months)	January 2013 (nine months)	July 2012 (four months)
2013-14	March 2013	July 2013 (four months)	December 2013 (10 months)	July 2013 (four months)
2014-15	March 2014	July 2014 (four and a half months)	July 2014 (four and a half months)	July 2014 (three and a half months)

(Figures in bracket indicate time taken for approval of PP from the date of approval of Annual Plan)

Out of the 14 PPs approved during 2010-11 to 2014-15, time taken for finalisation of 10 PPs was more than three months. Delay was due to the fact that in six cases, CE, SCM took more than three months to submit PPs to the Purchase Committee. Delay in the remaining four cases occurred because more than three months were taken by CE, SCM and Purchase Committee for their finalisation and approval.

Due to delay in finalisation of PPs, there was corresponding delay in procurement of material for capital and normal maintenance works. In order to tide over exigencies, field offices resorted to local purchases at higher rate and purchase of additional quantity from existing suppliers as discussed in *Paragraphs 2.2.15* and *2.2.16.*

GoK replied (January 2016) that the delay in preparation of PPs was due to the necessity of collection of the details of stock position as on 1 April every year from various electrical sections. It was also replied that delay did not affect the work as the material which were procured based on the previous yearôs PP, were being received as pipeline quantity during the year.

The reply was not acceptable as the stock of material could be assessed real time through SCM software. There is also no need to take stock as on 1 April every year because material expected between date of PP and 1 April could be accounted as pipeline quantity. Due to delay in finalisation of PP and tenders, execution of various works was held up for want of material as discussed in *Paragraph 2.2.14*.

Recommendation No. 1: **KSEBL should prescribe timelines at each level for finalisation of Annual Plan and PP**.

[58] **Rolling plan for transmission for the two years 2010-11 and 2011-12.**

Lack of co-ordination in material procurement

2.2.11 Procurement of adequate and quality material by the Purchase Department (CE, SCM) is vital for execution of various capital works and maintenance work planned by Corporate Planning Wing. Thus, co-ordination between these departments would ensure proper procurement of material.

Audit examined effectiveness of co-ordination in respect of ten major distribution and transmission material and noticed short procurement of energy meters and non-inclusion of material required for work due to absence of co-ordination between Purchase Department and Corporate Planning Wing as discussed below:

- As per Clause 33 of Terms and Conditions of Supply of Electricity, 2005, KSEBL is to replace defective meters within one month. KSEBL, therefore, requires Single Phase meters (SP meters) and Three Phase meters (TP meters) for replacement of defective meters under normal maintenance work. KSEBL also requires meters for effecting new service connections under schemes like RAPDRP[59] and RGGVY[60].

  Procurement of energy meters during the period from 2010-11 to 2014-15 revealed that compared to the Annual Plan, there was shortage of 2.34 lakh SP meters and 0.40 lakh TP meters in the PP. Further, as compared to the PP, there was shortage of 3.25 lakh SP meters and 0.53 lakh TP meters in actual procurement. Thus, the total shortage in actual procurement of SP meters and TP meters was 5.59 lakh and 0.93 lakh respectively**.**

  On a review of target and achievement of replacement of faulty meters in two Electrical Circles at Alappuzha and Kottayam, it was noticed that both the Circle Offices could not achieve the targeted faulty meter replacement due to shortage in supply of energy meters to these two units. There was short supply of meters to Circle Office, Alappuzha and Circle Office, Kottayam by 49 *per cent* and 13 *per cent* during the period from 2010-11 to 2014-15. As a result, in these two Electrical Circles, the overall achievement of replacement of faulty meter over four years was 48 *per cent* and 88.90 *per cent* respectively.

- Assessment of KSEBL regarding the number of energy meters for replacement of faulty meters and for effecting new connections for a month was around one lakh SP meters (60000 *per* month for faulty meters plus 40000 *per* month for effecting new connections). Along with this, the opening balance of faulty meters was to be taken into consideration for annual requirement.

  Opening balance of faulty SP meters during 2014-15 was 5.73 lakh. Accordingly, the annual requirement of SP meters for 2014-15 was

[59] **Restructured Accelerated Power Development and Reforms Programme.**
[60] **Rajiv Gandhi Grameen Vidyutikaran Yojana.**

17.83 lakh. But KSEBL had worked out the annual requirement for 2014-15 at 12.10 lakh SP meters as KSEBL did not consider the requirement of meters at the time of preparation of Annual Plan. As a result, as of March 2015, 5.88 lakh SP meters could not be replaced due to non-availability of new SP meters.

It was further noticed that non-replacement of defective meters affected revenue realisation of KSEBL as it billed energy consumption based on average consumption instead of actual consumption of electricity for the period during which the meters remained faulty. Besides, Kerala State Electricity Regulatory Commission had also expressed (28 April 2012) displeasure in the performance of KSEBL on replacement of defective meters.

GoK replied (January 2016) that there was short purchase of four lakh SP meters in 2011-12 due to allegations raised against the tendering process. It was also stated that total quantity of energy meters procured during 2010-15 was sufficient to meet the requirement as per PP.

The reply was not acceptable as decision to limit procurement of meters in 2011-12 was taken after deciding to procure balance quantity through fresh tender. These material were procured subsequently through fresh tender after one year. Absence of sufficient energy meters also affected replacement of faulty meters as number of faulty SP meters to be replaced in March 2015 was 5.88 lakh meters**.**

- Construction of two 110 kV substations at Cyber Park, Kozhikode and Kinalur and two 33 kV substations at Palakkad and Nellikkaparamba were proposed to be implemented during 2011-12 as per Annual Plan. These substations were planned for voltage improvement and system improvement.

  It was noticed that material requirement for these planned substations was not included in the PP 2011-12 as KSEBL had prepared (March 2010) a two-year rolling PP for 2010-12. Consequently, these substations could not be completed during 2011-12 as scheduled.

  GoK replied (January 2016) that even though 110 kV substations at Cyber Park and Kinalur and 33 kV substations at Palakkad and Nellikkaparamba were included in the Annual plan 2011-12, land was not available except in Palakkad. It was included in the Annual Plan on the anticipation that land would be made available on time.

  The reply was not tenable as the above substationsô works were not included in PP because no separate PP was prepared for 2011-12 and a two year rolling plan had already been approved (March 2010) for 2010-12.

- GoI approved (June 2010) RAPDRP for 43 towns in Kerala, aimed at reduction of Aggregate Technical & Commercial (AT&C) loss through various distribution strengthening works. Approved RAPDRP involved installation of 2340 Ring Main Units (RMU) and drawing 1495 kilometre (km) of Aerial Bunched Cable (ABC). As per GoI guidelines, RAPDRP was to be completed by June 2015 (within five years).

  Scrutiny of records revealed that as per the Annual Plans 2010-11 to 2014-15, RMUs proposed to be installed were only 1394. Out of this, only 187 RMUs were procured and installed. Similarly, although 1547 km of ABC were proposed to be drawn during 2010-11 to 2014-15 as per respective Annual Plans, purchase of ABC was not included in the PP and hence, the purchase of ABC was not made. As a result, RAPDRP could not be completed within the scheduled five yearsô time. Consequently, reduction in AT&C loss could not be achieved as planned.

Recommendation No. 2: Co-ordination between Corporate Planning Wing and Purchase Department should be strengthened to ensure proper assessment and timely procurement of material to carry out various works as planned.

Procurement of material

2.2.12 Public procurement activities should be conducted in a transparent manner ensuring competition, fairness and elimination of arbitrariness in the system. It must also conform to exemplary norms of best practices to ensure efficiency, economy and accountability.

Scrutiny of 152[61] POs out of 610 POs issued by KSEBL during 2010-11 to 2014-15 revealed deficiencies in tendering processes and delay in procurement of material leading to delay in execution of works and extra expenditure in procurement. These are discussed in succeeding paragraphs.

Tendering Process

2.2.13 Generally, tenders are invited by KSEBL in two bid system, such as technical bid and financial bid and in case of material such as ACSR[62] conductors, weather proof wire, etc., procurement is made through limited tenders from Small Scale Industrial (SSI) units and Public Sector Undertakings of Kerala.

Audit examined process of tendering in 113 cases and observed following deficiencies:

- According to provisions (Rule 1.3) of SPM, KSEBL was to prescribe appropriate time frame for each stage of procurement, and delineate the responsibility of different officials involved in the

[61] **113 tenders.**
[62] **Aluminium Conductor Steel Reinforced.**

purchase process to reduce delays in tendering process. Such a time frame would also make the purchase officials concerned more alert.

KSEBL did not, however, prescribe any time frame for various stages of procurement. As a result, 48 out of 113 tenders for procurement of various material were invited after delays ranging between 31 and 269 days from the date of approval of PP on account of finalisation of technical specification, collection of latest requirement of material, etc. In five cases, tenders were floated during subsequent year of material requirement as the PP was approved in the month of December. Delay in invitation of tender led to consequent delay in replacement of faulty meters, increase in local purchases at higher rate, etc., as discussed in *Paragraph 2.2.15*.

- CVC directives (November 2008) stipulate that tenders should be finalised and contracts awarded in a time bound manner within original validity of the tender, without seeking further extension of validity. As per the SPM, the validity period should not be more than three months from the date of tender opening as the longer period entails the risk of getting higher price from the tenderers.

  General conditions of the tender documents issued by KSEBL, however, stipulated that the validity period of a bid shall be four months from the date of opening price bid or six months from the date of opening pre-qualification bid, whichever is earlier. The CE, SCM did not take any steps to reduce the validity period to match with the period prescribed in the SPM. This fact was also not brought to the notice of BoD.

- Since KSEBL follows two-bid system for procurement of majority of items, pre-qualification criteria should be specified in unambiguous terms to avoid arbitrariness and favouritism in pre-qualification of bids as stipulated by guidelines of CVC which was applicable to KSEBL. As per the provision of SPM (Chapter 5.25), KSEBL shall blacklist, ban, suspend business and remove from the list of approved suppliers, firms for breach of conditions of contracts. The list of firms blacklisted and or banned was also to be displayed in the website of KSEBL.

  In one tender, out of 113 tenders examined in Audit, for supply of 21500 numbers 200 amp LT rewirable fuse unit, invited (September 2012) by CE, Distribution, South, offer of Shree Krishna Electricals was rejected due to poor performance in earlier supply. Thus, the price bid of single bidder, Kerala Electrical and Allied Engineering Company Limited (KEL) was opened and PO placed with KEL on 8 August 2013. However, in connection with procurement of 1017 LT rewirable fuse unit, CE, SCM placed (December 2013) PO with Shree Krishna Electricals.

  There was, thus, no system to blacklist and display list of suppliers with poor contractual performance in the website of KSEBL as prescribed in the SPM leading to lack of uniformity in disqualifying the poor-performing suppliers.

GoK replied (January 2016) that the firm was not blacklisted as KSEBL resorted to black listing only as an extreme step. It was also replied that the list of blacklisted suppliers was also maintained.

The reply was incorrect as list of suppliers with poor performance was not maintained nor their names displayed in the website.

- It was also noticed that KSEBL could not finalise 36 out of 113 tenders, within the validity period fixed by it as shown in *Table* below:

Table 2.21: Time taken to issue purchase order after opening technical bid

Year	No. of Tenders	Time taken in months to issue POs		
		4 - 6	7-12	Above 12
2010-11	5	0	5	0
2011-12	8	0	7	1
2012-13	7	1	5	1
2013-14	6	1	5	0
2014-15	10	3	6	1
TOTAL	**36**[63]	**5**	**28**	**3**

Audit analysis revealed that in 36 tenders, the Pre-Qualification (PQ) Committee took periods ranging from 1 to 12 months to prequalify the bidders and Purchase Committee took 1 to 13 months to select a successful bidder as shown in *Table* below:

Table 2.22: Time taken to finalise tenders by PQ and Purchase Committee

Number of tenders	Time taken (months)		
	PQ Committee	Purchase Committee	Total
5[64]	Nil	4-6	4-6
28	1-11	1-11	7-12
3	7-12	4-13	Above 12
36	**Total**		

The delay on the part of PQ Committee was due to non-insistence of timely submission of missing bid documents, delay in scrutiny of financial aspects by financial advisor, etc. The delay on the part of Purchase Committee in selection of successful bidder was due to price negotiation and delay in convening Purchase Committee meeting and BoD meeting.

GoK replied (January 2016) that more than six months was required to finalise tenders for certain items like power transformer, transformer

[63] **28 tenders by CE, SCM; 1 tender by CE, Distribution South; 2 tenders by CE, Disribution Central and 5 tenders by CE, Distribution North.**

[64] **These were single-part tenders and hence pre-qualification was not carried out. Single part bids were to be finalised within four months.**

control, feeder control and relay panel, RMU, etc. It was also stated that care would be taken in future tenders to avoid delays.

The reply was not acceptable as in 31 cases, tenders were finalised after six months. Out of this, in 30 tenders, Purchase Committee took three to thirteen months to select successful bidder after pre-qualification.

- Due to delay in finalisation of tenders and issue of POs after the validity period, KSEBL incurred extra expenditure of ₹1.26 crore in three out of 36 tenders as shown in *Table* below:

Table 2.23: Details of extra cost due to non-issue of POs within validity period

Material	Name of supplier	Extra cost (₹ crore)	Reason
110 kV SF 6 Circuit Breakers (CB) [65]	Crompton Greaves Limited, Nashik (CGL)[66]	0.23[67]	Due to delay in finalisation of tender, CGL refused to supply and KSEBL had to procure material through new tender at extra cost from CGL for which the responsibility needs to be fixed. GoK replied (January 2016) that balance quantity of 53 CBs was procured from CGL at lesser rate than the rate quoted in the first tender. On verification, it was found that the reply was incorrect as the rate quoted by CGL in the first tender (₹4.80 lakh) was lower than the rate in retender (₹5.23 lakh).
7 lakh SP meters	Larsen & Toubro Limited[68].	0.84	Tender was opened in June 2010. Due to delay in finalisation of tenders and placing PO, KSEBL had to incur extra cost on account of increase in excise duty (ED) from 10 to 12 *per cent* with effect from April 2012. GoK stated (January 2016) that now the tenders for purchase of meters are being processed without any delay.
0.50 lakh TP meters	EMCO Limited[69]	0.19	Tenders were opened in October 2011. Due to delay in finalisation of tenders and placing PO, KSEBL had to incur extra cost on account of increase in ED from 10 to 12 *per cent* with effect from April 2012. GoK stated (January 2016) that now the tenders for purchase of meters are being processed without any delay. Reply was not acceptable as the delay in finalisation of tenders for more than a year in case of SP and TP meters in 2010-12 had direct impact on the revenue of KSEBL as it continued to bill customers in such cases on the basis of average consumption.
	Total	**1.26**	

[65] **Required for construction of transmission substation during 2010-12.**
[66] **PO. SCM 48/2012-13 dated 27 August 2012.**
[67] **Difference between rates quoted by CGL in the first and second tender (₹522968-₹479910) x 53 CBs.**
[68] **PO SCM 90/11-12 dated 20 January 2012.**
[69] **PO SCM 45/12-13 dated 17 October 2012.**

Recommendation No.3: In order to ensure availability of material, time frame for each stage of procurement right from tendering process may be fixed in conformity with the provisions of SPM.

Delay in execution of works due to non-availability of material

2.2.14 Chapter III of Part II of Manual on Commercial Accounting System stipulated KSEBL to maintain different stock levels such as maximum, minimum or re-ordering level or economic order quantity in order to ensure uninterrupted supply of material and to avoid delay in execution of various works. The CoPU, while considering an earlier Audit Observation, had also directed (March 2005) KSEBL to follow the system of maintenance of stock level based on co-ordination with project or work requirements.

Audit noticed that:

- KSEBL did not fix and maintain stock levels for any of the material required for normal maintenance works. On an analysis of availability of ten major items of material during the period from 2010-11 to 2014-15, it was observed that due to delay in procurement of material there was non-availability of material for periods ranging between one and nine months. The details of delay for more than six months were as shown in *Table* below:

Table 2.24: Details of work affected due to non-availability of material

Sl. No.	Items	Period	Delayed period	Work or Project affected
1	Single Phase Meter	2011-12 and 2012-13	8 months and 6 months	New service connection, replacement of faulty meters and mechanical meters, RAPDRP and RGGVY works
2	ACSR Rabbit	2011-12 and 2012-13	7 months and 9 months	RGGVY, reconductoring work, RAPDRP and other line extension work.
3	ACSR Raccoon	2012-13 and 2014-15	7 months each	RGGVY, RAPDRP and other line extension work
4	Three Phase Energy meters	2013-14	7 months	New service connection, replacement of faulty meters and mechanical meters and RAPDRP Work.
5	AB Switch 400 Amp	2012-13	8 months	RGGVY, RAPDRP and other line extension work
6	11 kV 45KN Disc Insulator	2013-14 and 2014-15	7 months and 8 months	11 kV line extension work
7	11 kV Pin Insulator	2012-13	9 months	RGGVY, RAPDRP and other 11 KV line extension work
8	100 kVA Distribution transformer	2011-12	6 months	Voltage and system improvement and RAPDRP work
9	160 kVA Distribution transformer	2010-11	6 months	Voltage and system improvement work and RAPDRP work
10	12.5 MVA transformer (Transmission)	2014-15	9 months	Substation construction work (new and upgradation work)

GoK replied (January 2016) that action was being taken by KSEBL to finalise tenders within validity period. GoK further stated that maintaining stock level of critical material would not be possible at all times due to storage constraints, procedural delay in initiating next tender, etc.

The reply was not acceptable because KSEBL had not fixed stock levels in respect of material required even for regular operation and maintenance. This was despite the recommendation of CoPU to maintain stock levels. Procedural delay in tendering was avoidable through standardisation of procedures as most material are procured annually.

Recommendation No. 4: In order to avoid delay in procurement of material, a system may be incorporated in SCM software to analyse the available stock and its average consumption for the period so as to purchase the material before its stock-out.

- As per approved PP 2013-14, 10 Distribution Transformers (DTs) of 500 kVA[70] were required to meet voltage improvement and system improvement work during 2013-14. Tender was invited in April 2014. Price bid was opened in May 2014 and PO issued in November 2014 to Unipower Systems (Unipower) for supply of 10 DTs at ₹ 42.57 lakh. As per the PO, the DTs were to be delivered by 11 February 2015.

  It was noticed that though there was delay in supply, the CE, SCM asked Unipower on 16 March 2015 to produce temperature rise test certificate and to intimate the readiness of DTs for inspection. Unipower supplied the material during September-October 2015. As the firm delayed the delivery, the capital works, *viz.*, voltage improvement and system improvement envisaged during 2013-14 could not be executed till September 2015.

  GoK replied (January 2016) that the firm supplied DTs belatedly in September 2015, but no capital work was affected due to non-availability of material.

  The reply was not acceptable as tenders were issued for meeting requirement of DTs during 2013-14 after considering the stock. Due to delay in procurement, voltage improvement and system improvement planned during 2013-14 was, thus, affected.

Extra expenditure due to delay in finalisation of tenders and POs

2.2.15 Competition is the key element of the procurement policy framework which promotes value for money. Due to delay in preparation of PP and finalisation of tenders, KSEBL could not procure material through competitive

[70] **Kilo Volt Ampere.**

tenders but had to resort to local purchase, etc., resulting in extra expenditure as discussed below:

- Out of 19 POs of energy meters test checked, Audit noticed extra expenditure of ₹16.32 crore in five POs.

  During 2009-10, KSEBL required nine lakh SP meters for replacement of defective meters and for providing new connections. To meet this requirement, KSEBL, placed (October 2009) POs with United Electrical Industries Limited (UEIL) and ICSA India Limited (ICSA), L1 bidders. Since UEIL and ICSA defaulted in supply, KSEBL placed (March-December 2010) five POs with Larsen & Toubro Limited (L&T) for supply of 10.25 lakh[71] SP meters at the L1 rate of ₹665.32 per meter. As per the terms and conditions of the PO, price was to be re-fixed if there was fall in price in the tender to be floated for subsequent Annual Plan (2010-11). Accordingly, price re-fixation was applicable to four POs for 6.75 lakh[72] meters.

  Tender for seven lakh SP meters required as per Annual Plan 2010-11 was invited on two-bid[73] system. As per tender, financial bid was to be opened only if technically (PQ bids) qualified. PQ bids were opened in June 2010 and all five bids received were pre-qualified by the PQ committee[74], after testing the sample meters. Financial bid was opened (23 November 2010) and the rate offered by Bentec Electricals & Electronics Private Limited, Bangalore (Bentec) (₹554.69 per meter) was L1. As per decision (15 December 2010) of BoD, on negotiation all bidders agreed to match with the rate of L1 except L4 and L5. KSEBL did not, however, place PO on Bentec because of being a new supplier to KSEBL. BoD, thereafter, decided (February 2011) to cancel and retender the work after revising pre-qualification criteria to ensure good quality meters and to bring down the rates by ensuring competition.

  Retender was invited (May 2011) for 12 lakh SP meters along with the requirements of Annual Plan 2011-12. Out of 13 bidders, 12 bidders, including Bentec, were disqualified at pre-qualification stage itself on the grounds of non-submission of previous experience certificate and low production capacity as per revised qualification criteria. Rate quoted (September 2011) by the only pre-qualified bidder, L&T, was ₹665.32 per meter. PO was placed in January 2012 for eight lakh SP meters and the SP meters were supplied between February 2012 and June 2012.

  Audit observed that:

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[71] SCM 204/10-11- dated 16 March 2010 (350000 nos.), SCM 50/10-11 dated 17 July 2010 (300000 nos.), SCM102/10-11 dated 27 October 2010 (75000 nos.), SCM118/10-11 dated 25 November 2010 (165500 nos.), SCM 133/10-11 dated 23 December 2010 (134500).

[72] 300000+75000+165500+134500 =675000 meters.

[73] Pre-qualification (Technical) bid and Financial bid.

[74] The members were: Accounts Officer (Law), Chief Engineer Distribution-South, Financial Adviser, Member (Transmission & Distribution).

- As per the terms and conditions of the PO placed on L&T in 2009-10, price was to be refixed as a result of fall in price in the tender floated for PP 2010-11. But due to cancellation of the tender, KSEBL could not claim price refixation benefit of ₹7.47 crore[75] in respect of four POs for 6.75 lakh meters from L&T despite there being a fall in price, thus, extending undue benefit to L&T.

- KSEBL had also to incur extra expenditure of ₹8.85 crore[76] on procurement of eight lakh SP meters as a result of retender.

- KSEBL after a gap of seven months from the date of opening of PQ bid cancelled original tender floated in 2010-11 to ensure good quality meters and to bring down the rates by ensuring competition through incorporation of revised pre-qualification criteria in the tender documents. A comparison of the original and revised tender documents revealed that there was no significant change in the revised pre-qualification criteria with respect to quality parameters and this also eliminated competition as shown in *Table* below:

Table 2.25: Details of revision in pre-qualification conditions in tender documents

Sl. No.	Original pre-qualification conditions	Revised pre-qualification conditions	Remarks
1	The bidder should have a minimum annual turnover of ₹25 crore during last three financial years. Latest solvency certificate for an amount equivalent to probable amount of contract (PAC).	The bidder should have a minimum annual turnover equivalent to 50 *per cent* of PAC during last three financial years. Latest solvency certificate for an amount equivalent to PAC	No change except that turnover was linked as 50 *per cent* of PAC. Conventional Fastners, Haridwar did not participate in the retender
2	No such condition	Previous yearôs production capacity along with actual quantity of production during the last 3 years duly certified by Excise authority.	Eliminated two bidders (Bentec and Linkwell).
3	Bidder should furnish performance certificate	Bidder should furnish performance certificate from power utility	

- Retender was invited for 12 lakh SP meters with a PAC of ₹80 crore instead of seven lakh SP meters (PAC of ₹40 crore) required as per the original tender. The revised tender conditions eliminated all three L1 bidders of the first tender from pre-qualifying. The Conventional Fastners, Haridwar did not meet minimum annual turnover of ₹40 crore and hence, did not participate in the second tender. Other two bidders (Bentec and Linkwell), though participated, were disqualified

[75] **6.75 lakh x (₹665.32-₹554.69) =₹7.47 crore.**
[76] **8 lakh x (₹665.32-₹554.69) = ₹8.85 crore.**

on the grounds of non-submission of performance certificate from power utility and the non-submission of production certificate for three years instead of one year.

One of the reasons to cancel the first tender was to get competitive rate, but, KSEBL did not revise pre-qualification criteria to ensure that sufficient bidders will meet pre-qualification criteria. Incorporation of pre-qualification criteria, after having known the strength and weakness of competitors in earlier tender, was tailored to favour L&T.

- Although PAC of the retender was worked out reckoning 12 lakh SP meters, PO was placed to L&T for eight lakh SP meters only on the ground that L&T was the lone successful bidder. Thus, rejection of other bids for not meeting the revised turnover criteria was not proper. For the balance quantity, new tender was invited in November 2012 and the PO was placed (April 2013) with L&T and the material was supplied between June 2013 and November 2013.

  Thus, due to non-issue of PO for the full tendered quantity, 4 lakh SP meters, required for new connections and replacement of defective meters during 2011-12 could be procured after two years only during June 2013 and November 2013.

  GoK replied (January 2016) that only two firms had fulfilled all the tender conditions and the sample meters of three L1 bidders were of suspect quality. Therefore, in order to have better competition and lower rate, BoD had decided (February 2011) to retender the work.

  The reply was not acceptable as all bidders were prequalified by PQ committee. The decision to send the sample meters of three L1 bidders was taken on 24 January 2011 after refusal of L&T in December 2010 to match its rate with the rate of L1. Besides, the decision to modify the prequalification conditions effectively ruled out competition as revised conditions eliminated participation by L1 bidders of the first tender.

  A preliminary investigation by State Vigilance Department (SVD) had proposed a vigilance enquiry by a Special Investigation Team since they suspected that unique specification of meter and tough tender conditions were intended to qualify L&T alone at pre-qualification stage. The proposal of SVD was, however, rejected by GoK based on the recommendation of Deputy Director of Prosecution.

- Due to delay in finalisation of tenders by CE, SCM for centralised procurement and CE, Distribution of three Regions for de-centralised procurement, the field offices had done local purchases of these material at higher price. On selected four circles[77], in procurement of five

[77] **Kannur, Thiruvananthapuram-Urban, Kollam and Pathanamthitta.**

items[78]there was extra cost of ₹5.37 lakh in local purchases during the period from 2011-12 to 2014-15 as compared to the rates of centralised and de-centralised procurement.

- The PPs of three CE- Regional Offices were compiled by CE, SCM and got it approved by BoD on the same date. However, various items of three Regions were procured by respective regions at different times through different tender notices even though material were with similar specifications. Thus, if a tender for an item is invited in one region, the prices quoted will be known to all participants. When other regions invite tenders later, for the same item, as the participants are same, they may form a cartel and might quote higher rates. In the absence of uniform time frame in tendering and purchasing material, tenders were invited by the three CEs at different periods and purchases were made at different rates. In some cases, same supplier supplied material at different rates. Considering the lowest cost of a region in annual purchases of two items[79], the extra cost incurred by KSEBL worked out to ₹1.21 crore.

  GoK replied (January 2016) that tender could be invited only based on the field requirement. Inviting tender simultaneously by the three Chief Engineers may not be possible at all times.

  The reply was not acceptable as the tender should have been invited by one regional office for supply of material to the three regions as per their requirements (month, place and quantity) to be specified in the tender.

Extra expenditure due to procurement of additional quantity from existing suppliers

2.2.16 Due to delay in approval of Annual Plans, PP and finalisation of tenders, KSEBL often resorts to procurement by way of additional quantity from existing suppliers. SPM (Rule 9.55) also prescribes a plus or minus tolerance clause to be incorporated in the tender documents, reserving purchaserôs right to increase or decrease the quantity of the required stores up to a limit without any change in the terms and conditions and prices quoted by the tenderers. The tolerance clause is intended to take care of any change in the requirement between issue of tenders and placement of POs. Generally, the tolerance limit should not be more than 15 *per cent*. Conditions of PO stipulated that the price for the additional quantity under tolerance clause shall be re-fixed if a fall in price occurs in the next tender opened (price bid) during the delivery schedule fixed for the additional order.

Audit scrutiny of 20 POs (out of 152 POs test checked) issued for additional quantity during 2010-11 to 2014-15 revealed deficient terms of procurement of additional quantity, extra expenditure in three POs and non-refixation of price as discussed below:

[78] **200 A Fuse Unit, LT shackle insulator, HT stay wire, LT stay rod and GI wire 3.15 mm.**
[79] **200 Amp Fuse Unit and LT Shackle Insulator with SBN.**

- In all 20 POs issued up to 2010-11, KSEBL specified supply of 25 *per cent* additional quantity by successful bidders at the same rate, terms and conditions. Since 2011-12, in all POs, supply of additional material (25 *per cent*) was, however, made applicable only when the supplier was willing to supply at the same rate, terms and conditions. KSEBL changed the additional quantity policy as optional in January 2011, as KSEBL found it difficult to claim reduced rate when there was delay in tendering. Thus, making supply of additional quantity optional was not in the best interest of KSEBL as in case of increase in price, the supplier would refuse to supply and hence, the very purpose of the clause, to procure the material in exigency period, was defeated.

- In three cases[80], the suppliers had refused to supply additional material and consequently KSEBL had to procure the material at higher rate through new tender leading to delay in supply of material. Extra cost incurred by KSEBL in three cases was ₹19.55 lakh and the delay in procurement ranged between 9 and 14 months.

  GoK replied (January 2016) that KSEBL had decided to amend the 25 *per cent* excess quantity supply as optional so that the supplier could quote reasonable rates in the tender. The bidders may quote higher rate for the full 125 *per cent* quantity expecting an increase in market rate for the 25 *per cent* quantity, which would be issued on a later date.

  The reply was not acceptable as supply of additional quantity was made optional by KSEBL in violation of provisions of SPM, according to which supply of additional quantity of 15 *per cent* was mandatory.

- In order to meet part of the requirements (2640 DTs) of 100 kVA DTs for the year 2013-14, KSEBL placed (July 2013) three POs for additional quantity of 2050 DTs with existing three suppliers. The price of additional quantity was to be refixed based on rate obtained in new tender. KSEBL, instead of inviting new tender for the balance 590 DTs required to meet the requirements of 2013-14, placed (February 2014) additional three POs for extra quantity of 1100 DTs with the existing suppliers.

  KSEBL invited (April 2014) new tender for 2000 DTs required during 2014-15. Rate obtained (May 2014) in new tender was lower than the rate of POs issued for additional quantity. Since there was delay of nine months in issue of new tender from the date of issue (July 2013) of first PO for additional quantity (2050 DTs), KSEBL could not claim price refixation for the entire quantity. In respect of second PO for extra quantity (1100 DTs) also, price could be refixed only on 777 DTs supplied after opening of price bids of new tender (May 2014). Thus, due to delay in inviting new tender, KSEBL could not claim price

[80] **1 kVA online UPS – Hykon India Private Limited , 110/11 kV transformer Control and relay panel –Danish Private Limited, Supply and commissioning of Computer systems and Accessories- Keltron IT Business Group.**

refixation benefit of ₹2.40 crore on 2373 DTs supplied between August 2013 and May 2014.

GoK replied (January 2016) that inviting fresh tenders would delay and badly affect the works. Further, at the time of placing PO, increase or decrease of price in future tenders could not be forecasted.

The reply was not acceptable, as invitation of tenders was for meeting annual requirement of material for which Annual Plan and PP were already approved. Therefore, timely action to invite fresh tender for the balance quantity would not only lead to transparency but would also benefit KSEBL for re-fixation of price of additional quantity supplied by the existing supplier in case of reduction in price.

- As per the amended (January 2011) price re-fixation clause, price re-fixation would depend on ôbasic priceô of material instead of óAll Inclusive Priceô (AIP). Due to this revision, in two cases[81] of additional procurement of weather proof wire, KSEBL could not invoke price re-fixation benefit of ₹5.65 lakh though the AIP was lower in the second tender. This was because the bidders had quoted higher basic price while keeping the AIP lower with reduction in transportation and insurance charges.

  GoK replied (January 2016) that as per IEEMA[82] price variation clause, the quoted basic price is to be considered for price variation. Therefore, KSEBL adopted basic price for refixation of rate.

  The reply was not acceptable as price variation was applicable to suppliers for variation in market rate of aluminium, copper and steel components. In tendering process, L1 bidders were selected based on the AIP and PO for additional quantity was also issued at the lowest AIP. Besides, in the two instant cases, the existing supplier quoted lower AIP by reducing the freight and insurance charges in the fresh tender but the basic price was kept higher or unchanged to escape from the price re-fixation clause.

- In one PO for additional quantity of 25 *per cent* issued (October 2013) to Traco Cable Company Limited, price was to be re-fixed for material delivered after October 2013 based on rate obtained in new tender. However, the lower rate of new tender (November2013) was not considered while making payment to the supplier for the supply made after October 2013. Excess payment made to the suppliers in violation of the terms and conditions of the PO, worked out to ₹19.20 lakh[83].

  GoK replied (January 2016) that additional quantity was procured urgently for RGGVY work. This was to avoid delay in calling fresh

[81] SCM 80/13-14 dated 30 November 2013 and SCM 76/14-15 dated 18 November 2014 to Bhadora Industries Private Limited.

[82] Indian Electrical and Equipment Manufacturers Association.

[83] Rabbit 687.553 km*(₹36295.72-₹34830.00) =₹1007760 and for Weasel 989.276 km*(₹22529.40–₹21607.00)= ₹912508.

tender and hence, KSEBL approached the existing supplier for additional supply at same rate and conditions.

The reply was not acceptable as non-claiming price re-fixation benefit was in violation of the terms and conditions of PO issued.

- In respect of two POs issued (March and May 2010) for additional quantity (70 km) of ACSR Kundah from Sterlite Technologies Limited[84] and Traco Cable Company Limited[85] the additional quantity of 25 *per cent* was not sourced from the existing suppliers, when there was further requirement for ACSR Kundah. KSEBL had, instead, gone for fresh tender in May 2010 and had to incur additional cost of ₹2.66 lakh on purchase of 18 km (25 *per cent* of 70 km) of ACSR Kundah.

  GoK replied (January 2016) that PO for 25 *per cent* additional quantity could not be placed as the existing supplier had not completed the supply of tendered quantity. Hence, fresh tender was invited.

  The reply was not acceptable as the additional quantity at lower rate was ignored from the existing supplier even after the supply of tendered quantity**.**

Recommendation No. 5: ***KSEBL should claim benefit of price re-fixation in all cases of procurement of additional quantity from existing suppliers.***

Non-reconciliation of payment against POs

2.2.17 In respect of 152 POs test checked in Audit, delivery of material was made at more than one consignee unit, ranging up to 40 consignees[86] . The bills of the suppliers were verified and checked by concerned circle office with reference to the Goods Received Note from the Stores and the terms and conditions of PO received from the Purchase Departments (PD).The payments were made at respective circle office of the stores or at PD which would be mentioned in the PO.

Out of 23 circle offices, six[87] circle offices were selected to scrutinise the payments for the material supplied and it was observed in one case (Kottayam) that there was short levy of ₹0.65 lakh as penal charges for belated supplies due to non-consideration of revised basic price of material.

There was, however, no system to monitor the consolidated payment made against a single PO and material supplied against it at any level in Corporate Office. Reconciliation of payments and delivery against a PO was not done and thereby the overall performance of the suppliers with reference to its supplies and consolidated payments made could not be ensured in audit.

[84] SCM14/2010-11/953 dated 26 May 2010.
[85] SCM207/2009-10 dated 18 March 2010.
[86] 23 Sub regional Stores, five TMR, one Transmission Stores Division and 11 Transmission Circle Stores.
[87] Electrical Circles, Kottayam, Thiruvananthapuram Rural, Alappuzha, Perumbavur, Kannur and Shornur.

Besides, due to lack of information from the consignees about actual quantity of material supplied, rejected material, material failed during the guarantee period, etc., no timely action was taken by CE, SCM against the defaulted supplier as discussed in *Paragraph 2.2.18*.

Lapses in monitoring of Bank Guarantees

2.2.18 In order to ensure due performance of contract, KSEBL obtains Security Deposit (SD) from the supplier in the form of Bank Guarantee (BG). BG is to be retained till the date of completion of all contractual obligations. As on 31 March 2015, CE, SCM held 690 BGs valuing ₹177.80 crore. Audit examined 170 BGs and noticed the following lapses:

- Despite Rule 8.31 of SPM warranting verification of authenticity of BG submitted by the suppliers, KSEBL had not ascertained the authenticity of BGs at any time during validity period.

  GoK replied (January 2016) that at the instance of audit, the genuineness of BGs submitted by the firms are now being verified.

- As per the Rule 8.32 of SPM, monitoring of BG should include monthly review of all BGs expiring after three months along with a review of the progress of the corresponding contracts. Extension of BGs, where warranted, should be obtained within their validity period. But KSEBL initiated action to review BGs only one month in advance of expiry of validity. As a result, in seven cases, renewed BGs were received by KSEBL after the validity period of existing BGs. Further, KSEBL had not encashed five BGs, even though there was failure of suppliers to replace material rejected or failed during the warranty period as shown in *Table 2.26*:

Table 2.26: Details of BGs not invoked

Item	Name of Supplier	Quantity (Nos.) failed within guarantee period and period since faulty	Loss to be recovered from supplier (₹ in crore)	Value of BGs not encashed (₹ in crore)	Remarks
761 CT PT units of 11kV and 110V, three phase, three wire for Border metering	Indian Transformer[88] Company Limited, Mumbai (ITC)	153 (Since 2008)	0.26	0.38	Validity of two BGs expired in July 2010 and April 2011.
Three lakh SP meters procured in 2010-11	ICSA	17756 (2013-2015)	1.16	2.94	BGs have validity up to December 2015 and May 2016.
		14000 (Since 2013)	0.19		To be recovered from above said BGs
Total			**1.61**		

GoK replied (January 2016) that KSEBL had sent request for renewal of BG to ITC on 9 July 2010 and for invocation of BG held against ITC to the bank[89] on 29 July 2010, but there was no response from ITC and the bank.

Reply was not acceptable as CE, SCM had initiated action to renew or invoke the BG three weeks in advance instead of three months as per SPM.

In respect of BG held against ICSA, GoK replied that action was being initiated by KSEBL to collect the non-liability certificate from the consignee stores so as to invoke the security deposit clause. However, fact remained that details about receipt, rejection and failure of material during the guarantee period, etc., was not available with the CE, SCM, where BGs were maintained, so as to initiate timely action against the supplier for breach of contract.

Recommendation No. 6: ***In order to initiate timely action against a supplier for breach of contract, CE, SCM should reconcile the quantity as per MDCC issued with the actual quantity supplied, rejected material, if any, along with timely updated details of material that failed within the guarantee period.***

[88] **TA33/Ele156(IT)05-06/4052/dated 22 November 2005, TA33/Ele156(IT)05-06/a Addl/ 4946/dated 12 January 2007, TA39/ELE53/03-04/ITC(106)/3895 dated 17 January 2004.**

[89] **Union Bank of India.**

Utilisation of material

System of receipts and issue of material in KSEBL

2.2.19 As per the system prevailing in KSEBL, material procured through tender for Distribution and Transmission Wings are received at 23 Electrical Circle Stores, one Transmission Stores Division and 11 Transmission Circle Stores based on the Material Despatch cum Clearance Certificate (MDCC) issued by CE, SCM. The MDCC contains the details of PO and scheduled period for delivery of material at stores. The receiving unit (Stores) prepares Goods Received Note containing the details of material including the PO details. Thereafter, the material were issued from the above stores to 745 Electrical Section Offices or to 38 Transmission Divisions or to 158 Transmission Sub Divisions on the basis of requirement. Hence, the material consumed at or lying at the Electrical Section Stores, Transmission Divisions and Sub Divisions and the material transferred from other circles to any of the circle stores could not be linked to its PO. Due to absence of relevant MIS, the material procured by CE, SCM and their timely utilisation by field offices could not be monitored at any point of time.

Examination of ten major items of material procured during 2010-11 to 2014-15, revealed non-utilisation of transformers and accumulation of conductors, etc., as discussed below:

- For improvement of voltage and transmission system, KSEBL proposed to construct two substations during 2009-10 and 2010-12. Procurement of power transformers required for construction of these substations was included in the Annual Plan and PP of 2009-10 and 2010-12 and procured.

  On analysis of the utilisation of transformers (66.67 MVA and 12.5 MVA) as of August 2015, it was noticed that these substations were not commissioned even after lapse of more than four years due to delay in completion of connected work as shown below:

Table: 2.27: Details of delay in non-commissioning of substation

Substation	Capacity (MVA)	Purchase plan	No. of transformers	Month of supply	Value (₹ in crore)	Date of commencement of work (Reasons for non-commissioning)
Kattakada new substation	66.67	2009-10	3	June 2011	5.97	01 January 2009 (Line work delayed due to court cases)
Perinad substation	12.5	2010-12	2	December 2011	1.22	20 October 2009 (Line works delayed due to local objections)

Due to delay in commissioning the substations, transformers procured at ₹7.19 crore remained idle for more than four years. It was noticed

that KSEBL had proceeded with procurement of transformers even before right of way clearance for incoming high tension line was obtained.

GoK replied (January 2016) that drawal of electric lines, one of the pre-requisites for commissioning power transformers, hit different hurdles like solving litigation and civil suits which were beyond their control. It was further stated that in future, costly items like power transformers would be purchased after ascertaining the progress of work from transmission wing.

The reply was not acceptable as idling of transformers was due to lack of co-ordination between transmission wing and SCM wing in implementation of projects and works. Procurement in cases where projects were stalled due to litigation was avoidable through postponement of procurement.

- On scrutiny of eight POs for purchase of conductors of transmission wing, excess holding of material was observed in one PO. KSEBL had a requirement of 80 km of ACSR Kundah during 2010-12, but the PO was placed (November 2010) for 100 km and the same was supplied (March 2011). On 1 October 2012, i.e. after eighteen months, when the stock position was analysed, there were 65.8 km of ACSR Kundah valuing ₹1.29 crore[90] lying idle. There was further procurement of 36 km of the same material (PO in December 2013 and supply in May 2014) for ₹0.86 crore[91].

  Audit observed that as on 11 December 2014, stock position was 39.30 km of ACSR Kundah which revealed non-requirement of 36 km of ACSR Kundah procured in May 2014.

  GoK replied (January 2016) that PO was placed by KSEBL for 100 km of ACSR Kundah based on decision of Purchase Committee, but the line works could not be carried out due to litigation.

  The reply was not acceptable as accumulation of stock was due to lack of co-ordination between transmission wing and SCM wing in implementation of projects and works. Procurement in cases where projects were stalled due to litigation was avoidable through postponement of procurement.

Stock verification system

2.2.20 CoPU in its 90th report (2004-06), recommended (March 2005) against an audit observation to create a proper system of stock verification for timely inspection of material at various stores. Recommendation of the consultant[92]

[90] 65.8 km x ₹ 196459.

[91] 36 km x ₹238857.

[92] KSEBL had appointed (January 2009) Deloitte Touche Tohmatsu (India) Private Limited as consultant to re-organise the then Office of Chief Engineer, (Technical, Contract and Materials) along with the stores in order to optimise the work of the Supply Chain Management (SCM) in KSEBL.

also included formation of a separate team for annual physical verification of material.

However, as on 31 March 2015 there was only one Assistant Executive Engineer for verification of 23 Sub-Regional Stores having 745 sectional stores, five-TMRs, three manufacturing units and a Transmission Division Store in a year. As a result, physical verification of stores could be conducted only in 22 out of 745 Electrical Sections during 2014-15, which accounted for only three *per cent*.

During the joint physical verification conducted by Audit at three Electrical Section Stores (Kazhakootam, Varkala and Kallambalam), where stock verification was not conducted by KSEBL during the year 2014-15, it was found (September 2015) that there was variation in physical stock (excess stock valuing ₹0.96 lakh and shortage of material valuing ₹62.84 lakh).

In reply (November 2015), the Assistant Engineer (AE) Kazhakootam stated that the difference was due to non-accounting of material issued to ongoing works which was under processing (November 2015) and also stated that the then AE, Kazhakootam had not handed over the details of actual stock at stores to the incumbent AE. Failure in monitoring utilisation of the material, coupled with failure in computerisation of the SCM wing resulted in non-adherence to recommendations of CoPU.

GoK replied (January 2016) that SCM software for Transmission Wing is ready and will be implemented shortly.

Recommendation No. 7: ***MIS and SCM software to be evolved in such a way that CE, SCM can monitor the actual supply of material and its utilisation by indenting offices. Issue of material by Sub Regional Stores should be linked with material requisitions, tenders and POs.***

Conclusion

Kerala State Electricity Board Limited requires an effective procurement mechanism to ensure timely availability of material at economic rates. But, delay in preparation of Annual Plan and Purchase Plans and lack of co-ordination between the Corporate Planning Wing and SCM Wing resulted in short procurement of material. Non-adherence to time frame for tendering specified in the Stores Purchase Manual and delay in finalisation of tender also led to procurement of material at higher rate, non-availment of price re-fixation benefits from the existing suppliers and delay in implementation of various schemes. KSEBL could not monitor the actual quantity supplied by the supplier against the POs and its utilisation due to absence of relevant MIS.

2.3 Implementation of Restructured Accelerated Power Development and Reforms Programme by Kerala State Electricity Board Limited

Executive Summary

Introduction

Government of India (GoI), Ministry of Power (MoP) approved (September 2008) 'Restructured Accelerated Power Development and Reforms Programme' (RAPDRP) with the aim of restoring commercial viability of power distribution sector by putting in place appropriate mechanism so as to substantially reduce Aggregate Technical and Commercial (AT&C) loss.

Physical progress of projects

MoP sanctioned 43 projects each under Part A and Part B and three Supervisory Control and Data Acquisition (SCADA) projects for implementation in the State. As per the original guidelines, Part A and Part B were to be completed within three years. GoI extended the completion period to five years. However, the projects could not be completed within five years and was further extended by one more year.

Project formulation and planning

Implementation of RAPDRP was to be preceded by policy initiatives like undertaking measures for prevention of theft of power, constitution of Special Courts to deal with cases of power theft, etc. Action taken by KSEBL was, however, inadequate to supplement efforts under RAPDRP to bring down AT& C loss to 15 per cent.

Fund Management

Non-opening of project-wise bank account and non-maintenance of project-wise separate accounts led to diversion of funds and ineffective monitoring of the projects. KSEBL made irregular interest free advance payment of ₹14.50 crore to the turnkey contractor.

Implementation of the projects

Delay in appointment of IT Implementing Agency, problems in implementation of Meter Data Acquisition System, slow progress of Geographic Information System and partial accomplishment of Customer Care Service Centre led to time overrun for more than three years. Erroneous price loading resulted in extra expenditure in implementation of Part A project to the extent of ₹27 crore.

Delay in submission of DPRs and financial tie-up, delay in completion of work due to non-procurement of material like ABC, UG cables, deviation from DPR, delay and extra expenditure incurred in awarding and implementation of turnkey contract, constituted time overrun for more than three years and cost overrun to the extent of ₹129 crore. None of the SCADA project could be completed due to delay in completion of Part B projects.

Undue delay in completion of RAPDRP projects led to non-realisation of envisaged benefit of ₹202.70 crore by way of reduction in AT&C loss.

Introduction

2.3.1 Government of India (GoI), Ministry of Power (MoP) approved (September 2008) ôRestructured Accelerated Power Development and Reforms Programmeô (RAPDRP) with the aim of restoring commercial viability of power distribution sector by putting in place appropriate mechanism so as to reduce Aggregate Technical and Commercial (AT&C) loss substantially. AT&C loss was planned to be reduced by plugging pilferage points, supply of quality power, faster identification of faults and early restoration of power, proper metering, strategic placement of capacitor banks and switches and proper planning and design of distribution network.

Coverage of area under RAPDRP was urban area-towns and cities with a population of more than 30,000. Projects under RAPDRP were to be taken up in two parts, Part A and Part B. Under Part A, Supervisory Control and Data Acquisition (SCADA) or Distribution Management System (DMS) shall also be installed in eligible towns and cities with population of more than four lakh and annual input energy of 350 million units (MUs). The activities involved in Part A and Part B projects were as shown in *Table* below:

Table 2.28: Activities under Part A and B projects

Activities under Part A project	
a	Implementation of Information Technology (IT) modules for collection of base line data to capture AT&C loss in a precise manner without manual intervention and also to plan and implement corrective measures in Part B.
b	Energy accounting and audit
c	Redressal of consumer grievances and establishment of IT enabled consumer service centres, etc.
d	Implementation of SCADA or DMS, GIS based Consumer Indexing and asset mapping, etc.
Activities under Part B project	
a	Renovation, modernisation and strengthening of 11 kV[93] level substations, transformers / transformer centres, re-conductoring of lines at 11kV level and below, Load Bifurcation, Feeder segregation, Load Balancing, Aerial Bunched Conductoring in thickly populated areas, HVDS, installation of capacitor banks and mobile service centres, etc. In exceptional cases, where sub-transmission system is weak, strengthening at 33 kV or 66 kV levels may also be considered.

Execution of quadripartite agreement between power utility, GoI, PFC and State Government was a pre-requisite for release of funds under RAPDRP. Accordingly, a quadripartite agreement (MoA) was executed (August 2009) for implementation of RAPDRP in Kerala.

In Kerala, 43 towns were eligible for implementation of RAPDRP. All the 43 projects submitted by Kerala State Electricity Board Limited (KSEBL) under Part A were sanctioned (November 2009) by GoI and 43 projects under Part B were sanctioned on various dates between 2010 and 2012**.** Further, SCADA was sanctioned by GoI for three eligible towns (Thiruvananthapuram, Ernakulam and Kozhikode) under Part A.

[93] **Kilovolt.**

The main objectives of RAPDRP were to:

- reduce AT&C loss to 15 *per cent.*
- bring about commercial viability in the power sector.
- reduce outages and interruptions.
- increase consumer satisfaction.

Scope of Audit

2.3.2 The Performance Audit was conducted with a view to assess the performance of KSEBL in conceptualisation and implementation of RAPDRP with reference to the objectives set for the programme covering all 43 Part A projects, three SCADA projects and 25 Part B projects from 1 April 2009 to 31 March 2015 on the basis of the documents/ information maintained by Government of Kerala (GoK) and KSEBL.

Audit Objectives

2.3.3 The main audit objectives were to assess whether:

- policy initiative and planning required for implementation of the programme were appropriate and adequate; and
- the programme has been implemented in an efficient, effective and economical manner.

Audit Criteria

2.3.4 The audit criteria has been taken from following sources:

- National Electricity Policy formulated under Electricity Act, 2003;
- Memorandum of Agreement/Quadripartite Agreement;
- Guidelines issued by PFC/ MoP;
- General Financial Rules;
- Detailed Project Reports;
- Work Orders;
- Minutes of Steering Committee meetings; and
- Orders and circulars issued by KSEBL and the Government.

Audit Methodology

2.3.5 The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of explaining the audit objectives to top management of the KSEBL and the Government, scrutiny of records of the audited entity, analysis of data with reference to criteria, issue of audit queries, and discussion of audit findings with Management and issue of Draft Performance Audit Report. The audit objectives, audit criteria and scope of the performance audit were explained to the Management in an Entry Conference (23 June 2015). Audit findings were also discussed in the Exit Conference held on 3 December 2015.

Views expressed by the Management and GoK have been duly considered while finalising the Performance Audit Report.

Audit Findings

2.3.6 Audit findings are discussed in the succeeding paragraphs.

Physical progress of projects

2.3.7 MoP sanctioned 43 projects each under Part A and Part B and three SCADA projects for implementation in the State. As per the original guidelines, Part A and Part B projects were to be completed within three years from the date of sanction. Later, GoI extended the completion period to five years for both Part A (November 2014) and Part B (between June/December 2015). However, the project could not be completed within five years and was further extended by one more year.

Status of the projects as of September 2015 was as given below:

Table 2.29: Status of the projects as of September 2015

Items	Part A	SCADA	Part B
Projects sanctioned	43	3	43
Sanctioned project cost (₹ in crore)	214.38	83.15	1078.30
Date of approval by PFC	November 2009	February-June 2011	June 2010-August 2012
Scheduled completion date[94]	November 2014	November 2014	June 2015 (11 Nos.) August 2015 (21 Nos.) December 2015 (8 Nos.) February 2016 (2 turnkey) March 2017 (1 turnkey)
Name of the contractor	Korea Electric Power Data Network Company Limited (KDN)	Schneider Electric India Private Limited	40 projects by KSEBL and three projects through turnkey contracts
Projects completed	31	Nil	Nil
Loan released by GoI up to 31/03/2015 (₹ in crore)	64.31	24.95	161.74

[94] **Scheduled completion date was five years from the date of sanction. All projects were further extended by one more year except one Part B project for which completion date is March 2017.**

Counter part loan from REC up to 31/03/2015 (₹ in crore)	N/A	N/A	205.81
Amount utilised up to 31/03/2015 (₹ in crore)	59.00	4.94	377.81
Projects selected for audit (Number)	43	3	25

As evident from the *Table*, while only 31 projects had gone-live out of 43 Part A projects, none of the SCADA projects and Part B projects could be completed as of September 2015.

The main reasons for delay in completion of the Part A and Part B projects were poor fund management, deficient implementation of the project and inadequate monitoring. Policy formulation and planning required for attainment of objectives of RAPDRP was also deficient. These are discussed in succeeding paragraphs.

Policy Formulation and Planning

2.3.8 Implementation of RAPDRP in the State was to be preceded by certain policy initiatives like preparation of DPR, putting in place necessary systems and undertaking measures for prevention of theft of power, constitution of Special Courts to deal with cases of power theft, etc. Compliance of KSEBL to these pre-requisites is discussed below.

Faulty preparation of DPR

2.3.9 Detailed Project Reports (DPRs) of 43 Part B projects of RAPDRP were approved by GoI on various dates between June 2010 and August 2012.

Audit scrutiny of 25 town schemes revealed that there was faulty preparation of DPR as evident from a few instances cited in ***Appendix 5.***

Measures for prevention of theft

2.3.10 The main objective of RAPDRP was to bring down AT & C loss to 15 *per cent*. Any illegal consumption of power, which is not correctly metered, billed and revenue collected, causes commercial loss to the utilities. As per Section 135 of Electricity Act, 2003, illegal consumption of energy shall be punishable with imprisonment for a term which may extend to three years or with fine or with both.

14 Anti Power Theft Squads (APTS) were constituted by KSEBL exclusively to detect cases of theft of energy. Besides, the division and section squad also conducted surprise inspections to detect theft of energy. During 2010-11 to 2014-15, APTS and division and section squads detected 2390 cases of theft of energy and ₹15.66 crore was realised as penalty as detailed in *Table 2.30*:

Table 2.30: Details of detection of theft of energy

Sl. No.	Particulars	2010-11	2011-12	2012-13	2013-14	2014-15	Total
1	Number of consumers (in crore)	1.01	1.05	1.08	1.10	1.10[95]	
2	Number of inspections conducted	23479	24090	21609	21758	31369	
3	Percentage of checking (2 /1)*100	0.23	0.23	0.20	0.20	0.28	
4	Total irregularities detected in Sl.No.2	2980	3167	3036	3392	4446	17021
5	Number of theft cases in Sl.No.4	386	336	386	386	896	2390
6	Total amount realised (₹ in crore)	2.53	2.16	2.58	2.78	5.61	15.66
7	Number of cases pending	3	4	4	9	33	53

- No target was fixed by APTS to the units for conducting inspection of premises of consumers.
- The percentage of checking of consumers on an average was between 0.23 and 0.28 during 2010-11 to 2014-15.
- Theft cases were detected in large commercial and industrial consumers like restaurants and hotels, shopping malls, etc., on inspection by APTS. The percentage of checking by APTS wing was less than five *per cent* in these cases also.
- Analysis of eight pending cases involving recovery of ₹21.82 lakh revealed that no follow up action was taken by KSEBL.
- The surge in detection of theft cases in 2014-15 when number of inspection increased points to the need for strengthening the APTS Wing further.

GoK replied (January 2016) that for increasing the percentage of inspection, huge manpower is required as consumer base in KSEBL is 1.16 crore. Standing instructions were, however, issued to conduct a minimum of 100 inspections in a month and the units were conducting 200 inspections in a month.

The reply was not acceptable since the inspection conducted was inadequate to supplement efforts under RAPDRP to bring down AT& C loss to 15 *per cent.*

Non-constitution of Special Courts

2.3.11 The National Electricity Policy lays special emphasis on time bound reduction of transmission and distribution loss and speedy implementation of stringent measures against theft of energy. As per Section 153 of the

[95] **As figures for 2014-15 were not available, figures of 2013-14 were adopted.**

Electricity Act, 2003, GoK was to constitute Special Courts for speedy trial of offences relating to theft of energy.

Instead of constituting Special Courts, GoK designated 43 existing District and Session Courts, Additional District Courts and Session Courts as Special Courts with the concurrence (July 2007) of the High Court of Kerala thereby defeating the objective of constituting Special Courts and denying speedy trial of offences relating to theft of energy. Due to non-setting up of Special Courts as envisaged in the National Electricity Policy, none of the 53 cases of theft of energy could be disposed.

The Government did not give any reply about formation of these Special Courts.

Recommendation No.1: ***Inspection by APTS should be strengthened to bring down AT&C loss to 15 per cent. GoK should form Special Courts to ensure disposal of theft cases.***

Fund Management

Non-opening of project-wise bank account

2.3.12 As per Memorandum of Agreement (MoA), KSEBL was to open project-wise escrow bank account for Part A and Part B projects to ensure debt servicing of principal, interest and other charges during pendency of the loan to the satisfaction of the nodal agency. Funds provided shall not also be diverted for any other scheme or purpose.

KSEBL opened a separate bank account for the implementation of the 43 Part A and B projects and three SCADA projects. First instalment of loan amounting to ₹251 crore received during January 2010 to December 2012 for Part A and B projects and SCADA projects were deposited in the bank account. Violating the guidelines of RAPDRP, the amounts were transferred to routine account of KSEBL within five days of receipt.

Non-maintenance of project-wise accounts

2.3.13 As per MoA, KSEBL was also to open separate project-wise accounts and sub-accounts immediately, for separate accounting classification, both on the receipt and expenditure side for enabling proper audit certification.

CE (Corporate Planning) directed (December 2009) section offices, sub-division offices and division offices to maintain separate project-wise register. Expenditure was also to be booked under RAPDRP head and RAPDRP bills bound separately.

Audit examined all Part A and Part B projects and noticed that:

- No separate register and separate bank account was maintained for these projects. Due to this, payment to contractors was effected through the normal account of the circle/division of the project area.

- Even though there was a full fledged Finance and Accounts Wing under Director (Finance), there was ineffective monitoring on the maintenance of project-wise separate account.

- In respect of 40 Part B projects executed departmentally, there was no separate purchase of material. The material required for RAPDRP work was issued and accounted under normal Material at Site Account (MASA) of the Division or Section concerned and RAPDRP material was clubbed with normal work material as illustrated below:

Table 2.31: Details of RAPDRP and Non-RAPDRP material clubbed under MASA

Month	Electrical Section	Material Consumption Statement number	Nature of work
July 2014	Kilikolloor	48/14-15	Normal work
		49/14-15	RAPDRP work
		50/14-15	Normal work

Due to clubbing, availability of material or diversion of material held for RAPDRP work at any point of time could not be determined and RAPDRP work bills were bound along with normal work bills.

As no separate account was maintained for RAPDRP work, financial progress of Part B project was arrived at by simply multiplying the executed quantity or physical progress in km/ numbers with the cost estimate as provided in DPR and had no connection with the actual expenditure incurred.

GoK replied (January 2016) that for administrative convenience, project-wise accounts were not opened. Material were procured centrally for funded schemes and normal work and during emergency or natural calamities, material were diverted to restore power supply.

The reply was not acceptable as non-maintenance of project-wise separate account was a clear violation of guidelines/MoA which resulted in non-availability of proper records for audit certification and for calculating the actual expenditure incurred for the scheme.

Recommendation No. 2: ***Separate project-wise accounts should be opened for having better control over expenditure and project monitoring.***

Irregular payment of interest free advance

2.3.14 As per clause 14.1 of special conditions of contract for execution of Part A projects, release of payments was performance based, where payments would be made for measured deliverables and outputs. As per the payment schedule, payment of 5 *per cent* (on approval of design), 25 *per cent* (installation of hardware), 20 *per cent* (installation of software), 30 *per cent* (approval of user acceptance test) were permissible on completion of

prescribed milestone. There was no provision for payment of advance on delivery of material.

Violating the above clause, based on the recommendation of the Chairman and Managing Director, Board of Directors decided (August 2014) to pay interest free advance of ₹14.50 crore to KDN, being 60 *per cent* of payment against the security of material delivered and corporate guarantee executed by KDN. Thus, payment of interest free advance of ₹14.50 crore was not only against scheme guidelines but it also amounted to undue favour to the contractor.

Implementation of projects

2.3.15 Implementation of Part A projects under RAPDRP was aimed at capturing accurate figures of AT&C loss through installation of IT module for data acquisition in the project area along with establishment of IT enabled customer services. Part B projects aimed at strengthening transmission and distribution networks to bring down AT&C loss to 15 *per cent*.

Even though all 43 Part A projects were to be completed by November 2014 and 40 Part B projects between June 2015 and March 2017, only 31 Part A projects had, however, been completed as of September 2015.

Non-completion of projects was due to delay in installation of IT module for data acquisition and delay in completion of IT enabled customer care services envisaged under Part A and delay in completion of distribution strengthening works under Part B. Non-completion of projects led to non-achievement of objectives of RAPDRP and cost escalation besides probable non-conversion of loan into grant as discussed in succeeding paragraphs.

Execution of Part A projects

2.3.16 IT modules for data acquisition included installation of Meter Data Acquisition System and Geographic Information System (GIS) solution in all 43 Part A projects. Out of 43 projects, seven projects were completed within the extended time of five years (November 2014), 24 projects after delays ranging from one to nine months, while balance 12 Part A projects remained to be completed as of September 2015.

Audit examined implementation of all 43 Part A projects and noticed that the reasons for non-completion of data acquisition module were delay in award of work, delay in commissioning of Data Recovery Centre and non-replacement of incompatible meters by KSEBL as discussed below.

Appointment of IT Implementing Agency (ITIA)

2.3.17 As per clause 21.7 of the terms and conditions of PFC for sanctioning loan, KSEBL was to award Part A projects to ITIA within three months from the date of sanction i.e. by 25 February 2010.

Scrutiny of records revealed that there was delay in tendering process for appointment of ITIA for the execution of Part A pojects and the contract was

awarded to KDN belatedly in September 2010. Thereafter, GoK directed (December 2010) KSEBL to cancel the contract awarded to KDN and to invite fresh tender because of allegations of corruption. The decision was challenged by KDN in the Hon'ble High Court of Kerala. Work was again awarded (September 2012) to KDN on the basis of the decision of the High Court for completion within 18 months i.e. March 2014. The work was in progress (November 2015). Installation of IT modules for collection of data and IT enabled customer care services envisaged under Part A of RAPDRP was pending**.** Thus, Audit observed that there was delay of two years in award of work due to intervention by the Government.

Implementation of Meter Data Acquisition System (MDAS)

2.3.18 Meter Data Acquisition System (MDAS), proposed under Part A projects, aimed to acquire meter data from system and selected High Tension (HT) consumer meters automatically avoiding any human intervention. It also aimed to monitor important distribution parameters for taking corrective action. All the feeder meters, DT meters and all HT consumers' meters in the entire utility area were to be covered in MDAS by installation of modem. The meter data from all DTs as well as HT consumers and data from feeder meters would be transmitted to central data centre server. As per the guidelines, meters were to be made DLMS[96]-compliant by KSEBL.

KDN was responsible to install 18526 modems in all border meters, feeder meters, DT meters and HT consumers' meters. The following works and issues were pending as of August 2015:

Table 2.32: Status of installation of MDAS

Item	Target	Installed/ communicating	Reasons
	(In numbers)		
Installation of Modem	18,526	7,386	Replacement of DLMS non-compliant HT meters by KSEBL pending
Communicating with Central data server	7,386 installed	3,355 out of 7,386 modem	Compatibility issue as discussed below

Scrutiny of records in 43 Part A projects revealed that:

- KDN could not install modems in 4400 HT meters as these meters were DLMS non-compliant but were not replaced by KSEBL to make them DLMS-compatible. The existing HT meters were purchased by consumers and when modems were installed, meters were stuck or gave abnormal figures, wrong reading, etc. KSEBL directed (October 2014) KDN to stop installing modem on HT consumers' meter till new

[96] **DLMS- Device Language Message Specification-is an object model to view the functionality of meter. DLMS is a transporting method to carry the information between the metering equipment and data collection system.**

ones were installed by KSEBL. Action for procurement of new HT meters was, however, not initiated so far (August 2015).

- Similarly, audit scrutiny in three Part A projects revealed that existing feeder meters, border meters and DT meters were either faulty or DLMS-non compliant but not replaced by KSEBL as shown in *Table* below:

Table 2.33: Details of faulty and DLMS-non compliant meters

(In numbers)

Name of town	Feeder meters		Border meters		DTR meters	
	Total	Faulty/ DLMS-non-compliant	Total	Faulty/ DLMS-non-compliant	Total	Faulty DLMS-non-compliant
Kunnamkulam	11	0	15	14	316	0
Guruvayoor	11	0	16	15	535	33
Thrissur	37	24	25	20	1436	1336

Slow progress in completion of MDAS resulted in generation of inaccurate AT&C loss data from 31 towns declared go-live as discussed in *Paragraph 2.3.20.*

GoK replied (January 2016) that during bid finalisation, it was assumed that, data could be retrieved from all these meters and sent to the server through modem. When modem was installed the meters were behaving abnormally. Since these meters belong to high value consumers of KSEBL, it was directed to stop the installation of modem.

The reply was not acceptable as improper field study conducted by CE (Corporate Planning) at DPR preparation stage was the reason for non-compatibility issue. No response was received in respect of DT meters.

Implementation of Geographic Information System (GIS)

2.3.19 Under Part A of RAPDRP, a Geographic Information System (GIS) solution consisting of a system for capturing, storing, checking, integrating, manipulating, analysing and displaying geo data related to positions on the earth's surface and data related to attributes of the entities or customers in a utility area was to be set up. Satellite images from National Remote Sensing Centre (NRSC) were obtained in respect of all 43 towns but GIS network survey and GIS consumer survey were yet to be completed due to inaction on the part of KDN. The GIS asset mapping included field visit to identify and locate the assets for mapping, painting each pole and numbering. KDN had not deputed adequate manpower for this work.

Timely completion of GIS based consumer indexing and asset mapping would have enabled KSEBL to locate a particular customer and the DT from which connection provided, location, etc., to identity the exact location of AT & C loss to take corrective measures. Due to delay in completion of GIS activity by

KDN, the benefits envisaged under RAPDRP could not be availed as of September 2015.

GoK replied (January 2016) that the identified features reported as not having provided were already functional in GIS modules. Even though consumer survey was included in the implementation of Part A projects, during the pilot implementation in the initial town, it was revealed that no valuable additional information would be obtained from the survey other than the information already available with KSEBL in the billing database. Hence, KSEBL was actively considering exemption of consumer survey in the remaining towns. Consumer indexing data was already available with KSEBL. Indexing of the remaining towns will be completed during the stabilisation period.

The reply was not acceptable as no proper study was conducted at the DPR stage to address this issue.

Declaration of towns as go-live

2.3.20 Although Part A projects were to be completed in all 43 towns by November 2015, 31 towns were declared ógo-liveô as of September 2015 though modem installation was completed in three[97] towns only. Due to declaration of towns as ógo-liveôbefore completion of the entire Part A work, AT & C loss data gathered from nine towns displayed unrealistic figures, compared with base line data at the time of commencement of Part A projects, as shown below:

Table 2.34: Base line AT & C loss and current AT & C loss figures.

(Figures in *per cent*)

Name of town	Base-line AT & C loss	AT & C loss for 2014-15	
		Third quarter	Fourth quarter
Chalakudy	23.77	55.33	56.47
Neyyattinkara	25.14	é	77.73
Ottappalam	28.01	64.55	61.00
Ponnani	22.25	56.03	39.80
Punalur	26.29	é	46.66
Shornur	25.36	48.60	32.89
Thiruvalla	27.86	42.41	38.58
Thodupuzha	27.47	41.13	51.54

Similarly, two internet connections were to be provided to DC in order to ensure uninterrupted network connectivity. BSNL network connectivity (primary) was delivered in all the 228 sections while Airtel connectivity (secondary) could be established in 170 sections only (August 2015).

Since all 43 towns had to be declared go-live before the stipulated completion date of November 2015 in order to be eligible for conversion of loan into grant, CE (IT) who was responsible for the implementation of Part A projects, declared towns go-live even before completion of work, which was not in order.

[97] **Changanassery, Palakkad, Punalur.**

Commissioning of Data Centre (DC) and Data Recovery Centre (DRC)

2.3.21 As per the Guideline, for storage of data to capture AT&C loss from 43 project areas, Part A projects should have one common Data Centre (DC) at a location identified by Power Companies with common Data Recovery Centre (DRC) on a different seismic zone other than in which the DC is located. The purpose of establishing DRC is that in case a disaster strikes at the primary DC, the DRC site will take over and start functioning as the primary site. As per guidelines, DRC was to be commissioned after successful completion of at least 70 *per cent* of Part A projects.

The Board of Directors decided (August 2012) to establish DC and DRC in the same seismic zone (Zone-III). DC was established at Thiruvananthapuram and started functioning from 21 January 2014 while the DRC at Infopark building, Cherthala was yet to be commissioned even after 31 Part A projects (72 *per cent*) having been completed (August 2015). Slow progress in completion of several processes like hardware installation test, inspection, DC-DRC point to point link for data replication, infrastructure high level design and low level design document review, etc., were the reasons for delay in commissioning of DRC. Thus, the DC commissioned in January 2014 was vulnerable to high risk and loss of valuable data in the absence of DRC, for which Board of Directors of KSEBL was responsible.

GoK replied (January 2016) that DRC at Cherthala was specifically designed to take care of seismic impact and there were practical difficulties and hardships in maintaining such a facility outside Kerala.

The reply was not acceptable as data stored in DC was vulnerable to high risk and loss of valuable data in the absence of DRC in a different seismic zone.

Recommendation No. 3: ***Preparation of DPRs should be realistic in order to guard against technology related compatibility issues at the implementation stage.***

Non-completion of Customer Care Services under Part A project

2.3.22 As per RAPDRP guidelines, a Centralised Customer Care Service Centre (CCC) was to be set up as part of Part A projects to improve the customer service by processing and resolving customer requests, queries and complaints in minimum possible time by taking up it at appropriate place and level. KDN was to link all 228 electrical sections falling under 43 Part A projects with the CCC and to impart end user training to the officials of electrical sections.

Scrutiny of records revealed that:

- although the CCC at Thiruvananthapuram was inaugurated on 12 November 2014, 60 Electrical Sections covered under RAPDRP could not be linked with CCC out of 228 Sections as end user training to the officials of KSEBL was not imparted by KDN. Thus, the facility of

complaint redressal system was denied to the consumers of 60 Electrical Sections.

It was also noticed that even in CCC-linked Sections, integration of system with billing module and Consumer Indexing was pending (September 2015).

GoK replied (January 2016) that 192 Electrical Sections had now been linked to CCC.

The reply was not acceptable since the customer care services envisaged under RAPDRP could not be provided to the customers even after six years of sanctioning of projects.

- Spot Billing System (SBS) was intended to carry out spot billing for LT consumers. The Spot Billing System consisted of a Hand Held Equipment (HHE) and a separate Portable Printer (PP). End user training was to be imparted by KDN to meter readers of the electrical section of the project area concerned for the operation of SBS.

  Scrutiny revealed that KDN could not provide training to all the meter readers so far (September 2015). KSEBL, therefore, directed KDN to deliver SBS in phased manner so that SBS is delivered to trained meter readers only. Progress in installation of SBS is given in the following *Table*:

Table 2.35 –Status of installation of SBS

Particulars	Sanctioned (Nos.)	Completed (Nos.)
Spot Billing Machine (SBM)	1335	430
SBM software	In all the 43 towns	20

  GoK replied (January 2016) that KDN had deployed 520 machines in 32 towns. Since the SBMs were to be used for consumer billing, care was taken to implement the SBM in a phased manner after training the meter readers. The remaining SBMs would be implemented soon.

  The reply was not acceptable as non-installation of SBM was due to delay on the part of KDN to impart training to the meter readers of KSEBL.

- As per G-3 of System Requirement Specification Document of Part A, Intelligent Display Management System (IDMS) was to be set up in six locations identified by KSEBL to provide comfort and easiness of operation to the customers. IDMS was to work as queue management system, making customer sit easily and comfortably instead of standing in a queue.

  Due to non-finalisation of locations by KSEBL because of demand from all districts for these facilities, as of August 2015, one token

dispenser machine, one touch screen kiosk and one cash collection kiosk could only be installed at Centralised Customer Care Center at Corporate Office of KSEBL as shown in *Table* below:

Table 2.36 –Status of implementation of IDMS

Item	Approved	Status of implementation
	(Number)	
Automatic token dispenser machine and IDMS at customer care centre	1	1
Touch Panel based kiosk for furnishing information on billing, payment, duplicate bills, etc., at customer care centres.	6	1
Cash/cheque collection kiosk for automatically accepting cash and cheque payments from customers	6	1

GoK replied (January 2016) that out of six touch panel based kiosk and cash/cheque collection kiosk, one each was installed and commissioned in CCC. The remaining five numbers would be installed in various locations identified by KSEBL, within a couple of weeks.

Thus, due to non-linking of all sections with CCC and non-installation of Spot Billing Machine and kiosk, the objective of consumer satisfaction envisaged under RAPDRP remained unachieved.

Extra expenditure in implementation of Part A projects

2.3.23 In the execution of Part A projects, KSEBL incurred extra expenditure of ₹27 crore as discussed below.

- As per the bid (March 2010) for appointment of ITIA, each bidder was to quote specifically the bandwidth connectivity charges for five years. As per clause 14.3 of instructions to bidders (ITB), if an item was not listed in the price schedule, price loading was to be made by taking highest of the prices quoted by other bidders for such missing item or component. If the price of item is available, then it shall be considered for price loading.

  L1 bidder (MIC Electronic Limited) quoted ₹195 crore including bandwidth connectivity charges of ₹26.54 crore for three years while L2 bidder (KDN) quoted ₹240 crore including bandwidth connectivity charges. KSEBL, instead of applying price loading proportionately for two more years (₹17.69 crore) on L1 (MIC), applied clause 14.3 of ITB irregularly for price loading (₹47.46 crore) on L1 bidder (MIC) for two more years by taking the highest connectivity charges quoted by bidders. After price loading, L2 bidder (KDN) became L1 bidder, leading to awarding contract at extra expenditure of ₹27 crore (₹240 crore ï ₹213 crore).

GoK replied (January 2016) that there is a specific method for arriving at L1 in case the period quoted for bandwidth is less than five years and loading principle had to be applied only in respect of the vendor who quoted lowest price, but only for three years.

The reply was not acceptable due to the following reasons:

As per clause 14.3 of Instruction to Bidders of RFP, clause 14.3 is applicable only if the price of an item is not available in the price schedule. Further PFC has clarified that if the price of an item is available, then it shall be considered for price loading. The bandwidth charges quoted by L1 for three years was ₹26.54 crore. Even if this was proportionately taken for five years, the connectivity charges quoted by L1 would be ₹44.23 crore and the rate quoted by L1 would be ₹27 crore[98] less than L2.

- Feedback Ventures Private Limited was appointed as IT Consultant (ITC) of Part A projects for ₹35.74 lakh. Contract period was up to November 2013. As Part A projects were not completed within the stipulated time and extension was granted by PFC up to November 2015, ITC was retained at a monthly retainer fee of ₹1.5 lakh excluding taxes. The additional amount to be incurred up to the completion of Part A projects worked out to ₹36 lakh.

Execution of Part B projects

2.3.24 Work under Part B projects consisted of distribution strengthening process. On completion of Part B projects, AT&C loss was targeted to be brought down to 15 *per cent* from the range of 19.78 *per cent* to 29.17 *per cent* existing at the time of approval of projects by MoP. Even though 32 Part B projects were due for completion as of August 2015, no project could be completed and PFC extended the completion period to six years.

Audit scrutiny of 43 Part B projects revealed that delay in submission of DPRs and award of work, delay in tying up loans, etc., were the reasons for non-completion of projects within scheduled time. Delay has led to extra expenditure and non-achievement of benefit envisaged under RAPDRP as discussed below.

Delay in submission of DPRs and financial tie-up

2.3.25 As per the guidelines of RAPDRP (December 2008), the sanction process and other formalities for execution of Part A and Part B projects should be taken up simultaneously and ring fencing was to be completed within 16 weeks of the sanction of DPR. Similarly, tie-up with Financial Institutions for counter part funding was to be firmed up within two months of sanction of the project.

Scrutiny of records in 43 Part B projects revealed that:

[98] **₹240 crore (L2) – ₹213 crore (L1).**

- Sanction process and other formalities for the execution of Part A and Part B projects were not taken up simultaneously by KSEBL and Distribution Reforms Committee (DRC). While the DPRs for 43 Part A projects were approved by DRC (September 2009) and approved by the Steering Committee of GoI (November 2009), the process for the preparation of DPR of 43 Part B projects was taken up by KSEBL belatedly in December 2009. The delay in preparation of DPR of 43 Part B projects by KSEBL and approval by DRC ranged from five months to 28 months.

- As per guidelines, ring fencing of the town was to be done by the utility by installing the system meters (import/ export meters, feeder meters, DT meters, boundary meters, etc.) on its own and shall be taken up immediately on approval of DPR.

  Ring fencing through metering of all import/export metering points and segregation of agriculture feeders was to be completed by KSEBL within 16 weeks of the sanction of DPR of Part A projects i.e. by March 2010. There was, however, delay ranging from two months to one year in completion of ring fencing. The delay in ring fencing was due to excessive time taken in replacement of existing faulty meters.

  The delay in submission of DPR of Part B projects to PFC and delay in ring fencing resulted in non-commencement of Part B projects simultaneously with Part A projects and consequent delay in completion of Part B projects.

  GoK replied (January 2016) that delay was due to resubmission of DPR in many cases on the basis of the corrections done by PFC.

  The reply was not acceptable as corrections in DPR were warranted due to non-adherence to RAPDRP guidelines on submission of DPR.

- As per clause 5.3 of MoA, 75 *per cent* of the project cost of Part B was to be availed as counter part loan from Rural Electrification Corporation (REC)/ Financial Institutions (FIs). Tie-up with FIs for counter part funding was to be firmed up within two months of sanction of the project.

  In respect of 43 Part B projects sanctioned (June 2010 to August 2012) by PFC at a cost of ₹1078 core, KSEBL decided (April 2012) to avail 75 *per cent* project cost (₹801 crore) as counter part fund from REC. Agreement for counter part funding of all 43 Part B projects was executed with REC on 5 July 2014 and funds were released from October 2014 onwards. Thus, there was delay ranging from two to four years in availing counter part funding after sanction of projects. Inaction and inadequate monitoring on the part of CE (CAP-S) to arrange counter part fund resulted in tardy implementation of Part B projects.

GoK replied (January 2016) that the delay in tying-up with REC for availing counter part funding was due to slow progress of Part B projects and consequent non utilisation of 15 *per cent* of GoI loan already received as first instalment. It was also stated that projects were not delayed due to scarcity of funds but due to diversion of material for urgent normal work.

The reply was not acceptable since as per guidelines of RAPDRP, tying up counter part fund did not have any relation with progress of work and was to be firmed up within two months from sanction of projects.

Extra expenditure in execution of Part B projects

2.3.26 Out of 43 Part B projects, KSEBL decided to execute three city schemes on turnkey basis and as per guidelines, the contract was to be awarded within three months from date of sanctioning of the project.
Audit examined all three projects and noticed that:

- there was delay of 17 to 30 months in awarding contract as shown in *Table* below:

Table 2.37: Delay in awarding three turnkey contracts

Sl. No.	Name of project	Date of sanction by PFC	Invitation of tender	Date of opening price bid	Date of award of contract	Delay[99] from the date of sanction by PFC
1	Thiruvanantha-puram	03/08/2012	27/03/2013	07/10/2013	03/04/2014	17 months
2	Ernakulam	22/02/2011	30/05/2012	29/01/2013	15/11/2013	30 months
3	Kozhikode	22/02/2011	10/05/2012	10/12/2012	24/07/2013	26 months

The delay in awarding the contract by Chief Engineer (Distribution) resulted in delay in execution of the projects and cost escalation of ₹126.49 crore as shown below:

Table 2.38: Details of cost escalation due to delay in awarding work

(***₹ in crore***)

Sl. No.	Name of Town/ Project	Sanctioned project cost[100]	Awarded project cost	Difference	Percentage change
1	Ernakulam	184.47	243.97 (NCC)	59.50	32.25
2	Kozhikode	158.81	198.74 (L & T)	39.93	25.14
3	Thiruvananthapuram	173.94	201.00 (Leena)	27.06	15.56
	Total	**517.22**	**643.71**	**126.49**	**24.46**

[99] **After three months.**
[100] **Excluding project cost of transmission items.**

GoK replied (January 2016) that there was only procedural delay in awarding the work which did not affect completion of the scheme and it would be completed within the scheme period.

The reply was not acceptable as procedural delay ranging between 17 months to 30 months was extra ordinary and led to cost escalation of ₹126.49 crore .

- MoP approved (February 2011) Kozhikode Town Scheme under Part B at a total outlay of ₹160.78 crore (₹158.81 crore for distribution work and ₹1.97 crore for transmission work). KSEBL placed (July 2013) work order with Larsen &Toubro Limited (L&T) for execution of the above work at a total amount of ₹198.74 crore excluding the two items viz., work of supply and installation of 11 kV sectionalisers and the work of retrofitting of existing RMUs as the rate quoted were abnormally high. The project completion date was March 2015.

  In this connection, it was observed that while evaluating the rates offered by L&T, Chief Engineer (Distribution North) (CE, DN) had noticed (March 2013) that L&T had quoted abnormally higher rates for many items. However, only two of such items were excluded from the scope of the work of L&T. The major items of work retained in the scope of work with L&T for which exorbitant rates quoted were the following:

  - CCV type RMU ï The quoted rate was ₹6.9 lakh as against the estimated rate of ₹4.2 lakh which was arrived at based on the market rate and the PFC approved cost data in the DPR. The excess expenditure was ₹11 crore for 400 RMU.

  - Replacement of single phase meter ï Rate of ₹2124 per meter quoted by the contractor was 2.5 times the estimate rate prepared based on KSEBL approved cost data. Excess cost was ₹6.5 crore for the tendered quantity of 56023 items.

  - Supply of distribution transformersï The rate quoted by the contractor for distribution transformers (total value ₹5.93 crore) was double the KSEBLôs standard rate.

  Awarding the above items of work to the contractor at exorbitant rates resulted in commitment of extra expenditure to the tune of ₹20.36 crore. This excess cost would have to be met by KSEBL since funding by PFC would depend on approved project cost.

- Wastage of UG cable provided in estimate in excess of norms of five *per cent* in Thiruvananthapuram and Kozhikode Town Part B projects amounted to ₹2.49 crore.

Delay in completion of work due to non-procurement of material

2.3.27 In respect of 40 Part B projects being executed departmentally, KSEBL did not procure material for the works in time leading to delay in completion of work and consequent cost overrun as discussed below.

- Approved 40 Part B projects included reconductoring 77.40 km of 11 kV overhead (OH) line with Aerial Bunched Cables (ABC) and 1346 km of new ABC line in dense, theft prone and congested areas with the objective to minimise snapping of lines due to touching of trees or branches, reduction of commercial loss and increase consumer satisfaction by minimising frequent outage/supply failure. KSEBL could, however, draw seven km of new ABC as of August 2015 due to non-procurement of material as shown in *Table below*:

Table 2.39: Details of non-procurement of ABC material

Work	Target as per DPR	Proposed as per annual plan 2011-12	Quantity as per annual plan 2012-13	Annual plan 2013-14 and 2014-15
LT ABC (km)	989	191	890	Nil
HT ABC (km)	357	89	370	Nil

Audit examined ABC work in 25 Part B projects and noticed that in 22 projects ABC work had not commenced. In three projects, there was delay ranging between four to five years in commencement of ABC work due to non-procurement of ABC.

Delay also resulted in cost escalation of ₹2.82 crore in respect of Kollam project while in respect of Kannur and Kanhangad projects, length of proposed ABC laying was curtailed to compensate the cost escalation as shown in *Table* below:

Table 2.40: Details of execution of ABC work

Name of the project	As per DPR	Revised proposal
Kanhangad	31 km for ₹1.66 crore	Length reduced to 9.138 km
Kollam	44.40 km for ₹1.23 crore.	Revised cost ₹4.05 crore
Kannur	126.90 km for ₹12.59 crore	Length reduced to 67.08 km for an estimate cost of ₹10.18 crore

GoK replied (January 2016) that KSEBL had no expertise in installation of ABC work and being a new technology they decided (February 2012) to execute the work on turnkey basis. However, participation by tenderers was very poor and the cost data of ABC was approved by KSERC only during July 2015.

The reply was not acceptable as installation of ABC work was proposed in the DPR by KSEBL itself.

- With the objective to minimise snapping of lines due to touching of trees, reduce commercial loss and to increase consumer satisfaction by minimising frequent outage and supply failure, laying of UG cable was approved under 40 Part B projects. Status of the work as of August 2015 was as given below:

Table 2.41: Status of work of UG cable (August 2015)

Item of work	Sanctioned	Completed
	(km)	
11 kV new UG cable	269	78
Replacing 11 kV line OH with UG cable	85	0
Replacing 11 kV UG with UG	5.30	4

Audit selected 25 Part B projects for analysing reasons for delay in completion of UG cabling work and noticed non-procurement of material and right of way issues as discussed below:

- Under Part B project of Kannur town, laying new UG cable (83.6 km) and reconductoring (84.43 km) were approved. Since the physical progress of laying new UG cable was only 25.41 km, KSEBL decided (April 2015) to complete the balance work on turnkey basis while the reconductoring work on 84.43 km was yet to commence due to non-procurement of UG cable.

- Part B project of Chokli-Peringathur town, included UG cable work for 2.02 km spread over Chokli Section and Kodiyeri Section. 1.95 km of UG cable work was completed (May 2014) by Chokli Section and the balance railway crossing work of 0.07 km was yet to be completed by Kodiyeri Section. The completed portion was yet to be energised.

GoK replied (January 2016) that fast progress could not be achieved for UG cable laying due to various issues outside the control of KSEBL like road cutting sanctions, road restoration charges, non-issue of permission for open trenching in BMBC roads/NHAI, etc. As the work has now been decided to be executed on turnkey basis, centralised purchase of UG cable was not relevant for the case.

The fact, however, remains that Part B projects were sanctioned from June 2010 onwards, and it took four years to decide on executing the work on turnkey basis.

- As per the guidelines, High Voltage Distribution System (HVDS) was to be implemented in theft prone areas by improving HT:LT ratio. The DPR of approved Part B project included HVDS work of laying eight km OH line, three km UG cable, one km PVC cable and installation of 51 transformers at sanctioned project cost of ₹2.50 crore.

HVDS work was yet to commence due to non-procurement of material. This resulted in non-achievement of objective of bringing down AT & C loss.

GoK replied (January 2016) that all the essential works under the HVDS category were expected to be completed well within the extended period of RAPDRP.

- In order to improve power factor and to strengthen distribution network, approved 43 Part B projects targeted to install the following.

Table 2.42: Details of work proposed

Item	Approved quantity (Number)
Installation of capacitors bank	6293
Installation of remote communicable Fault Passage Indicator	274
Installation of remote switchable breakers	955
Installation of sectionalisers	471
RMU installation	2340
Providing AB switches	205

CE (SCM) responsible for procurement of above material did not procure the above material and as a result envisaged distribution strengthening work was yet to commence in all 43 projects.

Recommendation No.4: ***Funding arrangements should be firmed up upfront, as envisaged in scheme guidelines, in order to avoid delay in procurement and consequent delay in execution of work.***

Deviation from approved DPR

2.3.28 DPRs of 43 Part B projects of RAPDRP were approved by GoI after taking into consideration Internal Rate of Return (IRR) of 10 *per cent* and reduction of AT & C loss from above 20 *per cent* to 15 *per cent*.

Audit scrutiny of 25 Part B projects revealed that there was deviation from the approved DPR like change of location, quantity variation, inclusion of new location in bid document, etc., as evident from a few instances cited in ***Appendix 6.***

Due to deviation from approved DPR, excess expenditure of ₹109.21 crore has to be borne by KSEBL if the revised DPR is not approved by PFC.

GoK replied (January 2016) that excess amount above the DPR would be borne by KSEBL.

The reply was not acceptable as deviation from the DPR resulted in loss of grant to the tune of 50 *per cent* of excess expenditure.

Delay in completion of SCADA project

2.3.29 SCADA project was approved (February 2011 and June 2011) for three[101] eligible towns in Kerala at project cost of ₹83.15 crore. SCADA project was to be completed within three years of sanction. Completion of SCADA project in these three towns was dependent on completion of Part B projects in the towns. Works like compatibility of circuit breaker and switches, remote operable motors for SCADA compatibility in existing Ring Main Units (RMUs), placement of RMUs and Fault Passage Indicator **(**FPIs), etc., under Part B were to be completed for the successful and timely completion of SCADA projects.

Non-commencement of SCADA compatible work under Part B had adversely affected the completion of SCADA project as discussed below:

- Works under SCADA were awarded (May 2013) to turnkey contractors with completion time of 18 months (November 2014), while Part B projects in these towns were awarded (July 2013-April 2014) on turnkey basis with completion time of 20 months. Scrutiny of records revealed that none of the SCADA project could be completed as of September 2015 due to delay in completion of Part B projects in these towns. As per the DPRs of Thiruvananthapuram, Ernakulam and Kozhikode city Part B projects, RMUs to be made SCADA compatible were 329, 320 and 155 respectively. However, the work was yet (August 2015) to commence in these towns.

- No prioritisation was done to execute these city schemes in sync with the progress of SCADA project. DPR for Thiruvananthapuram city project was approved in August 2012 but there was delay of 20 months in award of Thiruvananthapuram city project work. In respect of Ernakulam and Kozhikode Part B projects also, delay in award of work after approval by PFC was 32 months and 29 months respectively.

- Kalki Communication Technologies Limited (Kalkitech), Bangalore was appointed as SCADA consultant (SDC) in the three cities of Thiruvananthapuram, Ernakulam and Kozhikode for a period of four years at a lump sum price of ₹49.95 lakh. The period of contract of the SDC expired in April 2014 but due to non-completion of SCADA project, the contract of SDC was extended for one more year at an additional expenditure of ₹24 lakh per year.

The CEs (Distribution) of the project area concerned were responsible for awarding and execution of three turnkey Part B projects. Delay in completing SCADA project within the stipulated time would result in loss of grant of ₹52 crore (awarded cost), since PFC had not extended original completion time of three years.

[101] **Thiruvananthapuram (₹29.76 crore), Ernakulam (₹24.40 crore) and Kozhikode (₹28.99 crore).**

GoK replied (January 2016) that the scheduled completion date of SCADA and Part B projects was June 2016 and February 2017 respectively.

The reply was not acceptable as extension of SCADA consultant was due to the extension of original contract.

Loss of envisaged benefit due to delay in completion

2.3.30 According to DPR of 43 Part B projects, energy saving in the range of 1.11 MUs to 80.92 MUs, totalling 506.74 MUs annually was envisaged on completion of these projects. Further, the conversion of loan ₹836.68 crore sanctioned by GoI into grant was contingent on timely completion of Part A and B projects. Therefore, proper monitoring of implementation of projects was of paramount importance.

As per the guidelines issued by GoI (MoP) and terms of MoA, a Distribution Reforms Committee (DRC) was to be constituted under RAPDRP at the State level under the Chairmanship of the Chief Secretary /Principal Secretary/Secretary Power/Energy. In the State, DRC constituted under APDRP scheme was allowed to continue to monitor the RAPDRP also. The DRC was to:

a) recommend the Project proposals to the MoP after ensuring that all the required formalities have been complied with;
b) monitor the compliance to conditionalities; and
c) monitor the achievement of milestones and targets under the scheme.

DRC, mandated to monitor progress of implementation of RAPDRP, held three meetings after sanction of the RAPDRP projects but did not discuss progress of implementation of RAPDRP at all.

As a result, Part A and Part B projects which were originally scheduled for completion within three years could not be completed even within the extended time of five years. Delay in completion of projects led to annual loss of envisaged benefit of ₹202.70[102] crore on 506.74 MUs of energy ***(Appendix 7)*** and probable non-conversion of loan of ₹836.68 crore into grant. Thus, DRC had failed in performing its duties.

KSEBL replied (November 2015) that the members of the DRC were high level officers in Government and availability of their time for close monitoring of the schemes was difficult. Monitoring by the CMD can be considered as Government level monitoring by virtue of his position as Secretary, Power Department.

The reply was not acceptable as the DRC consisted of representatives of PFC, MoP, CEA, ANERT and Energy Management Centre besides Power Secretary and four representatives from KSEBL.

[102] **Calculated at the average rate of ₹4 *per* unit.**

Conclusion

The main objective of Restructured Accelerated Power Development and Reforms Programme was to bring down Aggregate Technical & Commercial loss to 15 *per cent*. But there was no realistic approach in the preparation of Detailed Project Report to guard against technology related compatibility issues at the implementation stage. Action taken in the policy initiative like measures for prevention of theft of power, constitution of Special Courts to deal with cases of theft of power, etc., were inadequate. Delay in preparation of DPRs and arrangement of funds led to delay in procurement of material and awarding of contracts. This has also resulted in time overrun of more than three years and cost overrun, which contributed to the non-materialisation of envisaged benefit of reduction in Aggregate Technical & Commercial loss.