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REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA

COMPLIANCE AUDIT REPORT
for the year ended 31 March 2022

SUPREME AUDIT INSTITUTION OF INDIA

लोकहितार्थ सत्यनिष्ठा

Dedicated to Truth in Public Interest

Government of Kerala
Report No. 2 of the year 2024

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Preface

This Report for the period 2021-22 is prepared for submission to the Governor of Kerala under Article 151 (2) of the Constitution of India and the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971, as amended from time to time.

2 The Report deals with the significant results of the compliance audits of the State Government Departments and State Public Sector Undertakings under the Departments of Industries and Commerce, Power, Cultural Affairs, Electronics and Information Technology, Ports, Tourism, Environment and Climate Change, Forest and Wildlife, Science and Technology, Public Works and Transport.

3 This Report has been divided into two parts. Part I deals with the compliance audit observations on State Government Departments and Part II deals with the compliance audit observations on State Public Sector Undertakings.

4 The instances mentioned in this Report are those which came to notice in the course of test audit of records during the period 2021-22 as well as those which came to notice in earlier years but could not be reported in previous Audit Reports. Instances relating to the period subsequent to 2021-22 are also included wherever necessary.

5 The Audit is conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

Overview

Overview

The Principal Accountant General (Audit-II), Kerala audits the Government Departments and Public Sector Undertakings to test check the transactions and verify the maintenance of accounts and other records as prescribed in the rules and procedures. These inspections are followed by Inspection Reports (IRs) which incorporate irregularities detected during the audit and not settled on the spot.

This Report has been divided into two parts. Part I deals with the Compliance Audit Observations of State Government Departments and Part II deals with the Compliance Audit Observations of State Public Sector Undertakings. The total financial impact of the Paragraphs is of ₹27,855.78 crore which is discussed in Chapter II and Chapter III.

Analysis of IRs issued up to September 2022 disclosed that 6,395 paragraphs relating to 1,076 IRs issued to these Departments remained outstanding at the end of September 2022.

(*Paragraph 1.7.1.1*)

Inspection Reports issued up to September 2022 pertaining to 68 State PSUs disclosed that 1,894 paragraphs relating to 335 Inspection Reports remained outstanding at the end of September 2022.

(*Paragraph 1.7.1.2*)

Part-I Compliance Audit observations relating to State Government Departments

Implementation of preventive and mitigative measures in respect of Human Wildlife Conflict

Management of wildlife habitats

Failure of the Department to prevent the diversion of forest lands for non-forest purposes; protect the wildlife habitats from encroachments, unplanned development projects, *etc*.; and maintain wildlife habitats by securing elephant corridors, removal of invasive species, ensuring food and water availability, *etc*., are the major reasons leading to HWCs in the State.

(Paragraph 2.1.7)

Preventive and mitigative measures

Lapses in construction and maintenance of preventive structures, wildlife population management, radio collar and SMS alert system, vista clearance, *etc*., were leading to HWCs.

(Paragraph 2.1.8)

Post Human Wildlife Conflict measures

Post human wildlife conflict measures were affected due to delay in compensation payment, irregularities and procedure lapses in approval of claims, absence of rehabilitation support, *etc*.

(Paragraph 2.1.9)

Coordination with stakeholders

Lack of coordination with various stakeholders like LSGIs, Agriculture Department, Revenue Department, *etc*., was affecting the HWC measures of the Department.

(Paragraph 2.1.10)

Failure of Forest and Wildlife Department in identifying forest land received in lieu of land transferred for road resulted in non-execution of compensatory afforestation and reconstruction of a State Highway

Divisional Forest Officer of Forest and Wildlife Department failed in identifying the vested forest land when proposed by Public Works Department for purchasing from a private party and handing over for compensatory afforestation.

(Paragraph 2.2)

Construction and maintenance activities by the Buildings Wing of Kerala Public Works Department

Planning and Estimation

The lapses in estimation and deficiencies in planning for construction and maintenance of buildings works resulted in time overrun, cost overrun, non-adoption of green building concepts and inadequate maintenance of buildings.

(Paragraph 2.3.4)

Financial Management

The lapses in financial management of the Buildings Wing resulted in idling accumulation of deposits, non-realisation of lapsed deposits, security deposits, risk and cost, external fund and non-fixing of maintenance grant.

(Paragraph 2.3.5)

Execution of Projects

The construction and maintenance activities of the Buildings Wing suffered because of time overruns due to non-compliance with prescribed procedures such as investigation, issuing Technical Sanction without ensuring proper design, detailed estimation and handing over the site without removing hindrances. Lapses in ensuring competitive bidding, insurance, liquidated damages, adequate Defect Liability Period, Inspection of buildings and idling of buildings were noticed.

(Paragraph 2.3.6)

Quality control, Monitoring and Internal control issues

Implementation of Quality Control measures in construction activities was inadequate due to lack of timely monitoring of quality control aspects.

(Paragraph 2.3.7)

Modification of Bill of quantities and non-levy of liquidated damages in favour of the contractor

Negligence of departmental authorities of Public Works Department in preparation and evaluation of the tender documents of a work resulted in extra financial commitment of ₹6.97 crore to the exchequer and undue financial benefit to the contractor to the tune of ₹14.87 crore.

(Paragraph 2.4)

Incorrect estimate leading to excess expenditure and undue benefit to an accredited agency

Public Works Department entrusted the construction of two flyovers to an accredited agency based on incorrect estimates by NH Division, Kozhikode resulting in excess expenditure and undue benefit to the agency to the tune of ₹2.87 crore.

(Paragraph 2.5)

Irregular repayment of duly recovered amount by reopening closed work bills and improper adjustments made in the final bills resulting in loss to Government

Loss to Government to the tune of ₹134.32 lakh occurred due to reopening and irregular refund in respect of three closed work files and improper adjustments made in the final bills of three work files in PWD Roads Division, Kasaragod.

(Paragraph 2.6)

Mining activities in Kerala

Deficiencies were observed in Rules/ guidelines and its enforcement which led to illegal mining, over-exploitation of mineral resources, and loss of revenue. Further, the impact of illegal mining on environmental degradation was not assessed by Government/ Department of Mining and Geology for remedial action.

(Paragraph 2.7)

Idling of assets purchased costing ₹63.42 lakh

Non-commissioning/ non-repairing of assets purchased by the Directorate of Archaeology costing ₹63.42 lakh resulted in wastage of public money.

(Paragraph 2.8)

Undue benefit to contractors

Payment of ineligible advance by the Directorate of Museums and Zoos resulted in blocking up of funds of ₹8.11 crore.

(Paragraph 2.9)

Wasteful expenditure

Failure of the Directorate of Coir Development to monitor creation of facilities by the societies for more than six years resulted in wasteful expenditure of ₹0.61 crore.

(Paragraph 2.10)

Part-II Compliance Audit observations relating to State Public Sector Undertakings

Operational Performance of Traco Cable Company Limited

Absence of planning in respect of functional activities, inefficiencies in working capital management, unscientific production process including idle wages, deficiencies in marketing and contract management, investment in unviable and outdated projects etc. led to poor performance of the Company over the years resulting in erosion of capital, and negative return.

(Paragraph 3.1)

Execution of works for State Water Transport Department by Steel Industrials Kerala Limited

Adoption of engine with hydraulic propulsion without ensuring its suitability for construction of boats for State Water Transport Department resulted in avoidable loss of ₹60.66 lakh.

(Paragraph 3.2)

Extra expenditure

Cancellation of tender by the Kerala State Cashew Development Corporation Limited in violation of the provisions of the Stores Purchase Manual entailed extra expenditure of ₹93.39 lakh.

(Paragraph 3.3)

Irregular sanction of mobilisation advance, without security and non-recovery of risk and cost liability

Undue favour by the Managing Director, Kerala State Construction Corporation Limited in sanctioning Mobilisation Advance to a contractor in contravention to CVC guidelines resulted in non-recovery of ₹77.40 lakh**.**

(Paragraph 3.4)

Non-release of funds to the Master Trust amounting to ₹26,401.16 crore

The Master Trust could not invest funds and generate return for paying terminal benefits / pension to the employees/ pensioners of Kerala State Electricity Board Limited as the Company failed to release sufficient funds to the Master Trust. Hence, the purpose of the Government to ensure terminal benefits/ pension, independent of the financial health of the Company, could not be achieved.

(Paragraph 3.5)

Implementation of pay revision without approval of Government

Implementation of pay revision violating Articles of Association of Kerala State Electricity Board Limited and orders of Government of Kerala entailed an irregular expenditure of ₹1,011 crore towards arrears of pay and allowances and ₹306.66 crore towards arrears of pension revision.

(Paragraph 3.6)

Non-inclusion of price variation clause in purchase order resulted in avoidable extra expenditure

Procurement of High-Tension Aerial Bunched Cable at different rates from the same firm during the same period resulted in avoidable extra expenditure of ₹1.73 crore.

(Paragraph 3.7)

Chapter I

General

Chapter I

General

1.1 Introduction

Compliance Audit refers to examination of the transactions of the audited entities to ascertain whether the provisions of the Constitution of India, applicable laws, rules, regulations and various orders and instructions issued by competent authorities are being complied with. Compliance audit also includes an examination of the rules, regulations, orders and instructions for their legality, adequacy, transparency, propriety and prudence.

The primary purpose of this Report is to bring to the notice of the State Legislature, the important results of audit. Since Auditing Standards require that the materiality level for reporting should be commensurate with the nature, volume and magnitude of transactions, only very important results are included in this Report. The findings of Audit are expected to enable the Executive to take corrective actions and to frame policies and directives that would lead to improved financial management of the organisations, thus contributing to better governance.

This **Chapter**, in addition to explaining the planning and extent of audit, provides information on follow-up of previous Audit Reports.

1.2 Profile of Departments under purview

The Departments are headed by Additional Chief Secretaries/ Principal Secretaries/ Secretaries, who are assisted by Commissioners/Directors/Deputy Secretaries and subordinate officers.

A brief profile of the 11 Departments covered in this Report, is discussed in ***Appendix 1***.

The details of budgetary provisions and actuals of revenue and capital expenditure of 11 Departments under the purview of Office of the Principal Accountant General, Audit-II, Kerala is provided in **Table 1.1:**

Table 1.1: Budgetary provisions and actuals of revenue and capital expenditure for 2021-22

(₹ in crore)

Sl. No.	Name of Department	Revenue		Capital	
		Budget provision	Expenditure	Budget provision	Expenditure
1	Industries and Commerce	579.22	522.18	1,075.19	733.50
2	Power	415.47	380.91	64.85	58.32
3	Cultural Affairs	317.57	237.85	0	0
4	Electronics and Information Technology	2.00	2.00	107.71	100.44
5	Ports	72.38	72.83	73.13	39.79
6	Tourism	201.05	163.67	187.04	170.76
7	Transport	206.21	200.61	3,254.93	3,196.57
8	Environment and Climate Change	33.64	13.05	0	0
9	Public Works	3,971.75	3,423.02	4,295.15	3,594.21
10	Forest and Wildlife	717.52	704.39	82.40	82.60
11	Science and Technology	188.42	120.68	0	0
Total		**6,705.23**	**5,841.19**	**9,140.40**	**7,976.19**

(Source: Appropriation Accounts for the year 2021-22, Government of Kerala)

During the year 2021-22, all the 11 Departments had spent lesser amounts for both capital as well as revenue than that provided in the budget. Out of the total capital budget provision of ₹9,140.40 crore, an expenditure of ₹7,976.19 crore (87.26 *per cent*) was made by the Departments. Similarly, out of the total revenue budget provision of ₹6,705.23 crore, an expenditure of ₹5,841.19 crore (87.11 *per cent*) was made by the Departments.

The percentage of capital expenditure to budget provision was the least in Ports Department (54.41 *per cent*).

1.3 Authority for conducting audit

Authority of the Comptroller and Auditor General (CAG) for audit of Departments and Public Sector Undertakings (PSUs) is derived from Articles 149 and 151 of the Constitution of India and the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971 [CAG's (DPC) Act]. The principles and methodologies for various audits are prescribed in the Regulations on Audit and Accounts, 2020 and Auditing Standards, 2017 issued by the CAG.

1.4 Audit universe and coverage of units

During the year 2021-22, there were 1,065 auditee units under the 11 Departments, of which 119 units were planned for audit and 134 units audited.

Out of total 150 State PSUs, audit of 98 State PSUs[1] consisting of 125 auditee units are entrusted to the Office of the Principal Accountant General, Audit-II, Kerala. Out of these, besides financial attest audit of State PSUs, 27 units of 20 PSUs were selected for Compliance Audit during 2021-22.

1.5 Planning and conduct of audit

Audit process starts with the assessment of risks faced by various Departments of Government and PSUs based on expenditure incurred, criticality/complexity of activities, level of delegated financial powers, assessment of overall internal controls and concerns of stakeholders. Previous audit findings are also considered in this exercise. The frequency and extent of audit are decided based on risk assessment.

During the year 2021-22, 1,405 party days[2] were utilised to carry out audit of 134 units with respect to Departments and, 1,307 party days were utilised to carry out audit of 27 units of PSUs. In comparison, for the year 2020-21, 1,079 party days were utilised for audit of 48 units with respect to Departments and 794 party days were utilised for audit of 17 units of PSUs.

After completion of audit of each unit, an Inspection Report (IR) containing audit findings is issued to the Head of the Department in respect of Departments, and in respect of PSUs to the Head of the PSU and the Administrative Department concerned. The Departments are requested to furnish replies to the audit findings within one month of receipt of the IRs. Whenever replies are received, audit findings are either settled or further action for compliance is advised. The important audit observations arising out of these IRs are processed for inclusion in the Audit Reports. The Audit Reports are submitted to the Hon'ble Governor of the State under Article 151 of the Constitution of India to be tabled in the State Legislature.

1.6 Coverage of the Report

This Report relates to the matters arising from Compliance audit of Departments and PSUs of the Government of Kerala (GoK) coming under the purview of Office of the Principal Accountant General, Audit-II, Kerala, conducted during 2021-22 and earlier periods. Ten Paragraphs relating to the Departments are included in **Chapter II** of this Report. Seven Paragraphs relating to State PSUs issued (August 2022 to January 2023) to the Principal Secretaries/ Secretaries concerned of GoK are included in **Chapter III** of this Report. The total financial impact of the Compliance Audit Paragraphs is ₹27,855.78 crore.

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[1] Seventy-nine working companies, three Statutory Corporations and 16 non-working companies

[2] Number of days utilised for audit by audit party.

1.7 Response of the Departments/PSUs to Audit

The Principal Accountant General (Audit-II), Kerala audits the Government Departments and PSUs to test check the transactions and verify the maintenance of accounts and other records as prescribed in the rules and procedures. These inspections are followed by IRs which incorporate irregularities detected during the audit and not settled on the spot. The Heads of Departments and/or PSUs are required to furnish replies to the IRs within a period of one month, as the case may be. In order to monitor and expedite the progress of settlement of the paragraphs in the IRs, the Government also constitutes Audit Committees/ Audit Sub-committees. In this regard, Audit observed the following:

1.7.1 Inspection Reports outstanding

1.7.1.1 Departments

Analysis of IRs related to Departments issued up to September 2022 disclosed that 6,395 paragraphs relating to 1,076 IRs remained outstanding as at the end of September 2022. The figures as of September 2022 along with the corresponding figures for the preceding two years are given in **Table 1.2:**

Table 1.2: Details of Inspection Reports outstanding

Particulars	September 2020	September 2021	September 2022
Number of IRs pending for settlement	1,033	1,041	1,076
Number of paragraphs outstanding	5,939	6,177	6,395

(Source: Details compiled by Audit and reconciled with respective Departments)

As could be seen from the table, the number of IRs and paragraphs outstanding are increasing over the years.

The Department-wise details of the IRs and paragraphs outstanding as on 30 September 2022 are given in **Table 1.3:**

Table 1.3: Department-wise details of IRs and paragraphs outstanding

Sl. No.	Name of the Department	Number of IRs outstanding	Number of paragraphs outstanding
1	Industries and Commerce	78	379
2	Power	27	110
3	Cultural Affairs	92	474
4	Electronics and Information Technology	24	216
5	Port	16	47
6	Tourism	18	108
7	Transport	294	2,377
8	Environment and Climate Change	12	86
9	Public Works	327	1,734

Sl. No.	Name of the Department	Number of IRs outstanding	Number of paragraphs outstanding
10	Forests and Wildlife	164	779
11	Science and Technology	24	85
Total		**1,076**	**6,395**

(Source: Details compiled by Audit and reconciled with respective Departments)

As could be seen from the table, the pendency in terms of IRs outstanding is highest in the Public Works Department. Age wise analysis of IRs outstanding and paragraphs is detailed in ***Appendix 2***, which reveals that 682 IRs (63.38 *per cent* of total IRs outstanding) were outstanding for more than five years.

1.7.1.2 Public Sector Undertakings

IRs issued up to September 2022 pertaining to 68 State PSUs disclosed that 1,894 paragraphs relating to 335 IRs remained outstanding at the end of September 2022. PSU-wise status of IRs and paragraphs as of September 2022 is given in ***Appendix 3.***

The pendency is indicative of the fact that the Heads of Offices and the Departments/ PSUs need to take effective action to rectify the defects and irregularities pointed out by Audit through the IRs.

1.7.2 Audit Committee Meetings

1.7.2.1 Departments

The details of the Audit Committee Meetings (ACM) held during the year 2021-22 and the paragraphs settled therein are given in **Table 1.4:**

Table 1.4: Details of Audit Committee Meetings during 2021-22

Sl. No.	Name of the Department	Number of Audit Committee Meetings held	Number of paragraphs settled
1	Public Works	1	10
2	Transport	16	167
Total		**17**	**177**

(Source: Details compiled by Audit)

It can be seen from the Table that ACMs were held only in respect of two departments. In respect of remaining nine Departments *i.e.*, Industries and Commerce, Power, Cultural Affairs, Electronics and Information Technology, Ports, Tourism, Environment and Climate Change, Forests and Wildlife and Science and Technology, no ACM was held during 2021-22. Similarly, meetings of Audit Sub-committees were not held in any of these 11 Departments during this period.

1.7.2.2 Public Sector Undertakings

Nine ACMs were held in four PSUs during 2021-22 and 186 paragraphs were settled, wherein position of paragraphs outstanding were discussed with the managements of PSUs/ administrative departments to ensure accountability and responsiveness.

1.8 Follow-up action on Audit Reports

The Reports of the CAG represent the culmination of the process of audit scrutiny. It is, therefore, necessary that they elicit appropriate and timely response from the Executive. The Finance Department, GoK issued directions to all administrative departments in 2017 to furnish Explanatory Notes to Performance Audits (PAs)/ Paragraphs included in Audit Reports of the CAG within a period of two months of their presentation to the Legislature for speedy settlement of audit observations.

The status of Explanatory Notes on PAs and Paragraphs not received as of September 2022 in respect of Audit Reports relating to 11 Departments and PSUs under them are given in **Tables 1.5 and 1.6** respectively**.**

Table 1.5: Position of Explanatory Notes on Audit Reports related to Departments as of September 2022

Year of Audit Report	Number of PAs and Paragraphs		Number of PAs and Paragraphs for which Explanatory Notes were not received	
	PAs	Paragraphs	PAs	Paragraphs
2015-16	1	5	0	1
2016-17	1	7	1	1
2017-18	1	7	0	4
2018-19	0	4	0	3
Total	**3**	**23**	**1**	**9**

(Source: Details compiled by Audit and reconciled with respective Departments)

Table 1.6: Position of Explanatory Notes on Audit Reports related to State PSUs as of September 2022

Year of Audit Report	Date of placement of Audit Report in the State Legislature	Total number of PAs and Paragraphs related to State PSUs		Number of PAs and Paragraphs for which Explanatory Notes were not received	
		PAs	Paragraphs	PAs	Paragraphs
2015-16	23/05/2017	2	10	1	2
2016-17	19/06/2018	2	8	1	2
2017-18	24/08/2020	0	5	0	4
2018-19	10/06/2021	1	6	1	5
Total		**5**	**29**	**3**	**13**

(Source: Details compiled by Audit and reconciled with respective Departments)

The administrative departments did not comply with the directions of Finance Department, GoK and the responses to Audit Reports were delayed inordinately as detailed in the above tables.

1.9 Discussion of Audit Reports by the Public Accounts Committee (PAC)/ Committee on Public Undertakings (CoPU)

The PAC and CoPU are committees constituted by the Legislature of the State to examine the Audit Reports of CAG on Departments and State PSUs respectively.

The status of discussion of PAs and Paragraphs by PAC and CoPU as of September 2022 are given in **Tables 1.7** and **1.8** respectively**.**

Table 1.7: Status of discussion of PAs and Paragraphs relating to Departments by PAC

Year of Audit Report	Number of PAs/ Paragraphs			
	Appeared in Audit Report		Discussed	
	PAs	Paragraphs	PAs	Paragraphs
2012-13	0	5	0	4
2013-14	0	1	0	0
2014-15	2	7	0	7
2015-16	1	5	0	4
2016-17	1	7	0	0
2017-18	1	7	0	0
2018-19	0	4	0	4
Total	**5**	**36**	**0**	**19**

(Source: Records maintained by Audit)

A review of the position of PAs/ Paragraphs pending discussion by the PAC as of September 2022 showed that five PAs and 17 Paragraphs (pertaining to Forest and Wildlife, Tourism and Public Works Departments) were yet to be discussed.

Table 1.8: Status of discussion of PAs and Paragraphs relating to State PSUs by CoPU

Year of Audit Report	Number of PAs/ Paragraphs			
	Appeared in Audit Report		Paragraphs discussed	
	PAs	Paragraphs	PAs	Paragraphs
2015-16	2	10	1	6
2016-17	2	8	1	1
2017-18	0	5	0	0
2018-19	1	6	0	0
Total	**5**	**29**	**2**	**7**

(Source: Records maintained by Audit)

Delay in discussion of Audit Reports will lead to consequent delay in addressing any discrepancies, irregularities, or mismanagement highlighted in the Report. As could be seen from the table, three PAs and 22 Paragraphs were yet to be discussed by CoPU.

Recommendations:

The Government should

- ***ensure furnishing of replies/ Explanatory Notes to Audit Reports and Action Taken Notes on the recommendations of Public Accounts Committee and Committee on Public Undertakings as per the prescribed time schedule.***
- ***ensure that Audit Committee Meetings are held regularly.***
- ***instruct the departments to furnish the replies to the Draft Paragraphs and Compliance Audit Paragraphs on time.***

Part I

State Government Departments

Chapter II

Compliance Audit Paragraphs of State Government Departments

Chapter II

Compliance Audit Paragraphs of State Government Departments

Forest and Wildlife Department

2.1 Implementation of preventive and mitigative measures in respect of Human Wildlife Conflict

2.1.1 Introduction

Human Wildlife Conflict (HWC) is generally defined as any interaction between humans and wildlife that results in negative impacts on social, economic, or cultural life of humans; on the conservation of wildlife populations; or on the environment[3]. It includes loss of cultivated crops, livestock, property such as houses; transmission of zoonotic diseases; and loss of lives/injuries to both humans and animals. The increase in human population and demand for lands had led to encroachment of forest lands resulting in fragmentation and loss of wildlife habitats. Also, climate change, invasive species, unplanned developments, monoculture plantations, *etc*., alter the natural habitats of wild animals. These are leading to shortage of food and water, which force the wild animals to move out to human settlements in search of food and water. Also, increase in area under cultivation around wildlife habitats, especially crops attracting wild animals; increase in population of certain species like tiger, wild boar, peafowl, *etc*., increases the likelihood of HWCs. Thus, HWC is largely a human-induced phenomenon, combined with species-specific behavioural ecology of animals and external environment factors.

The Forest and Wildlife Department (the Department) is responsible for the protection and maintenance of forest and wildlife in the State. Kerala has 11,524.91 sq.km of forests, out of which 3,441.21 sq.km (30 *per cent*) is under protected area which includes six National Parks, 18 Wildlife Sanctuaries and one Community Reserve.

As part of promoting co-existence between humans and wildlife, the Department undertakes various preventive and mitigative measures to reduce HWCs. This includes identification of high degree conflict areas and creating conflict intensity area maps, identification and eviction of encroachments, erecting fencing, trenches and walls along forest fringes, wildlife habitat management by ensuring water, forage and removal of invasive species, paying compensation to the victims of HWC, crop insurance, relocation and rehabilitation support *etc*.

[3] World Wide Fund for Nature.

2.1.2 Organisational setup

The Additional Chief Secretary to the Government is the administrative head of the Department at Government level. The Department is headed by the Principal Chief Conservator of Forests (Head of Forest Force) who is assisted by the Principal Chief Conservator of Forests & Chief Wildlife Warden, and the Principal Chief Conservator of Forests (Social Forestry) at Headquarters.

The Department consists of 15 Circles[4] with 79 Divisions and 205 ranges. Twenty-five Territorial Divisions under the five Circles in Territorial Wing and 11 Wildlife Divisions under three Circles in Wildlife Wing initiates and implements creative action in mitigating the problem of HWC.

2.1.3 Audit Objectives

To examine whether,

- the Department had adequately implemented measures for protecting, strengthening and enhancing the wildlife habitats in the State including prevention and eviction of encroachments and there exists a mechanism to monitor its effectiveness;
- the preventive and mitigative measures for handling HWCs were effectively implemented;
- post HWC measures like payment of compensation and rehabilitation support was adequate to work towards creating a sustainable and harmonious relationship between humans and wildlife; and
- co-ordination with all stakeholders was ensured at all stages for benefits and achievement of intended outcomes.

2.1.4 Audit Criteria

The audit criteria were derived from:

- Wildlife (Protection) Act (WPA), 1972.
- Kerala Forest Act (KFA), 1961 and rules made thereunder.
- National Forest Policy (NFP), 1988.
- National Wildlife Action Plan (NWAP), 2017-31.
- Kerala Rules for Payment of Compensation to Victims of Attack by Wild Animals, 1980 (Kerala Compensation Rules, 1980).
- Kerala Forest Statistics (KFS), 2017 to 2021.
- Reports/studies of Central/State Government/agencies.

[4] Territorial-05, Wildlife-03, Vigilance-02, Social Forestry-03, Working Plan-01, Training-01.

2.1.5 Scope and methodology of Audit

Audit was conducted from July to December 2021 and May to November 2022 covering the period from 2017-18 to 2021-22 by test check of the records of the Government/Department including 11 forest divisions[5] (out of 36 Divisions) selected through Stratified Random Sampling using IDEA software, collecting information from other Departments for cross verification and conducting Joint Physical Verification (JPV) along with the Department staff, wherever necessary.

An entry conference was held on 11 August 2022 in which the audit objectives, audit criteria, scope and methodology were discussed with the representatives of the Government and the Department. The exit conference with the representatives of the Government and the Department was held on 17 February 2023 to discuss the audit findings.

2.1.6 Status of Human Wildlife Conflict

There were large scale losses to human life and property as well as wildlife as detailed below:

2.1.6.1 Loss of human life and property

The details of loss of human life and property are collected from the Forest Divisions and compiled in the Kerala Forest Statistics[6]. According to the data during the period 2017-21, there were 29,798 cases of HWCs reported, including 445 human deaths. Wayanad North division with 6,161 cases (12.48 *per cent*) has the highest number of claims received from HWC victims. The details are given in **Table 2.1**.

Table 2.1: Details of loss of human life and property due to HWC

Year of incident	Human death	Human injury	Cattle loss	Crop & Property damage$	Total (in numbers)	Division with highest number of cases (*per cent* of cases)*
2017-18	119	846	561	5,703	7,229	Wayanad North (12.48 *per cent*)
2018-19	146	765	348	6,631	7,890	
2019-20	92	699	321	5,550	6,662	
2020-21#	88	988	400	6,541	8,017	
Total	**445**	**3,298**	**1,630**	**24,425**	**29,798**	

* based on the number of claims received from HWC victims during the period 2017-22

\# Kerala Forest Statistics data for 2022 was not available

$number of applications received against crop or property damage

(Source: Kerala Forest Statistics 2017-21)

5 Eight territorial divisions namely Thiruvananthapuram, Ranni, Marayoor, Malayattoor, Palakkad, Mannarkkad, South Wayanad, Kannur and three Wildlife Divisions namely Periyar East, Parambikulam and Wayanad Wildlife .

6 Statistical data collected and compiled by the Statistics Wing of Forest Department relevant to the forest and wildlife management in the State.

The animal-wise details of HWC cases are given in **Table 2.2** below:

Table 2.2: Major animal-wise details of cases during 2017-21

Animal-wise incidents	**Human death**	**Human injury**	**Cattle loss**	**Crop & Property damage**	**Total (in numbers)**	**Division with highest number of cases (*per cent* of cases)***
Elephant	78	159	196	13,092	13,525	South Wayanad **(**17.47 *per cent***)**
Wild boar	19	515	31	5,572	6,137	Kannur **(**12.05 *per cent***)**
Snake	338	2,505	76	0	2,919	Kannur **(**26.83 *per cent***)**
Tiger	5	12	447	213	677	Wayanad WL **(**37.83 *per cent***)**
Leopard	0	2	556	31	589	Mannarkkad **(**18.95 *per cent***)**
Wild gaur	1	9	5	161	176	Marayoor **(**25.90 *per cent***)**

***** based on the number of claims received from HWC victims during the period 2017-22
(Source: Kerala Forest Statistics 2017-21)

As seen from table above, the highest number of HWC incidents occur due to elephant attacks. Hence, protection from elephants is to be considered for any HWC prevention and mitigation plan. Wild boar attacks result in second highest (20.60 *per cent*) number of HWCs and are mostly noticed in areas far away from forest fringes. Despite the measures taken by the Government and Department over the years, the incidents of HWCs have remained persistently high. The reasons for these high incidents of HWCs has been analysed in ***Paragraph 2.1.7*** of this Report.

2.1.6.2 Loss of wildlife

Movement of wild animals out of forest areas in search of food and water leads to injury and unnatural death of wild animals. The details of unnatural deaths are reported to GoI through the Kerala Forest Wildlife Death Reporting Portal. The details concerning deaths in respect of some major wild animals mentioned in Schedule I of the WPA 1972 are given in **Table 2.3.**

Table 2.3: Details of unnatural death of wild animals

Year	**Elephants**	**Leopard**	**Tiger**	**Gaur/Indian bison**
2017-18	0	4	0	0
2018-19	8	2	1	5
2019-20	10	1	0	6
2020-21	11	2	1	3
2021-22	6	3	0	3
Total	**35**	**12**	**2**	**17**

(Source: Data from Kerala Forest Wildlife Death Reporting Portal)

The total number of unnatural deaths reported during the audit period was 662 out of which 223 deaths (33.69 *per cent*) were due to electrocution, 170 deaths (25.68 *per cent*) due to vehicle hit, 146 deaths (22.05 *per cent*) due to hunting/poaching, *etc*. Out of this, offence cases under WPA 1972 were registered in 280 cases. The details in respect of injured wild animals are not recorded in the State.

Audit findings

The failure of the Department to protect and maintain wildlife habitats is leading to fragmentation and loss of wildlife habitats and consequent increase in HWCs. Audit verified the aspects that led to fragmentation and loss of wildlife habitats such as encroachments, diversion and unplanned developments, monoculture plantations, slow identification of elephant corridors, cattle grazing, invasive species, non-ensuring of food and water availability, *etc*. The effectiveness of preventive and mitigative measures taken by the Department such as construction and maintenance of preventive structures, *Kumki* elephant squads, early warning SMS alert system, fixing of radio collars on problematic animals, management of population, vista clearance, SARPA app, relocation of human settlements in forest lands, *etc*., were checked. The post HWC measures including compensation payment to HWC victims were verified for its economy, adequacy, timeliness, *etc*. Audit also observed the necessity for co-ordination with various stakeholders like Local Self Government Institutions, Revenue, Tourism and Agriculture Departments, local people, *etc*., to reduce the HWCs.

Thus, the audit findings were broadly grouped under four categories, *viz*., management of wildlife habitats ***(Paragraph 2.1.7)***, preventive and mitigative measures ***(Paragraph 2.1.8)***, post HWC measures ***(Paragraph 2.1.9)*** and co-ordination with all stakeholders ***(Paragraph 2.1.10)***.

2.1.7 Management of wildlife habitats

Failure of the Department to prevent the diversion of forest lands for non-forest purposes, protect the wildlife habitats from encroachments, unplanned development projects, *etc*., and maintain wildlife habitats by securing elephant corridors, removal of invasive species, ensuring food and water availability, *etc*., are the major reasons leading to HWCs in the State.

As per NWAP 2017-31, the primary causes of HWC include the loss, degradation and fragmentation of many wildlife habitats, thereby increasing the chances of Asian elephants and many other wild animals moving out of natural habitat and encountering people. The lapses noticed in the management of wildlife habitats are mentioned below:

2.1.7.1 Absence of carrying capacity studies of wildlife habitats

The carrying capacity of an environment is the maximum population size of a biological species that can be sustained by that specific environment, given the food, habitat, water and other resources available. Carrying capacity study is required to effectively manage the wildlife habitat in the State and thereby avoid HWCs.

It was observed that the Department has not conducted any carrying capacity studies of the wildlife habitats in the State.

2.1.7.2 Large scale diversion of forest lands for non-forest purposes

As per Department records 11,524.91 sq.km, which constitute around 29.66 *per cent* of the area of the State (38,863 sq.km.), is forest. Audit observed that 21.81 *per cent* (2,513.53 sq.km.) of this land is diverted for non-forest purpose and is generally not suitable for wildlife habitat. The major reasons are as follows:

- monoculture plantations (1,562.04 sq.km.) consisting of teak, acacia, eucalyptus, wattle, *etc*., having poor wildlife habitat (***Paragraph 2.1.7.7***);
- lease of land to Kerala State Electricity Board Limited (KSEBL), plantation activities of Public Sector Undertakings (PSUs) as well as private plantations, *etc*. (514.90 sq.km.);
- diversion under the Forest Conservation Act, 1980 (384.12 sq.km.) mainly for various projects of KSEBL, Irrigation Department, plantation activities of both private parties and PSUs, resettlement of people from project affected locations, pre 01 January 1977 encroachments[7], *etc*.;
- post 01 January 1977 encroachments (50.25 sq.km., ***Paragraph 2.1.7.4***);
- *pattas*[8] issued by Revenue Department in 2.22 sq.km of forest land in three Divisions[9].

Apart from this, vested forests are isolated disjointed bits of forests mainly acquired by Government for cultivation purpose, and hence not suitable for wildlife habitation, especially wild elephants.

Case Study 1: **Fragmentation of forests in Wayanad District** - Wayanad district had the highest number of HWC claims in the State during the audit period. As per the Management Plan of Wayanad Wildlife Sanctuary, forest land of Wayanad district in 1950 was 1,811.35 sq.km which was reduced to 863.86 sq.km in 2021. There is a reduction of 947.49 sq.km forest with corresponding increase in area under plantation, cultivation, *etc*., leading to fragmentation of the once continuous vegetation cover.

Government reply (March 2023) is in acceptance of the Audit observation and it was stated that measures were taken up in right earnest for restoration of plantations to natural forests.

The measures for restoration of plantations were, however, not effective as Audit noticed several deficiencies as commented in ***Paragraph 2.1.7.7***.

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7 As per the Kerala Land Assignment (Regularisation of Occupation of Forest Lands prior to 01.01.1977) Special Rules, 1993 (KLA Special Rules 1993).

8 The first and original record about the ownership of a property.

9 Marayoor (0.88 sq.km), Mannarkkad (0.80 sq.km), Malayattoor (0.53 sq.km).

2.1.7.3 Unplanned development leading to increase in HWCs

Intrusion of humans and their activities into wildlife habitats are the prime reason for increase in HWCs. As per the NFP 1988, diversion of forest land for any non-forest purpose should be subject to the most careful examination by specialists from the standpoint of social and environmental costs and benefits.

Three development projects of the State which adversely impacted or have potential to adversely impact the HWC situation are as discussed below.

- **Construction of NCC Airstrip adjacent to Periyar Tiger Reserve**

  Kerala PWD started constructing an airstrip in 2017 for NCC cadets' flying training, in land under the possession of the Forest Department and only 630m from the Periyar Tiger Reserve boundary. The Chief Conservator of Forests (Wildlife), Kottayam reported (October 2021) to PCCF that the project was initiated without conducting Environmental Impact Assessment (EIA) and obtaining necessary environment clearances. The operation of the airstrip will affect the soundscape of the area which is rich in biodiversity including flagship species like elephant and tiger. This would further increase the HWCs. The Department failed to inform the Government in time about the conservation significance and adverse impact on wildlife. Only in October 2021, when the project was almost completed, the Department informed[10] the Government of the required clearances and the likely adverse impact on environment.

- **Setting up of Indian Institute of Technology (IIT) campus in Palakkad**

  A new IIT was set up in Palakkad district for which 500 acres of land was earmarked in 2015. The land included 18.14 ha of vested forest land, which had elephant presence and was part of Nilambur elephant reserve. As a result of this, elephant herds are frequent visitors to the campus as revealed in a JPV conducted along with Department Officials in September 2021. The elephants frequently damaged the boundary wall of the campus, the likely reason being to access water from the ponds located inside the campus. The Department had failed to timely inform the Government regarding the adverse impact on HWC due to the location of the project.

Figure 2.1: Elephant herds at under construction IIT campus Palakkad (September 2021)

[10] vide letter of PCCF(FM) dated 28 October 2021 addressed to the Principal Secretary to the Government, Forests and Wildlife Department.

- **Rehabilitation of landless tribals in Aralam Farm**

  Aralam Farm having an extent of 7,000 acres of prime forest had been converted into the Central State Farm, Aralam for promoting agriculture in the region. Out of this, a total of 3,375 acres of land adjacent to the Aralam wildlife sanctuary was distributed to 1,500 tribal families by GoK, and the remaining area retained as Aralam Farming Corporation (Kerala) Ltd. (PSU). The tribal families residing in the region have been constantly troubled due to elephant visits. About 40 wild elephants are reported to spend most of their time within the farmland and it has become their habitat. During 2014-22, thirteen people were killed due to elephant attack.

The absence of proper planning and impact studies prior to starting development projects in the vicinity of forests have led to adverse effect on the wildlife habitats and consequent increase in HWCs.

As per the reply submitted by Government (March 2023), the natural Elephant corridors has been destroyed due to unplanned development of resorts, minor eco-tourism, trekking paths for entering people into forests, *etc*. It was further reiterated that the concerned Nodal Officers nominated for HWC issues shall be directed to look into the points observed and suggested by Audit.

The reply is, however, silent on the issues observed by Audit on the three development projects mentioned above.

2.1.7.4 Failure of Department to evict/arrest encroachments

Human encroachment on forests not only reduces the wildlife habitat but also increases the chances of HWCs. Identification of forest boundaries and demarcating the same using cairns/*jundas*[11] is significant to prevent encroachments.

As per Kerala Forest Statistics data as on 31 March 2021, 1,605.30 ha of area is under encroachment in the 10 selected Divisions, *i.e.*, except Parambikulam Tiger Reserve. Audit observed that this was underreported by 382.50 ha due to non-inclusion of encroachments in Malayattoor (28.50 ha) and Wayanad Wildlife Divisions (354 ha). Additionally, during the period from 2018 to 2021 encroachments had increased by 476.32 ha[12] in seven selected Divisions as detailed in ***Appendix 4***. This indicates that the area under encroachment is increasing, and the actual extent of encroachment may be higher than reported.

Out of the total forest area of 4,537.752 sq.km coming under the eleven selected Divisions (eight Territorial Divisions and three Wildlife Divisions), notification is pending in respect of 54.134 sq.km. Out of a boundary length of 3,866.43 km, demarcation is pending for 513.13 km (13.27 *per cent*) as of 31 March 2021. In Malayattoor division, due to delay in demarcating the forest boundaries using

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[11] A mound of stones, earth, cement, *etc*., built in the shape of a frustum of pyramid to mark boundaries of forest.

[12] Thiruvananthapuram (0.59 ha), Ranni (0.61 ha), Malayattoor (26.87 ha), Wayanad South (49.60 ha), Kannur (39.64 ha), Periyar East (4.38 ha), Wayanad wildlife (354.63 ha).

jundas, 28.50 ha of land out of 52.48 ha taken over by the Forest Department from Agriculture Department in 1980 was encroached.

Thus, the failure of the Department to timely complete the demarcation of forest boundaries and preventing encroachments is leading to fragmentation and degradation of wildlife habitats and consequent increase in HWCs.

Government replied (March 2023) that the Department is systematically verifying the data and efforts shall be taken to evict encroachments from notified forest land. In respect of demarcation of boundaries, it was stated that all vulnerable areas for encroachment are demarcated on priority basis. However, the balance consolidation of forest boundaries is not completed because of people's defense which leads to various court cases.

2.1.7.5 Shortcomings in ensuring water and food availability within the forest

The Department had identified ensuring food and water availability in the forest as one of the solutions to reduce HWC. The major habitat improvement activities undertaken by the Department to ensure food and water availability includes maintenance of *Vayals*[13], construction and maintenance of check dams/ponds, growing fruit bearing trees, growing indigenous species, gully plugging, *etc*.

Following lapses were noticed in this regard:

- *Vayals* and grasslands are among the prime habitats of herbivores. The details of grassland and *vayals* were documented only in one[14] out of the eight test-checked territorial divisions.
- During 2017-22, as per performance budget of the Department, activities to ensure water in forest such as gully plugging, soil and moisture conservation, construction and maintenance of pond, check dams, waterholes were carried out in territorial and wildlife divisions. But during 2018-19, 2019-20, 2020-21 and 2021-22, the targets could not be achieved. Also, activities to ensure forage such as planting of indigenous species or fruit bearing trees and *vayal* maintenance in forest was done only under wildlife divisions.

Due to lack of habitat improvement works carried out, especially under territorial divisions, raids of wild animals like elephants in fringe areas could not be reduced.

Government assured (March 2023) that action would be taken to review the position and emphasis given on improving the wildlife habitat in territorial forest divisions and forest fringe areas also.

2.1.7.6 Invasive species affecting wildlife habitats

The Kerala Eco-restoration Policy, 2021 observes that the proliferation of invasive species has led to depletion of natural forests. The depleted habitats are forcing wild animals to stray out to human habitations and farmlands for food and forage, thus

13 *Vayals* are low altitude marshy grasslands with perennial availability of water and grass.
14 Ranni division.

reportedly compounding HWCs. Eradicating such invasive species that harm the environment is of high priority.

It was observed that:

- In 2017-18, out of the total 2,556 ha of weed removal work carried out by the Department, only 73 ha belonged to territorial divisions. During 2018-19 and 2019-20, weed removal work was carried out only in wildlife divisions. However, the territorial and wildlife division-wise split up was not available in 2020-21 and 2021-22.

- *Senna Spectabilis* (*senna*)[15] was first planted as shade trees in the office compound at Muthanga in 1986. In 2012, *senna* had occupied 14.56 sq.km of the Wayanad WLS and as of 2020, it had spread to 78.91 sq.km (23 *per cent* of the total area of sanctuary). The intensity and extent of *senna* invasion in the sanctuary is alarmingly high and the regeneration of native species is almost absent in areas where there is abundance of *senna*[16].

Figure 2.2: *Senna Spectabilis* invasion in Wayanad Wildlife Sanctuary (November 2021)

- During JPV (08 December 2021) conducted in Thondiyar Section of Thekkady under Periyar East Division, the presence of several plants of *senna* was observed by the Audit team. The presence and weeding of *senna* was not part of the Division's management plan.

- As per the India State of Forest Report 2021, 490 sq.km of forest land in Kerala is covered with five major invasive species[17]. *Senna* does not feature in this report as an invasive species.

Government replied (March 2023) that removal of obnoxious species including invasive species affecting wildlife habitat is being taken up under Rebuild Kerala Development (RKD) project to reduce conflict.

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15 It is a deciduous tree native to South and Central America. Due to its high rate of growth and arresting the growth of indigenous trees and grass species, it has become an invasive species in parts of Kerala, especially Wayanad WLS.

16 Study by FERNS Nature Conservation Society and the Department.

17 Chromolaena adorata (362 sq.km.), Lantana camara (87 sq.km.), Ageratum conyzoides (29 sq.km.), Ageratum odenophora (9 sq.km.), Mikania micrantha (3 sq.km.).

The reply however lacked specifics on containing the *senna* menace.

2.1.7.7 Unscientific conversion of forest land to monoculture plantations affecting water and fodder availability

As per NFP 1988 (item 4.3.3), exotic species should not be introduced, through public or private sources, unless long-term scientific trials undertaken by specialists in ecology, forestry and agriculture have established that they are suitable and have no adverse impact on native vegetation and environment.

The Department had a policy of converting 'low value' grasslands into plantations and extensive planting of non-native species like eucalyptus and wattle. These species became invasive over a period and started invading the grasslands and shola forests. These plantations have led to reduction in area of grasslands, loss of prime area of foraging of herbivores and adversely affected the hydrological functions of the grass land which in turn increased loss of soil moisture. The reduction in area of grassland destroys the wildlife habitat of elephants and other herbivores animals and forces them to come out of the forest in search of food and water.

Ultimately, the Department stopped planting of wattle since 1995, acacia and eucalyptus since 2018 and the working plans of all territorial divisions prescribed phased re-conversion of wattle, eucalyptus, acacia plantations to natural forest. But comparing the data in Kerala Forest Statistics 2016 and 2021 revealed that, as on 31 March 2021, the plantation area of acacia auriculiformis and wattle has increased by 1,245.09 ha and 836.95 ha respectively instead of reducing.

It was further seen that in three acacia plantations under Thiruvananthapuram division, eco-restoration work was carried out by planting other species like medicinal plants (4.16 ha) in Peringamala section in 2010; and bamboo (4.18 ha) and miscellaneous species (49.4 ha) in Bharathanoor section in 2017. During JPV (26 August 2021) it was observed that the replanted species growth was suppressed by acacia in many areas. This points towards gaps in the planning, implementation and monitoring of the eco-restoration work in the acacia plantations.

Figure 2.3: Bamboo plants suppressed by growth of erstwhile acacia plants which were cut and removed in Peringamala forest section under Thiruvananthapuram division

Government stated (March 2023) that acacia, eucalyptus and wattles were planted for supplying raw materials to various industries in public sector. Now, State had formulated eco-restoration policy and the exotic plants will be removed in a phased manner, so as to ensure availability of water and fodder for wild animals and improving its habitat. The reply is silent on the observation made by Audit on the increase in exotic plantation area, and failure of eco-restoration project, and any future plan of action to resolve the issue.

2.1.7.8 Slow progress in securing elephant corridors

Elephant corridors (ECs) are linear, narrow, natural habitat linkages that allow elephants to move between secure habitats without being disturbed by humans. The procedure involves identification of the corridors, securing them by acquiring land and making it constraint free and finally notification of the same as forest land. Protecting and securing the ECs was identified as a long-term measure to reduce HWC.

The Right to Passage Report, 2005 (RPR 2005) and Gajah Report 2010 identified four ECs in the State and presently, the Department had identified nine ECs. Out of these nine ECs identified, only the corridor at Thirunelli-Kudrakote was fully established. In respect of others, ECs were yet to be established.

The present status of these corridors are as follows:

Table 2.4: Details of identified Elephant Corridors

Sl. No.	Name of the corridor (Year of identification)	Division under which the corridor falls	Corridor		Present status	Remarks
			Length in km	Width in km		
1	Kottiyoor- Periya (1996)	Kannur, Wayanad (N)	3	0.1	Out of 97.38 ha only 29.59 ha of land acquired.	Land acquisition in slow progress
2	Begur- Brahmagiri (2005)	Wayanad WLS with Brahmagiri WLS & Nagarhole TR (Karnataka)	1	0.8	Land to be acquired; area not ascertained	Land not acquired due to non-availability of fund
3	Nilambur –Appankappu (2017)	Nilambur North & South Divisions	0.4	0.5	Land to be acquired	
4	Periya at Pakranthalam (2019)	Wayanad (N)	0.5	0.2	Land to be acquired	
5	Thirunelli-Kudrakote (2005)	Wayanad (N)	6	1 to 1.5	Fully acquired and notified	Nil
6	Nilambur Kovilakam-New Amarambalam (2017)	Nilambur North & South Divisions	1	0.5	No acquisition required.	Not notified – Forest land leased out to Plantation Corporation of Kerala Ltd.
7	Mudumalai – Nilambur via O' Valley (Ouchterlony Valley) (2017)	Nilambur North Forest Division and Mudumalai Tiger Reserve (TN)	35	0.1	No acquisition needed on the Kerala side. Status in Tamil Nadu is not available.	Not notified

Sl. No.	Name of the corridor (Year of identification)	Division under which the corridor falls	Corridor		Present status	Remarks
			Length in km	Width in km		
8	Shanamangalam–Padiri (2021)	Wayanad (N)	-	-	Studies to be carried out	Nil
9	Aryankavu (2021)	Thenmala Division	-	-	Studies to be carried out	Nil

(Source: Details furnished by the Department)

Among the pending eight ECs, there are frequent visits of elephants in three ECs (Begur - Brahmagiri, Nilambur – Appankappu, Periya at Pakranthalam). This situation underscores the importance of timely identification and acquisition of land for ECs.

The timely identification and providing hindrance free routes for the elephants would lead to reduction in HWC not only in that particular location but also in adjoining areas.

Government replied (March 2023) that action shall be expedited to complete the identification and acquisition of already identified corridors and new corridors if any.

Case study 2: Not securing ECs in Chinnakanal – Mathikettan area in Udumbanchola Taluk in Idukki district:- The area is home to a population of about 28 elephants, which are mostly confined to this area due to the availability of food and proximity to water from the Anayirangal dam. However, their habitat is heavily impacted by anthropogenic activities and the corridors facilitating their movement to other forest areas like Mathikettan Shola and Devikulam have been affected by land-use changes and the elephant population becoming increasingly disconnected from other habitats. Since 2005, there have been 34 human deaths, 179 property damages, 90 crop damages, *etc*., due to elephant attacks. Additionally, seven wild elephants have died due to unnatural causes since 2010.

2.1.7.9 Habitat intrusion through cattle grazing in forest lands

Grazing inside forest causes habitat degradation as it affects the forage availability for the wildlife and leads to straying of animals into human habitations. It would also lead to spread of zoonotic diseases due to interactions between wild animals, humans and livestock. As per the NFP 1988, grazing and browsing in forest areas need to be controlled.

As per Section 3 of the Kerala Forest (Grazing) Rules, 1985, no person shall be allowed to graze his cattle in the reserve forests without obtaining proper permit for the purpose from the competent authority, *i.e.*, the Range Officer or any other officer authorised by him after realisation of prescribed fees. Exception is given only to tribals living inside forest area. Further, the Rules stipulate the action to be initiated (like impounding of cattle) against unauthorised grazing, grazing seasons and fees, *etc*.

Even though the management/working plans of all the selected Divisions recorded the negative effects of grazing in forest lands which includes forest degradation, soil erosion, contagious diseases, *etc*., the Department has not provided any information about the directions issued to control the grazing, permits issued to graze, grazing fees collected, *etc*.

During JPV, cattle grazing was observed in forest land under four[18] out of 11 Divisions visited. In Wayanad district where the incidence of HWC is high, as per Department data[19], around 80 *per cent* of the estimated 10,000 cattle in the District graze in the forests.

Despite identifying grazing as a serious issue leading to increase in HWCs, the Department is struggling to manage and/or prevent illegal grazing in forest lands effectively.

Government replied (March 2023) that instructions are given from time to time through concerned supervisory authorities during Senior Forest Officers' meetings held regularly to strictly follow the Rules, Management Plan and Working Plan.

The reply does not give any information on directions issued to control grazing, permits issued to graze and grazing fees collected, and grazing is continuing unabated despite the best efforts claimed by the Government.

Recommendations:

- ***Adequate steps should be initiated by the Department for eviction and prevention of encroachments, restoration of monoculture plantations to natural forests, relocation of forest settlements, to avoid fragmentation and degradation of forests.***
- ***The Department should ensure effective wildlife habitat management by providing adequate resources to wild animals in order to retain them within the forest boundaries.***
- ***Government should ensure that the entire boundary length of the notified area is clearly demarcated.***

2.1.8 Preventive and mitigative measures to handle HWCs

Lapses in construction and maintenance of preventive structures, wildlife population management, radio collar and SMS alert system, vista clearance, *etc*., were leading to HWCs.

Human-wildlife conflicts can be challenging to manage, but there are preventive and mitigative measures that can be taken to reduce the risk of such incidents. The preventive and mitigative measures undertaken by the Department were verified and the lapses observed in this regard are mentioned below:

2.1.8.1 Preventive structures against HWC involving elephants

Wild elephants not only cause multiple damages such as human death/ injury, crop loss, property damage, *etc*., but also its presence creates fear and affect social life.

[18] Palakkad (16 September 2021), Malayattoor (30 September 2021), South Wayanad (27 October 2021), Wayanad wildlife (02 November 2021).

[19] Expert sub-group's report on addressing issues related to human wildlife interaction in Kerala submitted to State Planning Board in November 2021.

Preventive structures have a major role in reducing conflicts with wild elephants. Traditional solar fencing is the most cost effective and widely used preventive structure. Elephant proof trenches, elephant proof walls, rail fences and crash guard fences also play a significant role in reducing HWC. The existing preventive structures covers a total length of 2,994.92 km[20].

Various lapses noticed in the construction and maintenance of preventive structures against elephants are discussed below:

- **Operation of Electric Fences without the approval of Electrical Inspectorate**

  An electric fence is a barrier that uses electric shocks to deter animals from crossing its boundaries. It typically consists of a series of wires or conductive elements that are connected to a power source, such as a battery or an AC outlet. When an animal touches the fence, they complete an electrical circuit, which delivers a painful but non-lethal electric shock. The shock is intended to train the animal from attempting to cross the barrier.

  Department uses solar power fences to prevent entry of wild animals, especially elephants, into fringe areas and private parties use mains operated and/or battery operated fences to protect their property from wild animal attacks. Based on the direction of Honourable High Court of Kerala, the Power Department, GoK issued a circular[21] (December 2010) directing that all officers of the GoK should ensure that there are no unauthorised electric fences in operation anywhere in the State. Accordingly, Electrical Inspectorate issued guidelines dated 17 November 2011 for installation of electric fence energiser to avoid danger to the life of human beings and animals. The approval of Electrical Inspectorate was required for the installation and operation of electric fences. The following issues were noticed in the installation of electric fence:

  - Though solar fences were installed in all the Divisions, approval of Electrical Inspectorate was not obtained thus resulting in violation by the Forest Department.

20 Solar power fence - 2,348.14 km, Elephant-proof trench - 511.22 km, Elephant-proof wall - 66.26 km, Crash guard rope fence - 32.40 km, *Kayyala* (short walls created by locally available earth and stones) - 15.12 km, Rail fence - 10 km, Hanging fence - 9.70 km, Steel structures with spikes - 1.88 km and Bio-fence - 0.20 km as per Expert sub group's report on addressing issues related to human wildlife interaction in Kerala submitted to State Planning Board in November 2021.

21 No.8096/B2/10/PD dated 17 December 2010.

- A total of 223 wild animals were electrocuted due to electric fences during 2017-22. This included 17 elephants, which was 49 *per cent* of the total unnatural elephant deaths. Out of this, one occurred at solar fence installed by the Department in Wayanad Wildlife Sanctuary. This indicates that the fences with irregular specifications were installed which proved fatal for the elephants.

Figure 2.4: Death of an elephant due to electrocution at Anakkalu, Malampuzha under Palakkad Division (November 2021)

- The Department does not have details of and/or control over the electric fences operated by private parties.

Though solar/electric fences are effective methods to prevent intrusion of wild animals into human habitats, the haphazard use of the same and installation of fences without approval of Electrical Inspectorate has led to death of wild animals and blocking of regular path of movement. Further, non-obtaining of approval of Electrical Inspectorate has also resulted in violation by the Forest Department.

In the Exit Meeting (February 2023), the PCCF admitted that the solar electrical fencing is blocking the movement of wild animals and only in few areas private parties are approaching Forest Department for instructions on installation of fences.

➢ **Absence of regular maintenance of Solar Power Fences**

Solar Power fences are successful only if it encircles human habitats to prevent the wildlife from entering the habitats. They require scrupulous daily maintenance like clearing vegetation near the fence on a regular basis, rectification of damages, if any, *etc*., to ensure sufficient electric shock.

Audit noticed the following lapses in respect of solar fencing:

- In three selected Divisions, where data on solar fences was available, 93.91 km[22] out of the total 306.09 km of installed solar fences were not functional.
- During JPV conducted (August to December 2021) in 15 locations[23] coming under the selected Divisions along with officers from the Department, Audit noticed the following:

22 Mannarkkad (35.28 km), Palakkad (10.63 km), Malayattoor (48.00 km).

23 Edavam in Palode range under Thiruvananthapuram division, Bimaram in Ranni range and Aakkemon Vadasserikara range under Ranni division, Karayoor sandal reserve and Vettukadu of Kanthaloor range under Marayoor division, Mekkappala range and Palavanpadi in Vadattupara range under Malayattoor division, Dhoni in Olavakkod range and 53 quarry in Walayar range under Palakkad division, Thiruvizhamkunnu in Mannarkkad division, Pulpally and Irulam in South Wayanad division, Kurichiat in Wayanad wildlife, Kottiyoor in Kannur division, Thondiyar in Vallakadavu range under Periyar East division.

- Solar fences in eight locations[24] were non-functional.
- In four locations[25], vegetation under the solar fences were not cleared.

Figure 2.5: Non-maintained solar fence - Vadattupara in Malayattoor division (30 September 2021)

Figure 2.6: Non-functioning solar fence - Bimaram in Ranni range (23 September 2021)

- **Lapses in maintenance of elephant-proof trenches and elephant-proof walls**

  Elephant-proof trench (EPT) and elephant-proof wall (EPW) were envisaged to prevent entry of wild elephants into fringe areas. The EPTs require regular maintenance as these get damaged and/or filled up by the deposit of earth material due to action of animals, landslides, people, rainfall, *etc*. It was seen that:

  - Out of nine selected Divisions in which EPTs were constructed, JPV was conducted (September to December 2021) in four locations in four Divisions[26] along with Department officials, and noticed non-maintenance of EPTs in all the four locations.
  - Out of six selected Divisions in which EPWs were constructed, JPV was conducted (September to November 2021) in three locations in three

[24] Karayoor sandal reserve and Vettukadu of Kanthaloor range under Marayoor division, Mekkapala and Vadattupara in Malayattoor division, Ranni and Vadasserikara in Ranni division, Walayar in Palakkad division, Thondiyar in Vallakadavu range under Periyar East division.

[25] Edavam in Palode range under Thiruvananthapuram division, Bimaram in Ranni range under Ranni division, Dhoni in Olavakkod range under Palakkad division, Palavanpadi in Vadattupara range under Malayattoor division.

[26] Thondiyar section under Vallakadavu range of Periyar East division, Dhoni forest section under Olavakkod range of Palakkad division, Aralam farm under Kottiyoor range of Kannur division and Kuppadi forest station under Kurichiyad range of Wayanad wildlife division.

Divisions along with Department officials, and noticed damaged/non-maintained EPWs in two locations[27].

The breach of EPT or EPW even at a single point would make it ineffective in the entire location. Hence, regular maintenance of EPT and EPW was required to prevent HWCs.

Figure 2.7: Damaged EPT - Periyar East Division (08 December 2021)

Figure 2.8: Damaged EPT - Wayanad wildlife division (27 October 2021)

Figure 2.9: Damaged EPW- Aralam Wildlife Sanctuary (16 November 2021)

- **Non-implementation of sanctioned fencing projects**

  The number of cases of wildlife attack has been showing an increasing trend over the years. Timely implementation of HWC prevention projects was required to reduce the losses. One project for the benefit of farmers to protect agricultural crops from the attack of wild animals, *viz*., 'Krishi Raksha Padhathi (KRP)' and two projects to reduce HWCs, *viz*., construction of EPT and EPW

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[27] Chelakolly in Chedleth range of South Wayanad division, Aralam farm under Kottiyoor range of Kannur division.

in Attappady and Agali ranges of Mannarkkad Division under Integrated Tribal Development Project (ITDP) and construction of crash guard fencing in Chedleth, Kalpetta and Meppady range of South Wayanad division were not implemented due to inadequate planning, absence of proper studies, procedural delays, *etc*., as detailed in ***Appendix 5***. It is observed that:

- Out of a total 34,814 crop loss claims received during 2017-22, 27,133 claims were approved as on 23 December 2022, and an amount of ₹19.16 crore was paid as compensation. The timely implementation of the KRP would have reduced the crop losses due to HWCs and the compensation claims.

- There were 13 human deaths due to wild elephant attacks during the period from July 2020 to April 2022 in Attappady and Agali range, out of which 10 were tribal people.

Government replied (March 2023) that all the points observed in the report relating to ensuring effective preventive measures shall be looked into and remedial action will be taken.

2.1.8.2 Other measures to reduce HWCs due to elephant attacks

Other than preventive structures, Department use various other measures like *Kumki* elephant squad, tranquilisation and translocation, SMS alert system, *etc*., to reduce HWCs caused by elephants.

➢ **Formation of elephant squad - shortage of *Kumki* elephants**

In 2014, Department identified necessity of formation of elephant squads for reducing HWC. *Kumki* elephants are the trained elephants that are necessary for driving back the elephants straying into human habitations. In August 2017, Department decided to set up *Kumki* squad with 10 elephants. On finding that *Kumki* elephants are effective in reducing HWC, in February 2019 it was decided to train 20 elephants as *Kumki* elephants. The training period required for training a *Kumki* was three months.

Presently, Department has 11 *Kumki* elephants, out of which six are undergoing training and one of them is injured. Hence, effectively only four of them are fit for being used as *Kumki* elephants. Also, the *Kumki* elephants are generally stationed in Palakkad and Wayanad divisions and hence their service is restricted to these Divisions. These limited the effectiveness of using elephant squads.

Government replied (March 2023) that action would be taken to train the eligible and suitable elephants available with the Department for training them as *Kumki* elephants and utilize their services in HWC issues effectively. Further progress awaited.

➢ **Non-functioning SMS alert system**

SMS alert system was found to be effective in reducing the HWC in Tamil Nadu and West Bengal as reported in the HEC guidelines issued by MoEF in 2017.

The Department had installed (March 2017) early warning SMS alert system in 35 locations under eight[28] selected forest divisions. But the SMS alert system was not functional in any of the selected Divisions.

Government stated (March 2023) that action will be taken to review the SMS Alert system and make them functional and to utilize it effectively.

- **Non-fixing of radio-collars on problematic elephants**

Section 12 of the WPA 1972 permits scientific management of wild animals including translocation of any wild animals to an alternative suitable habitat, or population management of wildlife, without killing or poisoning or destroying any wild animals. The MoEF had issued guidelines (February 2005[29]) for submitting proposals for seeking permission for capturing problematic elephants which includes recommendation from a team of experts with Chief Wildlife Warden (CWW) as Convenor and a MoEF nominee.

Radio Collars can be used to track the problematic elephants and alert the farmers about their movements. For fixing the radio collars, the elephants should be captured with prior permission from the Central Government.

The Divisional Forest Officer (DFO) Palakkad had identified three problematic elephants and had requested[30] for permission to tranquilise and radio collar them. The DFO Palakkad had purchased three radio collars at a cost of ₹5.63 lakh in October 2018 which was sanctioned subsequently by CWW in November 2018. But till date (January 2023), no permission from the Central Government has been received and no radio collars were fixed.

The Department had failed to take necessary action to procure permission from the Central Government to capture the problematic elephants and fix radio collars. Timely radio collaring of the problematic animals could have helped in early warning of its presence thereby reducing the HWC.

The radio collars were purchased prior to getting permission to capture the problematic elephants from Central Government and these are now kept idle for more than four years in the office of the DFO, Palakkad.

Despite the above, in July 2021, the Department further proposed to purchase eight more radio collars.

The Government replied (March 2023) that radio collars available with the Department shall be used for monitoring problematic wild elephants when situation arise and on considering its necessity.

The reply is silent on the procedural lapses in purchasing the radio collars, and the idling of three radio collars in the office of the DFO, Palakkad, for more than four years.

[28] Thiruvananthapuram, Marayoor, Malayattoor, Palakkad, Mannarkkad, South Wayanad, Wayanad wildlife and Kannur.
[29] vide letter No. 7-5/2000(PE) dated 08 February 2005.
[30] vide letter No. E2-5713/16 dated 29 August 2018.

2.1.8.3 Absence of effective strategy to deal with HWCs caused by wild boar, monkeys and peafowl

Wild boars, monkeys and peafowl are prolific breeders and according to the Department their population have increased. The shortage of food and water in forests, attractive crops and garbage in human habitations, absence of natural predators (peafowl), *etc*., are the possible reasons for their spreading to forest fringe areas and even far away human habitations leading to HWCs. The number of HWC claims received during 2017-22 due to wild boar attacks was 10,433 (including 21 human deaths) and that of monkey menace was 7,819.

- In respect of wild boar, the Department, using the powers vested under Section 11(1)(b) of WPA 1972, issued orders to cull problematic wild boars. During the period from June 2020 to May 2022, 2,395 wild boars were killed. From June 2022 onwards[31], the power to cull problematic wild boars was handed over to LSGIs.
- Problematic monkeys were captured and relocated.

Audit observed that these were only short term measures and no long term effective strategy was implemented by the Department to keep these wild animals within the forest area. Also, in respect of peafowl no strategy was devised by the Department.

2.1.8.4 Slow progress in relocation of human settlements under Wayanad Relocation Project

Relocation of families was identified as one of the long term mitigation measures to reduce HWC. There were 107 settlements, having 2,613 households within the boundaries of the Wayanad Wildlife Sanctuary. Due to increase in HWC, there was a demand from the inhabitants to relocate them. Accordingly, the Department submitted a project proposal for voluntary relocation of 800 families from 14 settlements under the Wayanad Relocation Package Phase I which was approved by GoI under Centrally Sponsored Scheme (CSS) and fund allocated by GoI during different periods starting from 2011.

Out of 14 settlements selected for relocation under Phase I, only eight settlements with 147 households were completely rehabilitated. In two[32] settlements, 174 households out of 283 have been rehabilitated, and no rehabilitation has happened in four[33] settlements.

It is observed that the project has been delayed by more than 10 years, and the delay was attributed to shortage of funds, delay in registration of land, procedural delays, delay in sanctioning of Central/State funds, *etc*.

Thus, purpose of creating an inviolate area for wildlife conservation was not achieved and the area continues to experience HWCs.

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[31] GO(Rt)No.239/2022/F&WLD dated 31 May 2022 to be read with GO (MS) No.29/2022/ F&WLD dated 28 May 2022.

[32] Kurichiad, Chettiyalathur.

[33] Pambankolly, Manimunda, Pankalam, Kolott.

Government replied (March 2023) that the delay in implementing the project was due to meager relocation package provision and recently there has been increase in the package. The reply is not acceptable as the HWCs are continuing in the region and the Government has not fixed any timeline to complete the project.

2.1.8.5 Absence of vista clearance to minimise human encounters with wild animals

Vista clearance is the activity of clearing vegetation along roadside and around human habitations to have a clear view of areas and avoid HWC. It is especially useful in areas of frequent human visitations including regular trek routes used by forest staff, public roads passing through the forest, roads leading to human settlements, *etc*.

Three instances on absence of vista clearance leading to HWC cases are discussed below:

- In Wayanad wildlife division, five instances of vehicle hit wild animal deaths, *viz.*, one elephant, one leopard, two spotted deer, one gaur, were noticed. Death of a tiger close to road was also reported as per the offence cases register. These cases occurred in three road reaches[34]. Audit conducted (09 November 2021) a JPV in the portion of Sulthan Bathery – Pulpally road that passes through forest area and noticed absence of vista clearance. This would severely affect the on-road visibility and could lead to vehicle hit death of wild animals.

Figure 2.10: Vista clearance not done – Sulthan Bathery – Pulpally road under Wayanad wildlife division

Figure 2.11: Vista cleared road under South Wayanad division of the same road

- In Walayar range under Palakkad division, four elephant deaths[35] were reported due to train hit during the audit period. The frequency of vista clearance along the railway track which was done twice a year was observed to be inadequate, and this was suggested to be increased to a minimum of four per year in the meeting held between Railway and Forest Department on 10 August 2022.
- During JPV conducted (16 November 2021) at Aralam farm in Kannur division, absence of vista clearance was noticed in the roads passing through the farm. Eleven human deaths were reported in Aralam farm during 2014-22 due to wild elephant attacks.

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[34] Sulthan Bathery - Pulpally road, Mananthavady – Kutta Road, Sulthan Bathery – Mysore Road.
[35] One elephant in 2018 and three elephants in 2019.

Figure 2.12: Absence of vista clearance in Aralam farm

Government replied (March 2023) that the vista clearance to minimize human encounter with wild animals was being undertaken at certain areas on priority basis subject to availability of funds.

Specific replies on the instances pointed out in the paragraph were not furnished.

2.1.8.6 Absence of effective strategy to manage tiger population leading to increase in HWCs in Wayanad

As per the data published in National Tiger Conservation Authority (NTCA) website an inviolate space of 800 to 1200 sq.km is required for a viable tiger population of 80 to 100 tigers. The number of tiger population and density (120 numbers in 344 sq.km.[36]) is very high in the Wayanad Wildlife Sanctuary compared to the two tiger reserves *viz.,* Parambikulam (27 numbers) and Periyar (26 numbers). Even though Section 12 of the Wildlife (Protection) Act, 1972 (WPA 1972) permits population control of problematic animals through scientific management, no population management strategy like shifting to other tiger reserves with low density of tiger population was devised by the Department.

The number of HWC cases (based on claims received through e-district portal[37] during 2017-22) in respect of tiger was highest in Wayanad Wildlife Sanctuary (336 cases) and nearby ranges of Begur (139 cases) and Chedlath (132 cases) in North Wayanad and South Wayanad divisions respectively, which constitute 68.35 *per cent* of the total number of 888 cases in the State.

As per the Status of Tigers, Co-predators and Prey in India, 2018 report, Wayanad Wildlife Sanctuary was characterised by good prey and tiger density. The report observes that together with the adjoining tiger reserves of Karnataka and Tamil Nadu, this region is home to the largest tiger and elephant population in the world and suggested gazetting the sanctuary as a tiger reserve. Creating a tiger reserve would have ensured more allocation of Central funds, effective management of wildlife habitats and consequent reduction in HWCs. But the recommendations were not implemented by the Government till date (April 2023).

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[36] 'Status of Tigers, Co-predators and Prey in India, 2018' report prepared by NTCA, Government of India, and Wildlife Institute of India, Dehradun in 2020.

[37] The online portal to provide Government services to citizens. HWC claims are submitted to Forest Department through e-district portal.

Government stated (March 2023) that the Department is planning to conduct tiger population estimation exclusively for Wayanad landscape and the issue on declaring Wayanad Wildlife Sanctuary as a tiger reserve was taken up in State Board for Wildlife meeting held on 27 December 2022. Further progress in managing the tiger population in Wayanad district and reduction in HWCs awaited.

2.1.8.7 SARPA App and managing HWCs relating to snakes

The Department operates a mobile application called SARPA (Snake Awareness Rescue and Protection Application) for systematic tracking of rescue and release of snakes from human habitations, creating awareness among public regarding snakes, helping public to find the nearest place where anti-venom treatment is available, *etc*. The Department had trained (November 2022) 1,660 volunteers consisting of Departmental officials and other public for scientific rescue of snakes.

During the period 2017-21, the number of incidents of snake bite was 2,919 which included 338 human deaths (KFS data).

Audit observed the following:

- Out of 1,660 certified rescuers, only 569 (34.28 *per cent*) rescuers have registered in the SARPA App (October 2022). It was reported by the Department that most of the certified snake handlers among the Department staff and watchers have not registered in the App.
- The list of anti-venom treatment hospitals was not available in the Department website. Even though report of snake bite is high in eastern areas of Kannur district, all the five anti-venom hospitals of Kannur listed in the app are located in the western side of the district which would create difficulties in travelling for the victims of snake bites.
- The registered volunteers are not covered under any insurance policy. So far one volunteer died due to snake bite and another injured, for which compensation under Kerala Compensation Rules, 1980 were only provided.

Government accepted (March 2023) that many of the Department personnel have not registered in SARPA and stated that instructions were given to all Assistant Conservator of Forests (SF) to monitor and ensure the registration of certified rescuers in SARPA.

In respect of anti-venom hospitals, Government replied (March 2023) that the list of hospitals in the State where anti-venom is available has been enlisted in SARPA App along with geo-tagging and contact details. Audit observation was on the non-availability of list of anti-venom treatment hospitals in the Department website, which is more convenient and quickly accessible, and the reply is silent in this regard.

It was further stated that insurance for the registered volunteers is under consideration of the Department.

2.1.8.8 Functioning of Rapid Response Teams constituted to deal with Human Wildlife Conflicts

Government of Kerala accorded Administrative Sanction[38] (September 2011) for formation of five[39] Rapid Response Teams (RRT) to drive back wild elephants entering fringe areas causing damages to life and properties. As per the Guidelines for operation of RRTs to mitigate Human-Animal Conflict (RRT guidelines) issued by the Department (March 2019), the RRTs are to be headed by Deputy Range Forest Officer/Section Forest Officer and consist of two Section Forest Officers, four Beat Forest Officers and six Forest Watchers/Tribal Watchers.

Presence of a team of people led by well-trained officials and equipped to deal with conflict situations often pacify agitated people and help assure them safety. In respect of functioning of the RRTs, Audit noticed the following:

- The number of RRTs has increased to 15 due to increase in HWC. But Government sanction is pending for seven RRTs[40].
- The RRT guidelines issued by the Department did not consider the Guidelines for Management of Human Elephant Conflicts (HEC guidelines) issued (October 2017) by MoEF in respect of constitution of RRTs, formation of Primary Response Teams, equipment, training, *etc*. The issues noticed in the five selected Divisions[41] where RRTs are functioning are detailed in the ***Appendix 6***.

Government stated (March 2023) that approval process of temporary RRTs is being taken up and action would be initiated to fulfill the requirements of RRTs as per the guidelines.

Recommendations:

- ***Timely construction, effective functioning and regular maintenance of preventive structures, wildlife population management, vista clearance, etc., would help reduce HWCs.***
- ***Training more Kumki elephants and locating them in high elephant conflict areas, warning people on the movement of elephants using SMS alert system and tracking the movement of problematic elephants using radio collars, etc., would assist in reducing HWCs caused by elephants.***

38 GO (Rt) No. 408/2011/F&WLD dated 16 September 2011.
39 Nilambur, Wayanad, Palakkad, Kannur and Ranni.
40 Thenmala, Konni, Munnar, Kasaragod, Aralam, Mannarkad, Agali.
41 Thiruvananthapuram, Ranni, Palakkad, Kannur, Wayanad wildlife.

2.1.9 Post Conflict measures in Human Wildlife Conflicts

Post human wildlife conflict measures were affected due to delay in compensation payment, irregularities and procedure lapses in approval of claims, absence of rehabilitation support, *etc*.

Post HWC measures like timely and hassle-free payment of compensation, rehabilitation support, insurance, *etc*., can help in assuaging the public resentment. Observations in this regard are given below:

2.1.9.1 Deficiencies in compensation framework

Audit test checked 858 claims in the selected Divisions and observed the following:

- **Absence of provision in e-district portal**: In the e-district portal there is no provision for claiming for loss of poultry, wooden trees and agriculture produces like coconut, arecanut, *etc*.

- **Absence of uniformity in fixing price:**

  - Even though Government has fixed the compensation rates for loss of crops[42] due to wild animal attacks, no rates were fixed for cattle/livestock loss on the basis of age, breed, milching, *etc*., in the e-district portal. In the selected Divisions, the claims were allowed based on the discretion of veterinary surgeon and the verifying Department officer. The compensation amount per cattle loss varied from ₹15,000 to ₹50,000 in the test checked claims.

  - In three Divisions[43], compensation claims for loss of coconut due to monkey attack were not admitted whereas in three[44] other Divisions compensations ranging from ₹2.50 to ₹770 per coconut were paid.

  - In Marayoor Divisions, an individual claimed compensation for 85 coconuts on 20 February 2019, 30 coconuts on 10 September 2019 and 91 coconuts on 07 May 2020 due to attack of monkeys. The DFO admitted claims for an amount of ₹1,58,620 at the rate of ₹770 each which are the rates fixed for loss of coconut bearing trees.

- **Absence of rehabilitation support:** As per the Guidelines for Management of Human Elephant Conflicts (HEC Guidelines), 2017 issued by MoEF, the Department should directly meet all the medical expenses including post hospital expenses of the injured person. The affected person should be suitably rehabilitated. NGOs with appropriate expertise should be involved to rehabilitate the injured person and/or next to kin, in case of death of a person.

  NWAP suggested putting in place arrangements so that the persons injured by wild animals receive quick and proper medical treatment and rehabilitation

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[42] GO(MS) No.02/2015/F&WLD dated 08 January 2015.
[43] Malayattoor, Mannarkkad and South Wayanad.
[44] Thiruvananthapuram, Marayoor, Kannur.

support including wheelchairs, prosthetic limbs and plastic surgery whenever required.

The Kerala Compensation Rules, 1980 or orders issued thereon/thereafter do not stipulate such rehabilitation support measures. Audit observed that in the absence of orders/instructions as per guidelines, follow up for providing rehabilitation support is not ensured.

Government stated (March 2023) that action shall be taken to consider proposal for providing rehabilitation support on need base.

- **Absence of SMS based application status system**: An SMS based system, like that followed in Revenue Department, would help the applicant know the status of their claim application. But this was not made available by Forest Department. In Malayattoor Forest Division, a clerk misutilised the BiMS[45] for preparing false bills and thereby an amount of ₹5.53 lakh relating to 11 beneficiaries were transferred to his account during the period from August 2019 to April 2020. An SMS based application status system would have prevented such a misappropriation.

As per the Government reply (March 2023), compensation for crop damage was being made based on the approved Government Order. The reply is, however, silent in respect of discrepancies noticed on the compensation claims for loss of coconut. In respect of compensation for cattle loss, it was stated that the assessment of loss was made by authorized officer, *i.e.*, Veterinarian, considering all possible aspects including age, milching/non-milching, *etc*. The reply is not acceptable as in the absence of any benchmark rates for cattle/livestock based on category, age, milching/non-milching, *etc*., the assessment of cattle/livestock loss is arbitrary as pointed out by Audit. No reply has been furnished on lack of provision for claims on loss of poultry, wooden trees and agriculture produces like coconut, arecanut, *etc*. The Government also stated that possibilities of SMS based application status system shall be explored and implemented accordingly.

2.1.9.2 Delay in payment of compensation to HWC victims

NWAP suggested streamlining the official procedure for payment of ex-gratia relief to the victims of HWC to ensure that the relief is disbursed immediately with minimal paperwork and hindrances. Compensation for loss due to HWC is administered by the Kerala Compensation Rules, 1980. As per Kerala State Right to Service Act, 2012 applicable to the Department, the DFO has to issue sanction order within 30 days in the case of application for compensation of crop damage by wildlife.

The status of claims received during 2017-22 and settled as on 16 December 2022 in respect of the selected Divisions is given in **Table 2.5** below:

[45] Bill Information and Management System (BiMS) is an e-Bill portal for claim settlements by Drawing and Disbursing Officers (DDOs). The DDOs can prepare online contingent bills and e-submit to treasury through BiMS.

Table 2.5: Status of claim settlement

Particulars	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Total Claims received	5,044	5,694	5,464	4,672	4,673	25,547
Approved	4,356	4,879	4,631	3,250	2,151	19,267
Rejected/Resubmitted	364	409	353	319	365	1,810
Total Pending	303	397	473	1,097	2,323	4,593
Pending with Forest Range Officer	208	193	219	321	459	1,400
Pending with DFO	95	204	254	776	1,864	3,193

(Source: Data from e-district portal)

The following observations on claim settlement are noticed:

- Out of the 25,547 claims received, 19,267 claims were approved, and 4,593 claims (17.98 *per cent*) were pending. Out of these 2,270 claims were pending for more than one year.
- The total pending claims for the period 2017-22 after deducting the approved and rejected/resubmitted claims from the total claims received was 4,470. But the total pending claims as per the e-district portal was 4,593, a difference of 123[46]. The Department must carry out a reconciliation of the same.

Government accepted (March 2023) that there are instances of delay in payment of compensation, and these are due to lack of fund availability. Action is being taken to make the payment of compensation at the earliest possible time.

The reason for discrepancy in pending claim figures were not furnished.

2.1.9.3 Absence of socio-economic impact studies on HWCs

As per NWAP 2017-31, the increase in HWC leads to growing antipathy among the people towards wildlife conservation resulting in retaliatory killings or injuries to animals. The study on socio economic impact of HWC in the State will throw light on the difficulties faced by people and the initiatives that need to be taken up by the Department to ensure harmonious co-existence of humans and wildlife. But no such study has been conducted by the Department. During JPVs conducted (September - October 2021) in four locations[47], Audit noticed instances where there

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46 25,547-(19,267+1,810) = 4470; 4,593-4,470 = 123.

47 Irattavali under Thiruvizhakunnu forest station in Mannarkad Division; location near track B railway line in Palakkad Division; Kumbalathodu and Vadakkumbhagam under Mekkapal forest station and Anamukku under Vadattupara forest station, under Malayattoor Division.

was abandoned agriculture land/houses, people were afraid to attend functions, there was fear of losing job opportunities, *etc*.

The details of socio-economic impact studies conducted in the State, if any, were not furnished. Further reply awaited (April 2023).

Recommendation: Streamlining the process of settling HWC claims, timely payment of compensation, rehabilitation support, etc., would reduce the apathy of people towards protection of wild animals and ensure confidence.

2.1.10 Co-ordination with all stakeholders to reduce HWCs

Lack of co-ordination with various stakeholders like LSGIs, Agriculture Department, Revenue Department, *etc*., was affecting the HWC measures of the Department.

Effective co-ordination with all stakeholders like LSGIs, Revenue, Animal Husbandry, Agriculture, Tourism Departments, *etc*., is crucial for the successful implementation of HWC preventive and mitigative measures. By working together, the Department can develop and implement solutions that promote harmonious co-existence of humans and wildlife. The observations in this regard are given below:

2.1.10.1 Non-involvement of LSGIs and Agriculture Department to dissuade cultivation of attractive crops in fringe areas

National Wildlife Action Plan 2017-31 suggests participation of LSGIs in promotion of alternative cropping practices among villagers. Further, creating awareness among farmers in fringe areas to avoid cultivation of crops attracting wildlife was identified as one of the solutions to reduce HWC by the Department.

Out of total 49,364 HWC claim applications received during the audit period, 34,814 claim applications (70.53 *per cent*) were related to crop loss.

Usually, elephants raid crops because they are more palatable, more nutritious and have lower secondary defences than wild browse plants. Crops like plantain/banana and pineapple attract elephants whereas crops such as mango ginger, lemon, *etc*., are financially attractive and not raided by any animals. The Department has not involved LSGIs and Agriculture Department to address this issue and devise an effective strategy to persuade the farmers to shift to these alternative crops.

Government accepted (March 2023) the Audit suggestion on involving concerned stakeholders and assured that action will be taken to make people living in forest fringe areas aware and promote alternative crops.

2.1.10.2 Delay in formation and convening of Inter Departmental Co-ordination Committees

According to the advisory[48] issued by MoEF, the Government should constitute Inter Departmental Co-ordination Committees at State Level[49] and on the recommendation of CWW, at District Level[50] in all or identified districts of the State that are vulnerable to HWC. The SLCC should meet at least once in six months and DLCC at least once in three months.

On 25 October 2021, PCCF recommended proposal to the GoK for constitution of the committees. Government issued order on 09 December 2021 forming 14 DLCCs, one in each district. During 2021-22, only seven DLCCs convened in February - March 2022.

Audit observed delay of more than 10 months in constitution of DLCCs. No meetings were held by seven DLCCs (March 2022), which shows slackness on the part of Department in prevention and management of HWC.

The Government replied (March 2023) that meeting of all the DLCCs have been convened by December 2022 and the follow up action taken therein is being looked into for future course of action. Details of SLCC meeting conducted was not furnished, and the reply lacked assurance on conducting periodic meeting of DLCCs/SLCCs for addressing the HWC issues in the State.

2.1.10.3 Co-ordination between Government Departments to avoid duplication of Insurance Claims

Pradhan Mantri Fasal Bima Yojana (PMFBY) is the Government sponsored crop insurance scheme which covers crop damage by wild animals which was implemented through State Agriculture Department. Similarly, Animal Husbandry Department has insurance schemes for cattle loss. The Kerala Compensation Rules, 1980 do not prohibit receipt of government sponsored insurance claims in addition to the compensation provided under the Rules. Hence, while applying compensation through the e-district portal, there is no provision for seeking information about whether the cattle/ crop have already been covered under any insurance coverage of the Government. The possibility of getting claims from multiple Government sources cannot be ruled out.

Government assured (March 2023) that action shall be taken to modify the application for compensation through e-district portal system to avoid duplication of Insurance Claims. Compliance awaited.

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[48] F. No. 8-60/2020 WL dated 06 February 2021.

[49] State level co-ordination committee (SLCC) to be headed by the Chief Secretary, CWW as Member Secretary and representatives from various Departments like Home, Finance, *etc*., and LSGIs.

[50] District level co-ordination committee (DLCC) to be chaired by the District Collector, DFO/Wildlife Warden of Forest District Headquarters as Member Secretary and comprise of district level officers of various Departments/organisations included in the SLCC.

2.1.10.4 Absence of co-ordination with different stakeholders

Audit noticed that co-ordination with Departments like Revenue, Tourism, Animal Husbandry, *etc*., and LSGIs are necessary to mitigate HWC lapses. But absence of co-ordination was noticed in the following cases.

- **Revenue Department:**

The following issues were noticed:

- Revenue Department modified the status of 1,902.33 ha of forest land in Marayoor division as revenue land based on re-survey from 1993 onwards.
- *Pattas* were issued by Revenue Department in forest lands as mentioned in ***Paragraph 2.1.7.2***.
- Encroachment of forest lands generally occur in fringe areas.

The absence of adequate consultation among the Departments during re-survey and issue of *pattas* in forest fringe areas are leading to long term disputes and shrinkage in forest lands. Lack of coordinate effort in identifying and evicting the encroachers result in fragmentation of wildlife habitats apart from worsening the HWC situation in the State.

- **Animal Husbandry Department**:

Cattle grazing in forest land was found to be one of the major causes of HWC *(**Paragraph 2.1.7.9**)*. Co-ordination with Animal Husbandry Department was required to create awareness among the cattle farmers about the issue of zoonotic diseases, and other HWC issues due to grazing.

- **Local Self Government Institutions**:

Active participation of LSGIs is required for preventing and mitigating HWCs. LSGIs may be involved for regular maintenance of preventive structures.
Dumping of garbage in fringe areas is one of the major causes for intrusion of wild boars and monkeys into human habitations and thereby leading to HWC. Co-ordination with LSGIs for timely removal of these garbage would decrease the intrusion of wild animals to human habitations.

- **Tourism Department:**

Tourism activities in certain areas near forests have led to increase in HWCs. For example, there has been an increase in HWCs in Anayirangal and adjacent areas of Idukki due to increased tourism activities. In January 2021, a woman tourist staying in a tent in the fringe area of a forest was killed by a wild elephant attack in Meppady. Additionally, tourists visiting resorts in the Kumizhi enclosure in the Muthanga range have been reported to disturb wild animals by creating loud noise and engaging in hunting.

The Forest Department has not issued directions to tourist resort operators and/or tourists staying in fringe areas to ensure responsible tourism initiatives in co-ordination with Tourism Department.

Government replied (March 2023) that tourism outside forest areas is managed by Tourism Department. However, necessary guidelines shall be considered and issued for taking desired measures on conservation of wildlife/wild animal in respective areas after undertaking appropriate studies.

Government assured (March 2023) that points observed in the Report shall be reviewed and appropriate action will be taken to address the issue.

Recommendations:

- ***The Department should coordinate with all stakeholders to reduce the occurrence and impact of HWCs in the State.***
- ***LSGIs and Agriculture Department may be directed to promote cultivation of alternative crops in fringe areas through training, providing saplings, targeted loans, incentive for income loss, ensuring market for the produce, etc.***

2.2 Failure of Forest and Wildlife Department in identifying forest land received in lieu of land transferred for road resulted in non-execution of compensatory afforestation and reconstruction of a State Highway

Divisional Forest Officer failed to identify the vested forest land when proposed by the Public Works Department for purchasing from a private party and handing over for compensatory afforestation.

Section 2(ii) of Forest (Conservation) Act, 1980 stipulates that State Governments shall seek prior approval of Government of India (GoI) for use of any forest land for non-forest purpose. As per Section 4 of the Kerala Private Forests (Vesting and Assignment) Act, 1971, all private forests so long as they remain vested in the Government, be deemed to be reserved forests constituted under the Kerala Forest Act, 1961 (4 of 1962), and the provisions of that Act shall apply to such deemed to be reserved forests.

The Public Works Department (PWD), Government of Kerala (GoK), had sought approval of the Ministry of Environment, Forest and Climate Change, GoI for diversion of 4.05 ha of forest land in Nemmara Forest Division for development of Nemmara-Nelliyampathy road between chainage KM 8/000-30/022 through Forest &Wildlife Department (F&WLD), GoK. The GoI approved (October 2006) diversion of land with a condition stating that equivalent non-forest land along with cost for raising compensatory afforestation should be transferred to F&WLD by the user agency.

The PWD, GoK identified a private land comprising 4.07 ha, which was reported as suitable for compensatory afforestation by the Divisional Forest Officer (DFO), purchased and handed over (December 2006) the same to F&WLD. However, F&WLD later realised (December 2013) that the land was vested forest land. Compensatory afforestation could not be carried out, as hassle-free land was not yet handed over (February 2023) in lieu of the diverted land.

Under Rebuild Kerala Initiative (RKI), PWD had proposed and accorded Administrative Sanction (August 2020) to reconstruct roads damaged in 2018 floods which included the Nemmara- Nelliampathy State Highway for ₹105.48

crore. The DFO, Nemmara made it clear (October 2020) to PWD authorities that the land transferred to PWD for construction of road has not been de-notified from forest land and prior permission from F&WLD is required for construction/ maintenance activities there. As the State Highway is passing through Nelliampathy Reserve Forest area, the German Bank financing RKI insisted on obtaining concurrence from the F&WLD and has not issued 'No objection' for tendering the work.

Audit observed the following:

- an amount of ₹42.48 lakh was deposited with F&WLD as net present value and for compensatory afforestation, but compensatory afforestation has not taken place in the transferred land even after sixteen years (2022); and
- this prevented reconstruction of a road, ravaged by flood, for which Administrative Sanction was obtained (August 2020) for ₹105.48 crore under RKI, and thereby denied a facility due to the public.

The F&WLD replied (January 2023) that the Additional Chief Secretary and CEO, RKI entrusted (January 2021) the District Collector, Palakkad to find an alternate land to transfer to F&WLD for compensatory afforestation. The process of transferring compensatory land to F&WLD has not been completed so far (February 2023).

The Government replied (March 2023) that there were 34 bits covered in the vested forest notification number (B2-3590/2001 dated 28April 2001), lying outside the already prepared periphery sketch of VFC item No.35, and there were no sketches showing the entire vested area available at the time of taking possession of the land. The officials were unable to identify that the land proposed for handing over was a vested forest at the time of transfer of the land by the PWD authorities, and intimated the same in March 2014 only. It was further stated that the user Department is responsible for transferring hassle-free land to the F&WLD and this has not been received so far. Hence, the Department has not issued non-objection for the road work under RKI (March 2023).

The reply is not acceptable as it is the responsibility of the F&WLD to have a clear demarcation of its own land.

Thus, delay in identification of forest land by F&WLD and non-handing over of hassle-free land for compensatory afforestation by PWD acted as a hindrance to road infrastructure development project and depriving the public of a basic facility.

Recommendations: The Government may give strict direction to the F&WLD to maintain and update records of land under the Department including vested forest land to avoid disputes and to prevent encroachments. Also, the Department should liaise with the PWD to get the alternative land for compensatory afforestation so that the road is reconstructed as per the objective of Rebuild Kerala Initiative.

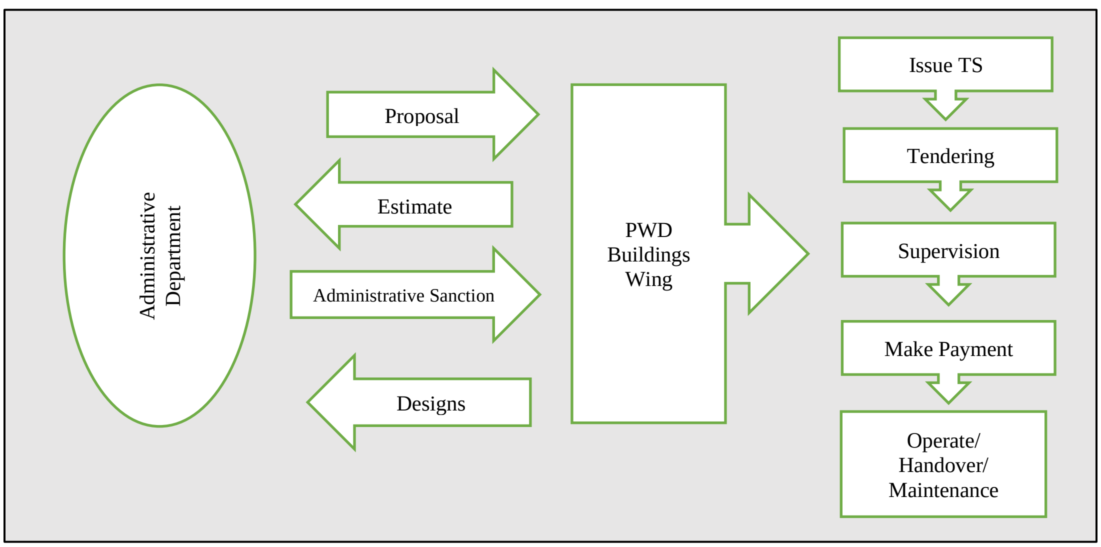
Public Works Department

2.3 Construction and maintenance activities by the Buildings Wing of Kerala Public Works Department

2.3.1 Introduction

The Public Works Department (PWD) is the statutory authority[51] for designing, planning, monitoring, constructing and undertaking maintenance of public works of the State Government, such as buildings, roads, *etc*., irrespective of the source of funds for the same. The Buildings Wing of Kerala PWD is responsible for the construction and maintenance of Government buildings, *viz*., (i) residential buildings such as staff quarters (ii) Government non-residential general purpose office and administrative buildings relating to 'General Services' (Public Service Commission, Jails, Stationery & Printing, *etc*.), 'Social Services' (Education, Sports, Art & Culture, Medical & Public Health, Family Welfare, Social Welfare, *etc*.) and 'Economic Services' (Agriculture, Animal Husbandry, Fisheries, Co-operation, *etc*.) (iii) functional buildings coming under the Social and Economic Services, *viz*., school buildings, hospital buildings, agriculture colleges, *etc*. Further, the Wing is mandated to ensure that the desired life of the Government buildings was achieved by complying with Quality Control (QC) aspects in construction and by executing periodic and preventive maintenance of existing assets. The Buildings wing deals with the planning, project preparation, construction, maintenance and arrangement of works including water supply, electrification and electronic works of Government buildings.

Chart 2.1: Schematic diagram of execution of works in PWD



The Secretary to Government of Kerala heads the PWD. The Chief Engineer (Buildings) (CE) assists the Government in planning and executing the construction and maintenance activities entrusted to the Buildings Wing. The Buildings Wing of the Department consists of 16 Buildings Divisions under three Circle Offices and a

51 Section 101 of KPWD Manual

Judicial Circle in the State. The Wing maintains 11,613 buildings (January 2023) spread across 14 districts of the State under different categories, *viz.*, offices, residential and functional buildings.

2.3.2 Audit objectives

To examine whether:

- the planning for construction and maintenance of buildings including internal roads and connected structures were comprehensive and effective;
- the financial management of the buildings wing is effective and measures to achieve economy in expenditure and optimum revenue realisation was ensured while implementing construction and maintenance activities;
- the construction and maintenance works were executed in compliance to existing regulations/stipulations; and
- the monitoring and internal control mechanism of the Wing is adequate and effective in achieving the objectives of construction and maintenance of public buildings.

2.3.3 Audit criteria

The audit is conducted based on the following criteria:

i. Kerala Public Works Department (KPWD) Manual
ii. Kerala Public Works Account (KPWA) Code
iii. Kerala Financial Code
iv. Kerala Store Purchase Manual
v. Standard Bid Document (SBD)
vi. Quality Control Manual of PWD
vii. Contract Agreement Conditions
viii. Government Orders/Circulars/Guidelines

An entry meeting with the Secretary to Government was held on 30 August 2022 to explain the objectives of audit. On conclusion of audit, an exit meeting to discuss the audit findings was conducted on 16 February 2023.

The Compliance Audit was conducted from April 2022 to January 2023 covering the period from 2019-20 to 2021-22. Five out of 16 Buildings Divisions, *viz.*, Special Buildings Division, Thiruvananthapuram and Buildings Divisions of Kottayam, Kozhikode, Wayanad and Thrissur were selected using stratified random sampling method. Out of 513 works executed by these divisions during 2019-2022, 104 works (49 completed, 54 ongoing and one foreclosed), including 13 deposit works, amounting to ₹447 crore were selected using stratified random sampling. This included cent *per cent* works costing more than ₹10 crore, 25 *per cent* costing between ₹one crore to ₹10 crore and 10 *per cent* of works costing below ₹one crore executed by the Divisions during the above period. Apart from these, 25 maintenance works were also selected randomly. The observations are based on test-check of records maintained in the selected Divisions and all Circle

Offices[52], relevant information from other Departments and by conducting Joint Physical Verification (JPV).

Audit Findings

The deficiencies at various stages of construction and maintenance of buildings undertaken and awarded by PWD, observed during the course of audit are explained in the ensuing paragraphs.

2.3.4 Planning and Estimation

The lapses in estimation and deficiencies in planning for construction and maintenance of building works resulted in time overrun, cost overrun, non-adoption of green building concepts and inadequate maintenance of buildings.

Sections 104.1 and 702.1 of KPWD Manual describes requirement of planning to be carried out by the Department. The Planning section in the CE's office is responsible for preparation of Budget proposals, collection and processing of progress reports in co-ordination with the Circle and Division offices and review current performance, identify resources, define new financial year's targets and review performance, progress and achieving objectives.

2.3.4.1 Deficiencies in planning and non-achievement of five-year plan targets

As per Section 206.1 of KPWD Manual, the CE shall be responsible for preparing annual plan, five years' development plan including preparation of the Budget proposals and Annual Administration Reports. Further, he shall plan, organize and co-ordinate building works based on budget allocations. Audit observed that though the CE prepared the annual and five years' development plans, preparation of five years' development plans was not in accordance with the provisions of KPWD Manual as discussed below.

- As per Section 213.1.1 of KPWD Manual, CE was to ensure that preparation of five-year development plan should start from the Division level. However, only annual plans were prepared by the Divisions. Non-compliance to manual provisions adversely affected the long-term planning process as is evident from the non-completion of works taken up during earlier years and issues related to maintenance activities as mentioned in subsequent paragraphs (***Paragraphs 2.3.4.4 to 2.3.4.6***).

- The main priority of the Buildings Wing for 13th Five Year Plan (FYP) (2017-22) was to complete the ongoing works in a time bound manner. However, as per data maintained by PWD, even after the end of 13th FYP (March 2022), a total of 97 projects[53] (each costing more than ₹one crore) sanctioned by the Government with a total outlay of ₹1,038.66 crore during the 11th (2007-12) and

52 Buildings North Circle, Kozhikode; Buildings Central Circle, Thrissur; Buildings South Circle, Thiruvananthapuram; Judicial Buildings Circle, Ernakulam.

53 Data of ongoing projects (above ₹ one crore) available in PWD website.

12th (2012-17) FYPs were not completed as of October 2022 as shown in **Table 2.6**. Out of these, 41 projects belong to selected divisions.

Table 2.6: Incomplete projects of previous FYPs

(₹ in crore)

Year in which AS received	Number of projects	Outlay	Range of physical progress (*per cent*)	Projects yet to start
2010-11	1	15.00	92	NA
2013-14	4	19.51	25 to 95	NA
2014-15	10	27.81	23 to 99	NA
2015-16	19	601.54	0 to 98	1*
2016-17	63	374.80	0 to 99	4*
Total	**97**	**1,038.66**		

*these projects do not come under the samples selected

- The general objective set for 13th FYP (2017-22) included shifting of all Government offices functioning in rented buildings to own buildings. In the absence of a perspective plan, it could not be materialised even at the end of the plan period. Audit observed that various Departments of the Government had incurred an amount of ₹190.92 crore[54] towards rent during the period from 2019-22 as shown in ***Appendix 7***. Now the same goal is rolled over to 14th FYP (2022-27) with a target period of another five years. Similarly, projects were taken up by the wing in a phased manner. Though in the work file, the phases are recorded as completed, Audit, during JPV (18 January 2023), noticed buildings idling for want of extension projects, which revealed lapses in holistic planning of projects and its continuity.

Government replied (February 2023) that due to lack of funds, many proposed projects, including the shifting of Government offices from rented to own buildings, are being carried out in phases. The COVID pandemic caused a slowdown in works from December 2019 to 2021, resulting in stalled projects due to lack of funding for contractors. Additionally, most projects with a 20 *per cent* budget provision in the FY 2022-23 under the PWD head were sanctioned without ensuring availability of land or are yet to be identified by relevant Departments.

The reply was not tenable since the Government could not attribute any specific reason for delayed works pertaining to earlier FYP periods. Moreover, plan for shifting offices from rented buildings to own buildings was not based on any prioritised list of buildings or any database of rented buildings.

2.3.4.2 Non preparation of Performance Budget

Section 707 of KPWD Manual envisages preparation of Performance Budget by the Buildings Wing. This method of budgeting was intended to enable a department to set out in the budget document the objectives of the Department during a year, the programs and activities by which these objectives are proposed to be realized,

[54] As per VLC data and Finance Accounts of respective years.

the expenditure to be incurred on each of these programs and activities during the year, indicating the broad physical achievements that is possible. Further, this is a useful management tool both for the Legislature and the Departments in programming and evaluating the performance of the Departments. Despite this, Audit noticed that the CE did not ensure the preparation of the Performance Budget so far.

Failure of the Buildings Wing in this regard rendered the effectiveness of the planning and budgeting process non-measurable with reference to planned financial outlays and physical outcomes.

Government replied (February 2023) that Agriculture, Forest & Wildlife and Water Resources Departments were selected for Performance Budget preparation, while PWD was chosen for Concurrent Monitoring and Evaluation of Schemes.

The reply is not tenable since Concurrent Evaluation is a monitoring tool and Performance Budget is a planning tool and hence both are necessary for effective planning and measurement of outcomes. The preparation of the Performance Budget would have aided in the efficient planning of Buildings Wing.

2.3.4.3 Inadequate promotion of Green Building Concepts

- **Green Building Policy, 2013**

  Government of Kerala approved Green Building Policy, 2013 (GBP) with the objective of ensuring environment friendliness, conserving natural resources, energy efficiency, *etc*., by using solar panels and other non-conventional sources, waste management strategies, *etc*., in construction of buildings.

  Even after a delay of 10 years, the CE was unable to take effective action to promote GBP in the State. Elements of GBP were not seen incorporated in any of the test-checked buildings.

  Government replied (February 2023) that the buildings designed by PWD are climate responsive and environment friendly by including all possible economically viable parameters of a green building. However, Audit noticed during JPV of selected completed buildings that in none of the buildings, provision for solar panels, water conservation, waste management strategies, *etc*., were given, though this was one of the main objectives of GBP. Moreover, Government did not provide the details or list of environment friendly parameters adopted by the Department.

- **Non-adoption of GRIHA certification for PWD buildings**

  GRIHA (Green Rating for Integrated Habitat Assessment) is a rating tool that helps people assess the performance of their building against certain nationally acceptable benchmarks. It evaluates the environmental performance of a building holistically over its entire life cycle, thereby providing a definitive standard for what constitutes a 'green building'.

  Government of India adopted (2007) GRIHA as the National Rating System for green buildings. Subsequently (2009), three-star GRIHA rating was made mandatory for all Government buildings and the Central PWD adopted GRIHA for its buildings.

Audit observed that while the Local Self Government Department (LSGD) adopted (February 2021) green building standards in the State, Buildings Wing of Kerala PWD was yet to adopt the standards for its buildings.

Non-adoption of Green Building Policy concepts by PWD indicated its reluctance to adopt the green initiatives in the construction of environment friendly buildings.

Government replied (February 2023) that obtaining a rating and approval for every PWD building under GRIHA is not financially viable, and therefore, only two buildings were registered for GRIHA rating as a pilot project. However, the PWD is currently developing its own rating system, which will include sustainability and green building concepts as parameters.

Audit observes that it is important for the Government to prioritise sustainable and green building concepts for long-term benefit of the environment and the people. Non-adoption of GRIHA rating and/or developing its own rating system even after a period of 13 years indicates indifference of the Department in adopting green building concepts in the State.

2.3.4.4 Arrangement of works without ensuring hindrance free land

As per Section 2003 of KPWD Manual, before bids are invited for a work the Executive Engineers (EEs) concerned were to ensure that there should be 100 *per cent* possession of hindrance free land.

Scrutiny of 104 work files selected for detailed audit revealed that 34 works were arranged without ensuring 100 *per cent* possession of hindrance free land, as detailed in ***Appendix 8***. It was observed that:

- the main obstacles which led to non-availability of hindrance free land were underground cables, demolition of old buildings, removal of trees, clearances from other agencies, *etc*.
- non-availability of hindrance free land delayed commencement of the works up to 17 months[55] which resulted in subsequent extension of Time of Completion (ToC).

From these, it is evident that PWD did not ensure hindrance free land before inviting tenders/awarding the works, resulting in time overrun.

Government replied (February 2023) that there are delays in removing the hindrances by client Departments like Health, Education, *etc*. In respect of underground cables and other service lines, the same are to be shifted by the concerned service providers through the client Department and the delay in this process causes inordinate delay in construction.

[55] NABARD - RIDF - XXI - 2015-16 Infrastructure work - Construction of Multipurpose Hospital Block of District Hospital, Mananthavadi, Wayanad.

Reply was not acceptable since the KPWD Manual provisions require that all the hindrances should be removed before initiating tender process.

2.3.4.5 Lapses in Investigation

As per Section 1402 of KPWD Manual, it is most important that every work shall be properly investigated, and all relevant data collected and correlated before finalizing the design and estimate for the work. As per Section 1601.1.2 of KPWD Manual, detailed estimate shall be prepared after detailed investigation of the site by the concerned authority based on approved designs only. The AE concerned was to ensure proper site investigation prior to preparation of detailed estimates.

Test check of work files in the selected Divisions revealed lapses in investigation and estimation in seven works as detailed in ***Appendix 9***.

Audit observed the following discrepancies during execution due to lapses in site investigation in works as given below:

- In seven[56] out of 104 selected works, the scope of the works was changed, and extra items were added after commencement of the works consequent to site related issues.
- In one[57] ongoing work, the Administrative Sanction (AS) and Technical Sanction (TS) was required to be revised.
- In three[58] works, an additional expenditure of ₹2.78 crore was necessitated.

The Government replied (February 2023) that it is planning to strengthen the investigation wings by creating district-wise units and assured that henceforth no further change in scope of work after commencement will be allowed to happen. The CE replied that the subsequent changes were incorporated on the basis of issues noticed during the execution of works. The reply is a vindication of the audit observation.

2.3.4.6 Lapses in planning for maintenance activities of buildings

Sections 2501.1, 2501.9, 2801.1 and 2802.1 of KPWD Manual stipulate the importance of maintenance activities of buildings and the duties of Divisional Officers (DO) and higher officials in preparation and requisition for annual grants

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[56] 1. Construction of multi-storied building for functioning of various Commissions at Pattom, Thiruvananthapuram 2. Rajiv Gandhi Institute of Technology, Kottayam - Construction of Building for Architecture Block 3. Construction of Court Complex at Irinjalakuda 4. Construction of first and second floor for 450 bedded Hostel for Ladies at Govt. Medical College, Kottayam 5. Construction of Model Residential School at Maruthonkara, Kozhikode 6. Construction of male and female ward to Gandhigram Hospital of Dermatology, Koratty, Thrissur 7. District Jail Mananthavady, construction of Superintendent quarters, Staff quarters & Rest Room for staff.

[57] Rajiv Gandhi Institute of Technology, Kottayam - Construction of Building for Architecture Block.

[58] 1. Rajiv Gandhi Institute of Technology, Kottayam - Construction of Building for Architecture Block (₹ 1.63 crore) 2. Construction of first and second floor for 450 bedded Hostel for Ladies at Govt. Medical College, Kottayam (₹ 0.80 crore) 3. Construction of Model Residential School at Maruthonkara, Kozhikode (₹ 0.35 crore).

for maintenance of buildings. Failure of DOs in complying with the provisions related to maintenance activities led to the following deficiencies.

- **Lack of Maintenance Schedule**

  Section 702.1.2 of KPWD Manual stipulates that annual plans should include programme schedule for maintenance works, continuing works and new works. However, Audit noticed that maintenance schedules and estimation for maintenance were not prepared and forwarded to planning section. Priority list of buildings for routine ordinary maintenance/repairs were also not maintained in the selected Divisions.

  Absence of maintenance schedule and priority list of buildings for maintenance works indicated that execution of periodic maintenance was not ensured in all the buildings. Failure in maintenance planning adversely affected implementation of maintenance activities as referred to in ***Paragraph 2.3.6.8***. This would adversely affect the strength and longevity of the buildings in addition to higher cost for future maintenance activities.

  Government, in its reply (February 2023), assured that programme schedules for maintenance works, continuing works and new works as well as priority list of buildings for routine/ordinary maintenance will be prepared as stipulated.

- **Inadequate database of buildings**

  As per Section 2901.1.3 of KPWD Manual, a Register of Buildings should be maintained in each Buildings division in the prescribed form[59] and the register should include details such as year of construction, cost, use of building, occupant, maintenance cost, *etc*., of all buildings under its charge. Audit observed that none of the selected divisions had maintained register of buildings with the required details. Furthermore, the building registers maintained in the sub-divisions were found to be lacking in updation and necessary details.

  As part of implementation of Project Information and Cost Estimation (PRICE) software in PWD, which is developed for the preparation and online processing of estimates, Government of Kerala (GoK) instructed[60] (April 2019) to enter all the details of assets as stipulated in the PRICE database. However, Audit noticed that the data on buildings available in PRICE was incomplete. Information/details, such as original cost of construction, date of construction/completion, *etc*., which are vital for preparing maintenance estimates were not entered in PRICE. This adversely affected the maintenance planning.

  The Government reply (February 2023) is silent on the inadequate database of buildings. All the details on buildings should be entered in the PRICE software in order to use it as an effective tool for maintenance activities.

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[59] Appendix 2800 A.

[60] GO(Rt)No.2997/2019/Fin dated 11 April 2019.

2.3.4.7 Laxity in disaster preparedness

In May 2019, the State Disaster Management Authority (SDMA) released 'Monsoon Preparedness and Response Guidelines' which were subsequently updated in 2020, 2021 and 2022. The guidelines mandated that every Government Department should develop and execute preparatory measures ahead of the monsoon season. Clause 7.1.30.2 of the Guidelines (2019) specified that PWD was responsible for conducting structural audits of hospital and office buildings and providing the necessary information to SDMA. However, it was found that the Department neither performed any structural audits of buildings in the State nor did the CE issue necessary directions to field offices to conduct such audit as required.

The SDMA issued these guidelines after the State was affected by natural disasters such as severe cyclone (Ockhi) and floods in 2018. The failure of the PWD Buildings Wing to carry out the mandated structural audits not only rendered the efforts of the SDMA futile but also increased the risk to the occupants of Government buildings in the event of future natural calamities.

Government replied in the exit meeting (February 2023) that early action will be taken to comply with the SDMA guidelines.

Recommendations:

- ***The Department should undertake long term planning with achievable targets for construction and periodic maintenance of buildings to ensure safety, durability, cost savings, and energy efficiency.***
- ***Department needs to ensure cent per cent hindrance free land prior to arrangement of works so as to ensure achievement of targets without undue delay.***
- ***Responsibility needs to be fixed in respect of projects remaining incomplete due to lapses on the part of departmental officials.***
- ***Compliance with the SDMA guidelines is to be ensured to strengthen and complement the disaster preparedness of the State.***

2.3.5 Financial Management

The lapses in financial management of the Buildings Wing resulted in idling accumulation of deposits, non-realisation of lapsed deposits, security deposits, risk and cost, external fund and non-fixing of maintenance grant.

The expenditure for construction and maintenance of non-residential office and administrative buildings are booked under the PWD Major Heads 2059/4059, and expenditure for construction of functional buildings of other departments are booked under their respective capital Major Heads for which the Chief Engineer (Buildings) is the Chief Controlling Officer.

Expenditure incurred by Buildings Wing towards construction and maintenance activities for various Departments during the period 2019-22, were as shown in **Table 2.7.**

Table 2.7: Expenditure by Buildings Wing on construction and maintenance activities-Year-wise

(₹ in crore)

Year	Construction	Maintenance	Bill Discounting System Charges[61]	Grand Total
2019-2020	566.09	94.35	2.27	662.71
2020-2021	731.67	125.82	2.49	859.98
2021-2022	775.52	142.52	1.42	919.47
Grand Total	**2,073.29**	**362.69**	**6.18**	**2,442.16**

(Source: Table 2.7 VLC figures)

General Education (₹ 881.98 crore), Medical & Public Health (₹530.53 crore) and Public Works (₹750.70 crore) Departments together constituted 89 *per cent* of the total expenditure for the three years.

2.3.5.1 Deposit works

As per Article 2.1.1 (14) of Kerala Public Works Account Code (KPWA Code), deposit works refers to such works of construction or repair, the cost of which is not met from the budget provision of PWD. In this type of works, the intending Department draws the funds from their budget provision and transfer credit the same to the Civil Deposit Head of Account, in the name of the respective EE under whose jurisdiction the work is to be executed.

➢ **Management of deposits**

Article 15.5 of KPWA Code prescribes for maintenance of the schedule of deposit works which should show the deposit-wise receipt, expenditure and balance and a deposit register showing the month-wise opening balance, receipts, adjustments and closing balance of each separate deposit item and the total amount of deposit works to be taken up. However, it was observed that none of the selected Divisions were maintaining the register. As a result, the total number of deposit works to be taken up was not traceable which adversely affected monitoring of deposits resulting in non-execution of deposit works and accumulation of deposits.

Government assured (February 2023) that deposit register as prescribed in the KPWA Code will be maintained in all the Divisions.

➢ **Idling and unsettled deposits**

As mentioned above, user Departments transfer credit funds in the Civil Deposit head favouring Divisional Officer (DO) for execution of various projects through BiMS[62]. Even though the details of idling deposits and the concerned

61 BDS-Bill Discounting System- GoK introduced (2015) this system for the purpose of settlement of pending bills due to contractors through banks.

62 Budget Information and Management System of Government of Kerala.

non-initiated works were called for, the selected Divisions could only provide the amount and number of works from April 2016 onwards, which was available in BiMS (except Kozhikode Buildings Division, where details from 2004-05 were provided). The details are shown below in **Table 2.8.**

Table 2.8: Idling deposits under selected Divisions

(₹ in crore)

Name of Division	Amount idling under deposits			Total
	Upto 2019-20#	2020-21	2021-22	
Wayanad	1.39	1.59	8.16	11.14
Kozhikode	88.44	5.01	21.50	114.95
Thrissur	10.42	15.07	24.76	50.25
Kottayam	7.34	2.91	12.06	22.31
Special Buildings, Thiruvananthapuram	7.94	4.26	15.60	27.80
Total				**226.45**

#for Kozhikode, the figures relate to the period from 2004-05 and for other divisions, from Apri1 2016 only
(Source: Data received from the Divisions concerned)

Audit observed the following:

- An amount of ₹226.45 crore (received from 2004-05 in Kozhikode Division and from April 2016 till March 2022 in other selected divisions) was idling under the deposit head of account at the selected Divisions as per data provided by the Divisions. There were various reasons for idling of such deposits like works not required by the client department, site-related issues, non-availability of hindrance-free land, social issues *etc*.
- The Buildings Wing did not take any action to verify the accumulated deposits and initiate works. The deposits were idling for more than 15 years in certain cases. As the funds to the tune of ₹226.45 crore was not used for asset creation, the intended objective of the user Department has not been achieved. Moreover, as the funds were transferred to PWD, there is a possibility of recording such amounts as final expenditure in the accounts of the user Departments.
- In addition to this, an amount of ₹39.13 crore in respect of 525 works pertaining to the audit period remained unsettled (as of December 2022) even after completion of works.

Audit observed that there was no mechanism in place to review and monitor the utilization of funds received from other departments for executing various deposit works. This resulted in significant delays in initiating such works and accumulation of funds under the deposit head. This delay also meant that the intended objectives of the user departments were not met within the expected time frame. This can also lead to diversion of funds.

Government replied (February 2023) that the CE (Buildings) will examine idling deposits in the Buildings Divisions.

The reply, however, lacked assurance on the part of the Government to develop a system in the Department to monitor the deposits, in order to avoid accumulation/idling of Government funds in public account for years, consequently affecting the budgetary controls of the Government.

2.3.5.2 Unclaimed security deposits not credited to Government account

As per para 15.4.1 (iii) of KPWA Code, deposits remaining unclaimed for more than three complete account years at the end of March every year should be treated as Lapsed Deposits and credited to Government account.

On scrutiny of Security Deposits (SD)[63] other than Bank Guarantee (BG) held in all Circles and at the selected Divisions, it was noticed that SDs amounting to ₹3.57 crore[64] received from 1996-97 to 2015-16 were remaining unclaimed and still not credited to Government accounts as lapsed deposits upto 2021-22. Further, monthly/yearly closing statement of SDs, including lapsed SDs, were not maintained by any of the selected Divisions. The SEs at Circles and the EEs at Divisions were to devise a system to monitor the SDs and to initiate appropriate action as required.

Government replied (February 2023) that action will be taken to credit the unclaimed deposits to Government accounts in respect of balances remaining unclaimed for more than three complete accounting years.

2.3.5.3 Lapses in management of Security Deposits worth ₹11.32 crore

According to Section 2009.7 of KPWD Manual and Standard Bid Document (SBD) Clause 7.2, Performance Guarantee (PG) at five *per cent* of contract amount should be submitted within 14 days of receipt of Letter of Acceptance (LoA) by the successful bidder. At least 50 *per cent* of PG shall be in the form of Treasury Fixed Deposit (TFD) in the name of Agreement Authority for a period not less than 28 days after the completion of Defect Liability Period (DLP) and balance PG in the form of BG. Bank Guarantee shall be submitted before executing agreement and shall be valid till 28 days after the completion of DLP of work. The BG on installment basis with lesser period of validity shall not be accepted. Further, an Additional Performance Guarantee (APG) for unbalanced price[65] in addition to the PG in all cases where the quoted rate falls below 10 *per cent* of the estimate cost needs to be furnished.

The SEs and EEs of Circles and Divisions respectively being agreement authorities were responsible to ensure that adequate guarantees with due coverage are collected

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[63] Term Deposits, National Savings Certificate, Postal Savings Account, Treasury Savings Account, etc.

[64] Wayanad ₹71,476 (32 nos) + Kozhikode ₹19.75 lakh (15 nos) + South Circle ₹1.90 crore (248 nos) + Judicial Circle ₹27.57 lakh (38 nos) + Kottayam ₹4.64 lakh (7 nos) + Thrissur ₹36.87 lakh (58 nos) + Thiruvananthapuram Special Building Division ₹3.71 lakh (3 nos) + Central Circle ₹73.7 lakh (69 nos).

[65] In case the agreed price is below more than 10 *per cent* of estimated price, unbalanced price represents the amount which is less than 10 *per cent* of the difference of the estimated price and agreed price.

prior to executing agreements with the contractor or in case of extension of ToC. However, verification of securities (₹ 20.93 crore) maintained in respect of 104 selected works at the Divisions and records at the Circle Offices revealed that in 29 instances in respect of 22 works BGs amounting to ₹11.32 crore were not collected/extended/invoked or short-collected or expired or released prior to completion of DLP as of October 2022. Out of these 22 works, seven works were completed, 10 works were ongoing and five works were terminated. Thus, in respect of five terminated works, the Government have already suffered loss due to not recovering the risk and cost or LD and in case of 10 works Government is at a potential risk if the contractor defaults. Category-wise details of the instances are given in **Table 2.9** below.

Table 2.9: Details of Bank Guarantees

(₹ in crore)

Issue of PG/APG	No. of instances	Amount
Non/Short collection	4	2.28
Extension of ToC without extending PG	14	2.96
Extension of ToC without extending APG	5	3.51
BGs expired in respect of works terminated with R&C	5	1.66
BG released prior to completion of DLP by Circle Office	1	0.91
Total	**29**	**11.32**

(Source: Data received from the Divisions concerned)

BG is a promise from a bank that the liabilities of a contractor will be met in the event of failing to fulfil his contractual obligations. Non/short collection of PG/APG and non-intimation to bank prior to lapse of validity of BG amounts to undue favour to the contractor and a potential loss to the exchequer if the conditions of the PG/APGs are not adhered to by the contractor during the DLP. Details of cases given in ***Appendix 10***.

Government replied (February 2023) that all the instances will be examined by the Chief Engineer (Buildings) and action would be taken.

2.3.5.4 Non-realisation of Risk and Cost liability

According to Section 2116.2.1 of KPWD Manual, an amount equal to 30 *per cent* of the cost of the remaining works at agreed rates of a terminated contract shall be recovered from the defaulted contractor towards risk and cost (R&C). The contractor shall be directed to remit the R&C amount within three months. Further, as per Clause 15.4, 15.5 and 15.6 of Part II General Conditions of Contract (GCC), in the event of termination, the employer shall be entitled to recover liquidated damages (LD) up to 10 *per cent* of the contract value and forfeit the SD made by the contractor to make good the losses besides getting the work completed by other means at the R&C of the contractor.

The SEs were responsible to realise the R&C, while assessment of R&C was to be done by the EEs concerned. However, Audit observed that in four Buildings Circles, 13 works were foreclosed at the R&C of the contractors. But, in nine out of 13 works, an amount of ₹8.71 crore was outstanding for collection as R&C and in four works (out of nine) the LDs amounting to ₹1.09 crore was not collected. Moreover, in four out of the 13 works the R&C liability is not yet calculated and realised from the contractor. The details are given in ***Appendix 11***.

Further, in one work[66], the contract was awarded to an inexperienced contractor violating clauses 2.2 and 2.4 of Part VI pre-qualification information and consequent termination of work with R&C.

Government admitted (February 2023) the flaws in the recovery of risk and cost in the cases pointed out by Audit. In respect of five cases, the Department assured of taking immediate action and in the remaining cases, action is being initiated to recover the amount.

2.3.5.5 Non-fixing of Maintenance Grant

As per Section 2802.1 of KPWD Manual, each building or group of buildings in one campus forming one administrative unit shall have an annual maintenance grant fixed by the CE (Buildings). This grant is intended to meet the cost of ordinary repairs such as petty repairs to walls, floors, doors and windows, roof, *etc*., white washing, painting, *etc*., which are of a recurring nature. Further, total budget provision is allotted by CE (Buildings) among the Divisions under the different sub heads in April every year and the DOs shall plan their maintenance programs within the funds so allotted. The grant for ordinary repairs to be fixed is two *per cent* of capital cost and the grant fixed for every building shall be revised once in every five years or as often as found necessary.

However, Audit noticed that the CE did not fix and provide the maintenance grant to the DOs as envisaged, which resulted in lack of periodical maintenance of Government buildings. This indicated that maintenance activities were not given due priority as envisaged in KPWD Manual.

Government replied (February 2023) that EEs of Buildings Divisions are submitting the maintenance requirements to the planning wing every year, based on which budget estimates for maintenance works are submitted by the Finance Wing. Funds released are allotted by CE based on Administrative Sanction and priority list. But the reply is silent on fixing an annual maintenance grant for all the Government buildings as envisaged in KPWD Manual.

2.3.5.6 Lapse of external financial assistance

The work 'Construction of women's hostel for CKGM College, Perambra in Koyilandy', was sanctioned (September 2011) by the Government with a total outlay of ₹1.50 crore. The outlay included assistance of ₹0.60 crore from University Grants Commission (UGC). Based on the AS, the UGC deposited (May 2013) the first tranche of the assistance to the tune of ₹0.30 crore in the deposit account of EE, Buildings Division, Kozhikode. Due to the delay in starting the work, UGC did not release the balance assistance of ₹0.30 crore. The TS for the work was issued

[66] Construction of additional block building to Ladies Hostel in Government College, Chittur.

by the SE (North Circle) only in August 2017, *i.e.*, after a lapse of six years of issuing the AS despite several reminders from the College authorities.

It was observed that delay in execution of the project by PWD was due to procedural lapse in the Department which not only resulted in lapse of UGC assistance of ₹0.30 crore, but also created additional burden to the State exchequer. The work was completed (February 2020) with a total expenditure of ₹1.02 crore. Thus, the proposed women's hostel could be realised only after a gap of nine years.

Government replied (February 2023) that the case will be examined, and necessary action for having lapsed the fund will be taken by the CE (Buildings).

However, no further reply was received on this issue from the Chief Engineer (Buildings) (April 2023).

Recommendations: Department should conduct reviews of deposits and securities, realise risk and cost, liquidated damages, insurance, etc., in time, fix responsibility in respect of lapses in financial management, provide maintenance grants and ensure appropriate use of allotments.

2.3.6 Execution of Projects

The construction and maintenance activities of the Buildings Wing suffered because of time overruns due to non-compliance with prescribed procedures such as investigation, issuing Technical Sanction without ensuring proper design, detailed estimation and handing over the site without removing hindrances. Lapses in ensuring competitive bidding, insurance, liquidated damages, adequate Defect Liability Period, inspection of buildings and idling of buildings were noticed.

2.3.6.1 Detailed estimate and Technical Sanction without structural design

As per Section 1501 of KPWD Manual, the competent authority, as prescribed in the delegation of powers, shall approve the design of any kind of structure before the detailed estimate is prepared. The Assistant Engineer/Assistant Executive Engineer and the Executive Engineer shall personally inspect the site and see that the proposed design can be implemented on ground.

Further, as per Section 1601.1.2 of KPWD Manual, detailed estimate as per Appendix 1600D [check list for detailed estimate (Item No. 10 of the check list is detailed drawings and designs)] shall be submitted to accord TS for all works. This shall be prepared after detailed investigation of the site by the concerned authority after considering different items of specifications and cost involved. Further, by issuing TS, the competent technical authority is satisfied about the suitability of work in all respects.

Audit observed that in three[67] works, the CE issued TS without obtaining structural designs which resulted in substantial change in the scope of work such as omission of items, execution of additional items, variation design mix for RCC, *etc*., as mentioned in ***Appendix 9***.

The CE (Buildings) accepted (March 2023) that TS was issued prior to obtaining structural designs in the cases pointed out by Audit. But the reason for the same was not furnished.

2.3.6.2 Time overruns in construction

As per Section 2112 of KPWD Manual, time shall be considered as the essence of contract. The extension of ToC that can be granted for a work at a time shall not exceed 25 *per cent* of the original time or six months, whichever is less. The maximum extension that can be granted for a work shall be limited to half the original ToC. Further, as per clause 19.2 of SBD, a hindrance register shall be maintained by the Departmental officer at site for recording various hindrances encountered during execution.

The Departments of the Government such as PWD, Health, Education, Revenue, *etc*., issue AS with specific objectives and entrust the Buildings Wing to construct buildings in a time bound manner. After obtaining AS, the Buildings Wing conducts soil investigation at the proposed site of construction, obtain architectural and structural drawings from the Chief Architect and the CE (Design & Administration) respectively. Technical Sanction (TS) is issued by the competent authority as per the financial delegation[68] as mentioned in 200B of KPWD Manual after preparing detailed estimates.

Audit analysed 104 selected works and observed that 87 works (84 *per cent*) did not adhere to the time schedule as mentioned in **Table 2.10** below.

Table 2.10: Delay in execution of works

Range of delay	Ongoing	Completed	Total
1 to 12 months	36	31	67
13 to 24 months	7	9	16
25 to 50 months	3	1	4
Total	**46**	**41**	**87**

The following were observed:

- There was delay ranging from one month to 50 months for completion of 87 works *(**Appendix 12**)*.
- Delays in completing the projects were primarily caused by avoidable factors, such as insufficient site investigation, failure to clear hindrances, changes in

[67] 1. Construction of male and female ward at Gandhigram Hospital of Dermatology, Koratty, Thrissur 2. Construction of Golden Jubilee PG Block at Government Arts and Science College, Kozhikode 3. Construction of Multipurpose Hospital block at District Hospital Mananthavady, Wayanad.

[68] Chief Engineer (Unlimited); Superintending Engineer (upto ₹250 lakh); Executive Engineer (upto ₹100 lakh) (Authority : GO(P)No.111/2019/Fin dated 21-08-2019).

location, and design revisions requested by user Departments, as well as delays in receiving structural designs. In addition, Covid-19 and related issues were cited as factors beyond the control of the Department, which also contributed to delays during 2019-22.

- In 45 works, ToC was extended above 50 *per cent* upto 333 *per cent* of the original ToC as against the admissible 50 *per cent*.
- In the selected divisions, hindrance registers were neither maintained properly nor submitted along with all the applications for ToC extensions.
- Construction delays have a significant adverse impact on the timely delivery of benefits to schools, colleges, hospitals, and offices operating in rented buildings.

In reply, Government/Department (February 2023) attributed the delays to various factors such as delay in approval of designs/estimates by the user Department, delay in conducting the soil investigation due to presence of hindrances and delay in obtaining structural drawing, pandemic situations, adverse climate, *etc*.

The reply was not acceptable since these issues other than pandemic or floods could have been prevented if planning, investigation and estimation were properly conducted and works were executed in a time bound manner.

2.3.6.3 Awarding of works without ensuring competitive bidding

As per existing norms[69] all tenders with amount of ₹five lakh and above shall be procured only through electronic procurement system. The GO was issued in line with Central Vigilance Commission (CVC) guidelines to ensure actual price discovery through competitive bidding process.

Audit observed that in six[70] works under the selected Divisions as in ***Appendix 9***, original/additional works were arranged by the SE/EE without resorting to price discovery in a transparent manner and through competitive bidding which was an undue benefit/favour to the selected bidder and against the spirit of the GO and CVC guidelines.

CE replied (February 2023) that urgency, convenience, changes proposed by user department, *etc*., were reasons for entrustment of work without re-tendering/tendering. Reply is not acceptable as it vitiated the principles of transparent bidding.

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[69] G.O (P) No.324/2015/Fin dated 30 July 2015.

[70] 1. Construction of Multi-storied building for functioning of various Commissions at Pattom, Thiruvananthapuram 2. Construction of Model Residential School at Maruthonkara, Kozhikode 3. Construction of Golden Jubilee PG Block at Government Arts and Science College, Kozhikode 4. Govt. Taluk Hospital, Vatakara, Kozhikode 5. Urgent maintenance works for manufacturing unit at Central Prison, Thrissur 6. Infrastructure works for additional hospital building in Taluk Hospital, Sulthan Bathery, Wayanad.

2.3.6.4 Lapses in ensuring Insurance Policies for works

As per contract condition No. 12 of SBD (August 2017), contractors should take insurance policies effective from the start date till the end of DLP (coverage value: 0.5 *per cent* of contract amount – minimum ₹two lakh and maximum ₹five lakh)[71] within 15 days of agreement. The insurance was intended to cover the events which are due to the contractor's risks such as (a) loss of or damage to the works, plants and materials; (b) loss of or damage to equipment; (c) loss of or damage to property (except the works, plant, materials and equipment) in connection with the contract; (d) workman compensation policy to cover personal injury or death. Further, in the event of the contractor not producing the insurance policy, the Engineer-in-charge may effect the insurance which the contractor should have provided and recover any such premiums which the Employer has paid from the payments otherwise due to the contractor. Further, as per the contract data, if the contractor fails to produce the insurance policies within 15 days of the start date of the work, 0.2 *per cent* of contract amount should be deducted.

Audit noticed that in 55 out of 57 works ***(Appendix 13)*** from the sample selected, the EEs neither obtained insurance policies for ₹1.31 crore[72] from the contractors, nor effected the required deductions amounting to ₹37.27 lakh[73] which unduly benefited contractors.

The Government, in its reply (February 2023), accepted the audit observation and assured that the above provision will be strictly complied with in future. CE replied that in one case insurance has been submitted, in 21 cases action is being initiated to recover the fine, in 17 cases even though part of SBD, the insurance provision was not added as a clause in LoA, in 15 cases insurance provision shall be complied with in future, and in one case no reply furnished. The reply is not acceptable as no action is initiated in 33 cases and the reply is silent on taking insurance in 54 cases till the completion of DLP.

2.3.6.5 Non imposition of Liquidated Damages

As per clause 14 of SBD, milestone dates shall be specified in the contract data. Further, in the event of the contractor failing to comply with the milestones, he shall be liable to pay liquidated damages (LD) as provided for in the contract.

As per clause 15 of SBD, if the Contractor fails to maintain the required progress in terms of the agreed time and progress chart or to complete the work and clear the site on or before the date of completion of contract or extended date of completion, he shall pay as compensation, LD at one *per cent*[74] of the contract value per week

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71 Item 21 of Part IV of contract data included in the SBD (p.91).

72 Wayanad: ₹ 15.57 lakh + Kozhikode: ₹ 35.02 lakh+ Thrissur: ₹ 37 lakh + Kottayam: ₹ 26 lakh + Special Buildings Thiruvananthapuram: ₹ 17.54 lakh.

73 Wayanad: ₹ 5.19 lakh + Kozhikode: ₹ 7.47 lakh+ Thrissur: ₹ 11.44 lakh + Kottayam: ₹ 7.30 lakh + Special Building Thiruvananthapuram: ₹ 5.86 lakh.

74 0.1 *per cent* per week as per KPWD Manual.

of delay or part thereof. The aggregate of such compensation / compensations shall not exceed ten *per cent* of the contract value. It was observed that:

- Despite the contractors not achieving the milestones, the agreement authorities such as SEs/EEs did not levy the LD as per contract conditions which resulted in undue benefit to the tune of ₹28.98 lakh to the contractors in three[75] works.
- In another work[76] though the contractor deserted the work without any recorded reasons for more than 48 weeks, no action was initiated to collect the LD as envisaged in KPWD Manual. The amount of LD worked out as per the manual provisions amounted to ₹66 lakh[77].
- Though milestones are fixed and made part of the agreement, no system existed in the divisions to assess the achievement against the milestones and to regulate the payments to contractors accordingly. The EEs of the executing divisions are responsible for non-imposition of LD.

In reply (February 2023), Government has acknowledged the lack of a project management system that clearly defines and monitors the achievement of milestones. Furthermore, they have pointed out that in many projects, delays cannot be solely attributed to contractors, so LDs are not imposed. The Government has assured to direct implementing authorities to impose LDs when contractors are responsible for the delays. However, the Government did not mention about the recovery of LDs in the case of works mentioned in the paragraph, in which delay was due to the contractors.

2.3.6.6 Defect Liability Period

Government vide GO (P) No.161/2019/Fin dated 25 November 2019 modified the Defect Liability Period (DLP) for different types of works to ensure the minimum guarantee of public works under Civil, Electrical, Mechanical and Electronic Engineering Wings. As per the GO, DLP of Original Works-Buildings shall be 60 months. The modified DLP shall be applicable with effect from 25 November 2019 to all public works being executed through all Engineering Departments, PSUs and accredited agencies in the State. Audit noticed that in 23 building works ***(Appendix 14)***, works sanctioned at a total contract value of ₹42.80 crore and for which the agreements were executed after the date of the GO, the DLP provided was 36 months only.

The SEs/EEs who executed the work agreements were to ensure that the DLP in the contract is fixed as 60 months instead of 36 months. The shortened DLP poses a risk of defects occurring between the 37th and 60th month, which would compel the Government to spend funds from the exchequer to rectify the issues.

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[75] 1. Construction of school building of GHS, Kurumbala (₹7,31,341) 2. Construction of school building of Government UP school, Chennalode (₹7,42,902) 3. PHC Kottur, Kozhikode (₹14,24,243).

[76] Construction of Architectural Block at the Rajiv Gandhi Institute of Technology, Pampady, Kottayam.

[77] ₹13.67 crore x 0.1 *per cent* x 48 weeks = ₹ 66 lakh.

Additionally, due to the failure of the agreement authorities to fix the DLP of 60 months in the contract, the securities worth ₹2.14 crore[78] will have to be released prematurely to the contractors 24 months in advance, resulting in undue benefit to them. The SEs/EEs who executed the work agreements were responsible for the lapse.

CE stated (March 2023) that though DLPs provided was for 36 months, securities will be released only after 60 months. Revised agreements modifying the DLP to 60 months should be executed to avoid any future claims for release of security on expiry of 36 months, and the validity of SD/BG got extended accordingly. In respect of one work[79] the AE reported (12 November 2019) that the site was ready for starting the work and the same intimated to the contractor, hence the DLP of the GO shall not be applicable. But the reply is not acceptable as the agreement was executed only on 04 December 2019, *i.e.*, after the date of GO.

2.3.6.7 Idling buildings

As per Section 2113 of KPWD Manual, completion certificate shall be issued by the agreement authority after satisfactory completion of works. Further, as per Section 2119 of KPWD Manual, completed building should be handed over to the user department by the engineer concerned.

Idling Buildings

- In respect of three works (two selected), Audit observed that the buildings were idling (October 2022) because the works were not completed in all respects. As per the records of the Division, the three works were completed and for two works completion certificates were issued. JPVs were conducted (October 2022) and the following points were noticed in this regard as shown in **Table 2.11**.

Table 2.11: Idling of Buildings

Sl. No.	Name of work	Cost incurred (₹ in crore)	Reasons for idling	Date from which the building is idling	User Department
1.	Construction of GHSS Parayanchery, Kozhikode	1.81	Fire stair, flooring, handrail works, toilets, installation of lift, electricity & water connections for first & second floor not completed. (Figures 2.13 & 2.16)	March 2022	General Education
2.	Construction of Academic block of SARBTM College, Koyilandi, Kozhikode	4.91	Classrooms and facilities like staircase were not completed with allotted funds due to diversion of funds for additional structural work. (Figure 2.14)	July 2022	Higher Education
3.	Construction of ministerial staff quarters for GEC, Wayanad	7.88	Quarters not occupied due to lack of road access and unwillingness of staff (Figure 2.15)	April 2019	Technical Education
Total		**14.60**			

78 Five *per cent* of the total APAC(₹42.80 crore) for the 23 works.

79 Construction of new building for Government LP School Kaipamangalam, Thrissur.

Figure 2.13: GHSS Parayanchery, Kozhikode - stair without handrails provided

Figure 2.14: Academic block of SARBTM, Kozhikode – staircase not completed

Figure 2.15: Staff quarters GEC, Wayanad - idling due to lack of access road

Figure 2.16: GHSS Parayanchery, Kozhikode - uncovered space for installation of lift

- In two divisions[80], out of 95 completed buildings, 24 buildings ***(Appendix 15)*** constructed at a total cost of ₹25.50 crore were not handed over (October 2022) to the user Department even after a period of eight to 44 months. Besides this, there was delay ranging from eight to 20 months in handing over 10 buildings to the user Department as detailed in ***Appendix 16***.

Reasons for idling of the above buildings were stated to be due to non-taking over of buildings by the user Departments due to lack of intended facilities and non-issue of completion certificates due to delayed preparation/sanction by the competent authorities.

In this regard Audit observed that if the completed buildings are not used, quality deterioration of fittings will occur and the DLP will be over without being utilised.

As per reply of CE (March 2023), out of the 22 buildings, only six buildings are yet to be handed over to user Departments and instructions have been issued to hand over the buildings. In respect of 16 buildings, CE stated that the buildings were handed over on completion, though documents were not maintained. KPWD

[80] Kozhikode and Wayanad divisions.

Manual stipulates issuance of completion certificate in the prescribed format and as such, the handing over of the buildings should have been documented. In the absence of proper documentation, it is difficult to ascertain the claim of the Department. In respect of delay in handing over of 10 buildings, it was stated that the handing over was delayed due to COVID, non-availability of water, procedural issues, and for the remaining two works, instructions have been issued to hand over the buildings. These two instances reveal the laxity of the Department in timely transfer of the completed buildings to the user Departments and non-maintenance of proper building records.

2.3.6.8 Lapses in implementation of maintenance activities of buildings

Buildings with lack of maintenance facilities

Various sections in KPWD Manual details the maintenance activities of buildings. This indicates the importance of maintenance in the preservation and upkeep of buildings. The significant provisions for maintenance activities of buildings are as detailed below.

As per Section 2501.1 of KPWD Manual, maintenance of existing buildings is important than continuous creation of new assets to avoid deterioration of structures. As such, it is mandatory to conduct periodical maintenance of the existing assets to achieve their design life[81].

According to Section 2800 of KPWD Manual, all Government buildings are to be maintained properly by PWD. In addition, Sections 2802 and 2804 stipulates that PWD Engineers shall be responsible for its upkeep, inspection and maintenance with periodicity of ordinary repairs. A timetable for the various operations in the different buildings under each Section shall be drawn out and adhered to by the AE.

Section 2802.2 of the KPWD Manual elaborated the periodicity of repairs of certain items in Government buildings. This includes, apart from others, white washing, painting of iron works, *etc*., to be carried out annually and distemper washing (if provided), painting of walls, wood works and doors and windows, *etc*., once in two years. As there is no annual maintenance schedule, the annual or biannual repairs to all existing buildings were not carried out and the maintenance of buildings were done based on request received from the user Departments.

According to Section 2804.2 of KPWD Manual, certain items of repairs of emergency nature shall be attended to immediately by the concerned AE under intimation to the immediate superior officers. Further, as per Section 2804.3, cracks, if any, noticed in any part of the building needs to be investigated thoroughly and cause ascertained before taking remedial measures.

Audit observed the following lacuna in the preservation of buildings:

- None of the divisions test-checked prepared a priority list of buildings which were due for ordinary repairs. Further, funds provided for repairs were not adequate for maintenance activities. Failure of the Buildings Wing in obtaining the required fund for maintenance approved from Government, coupled with

[81] Life of column structures: 75 years, load bearing structure: 55 years (Central PWD norms).

absence of planning and prioritisation, as discussed in ***Paragraph 2.3.4.1***, resulted in lack of periodical maintenance of buildings.

- None of the five selected Buildings Divisions followed the above procedure for conducting routine maintenance activities. Instead, maintenance works on buildings were carried out by the Divisions based on requests received from the users. Routine maintenance works were to be undertaken to ensure timely upkeep and usable condition of the building during its design life. As such, periodical maintenance was not ensured in any of the buildings.

Audit noticed that the inspection of buildings/structures as required were not carried out by EE/AEE/AE. During JPV (October 2022 & January 2023) conducted in selected buildings, several defects in the buildings such as cracks on the surface wall, damage to floor tiles, growth of trees and moss, water logging on the roofs, leakage of concealed pipes and taps, drizzling of water into the rooms, *etc*., were noticed. Bad condition of public toilets in Civil Station due to lack of proper maintenance was also noticed during the JPV.

Figure 2.17: Vegetation growth on building at ITI, Chakkai, Thiruvananthapuram

Figure 2.18: Exposed reinforcement at EC Block, CET, Thiruvananthapuram

Figure 2.19: Cracks and vegetation growth in Pavamani Quarters, Kozhikode

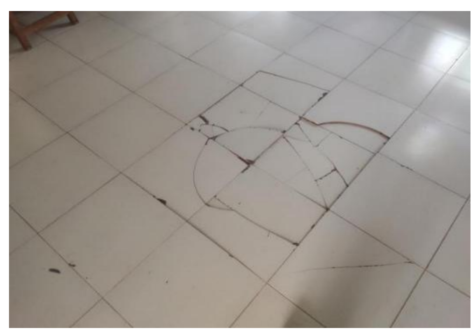

Figure 2.20: Cracked floor tiles at Chemical block, GEC, Kozhikode

Figure 2.21: Badly maintained toilet at Civil Station, Thrissur

Figure 2.22: Cracked tiles in Ministerial Staff Quarters, Kozhikode

Government replied (February 2023) that paucity of funds was the main reason which affected maintenance works like face lifting of Civil Stations and other major buildings and assured that prioritised list of buildings would be prepared from the current year for effective maintenance. It was also planned to implement running contract for periodic maintenance of buildings.

As per Appropriation Accounts 2021-22, it was mentioned that during 2019-20 and 2020-21 the entire provision under 2059-60-053-93 was surrendered and for 2021-22 under 2059-80-053-99, the anticipated saving was 25 *per cent* of the original grant or appropriation. From this it is evident that the Department's claim regarding shortage of funds affected maintenance activities of buildings is incorrect.

2.3.6.9 Inspection of buildings under the Divisions

As per Section 202.6 of KPWD Manual, EE is responsible for the proper maintenance and upkeep of all buildings under the Division. Further, the EE, AEE and AE are required to inspect the buildings under their charge at the required periodicity for the purpose of identifying defects, safety certification and for preparation of annual estimates for maintenance, as mentioned in **Table 2.12.**

Table 2.12: Periodicity of inspection of buildings

Authority (Section No.)	Quantity and periodicity	Purpose
Executive Engineer (EE) (202.6), (2804)	All major buildings once a year & 50 *per cent* of other buildings under his charge	Identifying defects
Asst. Executive Engineer (AEE) (1010), (2804)	All buildings once a year	Ensuring safety for use
Assistant Engineer (AE) (1010) / AE (Electrical)	All buildings twice a year	Issuing safety certificates, ensuring safety, preparation of estimates for maintenance, quality control, check measurement

Audit observed that in none of the selected Buildings Divisions, the EEs, AEEs and AEs conducted the periodical inspections of buildings as stipulated.

In the absence of periodical inspections, proper upkeep and maintenance of buildings/structures were not prioritised and implemented as required. Moreover, the requirement of finding the defects in time and attending to it then and there to avoid further deterioration of the structure were also not followed in any of the Divisions test checked.

Government accepted (February 2023) the Audit observation and stated that CE has given directions to the officials to conduct periodic inspections to ensure proper maintenance of buildings.

Recommendations: The Department should ensure timely completion of projects and handing them over to the user Departments without delay to ensure accomplishment of intended benefits. In order to avoid financial liabilities by way of claims the Department should adhere to obtaining insurance policies for works before effecting payments. Department should impose liquidated damages if milestones are not achieved due to fault of contractors. Department should ensure timely maintenance in order to assure the longevity of buildings.

2.3.7 Quality control, Monitoring and Internal control issues

Implementation of Quality Control measures in construction activities was inadequate due to lack of timely monitoring of quality control aspects.

Significance of Quality Control and Periodic Inspections in Ensuring Building Safety: Lessons Learned from the High Court Complex at Ernakulam.

The High Court Complex at Ernakulam was built during 1994 to 2005, with a total area of 52,333 sq.m. over nine floors incurring an expenditure of ₹53.51 crore. The work was arranged through three contractors viz., Sri. I Basheer, Sri. P T Mathai and Sri. K V Joseph & Sons and the work was executed by the EE, Buildings Division, Ernakulam. In 2014, cracks were found at the bottom of the column of 'B Block', prompting a detailed technical study by National Institute of Technology, Trichy (2015). Study report indicated instances of lapses in Quality Control in construction. Rehabilitation work was undertaken in two phases, with the first phase completed in March 2019 and the second phase ongoing. Similar cracks were found near the VIP parking area, and a detailed technical study/structural inspection was entrusted to Kerala Highway Research Institute. A preliminary inspection found corrosion of reinforcement of beams and roof slab suspected due to moisture leakages through cracks. Another technical inspection found cracks and exposed reinforcement, recommending remedial measures to rehabilitate the Block.

The studies indicated significance of quality control during construction and the importance of periodic inspections to ensure timely rectifications of minor defects.

2.3.7.1 Quality Control issues in building works

Different types of materials and grades of mortar/concrete are used for the construction of building works. As per Section 2 read with Appendix C9 of KPWD Manual, the contractor is responsible for sample collection, testing the samples and grades of materials used for the works and submission of test result to the Engineer.

The Engineer can authorise payment for the work if he is satisfied with the test results. Failure of the EEs in this regard led to following lapses.

- **Failure to include list of mandatory Quality Control (QC) tests in tender and contract documents**

  As per Section 2103 of KPWD Manual, a list of mandatory tests should be prepared and attached with the tender documents. The SEs/EEs who arranged the work were to ensure compliance to this provision. However, Audit noticed that this provision of the Manual is not adhered to by any of the tendering authorities. Inclusion of the mandatory tests as part of the tender documents would ensure compliance to the QC conditions.

  The CE stated (February 2023) that in PRICE software necessary slots are provided for uploading quality test results and based on this further processing of bills are done.

- **Failure to conduct QC tests**

  As per Section 602.3 of QC Manual, the contractor shall produce manufacturer's quality certificate for each supply of cement and steel used in the work which should be ensured by concerned Engineer-in-charge. Further, as per Section 2404 of KPWD Manual and Section 7.1 of QC Manual, contractor shall carry out the required first tier QC tests at his own cost during the course of a work, for all works costing above ₹15 lakh.

  Section 400 to 600 of QC Manual prescribes the frequency of samples of test and the procedure to be adopted for sampling to be conducted by the contractor for each type of materials/grades of mortars/concrete/steel, *etc*. Further, random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of being tested, that is the sampling should be spread over the entire period of concreting and cover all mixing units. Required first tier tests for the materials/mortar/concrete/steel, *etc*., and their frequency are as detailed in ***Appendix 17.*** Second-tier QC checks/tests are to be done by the QC wing of PWD on a random basis. The third tier of QC is technical audit by external agency/expert empanelled for the purpose and shall be done for completed projects, which are above ₹five crore.

  As per Section 202.6 of KPWD Manual, the EE should ensure that all mandatory tests have been performed at each stage of a running bill, before making payments. EE shall verify and ensure availability of the required test equipment for field tests as well as an updated copy of specifications and copies of accepted schedule at sites of works. However, in the test checked files the following lapses were observed:

  - Contractors are responsible for collection of samples, testing the samples (First tier QC test) and submission of test results along with the CC bills for making payment. But in respect of 14 number of works ***(Appendix 17)***, neither test results were submitted along with CC bills, nor the sanctioning authority insisted for the same before passing the bills. In the remaining cases only a limited number of tests were conducted.

- Important tests such as slump, water, specific gravity, bend/re-bend which were essential for the first-tier quality control were not conducted in any of the test checked works except in two[82] cases, of which in one instance the water quality test was done only when CTE pointed out the lapse.
- Manufacture quality certificates in respect of cement and steel used in work were found to be kept in five works only.
- There was no evidence of conducting QC tests of masonry works in 40 works as given in ***Appendix 18.***
- Appendix for QC monitoring to be submitted along with every CC bill were not properly submitted in any of the test-checked divisions except Wayanad.
- The above instances indicate that the Buildings Wing did not insist on conducting and submitting the mandatory QC tests and its results which can affect the quality of work.

In respect of 16 works in which no tests were conducted, no specific reason was provided for not conducting QC tests in 11 works, and in 5 works it was stated that tests were conducted/not required. Also, in respect of 40 works, CE did not provide clear remarks regarding 28 works. In the remaining 12 works, CE claimed that slump test, water quality test, masonry tests and cube tests were conducted. However, the reply is not acceptable since results of the above tests were not produced to Audit for verification. As such, due to lapses on the part of EEs of Divisions to comply with provisions of KPWD/QC Manuals, conduct of the above tests remained doubtful.

➢ **Failure to conduct routine pile test**

As per Section 305.2 of QC Manual, routine pile test, a qualitative test to obtain the assurance on the structural stability of the construction should be conducted in the manner prescribed in IS 2911 part 4. Further, the EEs of the Divisions were to ensure that the test is conducted as prescribed. Pile foundation was adopted in seven[83] out of the 104 selected works. However, in none of these seven works, routine pile load test was conducted. Non-conducting of the test seriously compromised the quality assurance.

Government replied (February 2023) that specific report on the above-mentioned works will be provided by CE after getting detailed report from the respective division offices.

[82] Construction of Naval Training Centre at I Kerala NCC, Aakkulam, & Five storied building for Vigilance and Anticorruption Bureau Phase I, Muttathara, both at Thiruvananthapuram.

[83] 1. Construction of Court Complex, Irinjalakuda (Phase.I), Thrissur 2. GHSS Kattoor, Thrissur 3.Revenue Tower Nedumangad, Thiruvananthapuram 4. Construction of Naval Training Centre at I Kerala NCC, Akkulam, Thiruvananthapuram 5. Multi-purpose Hospital Block at District Hospital, Mananthavady, Wayanad 6.Taluk Hospital, Sulthan Bathery, Wayanad 7. Golden Jubilee PG Block at Government Arts & Science College, Kozhikode.

However, CE has not provided any detailed reply till date (April 2023).

- **Mix design**

According to Section 2208.9.2 of KPWD Manual, all materials shall be got approved by the concerned AE or AEE, as the case may be, and job mix formulae/ mix design shall be got approved by the concerned EE. For this, the relevant details have to be submitted at least 20 days ahead of the planned date of commencement of work.

Audit observed that in 11 works ***(Appendix 19)***, mix designs were not prepared and/or approved by the Divisional Officers, resulting in compromising of quality assurance. The EEs of Divisions were to ensure preparation of the mix designs as required.

In reply, CE (February 2023) accepted that mix designs were not approved in these cases, and it was assured that in future, adequate care would be taken to see that all the mix designs will be got approved by the agreement authority in advance before actual execution of works at site.

- **Guarantee Bond for leak-proof / termite proof works**

As per Part VI of the SBD, Guarantee Bond for termite-proof/water and leak-proof work is to be obtained/collected from the contractor to ensure guarantee and liability of the contractor for such works for 10 years, wherever such items of works are provided in the estimate.

In four works[84] where such items were executed, no Guarantee Bonds were collected by the EEs from the contractors for ensuring guarantee of the works as required.

Government replied (February 2023) that specific report on the above-mentioned works will be provided by CE.

However, CE has not provided any reply in this regard (April 2023).

- **Intimation of contracts to QC wing**

As per Section 8 of QC Manual, the agreement authority shall forward copy of contract documents to the AEE of the QC Lab concerned within 10 days of executing the agreement for conducting second tier QC check at QC lab of PWD.

Audit noticed that in respect of works executed by SE (Judicial Circle) and EE of the selected Divisions, copy of contract documents are not forwarded to QC lab. Consequently, those works may escape from the ambit of second tier QC tests.

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84 1. Construction of I and II floor for 450 bedded hostel for ladies at Government Medical College, Kottayam (GMCK) 2. Providing lady bystanders area and toilet facilities at III floor of cardiology and cardiothoracic block at GMCK 3. Construction of 50 bedded ward and administrative block at Primary Health Centre, Vamanapuram, Thiruvananthapuram 4. Construction of new Revenue Tower at Nedumangad, Thiruvananthapuram.

Government assured (February 2023) that strict instructions will be issued to agreement authorities in this regard and will be monitored through internal audit.

2.3.7.2 Lapses in setting up of Field Lab at site

As per Section 7.1 of QC Manual, the contractor shall establish an onsite laboratory with calibrated equipment if the estimated project cost is above ₹two crore.

Setting up of field lab was mandatory for the works costing above ₹two crore for continuous monitoring of quality in works. Out of 104 selected works, 54 works were ongoing, out of which cost of 26 works were above ₹two crore. JPV conducted at seven out of the 26 ongoing work sites revealed that while no separate field labs were set up in five sites, equipment for field labs were randomly placed at two sites as given in ***Appendix 20***.

Besides, in all the 42 selected works above ₹two crore, the records maintained at the Divisions did not contain any documentary evidence for setting up of the field lab as required. Due to the absence of equipment, engineering personnel and non-production of all test results along with the running bills, Audit could not ensure that first-tier quality control tests with the required frequency and specifications were conducted during execution.

The CE replied (February 2023) that field labs had been established in all the sites and the tests were properly conducted. The reply was not acceptable as no documentary evidence to ensure the proper functioning of field labs were available in the files. Also, the same was confirmed through the JPVs conducted.

2.3.7.3 Absence of Project review and monitoring mechanism

According to Section 2106 of KPWD Manual, the progress report of the work is very important for PWD and the Government as it enables them to monitor the progress of each work. Progress report in the prescribed form shall be forwarded by the AE to AEE and to EE on monthly basis. The EE shall forward consolidated progress report of the works to the CE and SE before 15th of every month. Further, the EE shall review progress of works monthly, the SE quarterly and the CE half yearly. The physical and financial progress of each work shall be analysed in detail with the concerned field officers and bottlenecks if any and remedial measures suggested for speedy execution of the work including observations of the reviews shall be recorded in the minutes and shall be forwarded to all subordinate officers.

Audit observed the following:

- Though soft copies of the progress of works are updated from the field offices as required, there was no evidence of convening reviews at Circles and Divisions. The minutes of the meeting conducted on the progress of work was not maintained and communicated to field officers.

- In the works test checked, though milestones are mentioned in the contract data, achievement of the milestones were not verifiable since the milestones in terms of physical quantities or financial progress were not worked out. As such, in none of the selected works achievement of milestones was reviewed, which led to delay in completion of the works.

Despite the review and monitoring of projects at the apex level through progress reports, Audit observed that issues related to each work like hindrance free land, proper estimation, timely design, quality control, *etc*., and weaknesses in contract management were not analysed and/or resolved. This indicated lack of effectiveness of the review and monitoring mechanism.

Government replied (February 2023) that the project review and monitoring mechanism is implemented through Project Management Software (PMS) which is also monitored at the Government level. Instructions have also been issued for ensuring the timely review of projects.

Audit, however, observes that the efficacy of the system remained doubtful due to persistent issues leading to delays, contract management, *etc*., as discussed in the earlier paragraph.

- **QC Monitoring**

  As per Appendix I & III of the QC Manual, check list for QC and concrete pour monitoring are required to be prepared. These appendices were designed to ensure that the prescribed quality control procedures adopted in construction were carried out properly. But four[85] out of five selected Divisions did not ensure that the appendices were prepared in the prescribed manner and attached with the work bills before sanctioning the payment.

  In the absence of the above Appendices, conduct of mandatory Tier I quality tests by the contractor were not ensured by EE while passing the bills which affected quality assurance of works to that extent. Lack of assurance in quality control in building construction may lead to negative consequences such as safety hazards due to structural failure, structural defects leading to cracks, leaks, foundation problems, increased maintenance and repair costs and reduced design life.

  Government replied (February 2023) that PWD has taken all effective measures for ensuring quality of works. As part of this, PWD has published Quality Manual. The tests as per the Manual are conducted at site. But in certain cases, for works which were executed in previous years, certain defaults in the implementation of mandatory quality tests are noted. This is now corrected. At present in the online bill preparation through PRICE software, necessary slots are provided for uploading quality test results and based on this only further processing of bills is done. Reply was not tenable since Audit has noticed non-conducting of QC tests in works as mentioned in earlier paragraphs, which could have been detected if the above-mentioned Appendices were prepared properly.

[85] Kozhikode, Thrissur, Kottayam, Thiruvananthapuram Special Buildings Divisions.

- **Non/Short deployment of contractor's engineering personnel at site for monitoring the work**

  As per the provision in SBD, Special conditions of contract (SCC), Item No. 16.1, the contractor shall employ engineering personnel, during the tenure of the contract for works supervision, depending upon the cost of work as shown in **Table 2.13**.

Table 2.13: Personnel to be deployed for work supervision

Cost of work	Details of personnel required
₹5 lakh to ₹75 lakh	One Diploma (Civil Engineering) holder
₹75 lakh to ₹150 lakh	One Engineering Graduate + One diploma holder
₹150 lakh to ₹250 lakh	Three Engineering Graduates + One diploma holder
₹250 lakh to ₹500 lakh	Four Engineering Graduates + Two diploma holders
₹500 lakh to ₹20 crore	Three Engineering Graduates + Three diploma holders
Above ₹20 crore	Four Engineering Graduates + Five diploma holders

In the case of non-deployment of engineering personnel, Clause 16.2[86] of SBD provides for recovery of amount equivalent to cost of remuneration of the number of personnel absent. Further, as per norms, the details of engineering persons employed should be attached with each running account bill.

Audit observed that in thirteen works against which 43 engineering personnel were to be deployed, in seven works there was no evidence regarding employment of any engineering personnel and in six works there was only eight engineering personnel deployed, as per the certificate produced along with the bills **(*Appendix 21*)**. No details in respect of the equivalent amounts assessed and/or recovered are available in the files.

Joint Physical Verification conducted (17 January 2023) in respect of four ongoing works revealed that the engineering personnel available at the sites were only one each as against the required 25 number of persons, as given in ***Appendix 21***, which indicates lapses in QC monitoring of work during execution.

The Government replied (February 2023) that in some cases, situations arose where contractors has not deployed necessary staff. In such cases strict directions will be issued. All measures will be taken by the CE (Buildings) to ensure compliance with the SBD clause at all levels. Specific replies on the works pointed out will be submitted soon. However, specific reply from CE is still awaited (April 2023).

86 Special Conditions of Contract.

2.3.7.4 Third tier QC (Technical Audit)

Section 7.3 of QC Manual provides for conduct of Technical Audit by an external agency/expert selected for the purpose after the completion of a project having cost above ₹five crore. This will form the third tier of QC system.

Audit observed that the Department has not selected any such agency/expert and no Technical Audit of completed projects was conducted as required.

Government assured (February 2023) that necessary action will be taken in this regard at the earliest.

2.3.7.5 Internal inspections

As per Circular No. 79/2019/Fin. dated 19 September 2019, all Departments are required to submit details of offices to be inspected during the financial year to Government during the first month (April) of the financial year itself. As per Sections 202.4 (Item No.9) and 202.6 (Item No.37) of KPWD Manual, SEs and EEs should conduct periodical inspections of the Division offices and Sub-divisions respectively at least once in a year.

The details of internal inspections conducted and shortfall in respect of the five selected Divisions and three Circle offices is given in **Table 2.14**.

Table 2.14: Internal inspections conducted during 2019-2022

Inspecting authority	Inspections due	Inspections conducted	Shortfall	Percentage of short fall
SE (North)	18	6	12	67
SE (Central)	9	9	0	Nil
SE (South)	21	3	18	86
EE (Wayanad)	9	5	4	44
EE (Kozhikode)	9	2	7	78
EE (Thrissur)	12	0	12	100
EE (Kottayam)	15	2	13	87
EE Special Buildings (Thiruvananthapuram)	15	0	15	100

Audit observed that:

- Internal inspections within the Buildings Wing were not effective since all the Divisions and two of the Circles were not following the schedule for internal inspection.
- CEs office is also not preparing annual plan for internal inspections as directed by the Government.

Timely conduct of internal inspections is important to ensure effective internal control to assess the organizations systems and procedures in the areas of financial management, *viz.*, budgeting and expenditure control, technical matters, *viz.*, estimation, execution and quality control, *etc*. As such, lack of internal inspections could have left any deficiencies in the above areas unnoticed.

Though COVID related issues were stated (April 2023) to be the main reason for non-conduct of inspections, it is not acceptable as the lapses were throughout in all the three years. Moreover, one of the Circles conducted inspections as required highlighting the importance of prioritizing internal controls. Therefore, it is essential that the Department take steps to address the lapses and prioritize the timely and effective conduct of internal inspections in the future.

Government replied (February 2023) that the CE had given directions to conduct periodical inspections at Division offices and Sub-divisions as per provisions of KPWD Manual.

2.3.7.6 Maintenance of important registers

According to Kerala Financial Code Volume I, maintenance of control registers is mandatory in every office. KPWD Manual also prescribes for maintenance of certain registers as part of internal control mechanism. Audit noticed that the Divisions were not maintaining some of the important registers as mentioned in **Table 2.15**.

Table 2.15: Non-maintenance of important registers

Section of KPWD Manual	Name of the Register	Purpose of the register	Remarks	Risk
2901.1.3 read with Appendix 2800A	Register of Buildings	Inventory of all buildings under each division with details of all periodical works done, disposals by dismantling or sale, *etc*.	In the absence of this register, alterations/disposals due to old age, details of old structures and all periodical works done on the structure of buildings were not verifiable. Details of all structure originally borne on the physical register vis-a-vis asset data on PRICE was not verifiable.	If not maintained regularly, it will adversely affect the longevity of old structures and may pose hazards to its inhabitants.
2801.1.3.1	Register of Inventory	Building-wise inventory of all fixtures *viz*., electrical, civil and furniture provided, got signed by the user Department/person at the time of first occupation.	In the absence of this register, details of the inventories provided in each building at the time of handing over was not verifiable.	Lack of inventory may result in losses by way of damages, theft, *etc*., remaining unaccounted for.
Section 4.2.7 of KPWA Code	Register of Divisional Accountant's audit objections	The Divisional Accounts Officer is required to maintain a Register of Objections raised during processing and verification of CC bills in KPWA Form 57.	In the absence of this register, objections raised during the processing of CC bills could not be reviewed periodically to ensure that the objections have been rectified.	Non-rectified objections may result in undue advantages to contractors and thereby loss to exchequer
202.6	Register of check	EE has to test check 10 *per cent* of value of all works beyond the TS power of	The check was intended as an internal control system to prevent overpayment on account of	Lack of check measurement register may result

Section of KPWD Manual	Name of the Register	Purpose of the register	Remarks	Risk
	measure-ments	AEE and maintain a register for such check measurements.	incorrect measurement, adoption of incorrect specification, *etc*. Therefore, in the absence of this register, it was not verifiable whether the EEs were implementing the above internal control.	in incorrect measurements going unnoticed thereby affecting the quality assurance and giving undue benefit to contractors

The EEs were responsible for ensuring the proper maintenance of the required registers. However, due to failure of the EEs in this regard, planning and monitoring of assets, shortfall in inventories provided, check of persistent irregularities and assurance of accuracy in payment of bills, *etc*., were not assured.

Government replied (February 2023) that the CE had given strict instructions to all Divisions for proper maintenance of registers.

2.3.7.7 Absence of performance appraisal of contractors

According to Section 2004.1 of KPWD Manual, a record of appraisals of contractors over the years will serve as a useful tool while taking decision about award of works to that contractor and also while renewing the registration. Such a proforma will be filled by each EE with whom the contractor is working, countersigned by the Deputy CE concerned and submitted to the CE.

Audit noticed that performance appraisal of contractors as envisaged in KPWD Manual was not kept in any of the Divisions. It was observed that if such exercise is carried out, it can be a tool in improving quality of works and can help in eliminating contractors who do not have clean track records.

Government replied (February 2023) that discussion is going on for developing a performance appraisal of contractors and uploading the same in PRICE Software. A committee shall be constituted to frame the criteria for performance appraisal of contractors.

Eventhough the Government assured to form a committee to frame the criteria for performance appraisal, no effective mechanism is in existence for monitoring the performance of contractors despite the provision for the same being available in KPWD Manual for the past 11 years.

2.3.7.8 Chief Architect's certification on buildings constructed by PWD

As per proceedings of the Department Tender Committee, on completion of construction of buildings, the Chief Architect will issue a Certificate to the effect that the building is constructed as per the approved drawings, observing the provisions of National Buildings Code/Kerala Municipal Buildings Rules. However, the direction is not complied with in any of the completed building works in the selected Divisions, thus defeating the very purpose of the certification.

While accepting the above, Government stated (February 2023) that certification is not done since the constructions are completed only in a phased manner, and that Chief Architect's suggestions are incorporated during the construction activity. Government assured that a technical committee including the Chief Architect will be constituted to inspect the building before handing over.

2.3.7.9 Non-compliance to provisions of GST

Section 37 of the Goods and Service Tax (GST) Act 2017 mandates issuance of an invoice or a bill of supply for every supply of goods or services. The invoice should contain description, quantity and value and such other particulars in case of supply of service. However, Audit noticed that none of the Divisions test-checked obtained the GST invoices from the contractors.

The GST invoice is an important document since it evidences the supply of goods or services which is also a mandatory document for the recipient to avail Input Tax Credit (ITC) wherever applicable. Since the rental charges collected from PWD rest houses attract GST, this can be availed as ITC while submitting returns, which will be an additional revenue to the State. In the absence of the GST invoices, there is risk of loss of revenue to the exchequer on this account.

Government replied (February 2023) that detailed reply will be furnished after obtaining remarks from the Divisions.

However, reply of the Chief Engineer has not yet been received (April 2023).

2.3.7.10 Inadequate safety and sanitary measures at site

As per Clause 62 of SBD, the contractor shall, at his cost, provide temporary safety measures required during construction to avoid any chance of mishaps. Further, as per Clause 68.4 of SBD, it shall be the responsibility of the contractor to ensure that protective gears shall be provided and is always worn by all personnel working at the site during the term of the work.

As per Clause 69.2 of SBD, the contractor has full responsibility for maintaining the site in good and clean condition and removing all trash and debris daily to the satisfaction of the Engineer. The contractor is responsible for providing adequate sanitary facilities and maintaining them in a clean and healthy condition. If the contractor fails to comply with the above, the Engineer-in-Charge will have the authority to get the same cleaned by an external agency and debit the expenses incurred to the contractor's account.

During JPV (October 2022), Audit observed the following:

- Labourers were working without wearing helmets, safety jackets, *etc*., in seven work sites[87] of Special Buildings Thiruvananthapuram, Kozhikode and Wayanad Divisions. Non-compliance to the conditions would risk the safety of the labourers.
- In the work 'Construction of Additional Block for Dental College, Kozhikode', the debris were seen dumped inside the rooms which were already completed during the first phase of construction, which violated Clause 69.2 of SBD.
- JPV was conducted (November 2022) at seven sites under Wayanad Division and it was observed that the contractor had not provided sanitary facilities for Engineers and labourers at three[88] sites. Non-compliance of this condition could compromise cleanliness and hygiene at the work site.

Government replied (February 2023) that lack of awareness of SBD conditions among contractors was the main reason for non-compliance. The Government assured that awareness classes will be arranged for contractors in this regard. However, Audit observes that agreement authorities and field staff of the Department are also responsible for non-compliance in this regard.

Recommendation: The Department should strictly implement quality control in works by improving review/monitoring and establish proper internal control mechanism.

2.4 Modification of Bill of quantities and non-levy of liquidated damages led to an undue favour to the contractor of ₹21.84 crore

Modification of Bill of Quantities after executing agreement resulted in extra financial commitment of ₹6.97 crore to the exchequer and undue financial benefit to the contractor to the tune of ₹14.87 crore.

Government of Kerala (GoK) implemented[89] Kerala State Transport Project (KSTP) with financial assistance from World Bank for the improvement of state highways. The 2nd phase[90] of KSTP included the upgradation work of 54 km of Thalassery- Valavupara road (UG III)[91]. The work awarded (May 2013) to

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[87] 1.Construction of additional block for Dental College, Kozhikode 2. New building at Mental Health Centre, Kozhikode 3. Govt. Taluk Hospital, Vadakara, Kozhikode 4. Construction of multipurpose Hospital Block at District Hospital, Mananthavady, Wayanad 5. Additional Hospital Building at Taluk Hospital, Sulthan bathery, Wayanad 6. Additional Hospital Building at Taluk Hospital, Vythiri, Wayanad 7. Office complex for accommodating various commissions at Pattom, Thiruvananthapuram.

[88] 1. Multipurpose Block, District Hospital, Mananthavady, Wayanad 2. Additional Hospital Building, Taluk Hospital, Sulthan Bathery, Wayanad 3. Additional Hospital Building, Taluk Hospital, Vythiri, Wayanad.

[89] In two phases between June 2002 and April 2021.

[90] June 2013 to April 2021.

[91] UG III- Upgradation of Road from Thalassery (Km 01+200) to Valavupara (Km 55+200) of SH 30.

M/s.SACYR – ESSAR[92] was later terminated (April 2015) at the risk and cost of the contractor. The balance work was split into two works - UG IIIA[93] (29 km) and UG IIIB[94] (25 km). KSTP tendered (July 2015) the first reach of work - UG IIIA on *item-rate basis* and awarded (January 2016) the work to M/s Dinesh Chandra R Agrawal Infracon (P) Ltd, Ahmedabad (contractor) for ₹156.33 crore.

Audit scrutiny of the files of the Office of the Executive Engineer, KSTP, Kannur revealed undue favour to the contractor and additional expenditure of ₹21.84 crore as detailed below:

(a) Modification of Bill of quantities after executing Agreement resulted in additional expenditure of ₹6.97 crore to the Government

In the Estimate Bill of quantities (BoQ), KSTP provided[95] item No:1700-10 *'Construction of precast RCC drain of M20 Grade including steel reinforcement'* for a total quantity of 5,292 m^3 @ ₹12,215/m^3 (₹6.46 crore) against which the contractor quoted ₹4,200/m^3 (₹2.22 crore) in the Agreed BoQ[96] i.e, 66 *per cent* less than the original estimate. Unit of measurement of the item was cubic metre (m^3) in the Estimated and Agreed BoQs.

After commencement of the work (June 2016), the contractor informed (March 2017**)** the Project Management Team (PMT) of KSTP that the rate for the said item was quoted considering the unit of measurement as linear metre (Lm). The contractor pointed out that the unit of measurement of the item was linear metre in the Special specifications[97] in tender documents, which superseded the BoQ as per the 'Priority of documents'[98]. The contractor requested (March 2017) to modify the unit of measurement of the item as linear metre, on that ground.

On the basis of the request made by the contractor, the Chief Engineer (CE), Projects, KSTP directed (August 2017) not to operate the item- 1700-10 any further and to substitute it with a new variation item. Subsequently, the PMT issued (August 2018) a variation order[99] (VO 2-4) for item no:1700-10, but changing the unit of measurement as linear metre and increasing the quantity of the item to 23,891 Lm (5,567 m^3) amounting to ₹9.32 crore. As per the VO, unit rate for the new item was ₹3,899/Lm (₹16,733/m^3).

Audit observed (October 2020) that discrepancy in units of measurement for the same item of work in separate documents enabled the contractor to request for

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92 Euro-Indian Joint Venture.

93 UG IIIA – Upgradation of the road from Thalassery to Kalarode (Km 01+200 to Km 30+000).

94 UG III B – Upgradation of Road from Kalarode to Valavupara (Km30+000 -Km55+200).

95 Bill.No:4- Drains and Walling.

96 Part of the agreement.

97 Special specifications comprise amendments/modifications/additions to the MoRTH specifications of items referred in General specifications and items not covered in it.

98 Clause 1.5 of Particular conditions.

99 A variation order is a written agreement to modify, add to, or otherwise alter the work from that set forth in the contract. Variation order in KSTP works is similar to the Revised Estimate in PWD works.

change in the unit of measurement, after commencement of work. This lacked justification on the following grounds:

i) In case of item rate contracts, bidders are bound to quote their rates specifically for each item of work. For the aforesaid item, the contractor quoted the rate against the quantity expressed in cubic metres in the BoQ. Moreover, the contractor had given (September 2015) written statement that they have examined and had no reservations to the tender documents.

ii) The contractor did not raise any queries on the BoQ/specifications in the pre-bid meeting held in August 2015. The Department and the contractor entered into agreement (January 2016) in mutual acceptance of all the facts and figures in the attached documents, including BoQ.

iii) In the second part of the work, *i.e.*, UG IIIB, both the estimated and agreed rates of '*Construction of precast RCC drain of M20 Grade including steel reinforcement'* were in cum.

Though the contractor quoted the rates against the quantity in cum, the CE/PMT approved (August 2017) the proposed change in unit of measurement to Linear metre, thereby granting an undue benefit to the contractor. This resulted in extra financial liability to the Government amounting to ₹6.97 crore as given in **Table 2.16** below:

Table 2.16: Extra financial liability on total quantity of the item of work

<table>
<tr><th>Particulars</th><th>Item of work</th><th>Quantity</th><th>Rate (₹)</th><th>Total cost(₹)</th></tr>
<tr><td>Estimated BoQ</td><td rowspan="3">1700-10: Construction of precast RCC drain of M20 grade including steel reinforcement</td><td>5,292 m^3</td><td>12,215/m^3</td><td>-</td></tr>
<tr><td>Variation Order -2-4 (A)</td><td>23,891 Lm</td><td>3,899/Lm (₹16,733/m^3)</td><td>9,31,51,009</td></tr>
<tr><td>Agreed BoQ (B)</td><td>5,566.60 m^3 (23,891 Lm x 0.233m^3*)</td><td>4,200/m^3</td><td>2,33,79,720</td></tr>
<tr><td colspan="4">Excess liability (A - B)</td><td>6,97,71,289</td></tr>
</table>

* As per rate analysis of similar work 'Upgradation of road from Pilathara (Km 0+000) to Pappinisseri (Km 20 + 800) of SH-67' conducted during the same period.

In its reply, KSTP stated (January 2023) that it had initiated the variation item to avoid the probability of the contractor raising claims citing discrepancies and that there was no financial loss to the Government as the rate quoted by the contractor for VO-2 was less than the original rate.

The reply is not acceptable as it is the prerogative of the contractor to satisfy himself of all doubts before making the quote and signing the agreement. Further, the departmental authorities should have made a thorough scrutiny of the documents during the selection and finalisation of the tender. The variation order for the item was issued in excess of 44 *per cent* of the estimated amount which benefitted the contractor resulting in loss to the Government. As such the claim of KSTP that the issuance of variation order benefitted the Government is not acceptable.

(b) Non imposition of liquidated damages amounting to ₹14.87 crore for the extension of time of completion

As per the agreement (General condition 8.7, Delay Damages) if the contractor fails to comply with sub clause 8.2 (Time for Completion), the contractor shall pay delay damages to the employer for that default. Clause 2116.1 of KPWD Manual also provides for compensation for delay/ liquidated damage. As per the Contract Data, delay damages for Milestone I[100] was ₹3,00,000/day and for Milestone II[101] was ₹5,00,000/day; the maximum amount being limited to 10 *per cent* of the final contract price.

As the contractor, M/s Dinesh Chandra R Agrawal Infracon (P) Ltd., Ahmedabad could not achieve the required progress for Milestones I and II, four extensions of time of completion (EoT) were granted[102] by the Project Director without imposing any delay damage, although the reason for the delay was due to lack of sufficient men and machinery. The sluggish progress regarding the work was pointed out several times by the PMT/CSC (2019 and 2020).

Non-imposition of delay damages resulted in undue benefit to the contractor to the tune of ₹15.63 crore (maximum amount limited to 10 *per cent* of contract price as detailed in agreement).

In its reply KSTP stated (January 2023) that recommendation for extension of time was not due to the fault of the contractor; but it was confirmed by KSTP that an amount of ₹76.11 lakh was deducted as liquidated damages. The reply is contradictory as it has been stated that the extension was not due to the fault of the contractor, but liquidated damages has been partially deducted. However, Audit observed that the Construction Supervision Consultant and KSTP requested the contractor several times to restart the work.

KSTP gave undue favour to the contractor by issuing variation order after finalisation of tender and extra time for completing the work. This has resulted in extra financial commitment to the Government.

The matter was referred to Government as Statement of Facts (September 2022) and Draft Paragraph (December 2022). Reminder for reply was issued in February 2023 and DO reminder from Principal Accountant General was also issued in March 2023. Senior Deputy Accountant General visited the Secretary, PWD for the reply by the end of March 2023. In addition, contacted the Department several times telephonically too. Despite all the efforts taken by this office the Government reply is still awaited (December 2023).

[100] 10 Km. Continuous Stretch of Road from Km 01/200 to 11/200. Completion up to BC level – 15 months from date of commencement (26/09/2017).

[101] 28.80 Km. Continuous Stretch of Road from Km 01/200 to 30/000. Completion in all respect in 24 months from date of commencement (26/06/2018).

[102] upto 31/03/2019, 31/12/2019, 31/03/2020 and 31/10/2020.

Recommendation: The Government may direct KSTP to examine item-wise rates quoted by contractors with estimated PAC before finalising a tender in order to safeguard the interests of the Government.

2.5 Incorrect estimate leading to excess expenditure and undue benefit to an accredited agency

Public Works Department entrusted the construction of two flyovers to an accredited agency based on incorrect estimates by NH Division, Kozhikode resulting in excess expenditure and undue benefit to the agency to the tune of ₹2.87 crore.

Government of Kerala (GoK) implemented (June 2015) District Flagship Infrastructure Project (DFIP) for infrastructure development in all districts, utilising 50 *per cent* of the additional revenue generated from sale of fuel in the State. GoK issued (February 2016) Administrative Sanction (AS) for 10 works during the first phase, which included construction of flyovers at Thondayad and Ramanattukara[103] under National Highway (NH) Division, Kozhikode. The PWD, vide G.O. (MS) No.7/2016/PWD dated 20 February 2016, approved the entrustment of the works to Uralungal Labour Contract Co-Operative Society Ltd., (ULCCS) without following tender procedures and in violation of GO(P)No.453/2015/Fin dated 09 October 2015, wherein it was specified that maximum value of single work that could be entrusted to an accredited agency was ₹50 crore. The works were entrusted at estimate rate[104] (with cost index @ 38.10 *per cent*) with provision for actual conveyance of materials brought to site.

In connection with the entrustment and execution of the works, Audit noticed the following irregularities which resulted in escalation of project cost:

(a) Excess expenditure of ₹1.76 crore due to the provision of actual conveyance for materials instead of standard carriage

GoK, while approving the provision for actual conveyance in the AS, insisted on the scrutiny of Detailed Project Reports (DPR) of the subject works by the Chief Technical Examiner (CTE)[105] before issuing Technical Sanction. Accordingly, CTE observed that the estimate was not prepared using Project Information & Cost Estimation (PRICE)[106] Software, which allowed only standard carriage (5 km) and not the actual conveyance; extra conveyance was covered in cost index for the district adopted in the estimate. Hence the rates adopted in the sanctioned estimates

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103 Construction of Flyover at km 14/700 Thondayad Phase I and Construction of Flyover at km 27/330 Ramanattukara Phase I along NH 66 Bypass (Old NH 17).

104 Based on 2014 Delhi Schedule of Rates (DSoR), (Thondayadu - ₹59 crore and Ramanattukara- ₹85 crore).

105 The Chief Technical Examiner (CTE) is a part of Finance Department. The role of CTE is to inspect different aspects such as materials, earthworks, initial and final levels, agreements, etc. in respect of public works undertaken by various departments.

106 PRICE software is an initiative of Government of Kerala for unifying the work methodology and rates across the State based on CPWD DSoR, which incorporates all aspects of management of public works comprising of estimate preparation, RE, eMBook and eBills.

should have been reviewed by Chief Engineer (CE) to avoid any loss to the exchequer, as no competitive tenders were invited. The Technical Sanction authority should have considered modifications to the rates only after analysing the site-specific difficulties.

Based on the observations of the CTE, GoK repeatedly directed[107] the Chief Engineer (NH) (CE) to take urgent action. However, the CE continued to endorse the justifications of the Executive Engineer (EE), NH Division, Kozhikode that the PRICE software was not implemented in NH Wing during the preparation of DPR of the works and that as GoK granted actual conveyance in the AS, considering the requirement of huge quantities of good quality construction materials in highway projects and non-availability of quarries within five km, the provision for actual conveyance was included in the Technical Sanction also.

Even before the AS for the works was granted, in response to the CE's direction (August 2015) to resubmit the estimates of both the works with minimum carriage for materials, the EE re-submitted (September 2015) the estimate without any modification justifying that the works would consume huge quantities of construction materials and it was not practically possible to arrange all those materials locally or even from within the district and hence the conveyance charges of all materials were as per actual distance.

Audit observed the following:

- The CTE had observed that all other public works in Kozhikode then, were being executed without actual conveyance. Hence the EE's conclusion that it was not practical to arrange all those materials locally lacked justification. This has been reiterated (November 2017) by the Government as well.

- The non-compliance of directions from higher authorities/ Government by the SE/EE resulted in undue benefit to the contractor and consequent loss to the State exchequer, due to the provision of actual conveyance in the estimate. Audit calculated the loss due to allowance of actual conveyance for materials in case of four major items included in both works, which amounted to ₹1.76 crore ***(Appendix 22).***

- There was lapse on the part of the CE in not implementing the GoK order, which directed to prepare cost estimates of all public works by various engineering departments through PRICE software with effect from September 2015. Moreover, the Government had ordered that all AS exceeding ₹50 lakh should be issued only through PRICE software. The preparation of estimates for the works outside PRICE software facilitated the inclusion of actual conveyance for materials in estimate.

The Public Works Department replied (January 2023) that in order to ensure the required strength of concrete and uninterrupted supply of immense quantities of materials no cost index was applied and actual conveyance charges have been allowed. It was also pointed out that PRICE software is only a mechanism or

[107] 08/11/2016, 27/03/2017 and 15/11/2017 (Thondayad) and 20/09/2016 and 28/03/2017 (Ramanattukara).

guideline for the preparation of an estimate and hence the principle governing the estimation is MoRTH specification which is indisputably on a higher footing. The reply is not acceptable since the CTE's observation that all other public works in the District were being implemented without actual conveyance. Further, Government ordered that all public works with AS exceeding ₹50 lakh should be issued only through PRICE software to avoid cost escalation due to various reasons and hence it is not just a mechanism or guideline for preparation of estimate.

(b) Undue benefit of ₹1.11 crore to the contractor due to inclusion of unwarranted provisions in the estimate

During the scrutiny of estimates of both the works, Audit noticed inclusion of separate items of work, which were already covered in other items. The unnecessary provisions resulted in additional expenditure, thereby extending undue financial gain to the contractor, as given in **Table 2.17**. The excess expenditure has been worked out in ***Appendix 23***.

Table 2.17: Unwarranted provisions in the estimate

Sl. No.	Item of work	Reason for duplication of payment	Excess expenditure (₹)
1	Pile load test	As per MORTH data 12.37 (Specifications 1118), the item is incidental to the work of boring piles and not to be included separately.	27,67,500
2	Chipping and removing excess length of RCC pile	As per MORTH Specifications 1118 and 1119, the work is included in contract unit rate for installation of piles and not to be included separately	9,06,533
3	Driving down MS liner already fabricated to the required depth	As per MORTH Specifications 1118 and 1119, the work is included in contract unit rate for permanent steel liners and not to be included separately	8,32,650
4	Bored cast in situ reinforced piles (rock penetration of 60 cm depth in each bore hole).	As per MORTH Specifications 1118 and 1119, the length of pile in the finished structure complete in place is measured, limited to that shown and ordered by the Engineer. There is no distinction between penetration through hard strata or rock and socketing into rock.	47,34,282
5	Bored cast in situ M 35 grade RCC pile	As per the approved rate analysis of sub-data of M35 concrete, five *per cent* of cost of material and labour was allotted towards underwater concreting. As the subject works do not require under water concreting, the extra five *per cent*	19,12,604

Sl. No.	Item of work	Reason for duplication of payment	Excess expenditure (₹)
		allowed on cost of material and labour on this account in the data was irregular.	
Grand Total			**1,11,53,569**

Audit observed that the inclusion of the above items were superfluous and hence their inclusions in the approved estimate resulted in excess expenditure of ₹1.11 crore.

The Technical Sanction implies that the competent technical authority is satisfied about the quantities, specifications, and rates of different items of work and the suitability of the work to meet the requirements and structural soundness. The subject works were entrusted to an accredited agency at estimate rates, which were not at all competitive. Audit observed that the CE accorded Technical Sanction without due diligence, thereby incurring avoidable excess expenditure of ₹2.87 crore.

The Public Works Department replied (January 2023) that the specifications for pile load test under clause 1118 and 1119 of MoRTH specification is a cumbersome procedure and in the absence of data, it has to be worked out separately. It was also replied that in the rate analysis there was no provision for chipping and removing of excess length of RCC pile and hence included as a separate item. As far as socketing of the pile in hard rock, the extra amount was granted for avoiding the extra cost to be sanctioned for driving through hard rock. The reply is not tenable as it is against the 'Specifications for road and bridge works' published by MoRTH and also against MoRTH Standard Data Book for the said items of work; the additional items were already covered under other items of work included in the estimate.

The awarding of works without tendering was violation to then existing Government order on maximum value of single work that can be awarded without tendering. Further, entrustment of the work based on incorrect estimate resulted in excess expenditure to the exchequer and undue benefit to the contractor to the tune of ₹2.87 crore.

The matter was referred to Government as Statement of Facts (October 2022) and Draft Paragraph (December 2022). Reminder for reply was issued in February 2023 and DO reminder from Principal Accountant General was also issued in March 2023. Sr. Deputy Accountant General visited the Secretary, PWD for expediting the reply by the end of March 2023. In addition, the Department was contacted several times over telephone. Despite all the efforts taken by this office, the Government reply is still awaited (December 2023).

Recommendation: The Government may give strict directions to the department officials to adhere to the Rules and guidelines and to observe due diligence while preparing estimates for various works.

2.6 Irregular repayment of duly recovered amount by reopening closed work bills and improper adjustments made in the final bills resulting in loss to Government

Loss to Government to the tune of ₹134.32 lakh occurred due to reopening and irregular refund in respect of three closed work files and improper adjustments made in the final bills of three work files in PWD Roads Division, Kasaragod.

Prior to September 2003, for road works under Public Works Department (PWD), the Department procured and supplied bitumen to the contractors as per quantity of work executed and the cost of departmental material was recovered from the contractor at the time of payment of Running Account Bills. But Government, vide G.O No.50/2003 PWD dated 6 September 2003, had dispensed with the departmental supply of bitumen except in case of small works costing up to ₹six lakh (enhanced to ₹one crore through the revision of KPWD Manual in 2012) and authorized the contractors to purchase bitumen directly from M/s Bharat Petroleum Corporation Ltd., (BPCL) and submit invoices for reimbursement. Since the cost of bitumen is borne entirely by the Department, it is treated as departmental bitumen and the cost of the bitumen was then recovered from the contractor's Running Account Bills.

This system was introduced to insulate the contractor's from suffering loss due to increase in the price of bitumen in the market and also to benefit the Department when the price of bitumen decreases in the market.

Out of 557 works for which payments were released by Executive Engineer (EE), PWD Roads Division, Kasaragod during July 2018 to March 2021, Audit test checked (April/July 2021) 53 work files and observed that in respect of three closed work files even though the Department had recovered the cost of bitumen the Divisional Accountant (DA) and the EE had re-opened the files and extended undue benefit to contractors by irregularly sanctioning repayment of ₹71.49 lakh. In respect of three other works, there was non/short recovery and refund of recovered amount in subsequent bills to the tune of ₹62.83 lakh. The details are given in ***Appendix 24***.

The following observations are made in this regard:

- By interpreting the recovery of cost difference of bitumen as a mistake, the DA *suo-moto* or based on request of the contractors, reopened the accounts of three works (Sl. No. 1 to 3 of ***Appendix 24***) and the Executive Engineer approved the repayment of ₹71.49 lakh.
- In order to process the repayments, the DA had relied on Clause 28 of the contract agreements which states that no departmental materials shall be supplied to the contractor. Since the materials are purchased by the contractor the word differential cost is not applicable. But this is a misrepresentation of the fact that, the estimate cost of bitumen is recoverable from the contractor at the rates mentioned in the agreement, which is clearly stated in the agreement schedule. This system of recovery

and reimbursement existing in the Department since 2003 helps protect the contractor when there is hike in market prices, and gives benefit of price drop to the exchequer.

On bringing these irregularities to the notice of the Superintending Engineer, PWD (Roads) North Circle, Kozhikode (SE), an internal audit of PWD Roads Division, Kasaragod was conducted (August 2021) by the SE and the report of SE concurred with the findings of Audit. The SE also admitted that the Divisional authorities had violated the extant procedures and that excess amounts had been paid to the contractors. It was also stated that re-opening of the files after final payment and the release of the already recovered cost of bitumen was viewed seriously and that directions will be issued to the Divisional Authorities.

Government, in its reply, stated (April 2023) that Chief Engineer (Roads) has been instructed to make all recoveries and credit to the respective head of account within one month and to initiate departmental action against the DA and the EE for the irregularities.

The irregular refund and improper adjustments in respect of duly recovered cost of bitumen in these works had resulted in loss to the exchequer.

Recommendation: Government should issue suitable instructions to the departmental officials to guard against such malpractices in future.

Directorate of Mining and Geology

2.7 Mining activities in Kerala

Sustainable mining operations are essential for revenue generation and for development of the State. But exploitation of mineral resources should be done in a controlled manner to avoid environmental degradation and depletion of resources. There is also a need for proper system of collection of mineral revenue due to Government. The Mines and Minerals (Development and Regulation) Act, 1957 and Kerala Minor Minerals Concession Rules, 2015 provides for regulation of mining operations through granting of mining licences/ permits, fixing and collection of mineral revenue, defining of illegal mining and punishments therefor. Deficiencies were, however, observed in rules/ guidelines and its enforcement which led to illegal mining, over-exploitation of mineral resources, and loss of revenue. Further, the impact of illegal mining on environmental degradation was not assessed by Government/ Department of Mining and Geology for remedial action.

2.7.1 Introduction

Minerals are finite and non-renewable natural resources and, hence, their exploitation should be guided by long term national goals and perspectives. Minerals are categorised as Minor minerals and Other or Major[108] minerals. The

[108] Connotes 'specified minerals' and 'notified minerals' listed in First Schedule and Fourth Schedule, respectively, to the Mines and Minerals (Development and Regulation) Act, 1957.

respective State Governments are the owners of all minerals located within the boundary of the States. Mineral reserves in Kerala (State) are scant, and include heavy mineral sands[109], Building Stone, ordinary earth, *etc*., as shown in ***Appendix 25***. Minor minerals constituted 97.37 *per cent* [4,929.74 lakh Metric Tonnes (MT)] of the total mineral reserves (5,063.10 lakh MT) in the State. Mining activity in the State was mainly confined to the extraction of Granite Building Stone (GBS) which constituted 98.75 *per cent* of the total minor mineral reserves in the State. Government earns mineral revenue by granting concessions for mining. Mineral revenue comprised royalty[110], price[111], surface rent[112], dead rent[113], compounding fee, *etc.*, accruing to Government of Kerala (GoK).

The Department of Mining and Geology (DMG), functioning under the Department of Industries and Commerce, GoK, oversees the mineral exploration and mineral administration in the State. DMG has a Directorate, 14 District Offices (one in each district), three Mineral Squads[114], and laboratories for testing minerals, gems and chemicals. The administrative head of DMG is the Principal Secretary to the GoK, Department of Industries and Commerce, who is assisted by the Director of Mining and Geology.

DMG conducts prospecting of minerals through its Exploratory and Prospecting Division. Its activities include preliminary and detailed geological mapping, trenching, pitting, drilling, sampling and chemical analysis, and mineral identification of samples. Further, prospecting studies are also conducted for deposits of minerals.

DMG issues quarrying permit which is granted for a period not exceeding one year at a time and quarrying lease as a mining lease granted for a period from five to 12 years. The process of granting or rejection of quarrying permit/ lease is as follows:

- submission of application for quarrying permit/ lease with required documents;
- mining plan[115];
- Environmental Clearance (from Ministry of Environment, Forest and Climate Change/State Level Impact Assessment Authority, wherever applicable);
- No Objection Certificate (NoC) from revenue authorities if the quarrying area is *poramboke* land/revenue land;

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109 Ilmenite, Rutile, Zircon, Monazite and Sillimanite.

110 The amount to be paid in advance by every applicant for a quarrying permit at the rates specified in KMMC Rules.

111 Twice the amount of royalty as provided in Rule 108 (2) of KMMC Rules.

112 Rent payable to Government every year for surface area allotted to quarrying permit holder/ lessee, not exceeding the assessable land tax.

113 Rent payable by a lessee to Government every year (except for first year) from the date of execution of mining lease at applicable rate or amount of royalty payable, whichever is higher.

114 Operating in northern, central and southern regions of Kerala.

115 A comprehensive document showing *inter alia* the precise area of excavation of mineral, the nature and extent of mineral deposit, and the annual programme for excavation (Rule 55 of KMMC Rules).

- NoC from Forest Department if the quarrying land is forest land;
- NoC from statutory authorities (Pollution Control Board),
- issue of Letter of Intent for permit/ lease, and
- site inspection and inquiry by Geologist.

Thereafter, the application is disposed of by granting mining permit/ lease and if rejected, an opportunity of being heard will be provided to the applicant. In the case of mining lease, a lease deed is to be executed within six months of granting the lease.

2.7.2 Audit objectives

The objectives of the Compliance Audit were to ascertain whether

- regulatory framework for mining activities was adequate;
- mining receipts were assessed and collected as per rules; and
- action against illegal mining was taken as per rules.

2.7.3 Audit criteria

Audit criteria for Compliance Audit were derived from the following sources:

- Mines and Minerals (Development and Regulation) Act, 1957;
- Kerala Minor Minerals Concession Rules, 2015;
- Kerala Land Conservancy Act, 1957;
- Kerala Minerals (Prevention of Illegal Mining, Storage and Transportation) Rules, 2015;
- National Mineral Policy, 2019; and Notifications/ orders issued by Government of India, GoK.

2.7.4 Audit scope and methodology

Audit selected six[116] (out of 14) districts in the State based on Stratified Random Sampling and then selected 55 (out of 502) quarrying leases on judgemental basis from these six districts for detailed scrutiny. Other records of DMG and those related to extraction of major minerals by two Public Sector Undertakings[117] (PSUs) were also examined. *Google Earth Pro*[118] was used to independently identify and report on cases of illegal mining. Audit was conducted from November 2021 to July 2022 and from February 2023 to March 2023, covering the period from April 2016 to March 2022.

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[116] Idukki (10 out of 18 leases), Kannur (10 out of 53 leases), Kollam (10 out of 23 leases), Kottayam (10 out of 20 leases), Thiruvananthapuram (10 out of 52 leases) and Wayanad (all five leases) districts were selected.

[117] Mining permits for major minerals in the State were granted to The Kerala Minerals and Metals Limited (KMML) and Malabar Cements Limited (both State PSUs), and to IREL (India) Limited, a Central PSU. The records of KMML and IREL (India) Limited were examined in audit.

[118] Software provided by Google that ties extensive satellite data together into one system to visualise the Earth and study various geographic aspects. It allows users to search for specific co-ordinates and download files of geo-spatial data in a specified format.

Audit commenced with an Entry Conference (December 2021) with the Principal Secretary (Industries and Commerce), GoK and the Director of Mining and Geology wherein the objectives, criteria, scope and methodology of audit were explained. Initial draft report was issued (January 2023) to GoK and replies of the Director of Mining and Geology received thereto have been considered and suitably incorporated in this report. Replies from Department of Industries and Commerce, GoK are awaited. The draft report was discussed (May 2023) in Exit Conference with the Principal Secretary (Industries), GoK and the Director of Mining and Geology.

2.7.5 Status of previous Audit Report

A Performance Audit on 'Licensing and monitoring of quarrying of minor minerals' covering the period from 2011-12 to 2015-16 was conducted during February – July 2016 and included in the report (Audit Report No. 6 of 2017) of the Comptroller and Auditor General of India for the year ended 31 March 2016. It examined whether licences were issued in accordance with rules, monitoring of the compliance with the terms and conditions of licence and existing system was effective in curbing illegal mining.

The Public Accounts Committee discussed (August 2022) the Performance Audit Report. The recommendations of the Committee are awaited (March 2024).

Audit Findings

On scrutiny of the records, the following were observed.

2.7.6 Inadequacy in regulatory framework for mining activities

Article 246 of the Constitution of India empowers the Parliament to enact laws regarding regulation of mines and mineral development under the control of the Union *i.e.*, Major minerals. State Governments are empowered to enact laws related to regulation of mines and development of Minor minerals subject to the provisions of Union List.

Government of India (GoI) promulgated the Mines and Minerals (Development and Regulation) Act, 1957[119] (MMDR Act) for development and regulation of mines and minerals. GoK notified (February 2015) the Kerala Minor Mineral Concession Rules, 2015[120] (KMMC Rules) for granting quarry lease/ permit and regulating mining activities in the State, and the Kerala Minerals (Prevention of Illegal Mining, Storage and Transportation) Rules, 2015 for curbing illegal mining[121] activity and unauthorised transportation of minerals. The National Mineral

[119] As amended from time to time, the last amendment being in March 2022.
[120] In supersession of the Kerala Minor Mineral Concession Rules, 1967.
[121] As defined in Rule 2 (viii) of the Kerala Minerals (Illegal Mining, Storage and Transportation) Rules, 2015.

Policy - 2019 of GoI, which replaced the National Mineral Policy - 2008, also defined the role of States in the regulation of minerals.

Audit analysed the adequacy of regulatory framework to govern and regulate mining operations in Kerala and observed the following shortcomings.

2.7.6.1 Absence of exclusive mineral policy for the State

A mineral policy aims to ensure scientific and systematic exploration of mineral resources, and effective regulation and sustainable development of the mining sector. The Ministry of Mines, GoI advised (2010) the State Governments to frame State Mineral Policy based on the Model Mineral Policy 2010 drafted by it.

Audit observed that GoK did not design a mineral policy for the State despite the directions of Ministry of Mines. The State did not have a policy on issues related to mining operations such as exploration and auction of minerals, rehabilitation of affected persons/ areas and proper plan of sustainable mining, identification of potential revenue, restoration of mines, utilisation of technology in detecting encroachments/ illegal mining *etc.* This prevented the State from effectively estimating mineral resources through prospecting and exploration, auctioning of minerals and planning for prudent utilisation of minerals, thereby depriving the State of potential revenue.

DMG stated (March 2023) that it would bring the matter of framing of mineral policy to the attention of GoK for necessary action.

2.7.6.2 Absence of legal provision for auctioning of minor minerals

Sections 10 B and 11 of MMDR Act prescribe auction by competitive bidding to be followed by States for grant of any mining lease. Ministry of Mines, GoI issued (August 2015) directives to States to adopt a transparent system of auction for issue of concessions for minor minerals as done for major minerals. Ministry of Mines, GoI launched (February 2017) a web portal[122] and mobile application named Transparency, Auction Monitoring and Resource Augmentation (TAMRA) to monitor clearances and approvals in relation to grant of mineral licences, and State Governments were required to regularly update information in TAMRA.

Audit observed that GoK neither implemented TAMRA nor framed any rule for auctioning of mineral licences/ leases as required by MMDR Act and the directives of GoI. GoK did not auction mineral blocks by competitive bidding and Licences were issued on ‘first come first serve’ basis. The system lacked transparency and fairness and did not ensure that all eligible persons get a fair opportunity of competition. It also posed the risk of foregoing higher revenue by the GoK.

DMG stated (March 2023) that Department of Land Revenue has issued guidelines for auction of minor minerals in Government land and the process of auction is under progress. It added that a Joint Working Group had conducted field inspection and delineated boundary of auctionable area in respect of two bauxite mineral blocks in Kasaragod district, and a report has been submitted to GoK.

[122] *https://www.tamra.gov.in.*

The fact, however, remained that KMMC Rules were yet to be amended to enable auctioning of minerals and to make the process of granting of mining leases transparent.

Recommendation: GoK should formulate a mineral policy for effective estimation and prudent utilisation of mineral resources in the State and frame rules for auctioning of mineral licences/leases in a transparent manner.

2.7.7 Deficiencies in KMMC Rules with respect to realisation of royalty

In Kerala, mining of minor minerals is regulated through KMMC Rules. The Rules contain provisions related to grant/ renewal of quarrying lease/ permit, mining plan, assessment and collection of royalty, appeal and review, penalties, *etc.*

Audit observed the following deficiencies in KMMC Rules :

2.7.7.1 Absence of royalty rate for quarrying in large areas

Rules 3 and 7 of KMMC Rules provide for different rates of consolidated[123] royalty, ranging from ₹75,000 (for an area up to 10 Ares) to ₹ seven lakh (for an area between 40 Ares and 50 Ares). As per Rule 3(3), the area under a quarrying permit should be a contiguous unit not exceeding one Ha[124].

Audit observed that the rule did not specify the rate of consolidated royalty for quarrying from an area exceeding 50 Ares leading to loss of revenue for the Government. Thus, for instance, royalty applicable for an area between 40 Ares and 50 Ares *i.e.*, ₹ seven lakh only could be recovered in the case of five lessees who were granted quarrying permit for extraction of GBS from areas ranging from 75.80 Ares to 100 Ares as shown in **Table 2.18** below.

Table 2.18: Instances noticed where permits were granted for area exceeding 50 Ares

Sl. No.	Name of permit holder	Area (in Ares)	Date of issue	District
1	David P V	100.00	29/03/2016	Wayanad
2	T V Elias	100.00	22/02/2016	
3		100.00	05/04/2016	
4	Basil T K	100.00	18/05/2016	
5	Sudheesh A T	80.99	08/03/2016	
6	Jayarajan[125]	75.80	20/06/2016	Kollam

As indicated in **Table 2.18**, in one district viz., Wayanad, there was a continuous trend of the Directorate issuing five permits for areas exceeding 50 Ares during the period from February to May 2016 at the rates applicable for allotment of area between 40 Ares and 50 Ares.

123 A method of collecting royalty based on the extent of land from which mineral is extracted or the capacity of metal crusher unit used for extraction of GBS.

124 Equal to 100 Ares.

125 KOMPAS ID: KOL/Q/2015/135.

DMG stated (November 2023) that the extant consolidated royalty payment system stands removed vide the KMMC (Amendment) Rules 2023 dated 31 March 2023.

2.7.7.2 Absence of penal provisions for default in remittance of royalty

As per Rule 89 of KMMC Rules, while registering a Metal Crusher Unit (MCU), the lessee may opt for remittance of consolidated royalty specified in Schedule III of the Rule in four quarterly instalments before the last day of March, June, September, and December. The KMMC Rules, however, did not contain any provision to penalise the lessee or compensate the Government for any delay in payment of instalments of consolidated royalty though there was a statutory requirement for payment of royalty/ consolidated royalty in advance. To cite an instance, Shri A. H. Sherief[126] opted for and was granted registration during 2016-17 for MCU at Muvattupuzha *taluka* in Ernakulam district on payment of consolidated royalty of ₹16 lakh, to be paid in four equal instalments before the last day of each quarter of the financial year. The lessee remitted two instalments and defaulted in payment of balance royalty. The District Geologist issued (June 2017) demand notice for remittance of dues, to which the lessee responded by preferring (October 2017) an appeal before the appellate authority[127]. The appeal petition was disposed of (March 2019) after the lessee informed that royalty dues of ₹ eight lakh was remitted in October 2017. Absence of penal provisions for delay in remittance of consolidated royalty not only led to potential loss of revenue but also resulted in the absence of an effective deterrent to prevent default in payment.

DMG stated (March 2023) that the existing system of registration of MCUs is proposed to be removed to avoid revenue loss and necessary amendment to KMMC Rules has been proposed to GoK.

2.7.8 Short collection of mineral revenue

Rule 7 of KMMC Rules requires every applicant for a quarrying permit/lease to pay royalty in advance at specified rates based on the quantity of mineral allowed to be extracted. As per Rule 89, an applicant possessing an MCU for extraction of GBS may opt for advance payment of consolidated royalty in four quarterly instalments, at specified rates based on the capacity of MCU or the extent/ area of land from which mineral is allowed to be extracted.

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126 KOMPAS ID: ERN/Q/2015/119.

127 As per Gazette Notification issued (May 2016**)** by GoK, the Deputy Secretary in Department of Industries and Commerce was designated as Appellate Authority and the Principal Secretary (Industries) was designated as Final Appellate Authority.

To ensure compliance to the conditions mentioned in the permit/ lease, and to collect compensation and ensure that there are no dues of compensation with the lease holder while renewing the lease/ permit, GoK had directed (January 2015) the Director of Mining and Geology to issue necessary instructions to its officers to conduct periodical check in all quarries. The Kerala Minerals (Prevention of Illegal Mining, Storage and Transportation) Rules, 2015 requires [Rule 26(4)] that transportation of extracted mineral should be accompanied by valid mineral transit pass issued by the geologist after collection of royalty. Transportation without mineral transit pass is punishable under Rule 29, with imprisonment up to two years and/ or fine up to ₹ five lakh.

2.7.8.1 Indian Bureau of Mines (IBM) classified (April 2018) Aluminous Laterite containing minimum 20 *per cent* of Aluminium Oxide as Bauxite, a major mineral. The royalty to be collected for Laterite (used for industrial purposes) was fixed at ₹95 per MT as per KMMC Rules, while that payable for extraction of Bauxite was based on *ad valorem* rate of 25 *per cent* of its average sale price[128] notified periodically by IBM.

DMG granted (March 2021) quarrying lease to Shri V. S. Bashir[129] for extraction of three lakh MT of Laterite (Industrial Purpose) from 4.856 Ha in Kannur district. The laboratory test report[130] (September 2017) of Laterite produced by Shri V. S. Bashir along with application for lease and the laboratory tests[131] of soil in the area carried out (January 2020/ February 2021) by DMG revealed that the mineral was Aluminous Laterite having more than 20 *per cent* of Aluminium Oxide and hence, Bauxite. This was corroborated by findings of a committee of geologists which observed (August 2020) that Aluminous Laterite reserves in the area should be treated as major mineral as it met/ exceeded the threshold limit fixed by IBM for being classified as Bauxite and should be auctioned block-wise.

Audit observed that royalty at the rate of 25 *per cent* of average sale price of major mineral was leviable as per MMDR Act in the instant case as the extracted mineral was Bauxite. Royalty was, however, collected at the lower rate applicable for Laterite, resulting in loss of revenue amounting to ₹16.39 lakh, as shown in ***Appendix 26***. The possibility of short levy of royalty in respect of 14 other lessees[132] in the region who were engaged in extraction of Laterite could not be ruled out as laboratory tests were not conducted to ascertain the mineral.

While accepting the audit finding, DMG stated (March 2023) that the quarrying lease of Shri V. S. Bashir has since been cancelled (January 2023) and necessary steps would be taken to recover applicable royalty.

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128 The average sale price for Bauxite (cement) ranged from ₹594 per MT to ₹714 per MT during 2021-22.

129 KOMPAS ID: KAN/Q/2021/327

130 Tested at National Institute of Interdisciplinary Science and Technology, Thiruvananthapuram.

131 Tested at IBM, Bengaluru; and Malabar Cements Limited, Palakkad.

132 10 lessees in Malappuram district, two in Kozhikode district, and two in Kannur district.

Recommendation: GoK should direct DMG to conduct laboratory tests to identify the mineral for which mining permit/ lease is issued and collect royalty accordingly.

2.7.8.2 Uralungal Labour Contract Co-operative Society (ULCCS) extracted Ordinary earth from private land in Kozhikode district without paying royalty and transported it to their work site for constructing the second phase of Kozhikode Bypass Road. Hence, the geologist issued (June 2016) demand notice seeking payment of royalty of ₹74.80 lakh for illegal extraction of 1.87 lakh m^3 of ordinary earth. ULCCS requested (September 2016) GoK to exempt it from payment of royalty on the ground that the work was performed for Government and that huge loss would be incurred if royalty is paid. In a report submitted (May 2017) to GoK, DMG stated that ULCCS cannot be exempted from payment of royalty as per extant rules. Finance Department, GoK also recommended against (December 2017) granting exemption, on the ground that estimate for the work included a provision for royalty. Nevertheless, Department of Industries, GoK exempted (February 2018) ULCCS from payment of royalty.

Audit observed that the grant of exemption from payment of royalty was not in order because neither MMDR Act nor KMMC Rules authorised the GoK to exempt any person from payment of royalty for the minerals extracted. As ULCCS did not pay advance royalty and transported the mineral without transit pass, price amounting to ₹3.60 crore (twice the royalty amount) was also recoverable as per KMMC Rules.

Thus, irregular exemption granted by GoK to ULCCS from payment of royalty, coupled with short-demand of price by the geologist concerned, resulted in non-collection of revenue amounting to ₹5.40 crore[133].

DMG stated (March 2023) that it would bring the matter to the attention of GoK for necessary action.

2.7.8.3 There was short-recovery of ₹12.66 lakh[134] due to non-inclusion of price in demand notice while calculating dues receivable from Shri Jose K. Abraham and Shri Sibil Mathews in Kottayam district, who extracted 19,200 m^3 of brick clay and 12,438 m^3 of ordinary earth, respectively.

2.7.8.4 At the time of applying for renewal of leases during 2016-22, it was seen that seven lessees mined out GBS in excess of the quantity permitted under their earlier/ expired leases. DMG, however, did not ensure recovery of royalty and price by issuing demand notices for unpermitted/ excess extraction of minerals, leading to loss of revenue totalling ₹12.45 crore to GoK, as shown in ***Appendix 27***.

2.7.8.5 DMG granted (December 2017) quarrying lease to Shri Jilson Joseph V[135] in Kannur district for extraction of GBS. The quantity of extraction ascertained by DMG through a Recognised Qualified Person[136] was 1.82 lakh MT. This was at

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133 Royalty of ₹1.80 crore *plus* price of ₹3.60 crore.
134 (19,200 + 12,438) * ₹40.
135 KOMPAS ID: KAN/Q/2018/213.
136 A qualified person recognised by the competent authority to prepare mining plan.

variance with the quantity of 1.61 lakh MT as per stock register[137] maintained by DMG.

Thus, 21,202 MT[138] was extracted illegally. Compounding fee of ₹1.08 lakh in respect of illegal mining of 1,361 MT only was, however, collected from the lessee. Hence, royalty and price for the remaining quantity of 19,841 MT amounting to ₹14.28 lakh[139] was not recovered.

2.7.8.6 DMG granted (March 2018) mining lease to M.M.T.Construction Company[140] for extraction of GBS from 2.681 Ha of land in Wayanad district. The modified mining plan with boundary pillars, proper demarcation of quarrying area and buffer zone submitted by the lessee revealed extraction of 3,252.50 MT of GBS from buffer zone. Accordingly, royalty and price amounting to ₹2.34 lakh[141] was recoverable along with fine. The geologist, however, did not take action to recover the same.

2.7.8.7 DMG granted (August 2016) mining lease to G.K.Granites Ltd[142] for extraction of GBS from 3.522 Ha of land in Kottayam district. On noticing mining from adjacent land, which was illegal, geologist issued three demand notices, the details of which are given in the **Table 2.19** below:

Table 2.19: Details of demand notices issued to G. K. Granites Ltd.

Sl. No.	Date of Demand notice	Illegally extracted quantity (in MT)	Rate applied including royalty and price (₹)	Total demand for illegal mining (₹)
1	16/04/2019	50,575	72[143]	36,41,400
2	18/06/2020	4,000	24[144]	96,000
3	17/08/2020	69,765	72	50,48,080[145]
Total		**1,24,340**		**87,85,480**

Price amounting to ₹1.92 lakh[146] for extraction of 4,000 MT from the neighbourhood land was not recovered. Collection of ₹87.85 lakh could not be ascertained from the records.

2.7.8.8 DMG granted (June 2016) quarrying permit to Shri Jayarajan[147] for extraction of GBS from an area of 75.80 Ares in Kollam district. Though annual consolidated royalty of ₹ seven lakh was recoverable as per KMMC Rules, the

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137 As per the data in Kerala Online Mining Permit Awarding Services (KOMPAS), a software application used by DMG for issuing mineral transit pass.
138 1,82,290 MT – 1,61,088 MT.
139 Royalty: ₹4,76,184 (19,841 MT*₹24) and Price: ₹9,52,368 (19,841 MT*₹24*2).
140 KOMPAS ID: WAY/Q/2018/72.
141 (3,252.50 MT * ₹24) * 3.
142 KOMPAS ID: KOT/Q/2015/2.
143 Royalty @ ₹24 and price @ ₹48 was imposed per MT.
144 Royalty @ ₹24 per MT.
145 Includes fine of ₹25,000.
146 (4,000 MT * ₹24) * 2.
147 KOMPAS ID: KOL/Q/2015/135.

geologist erroneously collected a sum of ₹ five lakh only towards royalty (as applicable for quarrying in an area measuring between 30 Ares and 40 Ares), thereby resulting in short collection of ₹ two lakh.

2.7.8.9 DMG granted (March 2010) lease to Shri P. J. Chacko[148] in Kottayam district for quarrying GBS for a period of 12 years. The lessee opted for registration of MCU and for payment of consolidated royalty in annual instalments. As per KMMC Rules, the applicable rate of consolidated royalty was ₹16 lakh[149] per year. The lessee, however, paid only ₹ four lakh each year during the period 2014-17, leaving a balance of ₹36 lakh[150] which was not recovered.

In all the cases, except one mentioned in **Table 2.19**, fine (maximum ₹ five lakh) was not collected. Audit also observed that in six districts[151], the District Geologists issued demand notices to 26 lessees for illegal mining and collected royalty and price amounting to ₹15.50 crore, as mentioned in ***Appendix 28***. DMG, however, did not take steps to recover fine or compounding fee (up to ₹ five lakh) from those lessees.

2.7.8.10 Department of Land Revenue had informed (September 2015) DMG about extraction of mineral from an area of 0.90 Ha in Thiruvananthapuram district after expiration of validity of mining licence/ lease. The geologist inspected the site and found that mineral was extracted up to a depth of seven metres from a part (0.172 Ha) of the area. The quantity of extraction in the remaining area of 0.728 Ha was not measured citing waterlogging in the region.

Audit observed that as the depth was measured up to seven metres for a part of the quarry, the height/ depth of the remaining portion, being waterlogged, would have invariably been more than seven metres. Despite this, the geologist did not recover the minimum applicable royalty, price and fine/ compounding fee under KMMC Rules. As this was not done, revenue of at least ₹91.73 lakh[152] was forgone.

About the instances mentioned in ***Paragraphs 2.7.8.3 to 2.7.8.10***, DMG stated (March 2023) that it would direct District Offices/ Geologists concerned for reviewing the cases and recovery of dues in case of revenue loss.

Recommendation: GoK may take suitable action as per extant rules and regulations and strengthen the system for assessment and collection of mineral revenue due to it.

148 KOMPAS ID: KOT/Q/2017/99.

149 The MCU in the instant case was a cone crusher unit having capacity of 180 Horsepower. For cone crusher units up to 300 Horsepower, the annual consolidated royalty was ₹16 lakh.

150 ([₹16 lakh - ₹4 lakh] * 3 years) + ₹12.96 lakh.

151 Alappuzha, Idukki, Kollam, Kozhikode, Thiruvananthapuram and Wayanad.

152 ({[0.7280 Ha * 10000 sq. m. * 7 metre] * 2.50} * ₹24) * 3.

2.7.9 Non-recovery of compensation and damages for mining in Government/ *poramboke* land

If minerals are extracted from Government/ *poramboke*[153] land, the permit/ lease holder is liable to pay compensation (at rates notified by GoK) as per Section 6(1) of the Kerala Land Conservancy Act, 1957 (KLCA), in addition to royalty. Unauthorised extraction of minerals from Government/ *poramboke* land attracted damages equivalent to the compensation payable for the extracted mineral and fine up to ₹50 (Section 6(3) of KLCA). The rate of compensation in respect of GBS was fixed (February 2016) at ₹50 per MT. GoK authorised (May 2015) the officials of DMG, District Collectors and other officials of Department of Land Revenue to exercise powers conferred by KMMC Rules in their respective areas of jurisdiction[154] to act against illegal mining.

Audit observed that failure to recover applicable compensation and damages from permit/ lease holders, who extracted minor minerals from Government/ *poramboke* land, led to a total short recovery of ₹12.04 crore[155] in seven cases, as discussed below.

- Shri K. C. George[156] was granted (June 2010) quarrying lease for extracting GBS from 0.8094 Ha of *poramboke* land[157] in Idukki district. The District Geologist found that the lessee extracted 1.95 lakh MT of GBS from *poramboke* land outside the permitted lease area and issued (March 2017) demand notice for recovery of ₹1.40 crore towards royalty and price payable. A copy of the demand notice was also marked to the Department of Land Revenue, GoK. The District Collector recovered ₹97.50 lakh[158] towards compensation for extraction of minerals from Government land. Damages (equivalent to the amount of compensation as per Section 6 (3) of Kerala Land Conservancy Act, 1957) were, however, not recovered by the Department of Land Revenue despite intimation (March 2017) by the geologist on illegal extraction, thereby depriving the Government of revenue of ₹97.50 lakh.

- Rule 12 of KMMC Rules required production of all statutory licences/ clearances/ No-Objection Certificates, *etc*. from statutory authorities for renewal of quarrying permit of an applicant.

  Shri R. Krishnamoorthi[159] applied for (February 2017) renewal of quarrying lease for extraction of GBS from an area of 3.9342 Ha in four parcels of private land in Pathanapuram *taluka*, Kollam district, upon expiration (December

153 Land which is not assessed to revenue records and is property of GoK.
154 Director/ Additional Director/ Deputy Directors in DMG have jurisdiction over the entire State, District Collectors have jurisdiction within the district concerned, and other authorised officials can exercise powers within their respective areas of jurisdiction.
155 Total of ₹97.50 lakh, ₹10.70 lakh, ₹1.29 crore, ₹ 15.05lakh, ₹75.09 lakh, ₹8.50 crore, ₹11.26 lakh and ₹16.03 lakh.
156 KOMPAS ID: IDU/Q/2015/36.
157 Bearing re-survey number 217/5 – part Block No.18.
158 1,95,000 MT * ₹50.
159 KOMPAS ID: KOL/Q/2018/255.

2016) of previous lease. The *Tahsildar* informed (October 2017) the geologist that the lessee had extracted 4,278 m^3 (or 10,695 MT) of GBS from *poramboke* land outside the permitted lease area. Recovery of compensation and damages amounting to ₹10.70 lakh[160] for extraction of GBS from *poramboke* land was, however, not ensured by the geologist while renewing (June 2018) the lease.

- Department of Land Revenue informed (July 2021) the District Geologist, Kollam that V. K. Rocks Private Limited[161] had extracted excess quantity of 2.57 lakh MT of GBS from Government land and was, therefore, liable to pay compensation of ₹1.29 crore[162] for illegal mining and sought (July 2021) information on details of additional compensation or other amount to be recovered from the lessee. As the required information was not provided by the geologist, damages amounting to ₹1.29 crore could not be recovered.

- Department of Land Revenue reported (August 2021) to the District Geologist, Kollam about mining of 16,175 MT of GBS by Ananthapuri Blue Metals[163] from buffer zone around the quarry and 13,920 MT from outside the permitted lease area (*i.e.*, beyond the boundary of buffer zone around the quarry). Though royalty, price, compensation and fine were collected from the lessee, damages for extraction of GBS from buffer zone and from outside the lease area were not recovered. This led to deprivation of revenue of ₹15.05 lakh[164].

- Department of Land Revenue reported (September 2015) to the District Geologist, Thiruvananthapuram about illegal extraction of GBS by three persons[165], from quarries in Government land[166]. Consequently, the District Geologist issued (May – September 2020) five demand notices for ₹7.11 crore against those persons after conducting site inspection.

  As the dues were not paid, DMG initiated (January 2021) revenue recovery proceedings to realise the amount included in three out of five demand notices. It, however, did not take action to realise dues of ₹75.09 lakh included in the remaining two demand notices.

- The District Collector, Idukki granted (March 2020) permission to Greenworth Infrastructure Private Limited (GIPL) to extract 29,627 m^3 of GBS for which GIPL remitted royalty of ₹17.78 lakh[167]. As per the report submitted (March 2020) by the geologist, GIPL extracted and transported a total quantity of 38,295 m^3 of GBS from sites without obtaining mineral transit pass. Despite the illegal extraction of 8,668.60 m^3 (*i.e.*, 38,295 m^3 – 29,627 m^3) and transportation of the entire quantity without transit pass, DMG neither

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160 (10,695 MT * ₹50) * 2.
161 KOMPAS ID: KOL/Q/2018/258.
162 2,57,114 MT * ₹50.
163 KOMPAS ID: KOL/Q/2019/278.
164 (16,175 MT + 13,920 MT) * ₹50.
165 Shri Krishnamoorthi, Ms. Usha Devi P., and Shri Binu Thomas.
166 Re-survey numbers 261/5, 261/1, 251/4, 251/8 and 218/6.
167 29,627 m^3 * ₹60.

recovered the price for 29,627 m^3 of GBS nor collected royalty (along with price and fine) for 8,668.60 m^3.

Site inspection by the geologist further revealed (July 2018) that GIPL had illegally extracted 44,747.52 m^3 of GBS from outside the permitted area. In a letter addressed (August 2021) to the District Collector, the geologist stated that as per the report submitted by the Sub-Collector, GIPL had also illegally extracted 2.51 lakh m^3 of GBS from outside the permitted area of road work. As the work involved extraction from Government land, compensation and damages were recoverable from GIPL under the provisions of KLCA. The revenue forgone due to non-recovery of royalty, price, compensation, and damages worked out to ₹8.50 crore, as shown in **Table 2.20**.

Table 2.20: Non-recovery of revenue for illegal extraction and movement of GBS

<table>
<tr><th>Particulars</th><th>Quantity (m^3)</th><th>Rate (₹/m^3)</th><th>Amount (₹ crore)</th></tr>
<tr><td>Price for transportation of mineral without transit pass (KMMC Rules)</td><td>29,627.00</td><td>120</td><td>0.35</td></tr>
<tr><td>Royalty and price for unpermitted extraction and transportation of mineral (KMMC Rules)</td><td>8,668.60</td><td>180</td><td>0.16</td></tr>
<tr><td>Compensation for extraction of mineral from Government land (KLCA)</td><td>29,627.00</td><td>125</td><td>0.37</td></tr>
<tr><td>Compensation and damages for unpermitted extraction and transportation of mineral (KLCA)</td><td>8,668.60</td><td rowspan="3">250</td><td>0.22</td></tr>
<tr><td rowspan="2">Compensation and damages for extraction outside permitted area (KLCA)</td><td>44,747.52</td><td>1.12</td></tr>
<tr><td>2,51,289.33</td><td>6.28</td></tr>
<tr><td colspan="3">Total</td><td>8.50</td></tr>
</table>

(Source: DMG records)

- DMG granted quarrying permit to Shri K. J. Thomas[168] for extraction of GBS from Government land[169] in Idukki district from February 2013 to February 2014. Extraction of GBS from outside the permitted area was reported (February 2016) by Department of Land Revenue. Hence, the District Geologist issued (December 2016) demand notice to the lessee seeking ₹17.60 lakh towards royalty, price and fine for extraction of 9,776 m^3 of GBS. As the dues were not paid, revenue recovery proceedings were initiated (July 2021), but demand notice for ₹11.26 lakh[170] for extraction of 6,256 m^3 was not served on the lessee. Further, as the minerals were extracted from Government land,

168 KOMPAS ID: IDU/Q/2015/33.

169 Bearing survey numbers 289/2, 289/4, 289/6, 289/7 and 290/2 – Block No. 34.

170 Royalty = 6,256 m^3 * ₹60 being royalty rate per m^3 *plus* Price = 2*(6,256 m^3 * ₹60).

compensation and damages amounting ₹16.03 lakh[171] were also recoverable. The District Geologist, however, did not issue demand notice for the same.

DMG stated (March 2023) that it would give instructions to geologists of Idukki, Kollam and Thiruvananthapuram District Offices for recovering the amounts in co-ordination with Land Revenue Department, and that notice has been served on the lessee of Pathanapuram *taluka* for realising the dues. In respect of dues recoverable from 17 quarries in Wayanad district, DMG stated that it would bring the matter to the attention of GoK. In respect of non-recovery of royalty, price, compensation, and damages from GIPL, DMG stated that the matter was *sub-judice* and the final orders of Hon'ble High Court of Kerala would be complied with.

2.7.10 Penalty for illegal mining

As per Kerala Minerals (Prevention of Illegal Mining, Storage and Transportation) Rules, 2015, "Illegal mining" means any mining operation undertaken by any person, firm, association or company in any area within the State without holding a prospecting licence, mining lease, quarrying lease or quarrying permit under the provisions contained in the MMDR Act or the rules made thereunder. Rule 108(1) of KMMC Rules prescribes penalties for contravention of any provision of rules, which included imprisonment for a term up to two years and/ or fine up to ₹ five lakh. Further, Rule 108(2) prescribes that in such cases, the mineral extracted or its price (if the mineral has already been disposed of) can be recovered in addition to royalty. Rule 111 provides for compounding of any offence under the rules by the competent authority on collection of a sum[172] specified by that authority. The Hon'ble High Court of Kerala[173] had directed (July 2015) GoK to bring appropriate amendments to KMMC Rules so as to avoid the arbitrary exercise of discretionary power conferred on the authorities by Rule 111.

Audit observed that the penal provisions contained in KMMC rules were not implemented effectively as detailed below:

- On a test-check of records, it was observed that in nine instances of illegal mining of ordinary earth, the competent authority compounded the offence by collecting ₹25,000 each from all offenders. The quantity of minerals illegally extracted by the offenders, however, varied and ranged from 481 MT to 3,31,451 MT as shown in ***Appendix 29***. KMMC Rules thus, did not provide for assessing the compounding fee in proportion to the quantity of minerals illegally extracted. The penal provisions in KMMC Rules were, therefore, arbitrary and encouraged discretion of the competent authority.

  DMG stated (March 2023) that imposition of penalty was made as per KMMC Rules. The reply is not acceptable as a penalty of ₹25,000 was levied uniformly

[171] Compensation = ([9,776 m^3 + 6,256 m^3] * ₹50) *plus* Damages = Amount equivalent to compensation.

[172] In the case of offence punishable with fine only, the amount shall not exceed the maximum amount of fine (*i.e.*, ₹ five lakh) imposed.

[173] WPC No. 21117 of 2015.

irrespective of the quantity of mineral illegally extracted in at least nine instances observed by Audit in two districts.

Thus, the penal provisions in KMMC Rules were ineffective in acting as a deterrent to prevent violation.

- As per Rule 108 (2) of KMMC Rules[174] the price of mineral to be recovered in the case of illegal extraction would be twice the applicable royalty payable. As the prevailing market rates of minerals were considerably higher than the price which was recovered, GoK lost the opportunity to recover the prevailing market price of minerals. It was seen that DMG recovered price amounting to ₹15.25 crore only during 2016-22 in respect of illegal extraction of 31.78 lakh MT of minerals (in 20 test-checked cases in six selected districts) instead of recovering market price of ₹187.69 crore as indicated in ***Appendix 30***. As the price recovered in the case of illegal extraction was meagre when compared to the market price of minerals, it did not act as an effective deterrent to illegal mining activity.

- Transportation of minerals is regulated through the Kerala Minerals (Prevention of illegal mining, Storage and Transportation) Rules, 2015. GoK issued (June 2017) a guideline[175] for fixing the minimum compounding fee for vehicles seized in connection with illicit transportation of the 13 minor minerals mentioned in Schedule I of KMMC Rules.

  Audit observed that the guideline, however, did not provide for recovery of royalty and price for illicit transportation of seven[176] minor minerals. This resulted in non-recovery of royalty and price in 132 instances of illegal transportation of GBS, Laterite Building Stone (LBS), ordinary earth and sand.

  DMG stated (March 2023) that it had recovered price as per provisions of KMMC Rules, and draft amendment to rules was under consideration of GoK. The fact, however, remains that the price, as provided in KMMC Rules, did not compensate the State for illegal extraction of minerals.

- The quarterly return on illegal mining submitted by GoK/ DMG to IBM reported 44,072 cases of illegal mining and recovery of fine amounting to ₹164.61 crore during 2016-22. Audit observed that as per data maintained by IBM, all States except Kerala took stern action against illegal mining, such as lodging of First Information Report (FIR), filing of court cases, seizing of vehicles, *etc*. In Kerala, other than imposing fine, DMG did not proceed with stringent action like lodging of FIR, filing of court cases, seizing of vehicles, *etc*.

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174 A Note was introduced to the proviso to Rule 108(2) of KMMC Rules *vide* Government Order G.O.(P) No.25/2017/ID dated 22 June 2017.

175 G.O(Ms) No. 51/2017/ID dated 21 June 2017.

176 *Kankar* and other forms of limestone, Lime shell, Ordinary clay, Ordinary sand, Ordinary earth, GBS and LBS.

DMG stated (March 2023) that cases were filed in courts either voluntarily by officials or when an offender was not willing to compound the offence. It assured to take steps to include data on seized vehicles (involved in illegal transportation) in KOMPAS portal for tracing contraventions. The reply is not acceptable as illegal mining should not be left to the discretion of officials, to decide whether to file a case or not. Stringent prosecution should be enacted to bring about conformity of law to counter illegal mining.

Recommendations: GoK should issue guidelines for assessing penalty for illegal extraction of minerals based on quantity extracted, to avoid arbitrariness. GoK should also review the guidelines stipulating the minimum compounding fee in case of illegal transportation of minerals, so that royalty and price is recovered in respect of the seven minor minerals which have been excluded.

2.7.11 Unsustainable mining of Beach sand

Beach sand, a major mineral, is extracted from Kollam district by The Kerala Minerals and Metals Limited (KMML) and IREL (India) Ltd (IREL). KMML, a State PSU and IREL, a Central PSU are engaged in mining and mineral separation of beach sand minerals such as Ilmenite, Rutile *etc*. The initial mining lease to KMML, which expired in 2005 was renewed (August 2010) for a further period of 20 years for extraction from an area of 203.802 Ha. IREL had four mining leases which were valid till the years 2023-24 (102.77 Ha), 2031 (180 Ha), 2034 (67 Ha), and 2039 (4.8 Ha). On directions (January 2019) of GoK, the National Centre for Earth Science Studies (NCESS) – an autonomous research centre under GoI studied[177] (February – March 2019) beach sand mining undertaken by IREL and KMML along the 22-kilometre long Kayamkulam – Neendakara coast in Kollam district. NCESS reported[178] (April 2019) that it observed shoreline retreats of 243 metre, 227 metre and 57 metre, respectively, at Vellanathurthu, Ponmana and Kovilthottam[179] during the period 2000-2019. NCESS found that mining volumes of both companies during the period were more than 50 *per cent* higher[180] than the sustainable mining quantity recommended in its earlier reports of 2002 and 2010. For the periods 2001-10 and 2010-19, the study report indicated excess mining of 5.47 lakh m^3 (9.84 lakh MT) and 5.34 lakh m^3 (9.61 lakh MT) respectively by the two PSUs. The report attributed severe erosion of beach/ coast due to unsustainable mining practices followed by the two PSUs and suggested that mining volumes be drastically reduced to compensate for the same.

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177 Through field data collection in beach and offshore mining areas (Kovilthottam, Ponmana and Vellanathuruthu) and non-mining sites (Azheekkal), and one-time bathymetric survey. The study analysed mining activities by the two PSUs during decadal periods 2001-10 and 2010-19 and analysed data from secondary sources as well.

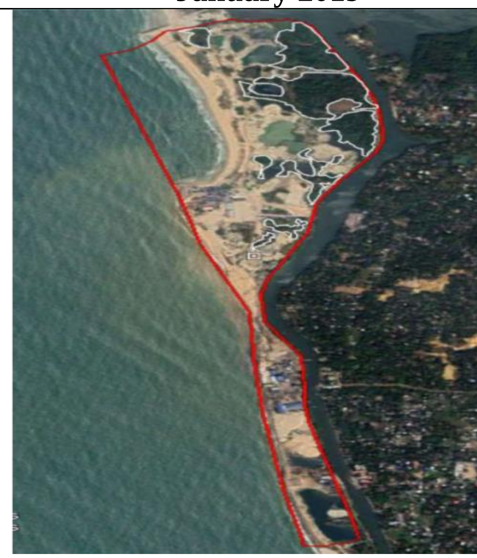
178 Report on 'Impact of beach sand mining by IREL (India) Ltd. and KMML along the Chavara coast in Kollam district'.

179 IREL (India) Ltd. and KMML undertook mining operations at Vellanathuruthu, Ponmana and Kovilthottam sites.

180 Excess mining by each PSU for the period 2001-10 was not mentioned in the report. For the period 2010-19, excess mining by KMML and IREL (India) Ltd. was reported at 3.18 lakh m^3 (5.52 lakh MT) and 2.16 lakh m^3 (3.88 lakh MT) respectively.

Change in the extent of land cover along Kollam coast during the past two decades (2000-19) could be gauged from images captured in Environmental Impact Assessment (EIA) study report of Council of Scientific and Industrial Research – National Institute for Inter-disciplinary Science and Technology (CSIR-NIIST), shown in **Figure 2.23**.

Figure 2.23: Land cover changes during 2003-19 along Kollam coast

January 2003	January 2019
	

(Source: EIA study report of CSIR-NIIST, March 2020)

Audit observed that though large-scale beach erosion was an admitted fact[181], available studies/ reports ascribed the development to natural as well as human activities. In its 2019 report, NCESS advised the PSUs to restrict mining volume by 50 *per cent* of the recommended sustainable limit[182], but added that the limit could be reconsidered in a detailed study to be undertaken as follow-up of that report. Such an exercise, however, has not been conducted in the past three years. The Hon'ble National Green Tribunal had also taken cognizance of the matter and directed (March 2021) Kerala State Pollution Control Board to take action expeditiously in accordance with law. Despite being the competent authority for regulation of mining activity in the State, DMG did not intervene in the matter to control the unsustainable mining reported by NCESS/ Joint Committee.

In respect of IREL, DMG stated (March 2023) that the Company was operating with proper authorisations such as approved mining lease, mining plan and

[181] The Minister of State, Ministry of Science & Technology and Earth Sciences made (March 2022) a statement in the *Rajya Sabha* that 33.60 *per cent* of 6,632 km Indian coastline was under varying degrees of erosion, with Kerala accounting for erosion of 275.33 km (46.40 *per cent* of 592.96 km coastline), due to reasons which included beach mining.

[182] During the period 2010-19, the sustainable mining limit as provided (April 2012/ October 2013) by NCESS to KMML and IREL (India) Ltd. was 74,500 m^3/ year (1.34 lakh MT) and 48,600 m^3/ year (0.87 lakh MT) respectively, for a mining length of 1.06 km for KMML and 1.5 km for IREL (India) Ltd.

composite Environmental Clearance (EC) and Coastal Regulation Zone (CRZ) clearance. In respect of KMML, DMG stated (March 2023) that the applications of the Company for EC and CRZ clearance were pending with the State Environment Impact Assessment Authority (SEIAA) and the Kerala Coastal Zone Management Authority (KCZMA) for approval.

The replies, however, did not address the issue of unsustainable mining activity reported by NCESS and the damage caused by such mining operations.

Mining activities carried out without obtaining Environmental Clearance

2.7.12 Obtaining prior EC is a mandatory requirement under Environment (Protection) Act, 1986 and Environmental Impact Assessment (EIA) Notification, 2006 for grant of permission for any mining activity. Execution of mining lease deed in specified form within six months of the order of grant of mining lease is a major condition for grant of lease. Rule 50 of KMMC Rules empowers DMG to regulate, prohibit or cancel the mining lease of any lessee contravening the statutory provisions or conditions of lease.

Audit observed instances of mining activities being carried out by two companies, KMML and EICL Ltd. (formerly English Indian Clays Limited), without obtaining prior EC, as mentioned below.

2.7.12.1 Mining by KMML

GoK renewed (August 2010) the mining lease granted to KMML for extraction of beach sand. As per KMMC Rules (Rule 43), KMML was required to execute mining lease deed within six months of approval of mining plan.

KMML obtained mining plan approval and CRZ status report from NCESS and applied (November 2013) to KCZMA for obtaining CRZ approval and to (June 2020) SEIAA for obtaining EC. SEIAA noted that the time limit for executing mining lease deed by KMML was extended by GoK on several occasions and had expired, and that CRZ clearance has also not been obtained by KMML. It observed that the terms of reference approved by Ministry of Environment Forest and Climate Change for EIA study and Environment Management Plan (EMP) had placed the project under 'violation category' which entails initiation of proceedings by KSPCB under provisions of Environment (Protection) Act, 1986. Further, 'consent to operate' or 'occupancy certificate' would not be issued to KMML till EC is obtained.

As of February 2023, KMML had neither obtained EC from SEIAA nor executed any mining lease deed. During the period from April 2010 to March 2022, KMML mined 44.84 lakh MT of beach sand. Though it was incumbent on GoK/ DMG to ensure that all mining lessees including PSUs obtained requisite prior clearances and approvals before starting mining activities, it turned a blind eye to the mining operations of KMML.

In reply, DMG forwarded (March 2023) the averments of KMML that the latter had obtained extension of time from GoK for execution of mining lease deed and approved mining plan (for 2021-26) and was in the process of obtaining EC from

SEIAA. The fact, however, remained that KMML continued mining operations without EC, which was a violation of EIA Notification, 2006.

2.7.12.2 Mining by EICL Ltd.

DMG granted (January/ May 2008) mining lease to a company named EICL Ltd. for excavation of China clay[183] from a lease area of about 35 acres in Thiruvananthapuram district. The company extracted (2008-11) 1.24 lakh MT of China clay from two sites/ pits in the area without obtaining prior EC. Of this, 0.34 lakh MT was mined in excess of the approved mining plan. The company used 0.42 lakh MT of overburden[184] (1.14 lakh MT) towards back-filling of two pits and for creating approach road and removed/ transported 0.72 lakh MT of overburden without authorisation from the geologist concerned. Nonetheless, the entire excavation was illegal as prior EC was not obtained by the company for commencing mining operations.

The grant of mining lease by DMG without insisting on prior EC was irregular and tantamount to extending undue favour to EICL.

DMG stated (March 2023) that it would review the matter and recover the dues, if revenue loss is found.

Suspected cases of illegal mining

2.7.13 GoK authorised (May 2015) the officials of DMG, District Collectors and other officials of Department of Land Revenue, and police to exercise powers conferred by KMMC Rules, in their respective areas of jurisdiction[185] to act against illegal mining.

Test-check of records revealed that DMG did not take effective steps to prevent illegal mining and to penalise offenders despite having knowledge about them, as discussed below.

2.7.13.1 Based on information furnished by Land Revenue Department, the geologist issued (August 2018) notices to 23 persons[186] who had carried out illegal mining at Ayirooppara village, Thiruvananthapuram district. Survey by the Department of Land Revenue (June 2020) revealed illegal extraction of GBS from an area of 3.674 Ha of *poramboke* land and 3.180 Ha of private land. Though the geologist conducted (June 2020) joint site inspection along with *taluka* surveyor, the total volume of illegal mining was not ascertained citing absence of data on depth of the mine. The geologist also did not initiate action under KMMC Rules

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183 Prior to classification as a minor mineral under KMMC Rules, China clay was classified as a major mineral under MMDR Act.

184 Rock or soil overlying mineral deposit that needs to be removed to access the mineral

185 Director/ Additional Director/ Deputy Directors in DMG have jurisdiction over the entire State, District Collectors have jurisdiction within the district concerned, and other authorised officials can exercise powers within their respective areas of jurisdiction.

186 Shri/ Smt. Appukuttan, Jagadappan, Rajivan, Biju, Shiju, Nitin S. Babu, Suresh, Ashok Kumar, Padmini, Pappu Chandrasenan, Sohail Das, Shobhana, Rajamma, Sivaraman Sashidharan, Bhargavi Amma, Omana Amma, Smita, Aravind, Chandni, Ratnamma, Uma Parvathi, Asha, and Laxmi Parvathi.

citing non-availability of survey number of land parcels in the land sketch provided by the Department of Land Revenue.

Audit observed that DMG had the wherewithal to measure the height/ depth of the excavated area using Total Station System[187] but, it did not utilise the same. Further, survey numbers[188] of lands were available in the sketch provided by the Department of Land Revenue.

The extent of illegal mining in an area of 6.854 Ha (identified independently by Audit using *Google Earth Pro*, by plotting KOMPAS[189] data on licensed/ permitted quarries operating in the region), is shown (yellow boundary) in **Figure 2.24**.

Figure 2.24: Satellite image of area where illegal mining was observed

(Source: Google Earth Pro image)

Yellow lines denote the area of suspected illegal mining as plotted by Audit.

DMG stated (March 2023) that as Total Station System available with it was not functional, it was considering hiring one on rental basis for conducting surveys. The reply was silent on action proposed against the observed instances of illegal mining.

2.7.13.2 *Google Earth Pro* images of legal/ licensed quarries in a region revealed that large pits had formed in adjacent lands not appurtenant to but in proximity to the permitted mining area of existing quarry(ies)/mineral depots, signifying illegal mining thereat. Such manifestations were also observed in areas where there were no licensed quarries. The details of 89 suspected cases[190] as independently observed by Audit in six selected districts, are provided in ***Appendix 31***.

This showed that DMG did not effectively utilise KOMPAS for detection of illegal mining. The details of locations were shared with DMG for its verification through site inspection, but action was yet to be taken (February 2023). **Figure 2.25** shows an instance of illegal mining at adjacent areas outside existing quarry noticed by Audit in Kannur district.

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187 An equipment which uses electronic/ optical instrument for surveying.

188 Survey No. 193, 194, 195, 106 and 110.

189 Kerala Online Mining Permit Awarding Services (KOMPAS), a software application developed by National Informatics Centre for DMG.

190 Fifty-four cases of mining in lands proximate to existing quarry/ies, and 35 cases of mining in distant locations.

Figure 2.25: Mining at areas in the vicinity of existing quarry

Existing quarry :
Suspected illegal mining :

Near quarry of Shri T. Kalanthar (KOMPAS ID: KAN/C/2018/125)

	
Imagery date: 29/9/2004	Imagery date: 26/1/2022. Area of suspected illegal quarry– 43,238.90 sq. m

2.7.13.3 Illegal mining was observed in areas lying outside the co-ordinates of boundary pillars allotted to quarrying leases. Details of 29 instances of suspected illegal mining observed outside quarry boundary in seven[191] districts are given in ***Appendix 32***.

DMG assured (March 2023) to initiate action on cases of illegal mining revealed in spatial analysis.

Recommendation: GoK may take steps to utilise KOMPAS to detect illegal mining through GIS/ satellite imagery.

2.7.13.4 Every mining plan approved by DMG included a requirement that an area of 7.50 metres from the periphery of any quarry should be maintained as safety or buffer zone, and extraction of mineral was not permitted within this area. Data in KOMPAS should indicate the actual area permitted for mining activity as well as buffer zone or boundary around it.

Audit observed that lease deed/ agreement and KOMPAS data provided for total area of a mine/ quarry including buffer zone, and not the actual area permitted for mining (*i.e.*, excluding buffer zone). As a result, the exact area permitted for mining of each quarry was not available in KOMPAS for detection of illegal mining. Audit observed 31 instances in seven[192] districts where extraction of mineral was suspected to have been carried out in areas that included buffer zone of quarries, as shown in ***Appendix 33***. DMG did not contemplate any enquiry and penal action against these violations.

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[191] Six selected districts and Pathanamthitta district.

[192] Six selected districts and Pathanamthitta district.

DMG stated (March 2023) that it would review the cases pointed out by Audit and take appropriate action.

2.7.13.5 Rule 10(a) of KMMC Rules specify that in the case of GBS and LBS quarries where the depth of pit exceeds six metres, the sides of open workings should be sloped/ benched or secured to prevent slope failure. In case of violation, DMG shall issue notice to quarry operator for remedying the breach within 30 days and to initiate appropriate proceedings and/ or impose penalty not exceeding ₹25,000.

Audit examined images of quarrying areas in *Google Earth Pro* and observed that this regulation was not followed in respect of 32 leases (31 out of 55 selected leases in six districts and one lease in Pathanamthitta district which is not included in sample), as mentioned in ***Appendix 34***. During the period under review, violations were not reported by District Geologists, except in Kottayam district where one case[193] was reported (May 2022). The practice/ violation allowed quarry operators to illegally extract more mineral from areas where benches had to be cut. The environmental impact of such quarrying practice was not assessed by DMG. Quarrying activities were, therefore, fraught with the danger of several areas being susceptible to landslides and fatal accidents. DMG, however, did not take any action for recovering penalty/ dues or initiating proceedings against violations.

DMG stated (March 2023) that it was taking action on instances of violation of mining plan which was noticed during routine inspections.

2.7.13.6 Rule 57 of KMMC Rules stipulates that every quarry should have either a progressive closure plan or a final closure plan, as a component of mining plan. The mine closure plan involves backfilling/ refilling and reclamation of pits formed by extraction of minerals with afforestation and/ or proper fencing all around the quarry. Rule 10(q) of KMMC Rules requires the permit holder to provide for retention wall or fencing around quarries of GBS and LBS where pits have been formed because of mining operations, to prevent accidents.

Audit observed that DMG did not maintain any data or report on unsecured pits or abandoned quarries. In the absence of adequate information, the nature and extent of violation of KMMC Rules could not be ascertained. Records of DMG also did not indicate any earnest effort to re-use abandoned mines.

DMG stated (March 2023) that joint inspection had been conducted along with officials of *Suchitwa* Mission[194] in select abandoned quarries, and further action is awaited from *Suchitwa* Mission.

2.7.14 Non-accounting of mineral revenue

The Kerala Financial Code prescribes the maintenance of proper records in respect of all items of revenue showing assessments and demands made, progress of recovery, and outstanding amounts due to Government. Further, departmental

[193] KOMPAS ID: KOT/Q/2015/36.

[194] Technical Support Group in waste management sector under Local Self Government Department of GoK.

Controlling Officers should closely monitor progress of realisation of revenue and review status of recoveries made against demands.

Test check by Audit revealed that Demand Collection Balance (DCB) registers were not maintained in four (out of selected six) districts[195], while in districts where DCB register was maintained, demands raised by geologists were not recorded therein after issuing notices. Further, realisation of revenue was not updated/ recorded on collection of dues and all demand notices were not routed through DCB register, making it difficult to ascertain the exact number of defaulters and arrears in collection of revenue. Audit also observed that a sum of ₹72.46 lakh was recoverable from various defaulters in Wayanad district for the past six years though demand notices were issued in 2017, indicating weak and inadequate control over accounting of mineral revenue.

DMG stated (March 2023) that it would instruct District Offices to ensure proper maintenance and updating of DCB register, and to initiate legal proceedings against defaulters, with immediate effect.

Recommendation: GoK should strengthen monitoring and control over mining operations through adequate documentation and maintenance of records.

Department of Cultural Affairs

Department of Archaeology

2.8 Idling of assets purchased costing ₹63.42 lakh

Non-commissioning/ non-repairing of assets purchased costing ₹63.42 lakh resulted in wastage of public money

As per Article 40 (c) (10) of Kerala Financial Code, it is the duty of every Government servant, not only to merely observe complete integrity in financial matters but also to be constantly watchful to see that the best possible value is obtained for all public funds spent by him or under his control and to guard scrupulously against every kind of wasteful expenditure from public funds.

Directorate of Archaeology (Directorate) purchased 48 number of Touch Screen Kiosks (Kiosks) through Keralam Museum[196] and 12 number of Biometric Attendance Management Systems[197] (BAMS) from KELTRON[198]. The details of equipment purchased/ installed is given in the **Table 2.21** below:

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195 Kannur, Idukki, Kottayam and Thiruvananthapuram.

196 Government of Kerala vide G.O (Rt) No.69/12/CAD dated 04/02/2012 approved Keralam Museum as nodal agency of Museums under Department of Cultural Affairs. The development works of all Museums under Department of Cultural Affairs was to be done through Keralam Museum.

197 BAMS uses biometric particulars like fingerprints of employees to mark and manage their attendance.

198 Kerala State Electronics Development Corporation Limited, a Government of Kerala undertaking is a Total Solution Provider for GoK.

Table 2.21: Details of equipment purchased/ installed

Sl. No.	Name of equipment	No. of equipment purchased	Amount (₹ in lakh)	Month and year of purchase	No. of equipment	
					Installed	Not installed
1	Kiosks	12 [199]	15	September and October 2015	4	8
2		36 [200]	45	March 2015	4	32
3	Designing, development and implementation of software for Kiosk	Nil	11	Nil	Nil	Nil
4	BAMS	3	6	July 2013	3	0
5		9	8	May 2015	1	8
Total cost of equipment			**85**			

Audit observed that out of the 48 Kiosks purchased, the Directorate had not installed 40 Kiosks valuing ₹45.42 lakh till date (October 2021) because the development works of museums where Kiosks were to be installed were not complete. The warranty period of three years for Kiosks has already elapsed. Eight out of the 12 BAMS purchased for ₹7.00 lakh were not installed as of October 2021, since the basic infrastructure required for installing those BAMS were not created by the Directorate either before or after the purchase of BAMS. Thus, the failure on the part of Directorate in creating the basic infrastructure required for functioning of BAMS rendered eight of them useless.

The Directorate replied (March 2022) that Keralam Museum has been instructed (March 2022) to take immediate measures to put the Kiosks into use. As far as BAMS are concerned, five systems were made operational and functioning. Steps have been taken to make the remaining BAMS operational.

The Government initially replied (March 2023) that 23 Kiosks were installed and the work of installation of the remaining Kiosks were under progress. Subsequently, in its updated reply, the Government stated (July 2023) that all the 48 Kiosks were made fully functional and displayed at the respective Museums. It further stated that a new BAMS with SPARK software link up capability was installed at the office of the Directorate, in lieu of old BAMS and this new BAMS would be installed in all other Museums under the Directorate. The reply confirms that the Directorate could not utilise the old BAMS devices. With regard to Kiosks, the reply is not acceptable, since a joint physical verification of 25 out of 48 Kiosks in

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[199] For four District Archaeological Heritage Museums (DAHMs): Thiruvananthapuram (one No. of equipment), Ernakulum (five Nos. of equipment), Thrissur (four Nos. of equipment) and Wayanad (two Nos. of equipment).

[200] Seven numbers in Koyikkal palace, 17 numbers in Hill Palace Museum and 12 numbers in Pazhassi Raja Museum and with three-year warranty.

three Museums[201], conducted (August 2023) by Audit with the officials of the Directorate revealed that eight Kiosks, though installed, were not working and one Kiosk was not put into operation.

Thus, the decision of the Directorate in purchasing Kiosks before the completion of refurbishment of Museums resulted in idling of Kiosks and consequent wastage of ₹56.41 lakh[202]. Similarly, non-installation of the BAMS resulted in wastage of Government funds of ₹7.00 lakh. The Directorate was at fault in not exercising due diligence in the installation of the equipment and failed in its duties under Article 40 (c) (10) of Kerala Financial Code. The non-commissioning of the assets purchased for ₹63.42 lakh resulted in unfruitful expenditure and wastage of public money.

The Directorate further replied (December 2023) that Keralam Museum was given strict instructions to get all the Touch Screen Kiosks made serviceable and installed at proper places. The Government in its further reply (December 2023), accepted the recommendations of Audit in this regard.

Recommendation: Government should direct the Directorate to put all the equipment to their intended use and further direct that equipment are purchased only after ensuring availability of basic infrastructure required for their functioning.

Department of Museums and Zoos

2.9 Undue benefit to contractors

Payment of ineligible advance resulted in blocking up of funds of ₹8.11 crore

Article 192 (a) of the Kerala Financial Code (KFC) stipulates that no advance should be paid to a contractor except with the special sanction of the Government. Government servants should make every endeavour to maintain a system under which payment is made only for the work actually done. As per Government Order No. (P) No.311/14/Fin. dated 30 July 2014, in case of Government accredited agencies who are not directly executing the work, mobilisation advance should not be given. Mobilisation advance up to 20 *per cent* of the estimated cost for the components of works directly executed by a Government agency can be considered in emergency situations, with the prior approval of the Government. As per Article 179 of the KFC (read with Chapter VI), Government servant should resort to open tenders in case the estimated value of the contract is above ₹10,000.

[201] (i) District Archaeological Heritage Museum (DAHM), Thiruvananthapuram; (ii) Koyikkal Palace, Nedumangad, Thiruvananthapuram; and (iii) Hill Palace Museum, Thripunithura, Ernakulam District

[202] Including ₹11 lakh which was spent in connection with designing, development and implementation of Kiosk software.

Audit test checked contracts entered into by the Directorate of Museums and Zoos (Directorate) in respect of six out of 13 on-going/completed works[203] for the three years ended 31 March 2020. The total estimated cost for the six works was ₹16.62 crore. Four out of six works were awarded to Hindustan Prefab Limited (HPL), a Public Sector Undertaking (PSU) of Government of India and two works were awarded to Steel Industrials Kerala Limited (SILK), a PSU of Government of Kerala (GoK). All works were awarded on nomination basis without tendering. In all the six cases, the works were sub-contracted by HPL and SILK.

Audit observed that HPL ceased to be an accredited agency in July 2017[204]. After HPL ceased to be an accredited agency, it was awarded (February 2018) two[205] works without inviting competitive tender, which was in violation of Article 179 of the KFC. During the period under review, SILK had the status of accredited agency of GoK. As per Government Order No.(P) No.95/2017/Fin.[206] dated 25 July 2017, a fair and competitive bidding process for selection of an accredited agency from those enlisted based on technical requirements, centage charge *etc*. shall be adopted. However, the Government Order was not complied with and one work[207] was awarded (March 2020) to SILK without inviting tender from among the accredited agencies, which was in violation of Government Order of July 2017.

The Directorate had disbursed ₹6.88 crore in multiple instalments as advance payment to HPL in respect of the four works. Similarly, ₹1.23 crore was paid to SILK as advance towards two works. There was no sanction from GoK for making these advance payments. The payment of advance to the contractors were in violation of Article 192 (a) of the KFC and the Government Order dated 30 July 2014 which prohibit advance payment to accredited agencies who were not directly executing works. The unauthorised advance payment resulted in blocking up of Government funds amounting to ₹8.11 crore (till June 2021).

The Government replied (March 2023) that while inviting the proposal for the works in 2017, HPL was recognised as an accredited agency. The fact of exclusion of HPL from the panel of accredited agencies, however, was not noticed by the Department while awarding the works and no work was awarded to it thereafter. Government further stated that presently no advances are being paid to the work executing agencies. The reply was silent on awarding work to SILK without inviting tender and making advance payments without sanction of Government.

[203] Works for which the sanctioned amount exceeded ₹0.50 crore was considered as the population. Works awarded to Public Works Department were excluded from the population. Among the 13 works awarded to various contractors, six works were selected for detailed scrutiny on judgmental basis.

[204] List of Accredited agencies were included as annexure to G.O.(P)No.95/2017/Fin, dated 25 July 2017.

[205] Construction of visitors' amenities in Zoological Gardens and Interpretation Centres in Directorate of Museums and Zoo, Thiruvananthapuram and Construction of a new building for aquarium in the State Museum and Zoo, Thrissur.

[206] Vide this order, the hitherto provision for awarding works to accredited agencies without tendering process was discontinued.

[207] Construction of Terrestrial Aviary, Thiruvananthapuram.

Thus, the payment of ineligible advance resulted in blocking up of Government funds amounting to ₹8.11 crore. Awarding of the contract to HPL and SILK violated the provisions of Article 179 of the KFC (read with Chapter VI) and the Government Order of 2017 respectively and also deprived the Directorate from availing the opportunity of receiving economical rates due to competitive bidding.

Recommendation: Government should ensure that the Directorate adheres to the provisions of the KFC and Government Orders while awarding tenders and responsibility should be fixed for the payment of ineligible mobilisation advance.

Directorate of Coir Development

2.10 Wasteful expenditure

Failure to monitor creation of facilities by the societies for more than six years resulted in wasteful expenditure of ₹0.61 crore.

As per Article 40(c) (10) of Kerala Financial Code, it is the duty of every Government servant not only to merely observe complete integrity in financial matters but also to be constantly watchful to see that the best possible value is obtained for all public funds spent by him or under his control and to guard scrupulously against every kind of wasteful expenditure from public funds.

Government of Kerala (GoK) sanctioned (December 2014) ₹2.37 crore to the Directorate of Coir Development (Directorate) for providing project-based financial assistance to 28 Integrated Coir Co-operatives societies (Societies) under Kayamkulam Project Office[208]. The assistance was to be utilised for (i) creation of infrastructure like godown, retting tank, work shed *etc*., (ii) purchase of De-fibering Machines (DFMs) and associated equipment[209] and electrification, and (iii) working capital for one month (excluding wages). The Directorate disbursed the assistance in January 2016 and the Societies were required to set up the facilities by March 2016.

The Project Officer, Kayamkulam under the Directorate was responsible for ensuring proper implementation of the projects. As per the agreements executed by the Societies, each Society shall utilise the sanctioned amount within the period allowed[210] and for the purpose for which it was sanctioned. As per proceedings dated 29 September 2015 of the Directorate, the Societies were to furnish Utilisation Certificate on completion of project period, failing which the entire amount sanctioned was to be repaid to the Government with interest.

Audit observed that out of the three items of works for which the assistance was to be utilised, the manufacturing and supply of DFMs and associated equipment was entrusted (March 2016) to Kerala State Coir Machinery Manufacturing Company

[208] Directorate of Coir Development, GoK formulates and implements schemes for promotion and development of coir sector through 10 Project Offices.
[209] Willowing Machine, Screening Machine, Conveyor, Electronic Ratt.
[210] Initially (December 2014) six months and then (September 2015) extended to one year

Limited (KSCMMCL), a Public Sector Undertaking. Accordingly, 26[211] Societies transferred (March 2016) ₹0.79 crore to KSCMMCL. KSCMMCL informed (March 2016) the Societies that the machineries were ready for delivery. The Societies, however, did not take delivery of the machines except 608 electronic ratts[212], and the DFMs and other equipment were lying at the premises of KSCMMCL since June 2016. According to KSCMMCL (March 2019/ October 2021) the Societies were not taking delivery of the machines due to lack of infrastructure like land, civil construction, electrification, *etc*. In response (August 2021) to an audit enquiry (July 2021), the Directorate clarified (August 2021) that all the 28 societies had since completed the work of godown/work shed and 26 of them carried out spinning and related operations using electronic ratt. According to the Directorate, the Societies could not install the DFMs as the same were not supplied by KSCMMCL.

Though the Directorate informed (October 2016) KSCMMCL that on inspection it was found that DFMs were not delivered to the Societies and called for the reasons for the same, it was not followed up. Further, the Directorate did not initiate action to recoup the amount sanctioned though none of the Societies furnished Utilisation Certificates as required, except in the case of one Society to which a demand notice was issued (July 2021) for refunding the amount along with 18 *per cent* interest.

A Joint Physical Verification (October 2021) of six societies by Audit and the Project Officer, Kayamkulam confirmed the non-installation of DFMs and revealed that they did not create facilities, including three-phase electricity connection, required for the installation of DFMs though a portion of the assistance was earmarked for the same. During the physical verification, the Project Officer reported that similar situation prevailed in other Societies also. It was also noticed that since the Societies did not take delivery of the machines, KSCMMCL decided (February 2021) to utilise them for replacing essential parts of old machines it had supplied in the past to others. As of January 2023, KSCMMCL converted only eight DFMs for the same.

The Government replied (April 2023) that the Societies were of the opinion that the 15 HP DFMs were outdated and if installed, it would be a huge burden on the Societies by way of electricity charges. None of the Societies had furnished Utilization Certificate as KSCMMCL had not yet supplied the DFMs to the Societies and KSCMMCL was instructed to either ensure that all the DFMs are effectively put into productive use or to refund the entire amount to the Government. It was also stated that KSCMMCL had reported that the manufacturing of 15 HP DFMs were complete and hence unable to refund the amount and they were ready to provide other suitable machines.

The reply confirms that the DFMs should have been rated at 10 HP as required by the Societies and not 15 HP as manufactured by KSCMMCL, which resulted in rejection of machines by the Societies. The reply did not address the audit point

[211] Two societies did not release funds for purchase of DFMs/equipment. The Project Office served notice to these societies against non-utilisation of funds for intended purpose.

[212] Electronic Ratt is an equipment used to produce coir yarns from the coir fibre

regarding inaction by the Directorate/Project Office to address this issue for more than six years.

Thus, the Directorate and the Project Office, Kayamkulam failed to ensure that the Societies utilised the funds disbursed to them to create facilities as envisaged which resulted in wasteful expenditure of ₹0.61 crore[213] and therefore, failed in their duty to guard against wasteful expenditure from public funds as envisaged under Article 40(c) of Kerala Financial Code.

Recommendation: Government should ensure that the required machineries are supplied by KSCMMCL and immediately put to use failing which the amount should be refunded by it.

[213] The difference between ₹79.29 lakh (total cost of 26 DFMs) and ₹18.51 lakh (being the cost of 608 Electronic Ratts at the rate of ₹3,045/- each)

Part II

State Public Sector Undertakings

Chapter III

Compliance Audit Paragraphs of State Public Sector Undertakings

Chapter III

Compliance Audit Paragraphs of State Public Sector Undertakings

Department of Industries and Commerce

3.1 Operational Performance of Traco Cable Company Limited

The Company did not have any short-term or long-term plans for its functional activities. The diversion of working capital loan and consequent shortage of funds adversely affected economic procurement of raw material and timely delivery of finished products. Idling of production facilities due to shortage of material led to payment of idle wages/ inefficient labour. The lack of planning in production led to overtime wages also. Inspite of labour inefficiencies and precarious financial position, the Company entered into Long-Term Wage Revision Agreement with employees. The Company was not able to deliver its products on time which led to levy of liquidated damages/ rejection of price revision claims. This also led to consequent cash loss as avoidable GST payments. Lack of scientific costing system in the Company led to calculation of erroneous cost of production itself. Implementation of a capital project with outdated technology led to idling of plant.

3.1.1 Introduction

Units of Traco Cable Company Limited

Traco Cable Company Limited (Company) was incorporated as a Government Company[214] in February 1960. The Company functions in the manufacturing sector under the administrative control of the Department of Industries and Commerce of Government of Kerala (GoK). The major products of the Company are Aluminium Conductor Steel Reinforced (ACSR) and House Wiring Cables (HWC). The Company is having three production units. ACSR is manufactured by units at Irumpanam and Thiruvalla. HWC is manufactured by unit at Pinarayi.

The product mix of the Company and the revenue generation from different products are as shown in **Table 3.1** below:

[214] Government of Kerala holds equity shares of face value of ₹53.02 crore (92.67 *per cent*) of the total paid up share capital of ₹57.22 crore as of March 2022. Institutional investors hold 7.20 *per cent* and balance 0.13 *per cent* is held by non-institutional investors.

Table 3.1: Product mix of the Company and individual product revenue as percentage of total revenue

Sl. No.	Product	Revenue from products as percentage of total revenue
1	Aluminium Conductor Steel Reinforced	78
2	XLPE[215] cable, control cables, Turnkey projects with XLPE cable	10
3	House wiring cable	12
	Total	**100**

3.1.2 Organisational setup

The Company is registered under the Companies Act, 1956/ 2013 and the management is vested with a Board of Directors consisting of eight members including two independent directors as on 31 March 2022. The executive functions are managed by the Managing Director who is assisted by the Chief Finance Officer, Deputy General Managers, Senior Managers/ Managers. The employee strength as on 31 March 2022 was 375 against the total sanctioned strength of 524 as shown in **Table 3.2** below:

Table 3.2: Employee strength as on 31 March 2022

Sl. No.	Designation	Number of employees	
		Sanctioned	Men-in-position
1	Officers	46	29
2	Workers	478	346
	Total	**524**	**375**

3.1.3 Audit objectives

Objective of the Compliance Audit was to assess whether the Company complied with the relevant rules, regulations, Government orders, internal manuals and prudent financial principles for the achievement of operational efficiency and to analyse the reasons for the persistent loss suffered during the period under review.

3.1.4 Scope of audit

Audit reviewed various aspects such as planning, working capital management, procurement, production, marketing, and other related issues of the Company for the five years from 2017-18 to 2021-22.

215 Cross linked polyethylene.

3.1.5 Audit criteria

The following criteria were used for analysing the activities of the Company and arriving at a conclusion:

i. Orders of GoK.
ii. Guidelines issued by Bureau of Public Enterprises (BPE) and Public Sector Restructuring and Internal Audit Board (RIAB).
iii. Stores Purchase Manual (SPM) and Kerala Financial Code.
iv. Agenda and minutes of the meetings of Board of Directors/ Audit Committee/ Board Sub-committee.
v. Memorandum and Articles of Association of the Company.
vi. Financial Statements and Budget Estimates of the Company.
vii. The Companies Act, 2013.

3.1.6 Audit methodology

The methodology adopted for attaining the audit objectives, with reference to audit criteria, consisted of review of agenda notes and minutes of the meetings of the Board of Directors / Sub-Committees, Annual Reports, Management Information System (MIS) reports, Study reports, Internal Audit reports, Project reports, tender files, contracts, physical verification reports, files / records maintained by the Company, procurement and production records *etc.* During the Compliance Audit, records at RIAB, BPE, administrative department of GoK were scrutinised.

An entry conference was held on 02 December 2021 in which the audit objectives, audit criteria, scope and methodology were discussed with the representatives of the Government and the Company. The draft report was issued (January 2023) to the GoK for its comments and the reply (March 2023) of the Government was suitably incorporated. The audit findings were discussed with the representatives of the Government and the Company in the exit conference held on 29 May 2023 to discuss the audit findings. The Government furnished its modified reply (June 2023) subsequent to the exit conference and the same has been suitably incorporated.

3.1.7 Business environment of the Company

Audit analysed the business environment and various influencing factors in terms of working capital, working capital cycle, marketability, hike in raw material cost *etc*., and the results were as follows:

Marketability: The major customer of the Company is Kerala State Electricity Board Limited (KSEBL). GoK accorded (March 2020) sanction to KSEBL to procure ACSR from the Company with a price preference of 10 *per cent* over the lowest (L1) rate received by KSEBL while purchasing ACSR through competitive tenders during previous year. The assured quantity of procurement was 55 *per cent* of the total requirement of ACSR by KSEBL. By virtue of the GoK directives, the Company was enjoying assured market for its products at minimum L1 rates or at L1 plus 10 *per cent* rates, as the case may be.

Working Capital: The Company was enjoying the facility of unsecured working capital loan from Kerala State Power and Infrastructure Finance Corporation Limited (KSPIFC) up to 85 *per cent* value of the purchase order received from KSEBL. The average rate of interest of the working capital loan was 11.55 *per cent* per annum. The loan received from KSPIFC in the form of mobilisation advance was to be utilised for the procurement of raw material, which on an average constituted 66 *per cent* of the total expenses. As per tripartite agreement with KSEBL, KSPIFC and the Company, the sale proceeds were to be appropriated against the working capital loan. As the delivery schedule was scattered up to six months, the Company had the advantage to procure the resources in a staggered manner in accordance with the delivery schedule.

Lower working capital cycle: The average lead time for purchase of raw material was five days and the Company was having production facility of 300 km of ACSR per day. The purchase orders from KSEBL provided for 60 days credit period after delivery. Hence the amount held up with suppliers and customers was limited and thus the duration of working capital cycle was less.

Protection against hike in the material cost: The Company was duly protected against any hike in the cost of Aluminium, the major raw material constituting 71 *per cent* of the total cost of material consumed, as there was price variation clause based on the Indian Electrical and Electronics Manufacturers Association (IEEMA) price variation formula in the purchase orders issued by KSEBL.

Despite the above favourable factors, the Company failed to convert the advantageous position into better operating performance as shown by the working results below.

Audit Findings

The audit findings relating to the financial position, working results, and other functional areas of the Company are discussed below:

3.1.8 Financial Position

The financial position of the Company during the review period is shown below in **Table 3.3**.

Table 3.3: Financial position during the five-year period from 2017-18 to 2021-22

(₹ in crore)

Sl. No.	Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
1	**Equity and Liabilities**					
2	**Shareholders' funds**					
3	(a) Share Capital[216]	57.22	57.22	81.87	81.87	57.22
4	(b) Reserves and Surplus	(73.76)	(87.33)	(99.12)	(143.90)	(53.91)

[216] For the years 2019-20 and 2020-21, Share Capital includes Advance for Share Capital ₹24.65 crore.

(₹ in crore)

Sl. No.	Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
5	**Non-Current Liabilities**	9.36	19.14	21.62	28.56	61.21
6	**Current Liabilities**	133.41	187.06	146.83	172.48	157.86
7	**Total**	**126.23**	**176.09**	**151.20**	**139.01**	**222.38**
8	**Assets**					
9	**Non-Current Assets**					
10	(a) Fixed Assets	19.07	22.62	20.36	21.96	151.73
11	(b) Long-Term loans and advances	3.25	2.75	2.87	1.55	1.47
12	**Current Assets**	103.91	150.72	127.97	115.50	69.18
13	**Total**	**126.23**	**176.09**	**151.20**	**139.01**	**222.38**
14	**Net worth (3+4)**	**(16.54)**	**(30.11)**	**(17.25)**	**(62.03)**	**3.31**[217]

It could be seen from **Table 3.3** that the financial position of the Company deteriorated during the review period as given below:

- The Net worth of the Company was negative during the four years from 2017-18 to 2020-21, which deteriorated from ₹(-)16.54 crore to ₹(-)62.03 crore. During the year 2021-22, but for the revaluation of land, the Net worth would have been ₹(-)129.05 crore.
- Current liabilities increased from ₹133.41 crore (2017-18) to ₹157.86 crore (2021-22). During the corresponding years, the current assets decreased from ₹103.91 crore to ₹69.18 crore which aggravated the working capital shortage of the Company.
- Non-current liabilities increased from ₹9.36 crore (2017-18) to ₹61.21 crore (2021-22). There was, however, no corresponding increase in non-current assets which indicated that the Company was dependent on loan funds rather than internal accruals for operations throughout the review period.

3.1.9 Working results

The deterioration in financial position discussed above was due to the poor working results over the years as shown in **Table 3.4** below.

[217] During 2021-22, the Company revalued its freehold land from ₹1.39 crore to ₹133.75 crore which had a positive impact on reserves and surplus, fixed assets, and net worth of the Company.

Table 3.4: Working results for the five-year period from 2017-18 to 2021-22

(₹ in crore)

Sl. No.	Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
1	**Revenue from Operations**					
2	Net sale of Products	111.23	163.71	130.14	183.44	101.60
3	Other income	2.18	2.19	17.05	1.24	1.95
4	**Total revenue**	**113.41**	**165.90**	**147.19**	**184.68**	**103.55**
5	**Expenses**					
6	Cost of raw materials consumed	78.74	121.72	114.17	152.18	86.08
7	Changes in inventories	1.00	(1.60)	(7.80)	6.06	7.86
8	Employee benefit expenses	21.75	22.58	22.38	27.68	24.69
9	Finance cost	11.33	15.84	13.24	16.38	15. 87
10	Depreciation & other expenses	9.62	21.24	14.71	11.04	8. 83
11	**Total Expenses**	**122.44**	**179.78**	**156.70**	**213.34**	**143.33**
12	Profit/(Loss) before exceptional/ extraordinary items and tax	(9.03)	(13.88)	(9.51)	(28.66)	(39.78)
13	Prior period items	0.25	0.31	(2.28)	(16.12)	(2.92)
14	Exceptional/ extraordinary Items	0	0	0	0	0.33
15	**Profit/(Loss) for the year**	**(8.78)**	**(13.57)**	**(11.79)**	**(44.78)**	**(42.37)**
16	**Percentage of Net Loss to Revenue**	**7.74**	**8.17**	**8.00**	**24.25**	**40.92**

As could be seen from **Table 3.4**, the Company incurred net loss in all the years under review and the net loss ranged from ₹8.78 crore in 2017-18 to ₹44.78 crore in 2020-21. The average net loss of eight *per cent* on total revenue during the three-year period from 2017-18 to 2019-20 tripled to 24 *per cent* in 2020-21 and to 41 *per cent* in 2021-22.

As could be seen from **Table 3.4**, the total revenue and total expenses showed wide fluctuation. The total revenue of ₹113.41 crore in 2017-18 peaked to ₹184.68 crore in 2020-21 and dropped to ₹103.55 crore in 2021-22. Similarly, the total expenses of ₹122.44 crore for 2017-18 peaked to ₹213.34 crore in 2020-21 and then dropped to ₹143.33 crore in 2021-22. The reasons are explained below:

- Though the turnover registered an increase of 65 *per cent* over the four-year period from 2017-18 to 2020-21, the expenses increased at a higher rate of 74 *per cent* over the same period.
- Cost of raw material consumed, the major component in expenses, increased from ₹78.74 crore in 2017-18 to ₹152.18 crore in 2020-21 i.e., from 64 *per cent* to 71 *per cent* of the total expenses during the same period. During 2017-18 to 2020-21, the employee benefit expenses increased by 27 *per cent* (from ₹21.75 crore to ₹27.68 crore) and finance cost increased by 45 *per cent* (from ₹11.33 crore to ₹16.38 crore). The increase in material cost, labour and finance charges had its adverse impact on the working results of the Company.
- The Prior period items of ₹16.12 crore in the year 2020-21 comprised arrear provision of ₹14.10 crore in respect of Long-Term Agreement on wage revision which also increased the expenses.
- In 2021-22, revenue decreased by 44 *per cent* compared to the previous year. The reduction in total expenses, however, was only 33 *per cent* because of the comparatively fixed nature of employee benefits, finance cost and depreciation.
- Further, the reduction in cost of materials consumed in 2021-22 was associated with fall in production consequently impacting the revenue.

3.1.10 Unsustainable revenue model

It was seen that the average expenditure incurred during the five years from 2017-18 to 2021-22 to generate a revenue of ₹100 was ₹122.16 as shown in **Table 3.5** below:

Table 3.5: Components and split up of expenditure for earning of ₹100

Sl. No.	Nature of Expenditure	Amount (in ₹) expended to earn a revenue of ₹100
1	Cost of Raw materials consumed	80.11
2	Employee cost	17.99
3	Finance cost	10.92
4	Other expenses	13.14
Total Expenses		**122.16**

As the expenditure incurred was exceeding the revenue earned, the business model being followed by the company was not a sustainable one. This resulted in poor performance over the years, erosion of capital, and negative net worth. It is pertinent to note that the Company has not fixed any conversion ratio for conversion of raw materials to finished products. The Company only reviews the actual scrap percentage vis-à-vis the standards set by it, wherein the actuals recorded by the Company were found to be conforming to the standards.

The Company fixes its selling price by adding contribution to its cost. The contribution was fixed depending on the market conditions, so as to become L1 or match L1 rates to obtain the order. Thus, the procurement of raw materials was the decisive factor in the Company's revenue model, as it formed 65.57 *per cent* of the Company's total expenses. While there was limited scope for improvement in conversion ratio and fixation of selling price, Audit noticed that there were deficiencies in procurement of raw materials as well as cost estimation which are discussed in ***Paragraphs 3.1.13 and 3.1.15.3***. Audit analysed the reasons for the poor performance of the Company over the review period as discussed in the succeeding paragraphs.

3.1.11 Planning

The Company did not have any documented plans for short-term or long-term operations in respect of functional activities such as working capital management, procurement of raw materials, production process, marketing and sales realisation, the effects of which were as shown below:

- The absence of planning in working capital management led to diversion of working capital loans meant for procurement of raw materials, for other administrative requirements.
- Similarly, lack of planning in procurement prevented the Company from large scale procurement of raw materials at economical rates, purchasing lesser quantities than required *etc*. This also prevented the Company from making any long-term/ short-term production plans which delayed the delivery of finished goods.
- The absence of planning in procurement and production process led to idle/ inefficient labour.

All these factors resulted in high cost of production which led to persistent loss to the Company. The short realisation/ delayed realisation of sale proceeds due to the delayed delivery added to the shortage of working capital, which formed a vicious circle.

The Government stated (March 2023) that based on the orders received, the Company was planning the working capital requirements, raw material and production in monthly review meetings held at the Company level. In its reply (June 2023), the Government stated that the Company had incorporated a working capital plan based on the fund requirement. However, due to shortage of working capital, fund availability and lockdown imposed during Covid-19 period, the Company could not achieve the planned production in time.

The reply of the Government is not tenable as review meetings served only as immediate remedial measures and did not address the short term/ long-term planning requirements. Further, KSEBL, the major customer of the Company was also a Public Sector Undertaking under the GoK. During the review period which included Covid-19 lockdown period also, KSEBL placed orders worth ₹1,020.08 crore for purchase of ACSR out of which the Company was given orders for ₹642.59 crore, constituting 63 *per cent* of the orders placed by KSEBL. However, the Company could not meet the full requirement of KSEBL. No efforts, however, were seen taken by the Company to correlate the requirements of KSEBL with its long-term production plan. The Company did not have any planning for investment decisions also as discussed in ***Paragraph 3.1.16.1.***

Recommendation: Government should direct the Company to prepare realistic short-term/ long-term plans for its functional activities to avoid diversion of funds.

3.1.12 Working capital management

Working capital is the measure of a Company's liquidity, operational efficiency and short-term financial health. To have the potential to invest and grow, any Company should have a reasonable amount of positive working capital. Sufficient working capital indicates that a Company can fund its current operations and invest in future activities.

The Company did not have any system for management of its working capital. The working capital status of the Company for the review period was analysed and tabulated as shown in **Table 3.6** below:

Table 3.6: Working Capital status

(₹ in crore)

Sl. No.	Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
1	Total Current Assets	103.91	150.72	127.97	115.50	69.18
2	Total Current Liabilities	133.41	187.06	146.83	172.48	157.86
	Working Capital (1)-(2)	**(29.50)**	**(36.34)**	**(18.86)**	**(56.98)**	**(88. 68)**

It could be seen that the Company was consistently having shortage of working capital during the five-year period under review. The working capital shortage increased from ₹29.50 crore in 2017-18 to ₹88.68 crore in 2021-22 indicating the lack of efficient working capital management in the Company.

Audit observed that while trade payables and other current liabilities decreased by ₹43.83 crore, the short-term borrowings increased by ₹68.28 crore, resulting in a net increase in current liabilities by ₹24.45 crore. All the components of current assets such as inventory, trade receivables, and cash and cash equivalents decreased resulting in net reduction by ₹34.73 crore. This resulted in shortage of working capital which increased by ₹59.18 crore during the period from 2017-18 to 2021-22.

3.1.12.1 Diversion of working capital loan availed for raw material procurement

The Company avails working capital loan at an average interest rate of 11.55 *per cent* per annum from KSPIFC for procurement of raw materials. The Company, however, did not fully utilise the loan for the purchase of raw materials. During the period 2017-18 to 2021-22, the loan raised by the Company for procurement was ₹539.73 crore whereas the amount utilised against purchase of raw material was only ₹473.37 crore. The cash and cash equivalents of the Company as on 31 March

2022 was only ₹3.78 crore indicating that the balance ₹62.58 crore[218] (being 11.60 *per cent* of total loan amount) was diverted for administrative and other purposes. The loan amount outstanding to KSPIFC accumulated to ₹77.40 crore as on 31 March 2022, which the Company is unable to repay from the respective sales realisation. Further the Company is incurring an average interest outgo of ₹0.81 crore per month (including penal interest) on this loan outstanding without having any recoverable amount from respective purchase orders.

3.1.12.2 Inefficient Working Capital Management led to abnormally longer Working Capital Cycle

Working capital cycle is the period for which the working capital is tied up in various components of working capital before realising cash. The components of working capital include inventories and trade receivables. To have an effective control over the working capital management, the close monitoring of inventory holding period, trade receivable collection period and trade payables payment period is inevitable. To reduce the working capital cycle, promptness in raw material procurement, production process, finished goods delivery and revenue collection should be ensured.

The Company has not worked out and fixed a norm for its working capital cycle. The actual working capital cycle of the Company during the period 2017-18 to 2021-22 in respect of ACSR was as shown in **Table 3.7** below:

Table 3.7: Working capital cycle

(in days)

Sl. No.	Particulars	2017-18	2018-19	2019-20	2020-21	2021-22	Average
1	Raw Material holding period	13	13	17	11	18	14
2	WIP holding period	19	11	11	8	12	12
3	Finished goods holding period	32	25	43	31	28	32
4	Accounts receivable collection period	197	184	248	151	218	200
	Total working capital cycle	**261**	**233**	**319**	**201**	**276**	**258**

From the above analysis, it could be seen that the average working capital cycle for the review period was 258 days. Against this, the working capital cycle required as calculated by Audit was only 84[219] days, which showed that cash was being held up additionally for about 174 days. The following reasons were attributable for the lengthy working capital cycle:

- There were inefficiencies in managing all components of working capital such as raw material, work in process, finished goods and accounts receivables.

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[218] ₹539.73 crore – (₹473.37 crore + ₹3.78 crore) = ₹62.58 crore.

[219] Five days for procurement, 19 days for production and dispatch and 60 days for sales realisation.

- Delay in procurement of raw material ranged up to 48 days[220] which added to the abnormally higher working capital cycle of 258 days.
- It was also seen that the Company did not have a debt realisation policy. The marketing department was not proactive in pursuing and realising the debts. As per the age-wise break up of debtors as on 31 March 2022, out of the total debt of ₹42.03 crore, debtors amounting to ₹30.57 crore was outstanding for more than 6 months. This included ₹21.13 crore which was outstanding for more than three years.
- Against the stipulated 60 days credit period agreed by KSEBL, the collection was delayed up to 248 days which was four-fold the agreed credit period. The Company's failure to follow up and collect the dues from customers affected the working capital cycle adversely.
- The delay in collection from debtors also affected the ability of the Company to repay the working capital loan, so as to keep the working capital cycle active.

Thus, ₹72.66 crore paid as finance charges during the review period was for an average of 258 days. The interest burden would have been ₹23.66 crore only had the Company managed to adhere to the ideal working capital cycle.

The Government accepted (March 2023) that there was working capital shortage in the Company during the review period. This was because working capital loans were diverted for meeting day-to-day expenses such as disbursement of salary and payment of interest to financial institutions *etc*. In the case of finished goods holding period, the Government replied that there was a delay of 20 days for conducting inspection. The Government in its reply stated (June 2023) that the shortage of funds was also due to the production limitations faced during Covid-19 pandemic. The Company is now closely monitoring the working capital cycle and it has deployed adequate manpower to get the receivables in time.

The reply is not tenable as the working capital position of the Company was negative even during the pre-Covid-19 period. The collection from debtors should be expedited and diversion of funds needs to be avoided. Further, out of the average 32 days collection period, 20 days were taken by KSEBL, another PSU, for inspection. Both the buyer and seller being PSUs, the Government could have effectively intervened to avoid the delay in inspection.

[220] KSEBL Order No. SCM 40.

Recommendations:

Government should ensure that:

- ***the Company is utilising, without any diversion, the working capital loan for procurement of raw materials and is proactive in collection of trade receivables.***
- ***the company frames a debt realisation policy and strictly implements it so that the delay in collection from KSEBL can be avoided.***

3.1.13 Uneconomic procurement of materials – Loss of ₹6.44 crore

Aluminium wire rod, steel, copper, PVC[221] and other consumables are the raw materials used by the Company, of which cost of aluminium constituted 71 *per cent* of the total raw material cost. An analysis by Audit revealed that while the wholesale market price of aluminium wire rod increased by 11.91 *per cent* during the period from April 2017 to March 2021, the procurement cost of aluminium wire rod for the Company increased by 25.33 *per cent*. This disproportionate increase indicated that the purchase of aluminium wire rod was not economical.

The market price of aluminium is volatile and depends on its international price which is represented by the London Metal Exchange (LME) official price. Audit noticed that the price of aluminium varied between US$ 1,400 (March 2020) to US$ 4,000 (March 2022) in a span of 24 months. This showed the scope for price-level based procurement planning.

It was also seen that the Company failed to invite tenders/quotations to identify lowest rates and make long term agreements with suppliers. Instead, the Company resorted to arbitrary purchases. As the Company did not resort to long term purchase by tendering during the review period, Audit was unable to quantify the loss due to arbitrary purchases. The difference between the lowest rate and the other rates received during respective years during the review period for the purchase of 20,988.34 MT of Aluminium showed an extra expenditure of ₹6.44 crore *(**Appendix 35**)*. Further, the direction of SPM to tender all purchases above ₹10 lakh was not followed for the purchases amounting to ₹473.37 crore during the audit period.

The Government replied (March 2023) that the Company had floated e-tenders many times but NALCO, the only Central PSU was not ready to participate in the e-tenders. The Company was procuring aluminium based on immediate requirement and transportation/transit advantage, among other things. It further stated (June 2023) that the Company was entering into Memorandum of Understanding (MoU) with primary producers of aluminium only, for the quantity to be procured in a year, in which the purchase price of material was not covered and the same was arrived based on the LME price movements on a daily basis.

221 Poly Vinyl Chloride.

Though the price of aluminium was stated to be fixed on a daily basis as per LME price movements, the proportion of increase in procurement cost of aluminium by the Company was double the increase in its price. Thus, because of resorting to arbitrary purchases and the failure of the Company to invite tenders to obtain lowest rates, the Company incurred extra expenditure of ₹6.44 crore for purchase of 20,988.34 MT of Aluminium.

Recommendation: Government should consider a long-term purchase policy, to ensure procurement of raw material at lower rates based on LME price movements and also adhering to the provisions of SPM.

3.1.14 Production

3.1.14.1 Idle wages paid ₹19.08 crore

During the five-year period under review, the gross labour hours available were 28,03,424 hours of which 17,27,444 hours were utilised during the period for production. The balance 10,75,980 hours of labour were idle, and the idle wages paid worked out to ₹19.08 crore (***Appendix 36***).

Audit observed that the idling of labour was due to non-availability of raw materials for production as pointed out in ***Paragraph 3.1.12.1*** due to diversion of working capital for administrative purposes. The Company has stated (February 2023) that shortage of raw material and insufficient orders were the major reasons for the non-productive days and idling of plant and labour.

Government agreed to the reply of the Company and stated (March 2023) that in addition to shortage of materials, the 96 holidays due to Covid-19 pandemic was also a reason for the idling of workers. It further stated (June 2023) that consequent to the implementation of all India tender policy by KSEBL from 2019-20 onwards, the Company's order quantity reduced from 55 *per cent* to 25 *per cent*.

The reply is not tenable as the Covid-19 effect was only for 96 days out of the 1,825 days considered during audit and hence the major reason for the idling was the shortage of materials coupled with insufficient orders as admitted by the Government. As regards reduction in quantity of orders placed by KSEBL, it was seen that the Company could not supply orders worth ₹115.62 crore out of orders worth ₹319.35 crore received during the period 2020-22.

3.1.14.2 Inefficiency of labour – avoidable expenditure of ₹15.44 crore

Management did not conduct any scientific study of labour requirement for running a shift (the Company can run three shifts of eight hours daily) in its production facilities. The Company has not fixed any norms for the productivity of the staff to measure the efficiency in production in terms of output and labour hours. Consequently, the productivity of staff at production facilities could not be monitored for ensuring effective utilisation of labour hours. Hence Audit reckoned production of 0.2759 km of ACSR per hour as the norm based on the best performance[222] of the Company during the review period.

The total production of ACSR conductors during the review period was 2,37,773 kms for which 8,61,811 labour hours was required as per this norm. However, the actual labour hours utilised by the Company was double at 17,27,444 labour hours resulting in avoidable expenditure of ₹15.44 crore without any contribution to the Company ***(Appendix 37)***. The labour efficiency in each unit was evaluated by Audit, and it was found that management failed to utilise labour force effectively in all the factories. The labour inefficiency ranged up to 82.28 *per cent* at the Tiruvalla unit (2017-18).

The Government replied (March 2023) that the reasons for idle wages in Thiruvalla Unit was lack of orders and raw materials, and in respect of Irumpanam Unit, manpower requirement was assessed by a productivity study conducted (2019) by the Kerala State Productivity Council (KSPC). It was further stated (June 2023) that shortage of raw material and insufficient orders were the reason for non-productive days and idling of plant and labour.

Government admitted that there were idle wages in Thiruvalla Unit. Though it has been stated that there was a productivity study conducted by KSPC, the reply is silent on whether the study report was adopted by the Company as its norm. In respect of Irumpanam Unit, the direct labour required for processing 6,000 MT of aluminium per annum, was 137 as prescribed by KSPC. Thus, the average productivity fixed for one direct labourer was 43.80 MT per annum. The actual productivity, however, achieved by one direct labourer ranged from 10.98 MT to 31.40 MT during the review period. Thus, there was underutilisation of manpower resulting in inefficiency.

3.1.14.3 Overtime wages - ₹2.98 crore

Despite the instances of idle wages and inefficient labour, the Company paid overtime wages of ₹2.98 crore (at Irumpanam unit ₹2.29 crore and at Tiruvalla unit ₹0.69 crore) during the review period. The overtime expenditure was incurred for completing the production process and delivery in time as per the delivery schedule prescribed by KSEBL. Lack of planning in production and deployment of labour resulted in overtime wages, which in turn increased the cost of production and adversely impacted the profitability of the Company.

The Government replied (March 2023) that the overtime wages were given due to interruptions in material supply, availing of leave by skilled operators and for specialised processes. The reply is not tenable as the overtime wages could have either been avoided or kept at minimum with proper production planning. The Government in its modified reply stated (June 2023) that the Company has started monitoring production process and rearranged the shift pattern as per requirement.

[222] Achieved by Irumpanam unit in 2017-18.

3.1.14.4 Long term wage revision agreement without increase in production efficiency – financial implication - ₹17.23 crore

The Government of Kerala vide GO (MS) No.18/93/Plg dated 14-10-1993, had stipulated that wage revision should not be allowed in loss-making Public Sector Undertakings. While the Company was consistently incurring losses and its net worth had fully eroded, the management recommended wage revision in the form of Long-term Agreement (LTA) with workers for the period 2016 to 2020 stating that labour efficiency would be enhanced as part of the LTA. The LTA implemented (January 2020) by the Company for the period 2016 to 2020 resulted in increase in wages up to 68 *per cent* over the existing pay scale. The financial implication in respect of the LTA was ₹17.23 crore[223].

Audit noticed that the percentage of productive labour hours to the total labour hours decreased from 72 in 2018-19 to 42.29 in 2021-22 despite implementation of LTA. Thus, implementation of LTA did not achieve the desired result of improved productivity. Instead, it added to the loss of the Company.

The Government replied (March/June 2023) that the reason for lowering of production efficiency despite the LTA was lack of sufficient sale orders. It agreed that the present situation of idling of manpower and mounting losses should be considered for future LTAs.

The reply is not tenable as the Company recommended wage revision without ensuring improved labour efficiency.

Recommendation: Government should give directions to the Company to conduct comprehensive productivity studies and establish norms for labour efficiencies to avoid idle wages and unnecessary overtime so as to reduce the cost of production and attain production efficiency.

3.1.15 Marketing and Contract management

3.1.15.1 Delayed delivery resulted in loss of upward price variation claim and levy of liquidated damages –₹6.41 crore

The terms of purchase order received from KSEBL for the supply of ACSR provided that both positive and negative price variations were applicable in respect of supplies made within the scheduled delivery period.

As per the provisions of purchase order, the delivery schedules were scattered, stipulating the quantity to be delivered in each month. It was provided that price variation claims would not be accepted by KSEBL in respect of belated deliveries. It was also stipulated that in respect of belated delivery, penalty at the rate of one *per cent* per month subject to a maximum of 10 *per cent* of the purchase order value will be levied.

[223] For the period April 2016 to January 2021.

Due to diversion of working capital loan as discussed in ***Paragraph 3.1.12.1***, the Company failed to purchase the required quantity of aluminium wire rods on time. The production was protracted due to inefficiencies as mentioned in ***Paragraph 3.1.14.2***. Consequently, the Company failed to deliver products within the stipulated delivery schedule. Consequently, KSEBL did not honour the upward price variation claim for ₹3.46 crore and imposed liquidated damages of ₹2.95 crore during the period 2017-18 to 2020-21.

Thus, the Company incurred a loss of ₹6.41 crore which also adversely affected its working capital position.

The Government accepted (March 2023) the audit observation and stated that shortage of working capital led to the shortage of raw materials and delayed delivery. It further stated (June 2023) that the Company would get loan amount from financial institutions only after 15 to 30 days after receiving purchase order from customers. This would result in delay of upto 40 days in starting production and hence, the Company could not deliver the products at the right time without incurring liquidated damages.

The reply regarding the delay in obtaining loan is not acceptable since the buyer, seller, and the creditor, all being PSUs, the Government could have effectively intervened to evolve a procedure to expedite the process of obtaining loan and to commence production at the earliest on receiving Purchase Orders by the Company.

3.1.15.2 Agreement to sell without upward price revision clause resulted in loss of ₹1.02 crore

IEEMA price variation clauses are used in settling claims between purchaser and supplier for variation in the basic price of raw materials from the period of tendering till the date of delivery. These clauses are widely accepted by the industry and purchasing organisations since they allow variations on both upward and downward directions, thus negating chances of undue gain or loss to the parties.

KSEBL is the major customer of the Company for ACSR and all the agreements with KSEBL contained a price variation clause which allowed upward as well as downward price revision based on the changes in the LME/ IEEMA rate for Aluminium rods. In variance from this practice, the purchase order (02 November 2020) from KSEBL for supply of 33,800 kms of ACSR provided that updating of price as per IEEMA formula will be limited to the basic price of aluminium as mentioned in the purchase order. Such a provision was prejudicial to the financial interests of the Company as it denied the opportunity to recover loss from KSEBL in the event of increase in price of aluminium. The Company agreed (17 November 2020) to this proposal and became obliged to supply the entire quantity of 33,800 km of ACSR at the rate of ₹35,772 per km or such rate based on the periodical LME rate of aluminium, whichever was lower.

The Company supplied 19,066.979 km of ACSR till July 2021 of which 12,256.66 km of ACSR was supplied at a reduced price applying negative price variation. During the same period, the Company supplied 6,661.102 km ACSR for which aluminium was purchased at higher rates owing to increase in LME rates. Though the Company claimed positive price variation aggregating ₹1.02 crore in respect of this supply, KSEBL declined the same as the agreement did not provide for the payment of positive price variation. The Company unilaterally withdrew from the supply contract in July 2021.

Thus, the failure of the Company in accepting a purchase order which was prejudicial to its financial interests resulted in an avoidable loss of ₹1.02 crore ***(Appendix 38)***.

The Government replied (March 2023) that KSEBL had informed that price variation would be considered on completion of delivery and that due to non-delivery, upward revision was denied. It was further stated (June 2023) that the Company accepted the order from KSEBL without price escalation because the Company had expected to complete the order within time as there were no orders in their hand. Also, the Company did not expect the huge increase in the price of aluminium.

The reply is not tenable because the price of aluminium being fluctuating as per LME price movements, the action of the Company to exclude upward price variation and include only negative price variation was against prudent financial principles.

3.1.15.3 Loss due to incorrect cost estimation - House wiring cables

The Company produces different types of House wiring cables (HWC). The selling price of HWCs was fixed by adding a margin to the cost of the product as calculated by the Company. The margin varied from 9 *per cent* to 49.51 *per cent* for different types of HWCs. On an analysis of the costing done by the management and cost audit reports for the years 2016-17 and 2017-18, it was noticed that the total cost of the HWC computed by the management consisted of material, power and packing material cost only. Labour which was a direct variable cost and overheads were not considered for computation of the cost.

Audit further noticed that cost audit for the two-year period 2016-17 and 2017-18 was conducted belatedly[224] and that the cost of sales as per the reports was higher than the selling price fixed by the Company. The Company did not conduct cost audit for the next two years, 2018-19 and 2019-20. For the year 2020-21 the Company computed the cost of production considering the entire cost involved. It was also noticed that the selling price of HWC was higher than the price of HWC of its competitors, by five to eight *per cent*.

Lack of costing system coupled with incorrect cost estimation and arbitrary fixation of selling price resulted in sale of HWC below cost resulting in a loss of ₹3.45 crore as shown in **Table 3.8** below:

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[224] Cost audit report for 2016-17 in April 2019 and 2017-18 in March 2021.

Table 3.8: Loss due to incorrect cost estimation of House Wiring Cables

Sl. No.	Year	Total sales (No. of coils)	Cost[225] of sales per coil (₹)	Selling price per coil (₹)	Loss per coil (₹)	Total loss (₹ in crore)
	(1)	(2)	(4)	(5)	(6)	(7) = (2 * 6)
1	2016-17	70,693	996.19	767.17	229.02	1.62
2	2017-18	1,33,059	862.25	787.85	74.40	0.99
3	2020-21	1,71,621	969.01[226]	920.19	48.82	0.84
					Total	**3.45**

The Government replied (March/June 2023) that labour cost was not considered for computation of cost to keep selling price competitive and that they were forced to sell the product at a price below one to five *per cent* of competitors' price.

The reply is not tenable as the purpose of costing is to identify the actual cost of production. Ignoring a crucial component of cost in cost computation will not result in cost reduction but would only lead to imprudent decision of fixing selling price below cost of production.

Recommendations:

Government should ensure that the Company :

- ***strictly adheres to the time schedule of delivery to avoid loss from denial of price variation and imposition of liquidated damages.***
- ***establishes a robust costing system for considering all direct and indirect costs and ensuring that selling prices are based on actual production costs to avoid selling products below cost and incurring losses.***

3.1.16 Other topics

3.1.16.1 Investment in unviable and outdated project for manufacture of XLPE cables

The Company created a manufacturing facility for XLPE cables in 2016 by incurring ₹7.61 crore. The actual production from 2017-18 to 2019-20 was 622.08 kms and thereafter the production completely stopped for want of orders.

Audit noticed that since its commissioning in 2016, the Company could never obtain sufficient orders to utilise even 50 *per cent* of the installed production capacity. The Company could attain only 14.84 *per cent* of projected production quantity during the period 2015-16 to 2019-20. In terms of value, the Company could achieve only ₹11.38 crore against projected sales of ₹202.90 crore, being only 5.60 *per cent* of projected sales. The actual production of XLPE cables during

[225] Cost Audit conducted for 2016-17 and 2017-18. Cost Audit for subsequent years were not conducted.

[226] Computed by the Company by considering all related costs.

the three years from 2017-18 to 2019-20 was 95.71 kms, 382.63 kms and 143.74 kms respectively against the targeted production of 1,032 kms per annum. Similarly, the sales achievement was only 2.77 *per cent*, 16.24 *per cent* and 14.18 *per cent* of the sales targets[227] fixed for the year 2017-18, 2018-19 and 2019-20 respectively. Since 2020-21, the Company could not obtain work orders for XLPE and the plant has remained idle.

Audit analysed the reasons for the stoppage of production, and it was seen that the market preferred XLPE Cables manufactured using Dry Cure technology[228] whereas the production process used by the Company was SIOPLAS[229] technology. The Company did not conduct any market study as part of Detailed Project Report which resulted in its failure to identify the shift in production technology and the major change in market demand.

It was seen that in 2006 itself Indian Railways had suggested[230] using XLPE Cables processed using Dry Curing technology for voltages ranging from 3.3 kV to 33 kV. In 2014, Delhi Metro Rail Corporation Limited also specified Dry Cured XLPE Cables as its standard for all elevated and underground rail corridors to avoid micro voids and contaminants in insulation. It was also observed that the major customer of the Company, KSEBL, has been demanding both 11kV and 33kV XLPE Cables processed using Dry Cure technology since 2013-14 itself. During the eight-year period from 2013-14 (when the Company invited tenders for project implementation) to 2020-21, KSEBL had invited 62 tenders to the tune of ₹277.65 crore for supply of XLPE Cables manufactured using Dry Cure technology.

Thus, the failure on the part of the Company to identify technological advancements in the cable industry resulted in implementing the project with SIOPLAS technology instead of the Dry Cured technology. Since the industry demand was for cables manufactured under Dry Cure technology, the investment in a project using technology which was getting obsolete was not financially prudent.

The Government admitted (March 2023) that there was change in technology and that the cable manufacturing process used by it had become obsolete. However, it was stated that, during the period from 2016-17, the Company manufactured XLPE cables worth ₹54.70 crore using the technology for turnkey projects. The Government further stated (June 2023) that the Company has been directed to ensure the adoption of technical advancements in the upcoming projects.

The reply of the Government is not tenable since the Company could not achieve even 50 *per cent* of the envisaged sales for the period 2016-17 to 2019-20 even by including the turnkey project products. Though it was stated that there was good

[227] Sales target for the year 2017-18 was ₹34.12 crore. For the years 2018-19 and 2019-20 it was ₹34.21 crore each.

[228] The cross linking/ curing of the insulation over bare conductor using nitrogen gas under high pressure and temperature for bonding.

[229] The cross linking/ curing of the insulation over bare conductor using hot water or steam for bonding.

[230] Para 2.2.2 of Handbook on Electrical Power Cables, Indian Railways.

margin on turnkey work, the Company lost the opportunity of achieving higher profit margin in view of the outdated production technology. Further, from 2020-21 onwards, the Company could not obtain work orders for manufacturing XLPE cables and the project has been remaining idle.

Recommendation: Government should ensure that the Company improves its corporate governance mechanism by imparting proper training to its directors on technological developments.

3.1.16.2 Failure to claim refund of excess tax paid on rejected price variation claim - Loss of ₹0.62 crore

Central Goods and Services Tax Act, 2017 (CGST Act 2017) was introduced with effect from July 2017. Tax at the rate of 18 *per cent* was payable on the goods sold by the Company. As per Section 34 of CGST Act 2017, where one or more tax invoices have been issued for supply of any goods or services or both and the taxable value or tax charged in that tax invoice is found to exceed the taxable value or tax payable in respect of such supply, or where the goods supplied are returned by the recipient, or where goods or services or both supplied are found to be deficient, the registered person, who has supplied such goods or services or both, may issue to the recipient one or more credit notes for supplies made in a financial year containing such particulars as may be prescribed. Any registered person who issues a credit note in relation to a supply of goods or services or both shall declare the details of such credit note in the return for the month during which such credit note has been issued but not later than the thirtieth day of November following the end of the financial year in which such supply was made, or the date of furnishing of the relevant annual return, whichever is earlier, and the tax liability shall be adjusted in such manner as may be prescribed.

While raising invoices to KSEBL, the Company consistently included upward price variation claims for aluminium in respect of deliveries made after the scheduled delivery period also. KSEBL never honoured such claims as there was no contractual obligation on their part to pay upward price variation for deliveries made after the scheduled delivery period. However, the Company failed to raise credit notes for the unrealisable upward price variation claims on account of delayed delivery. Timely issue of credit notes and filing of the same in the monthly (GSTR 1) or the quarterly (GSTR 3B) returns would have reduced the taxable value of goods supplied and GST payments to such extent and saved the extra tax paid on account of unrealisable claims. This would further have positively impacted the fund flow and working capital management of the Company. However, the Company failed to claim tax refund on account of such reduction in taxable value by filing credit notes with the tax authorities. During the period 2017-2021, the reduction in taxable value omitted to be claimed was ₹3.46 crore and avoidable tax paid in this score was ₹0.62 crore.

The Government admitted (March 2023) that due to the Company's lack of knowledge in the subject, they could not claim refund of excess tax paid during the period 2017-21. The Government further replied (June 2023) that the Company has since engaged a Chartered Accountant firm for GST audit and consultation.

3.1.16.3 Absence of oversight by Government of Kerala and absence of Management Information System (MIS)

The operational performance of the Company deteriorated over the years under review and as per the annual accounts for the year ended 31 March 2021, the reserves and surplus stood at ₹(-)143.90 crore and the net worth of the Company at ₹(-)62.03 crore. Even though the Company incurred a net loss of ₹42.37 crore in 2021-22, the reserves and surplus as well as net worth showed improvement to ₹(-)53.91 crore and to ₹3.31 crore respectively due to the upward revaluation of the freehold land of the Company by ₹132.36 crore. But for this book adjustment, the positions of reserves and surplus and net worth of the Company would have deteriorated to ₹(-)186.27 crore[231] and ₹(-)129.05 crore[232] respectively. The Government of Kerala and the management of the Company failed to identify and correct the operational inefficiencies over the years.

RIAB is the agency responsible for monitoring the activities of Public Sector Undertakings under the administrative control of Industries Department. The agency is also responsible for close monitoring of the loss-making Public-Sector Undertakings. Even though the Company was forwarding the production statistics, profitability, debtor's position and loan outstanding position, no steps were seen taken to identify and rectify the lack of adequate working capital in the Company or diversion of loan funds for administrative requirements.

In order to take timely decisions, the MIS reports in a Company were vital. But the Company was not preparing any MIS reports such as cost audit reports, periodical financial reports and labour utilisation reports.

The Government replied (March 2023) that cost records were prepared and analysed by the Company on a day-to-day basis and work norms were prepared based on the agreements with trade unions. It was further stated (June 2023) that steps would be taken to adhere to the points noted by Audit.

The reply is factually incorrect as proper cost records were not maintained by the Company except for the periods 2016-17 and 2017-18 as mentioned in ***Paragraph 3.1.15.3***. The reply also confirmed the fact that work norms were prepared based on the agreements with trade unions and not based on any scientific study.

Recommendations:

Government should:

- ***direct the Company to maintain proper and up-to-date cost records; and***
- ***seek reports from RIAB on the activities of the Company as it is continuously making loss***.

[231] Reserves and Surplus as on 31 March 2021 ₹(-)143.90 crore *plus* Loss for the year ₹(-) 42.37 crore.

[232] Reserves and Surplus without revaluation reserve ₹(-)186.27 crore *plus* paid up capital ₹57.22 crore.

Steel Industrials Kerala Limited

3.2 Execution of works for State Water Transport Department

Adoption of engine with hydraulic propulsion without ensuring its suitability for construction of boats resulted in avoidable loss of ₹60.66 lakh

Steel Industrials Kerala Limited (Company) undertakes contract works for construction and repair of boats and executes the same through subcontractors. During the period April 2011 to March 2022, the Company received six orders valuing ₹15.13 crore for construction of 15 boats from the State Water Transport Department (SWTD). Audit examined (July 2019 and September 2022) the six orders and noticed that the Company could not successfully complete two out of the six orders and incurred avoidable loss of ₹60.66 lakh as discussed below.

The Company received (March 2012) the two orders from SWTD for construction and supply of one Inspection boat and one Workshop boat at an agreed price of ₹42.90 lakh and ₹36.47 lakh respectively. As per the agreements (March 2012) with SWTD, the boats were to be supplied by the end of June 2012, and delayed delivery was to attract a penalty of ₹1,000 per boat for each day of delay. SWTD paid an amount of ₹63.49 lakh to the Company from March 2012 to October 2012.

Audit noticed that SWTD had awarded the work orders based on the design proposed by the Company which envisaged use of engine with hydraulic propulsion instead of engines with conventional propulsion used in other four orders received from SWTD during the period 2011-22. The Company could successfully complete the four orders (December 2012 to December 2017) for which it had used engines with conventional propulsion. It, however, failed to supply the Inspection and Workshop boats constructed using engines with hydraulic propulsion. The boats could achieve a speed of only two knots, against the designed speed of eight knots, in the first trial held in March/ October 2013. In the second trial (October 2015) the speed could be marginally increased to four knots by increasing the pitch of the propeller. The Company could not conduct further trials to achieve the designed speed due to heating of hydraulic oil which caused efficiency drop and prevented the boats from generating adequate power to achieve the designed speed. As the Company did not supply the boats even after three and a half years, SWTD terminated (March 2016) the contract and recovered the amount (₹63.49 lakh) paid for construction of the boats from other payments due to the Company. Thus, the entire expenditure of ₹60.66 lakh[233] incurred by the Company for the construction of the boats became infructuous.

It is pertinent to note that another naval architect and structural engineer whom the Company consulted (July/ August 2016), had opined that a proven system for steering and propulsion was a requirement to ensure safety, and conventional propulsion system was suitable for these types of boats. It was also opined that the hydraulic propulsion system was not suitable for continuous duty as any small

[233] ₹32.97 lakh for Inspection boat and ₹27.69 lakh for Workshop boat.

leakage in the system would lead to heating of hydraulic oil and resultant efficiency drop. This indicated that the Company introduced hydraulic propulsion system in the construction of Inspection boat and Workshop boat without ascertaining its suitability for these types of boats which ultimately led to the non-delivery of the boats and termination of contracts with SWTD.

Audit also noticed that the Company had developed the design for the boats through a subcontractor. Though the Company argued that the boats did not achieve the designed speed due to design fault of the propulsion system, it did not levy any penalty from the sub-contractor even though the agreement/ work order contained a condition regarding levy of penalty in the event of design failure. Further, the boats are docked in open premises since 2014-15 and the Company did not take any action to dispose of the boats to minimise its loss after termination of the contracts by SWTD, and the boats were found (June 2022) in a dilapidated condition as shown in **Figure 3.1**.

Figure 3.1 Inspection and Workshop Boats in dilapidated condition

The Government replied (April 2023) that the Company has been directed to dispose of the Workshop boat and Inspection boat early without further deterioration in value. The Government also stated that the Secretary, Public Sector Restructuring and Internal Audit Board (RIAB) was appointed (February 2023) as the Enquiry Officer for conducting an enquiry and to submit the report without delay. It was also directed to fix responsibility in this regard. Though the Government has stated that out of the amount of ₹60.66 lakh, the supervision charges of ₹11.23 lakh cannot be considered exclusively for this Project, it has not apportioned the supervision charges attributable for this Project.

Thus, due to the adoption of hydraulic propulsion engine without ensuring its suitability for the boats, the Company suffered a loss of ₹60.66 lakh.

Recommendations:

Government should ensure that:

- ***the Company uses proven technology in construction of boats and other projects***

- ***the enquiry entrusted with RIAB is completed at the earliest with follow up action and that the Company disposes of the boats expeditiously without further deterioration in value.***

The Kerala State Cashew Development Corporation Limited

3.3 Extra expenditure

Cancellation of tender in violation of the provisions of the Stores Purchase Manual entailed extra expenditure of ₹93.39 lakh.

As per Rule 1.2 of the Stores Purchase Manual (SPM) issued (June 2013) by the Government of Kerala, public procurement activities should be conducted in a transparent manner ensuring competition, fairness and elimination of arbitrariness in the system. In order to ensure the same, the tender document should clearly mention the eligibility criteria to be met by the tenderers and tenders should be evaluated in terms of the criteria already incorporated in the tender document. Any new condition, which was not incorporated in the tender document, should not be brought into consideration while evaluating the tenders. Rule 7.50 of the SPM also mandates that wherein two bid system is adopted in tendering, the technical bids are to be opened in the first instance and the same will be scrutinised and evaluated by the competent committee/ authority with reference to parameters prescribed in the tender documents. Thereafter, in the second stage, the financial bids of only the technically acceptable offers (as decided in the first stage above) are to be opened for further scrutiny, evaluation, ranking and placement of contract.

Kerala State Cashew Development Corporation Limited (Company) is engaged in purchase of raw cashew nuts (RCN) and selling of processed cashew nuts. The Company invited (December 2016) tender for purchase of 2,500 MT RCN of Tanzanian (CDJKL[234]) origin on direct/ high seas sale[235] basis. Three firms submitted bids and the committee for evaluation of these bids reported (7 January 2017) that they were technically qualified. Accordingly, price bids were opened and it was found (7 January 2017) that Exolent Global Exim Company offered the lowest rate of USD 2,131 per MT of RCN. The Board of Directors (BoD) of the Company negotiated with the bidder who agreed to reduce the rate to USD 2,120 per MT. Subsequently, the BoD decided (16 January 2017) to cancel the tender citing that (i) the successful firm proposed to ship the RCN from Dar-es-Salam port whereas the tender conditions stipulated the same from Mtwara port in Tanzania, (ii) letter from Cashewnut Board of Tanzania submitted by the bidder was defective and; (iii) the firm would not be able to supply the RCN as per the supply schedule. Subsequently, the Company invited (8 February 2017) tender for purchase of imported RCN of Tanzanian (CDJKL) origin from Indian firms. Of the two firms

[234] CDJKL is a variety of cashew nut available in Tanzania.

[235] High Sea Sales' is a trade practice whereby the original importer sells the goods to a third person before the goods are entered for customs clearance.

that submitted bids, John Cashew Company offered the lowest price (₹159 per kg) and agreement was entered into (22 February 2017) for supply of 1,000 MT.

Audit observed that the reasons cited by the BoD for cancelling the tender were not justifiable. The tender document had not specified Mtwara or any other port in Tanzania for effecting shipment of the RCN. The BoD could not specify the defects in the letter produced by the bidder from Cashewnut Board of Tanzania approving transportation of RCN to Dar-es-Salam port. Further, there was nothing on record to justify the opinion of the BoD that the successful bidder would not be able to deliver RCN as per the committed schedule. The delivery schedule specified in the tender document was also ambiguous as it did not specify the exact days available for a bidder from the date of award of order for effecting the supply. Instead, it required that the supply should be made by 16 January 2017 which was later (23 December 2016) amended to 23 January 2017. It may be noted that in a similar transaction, one of the suppliers intimated (November 2016) that a period of 10 to 12 days was required to supply RCN from Tanzania. Hence, even if the order was placed immediately after the meeting (16 January 2017) of the BoD in which the tender was considered, the successful bidder would have been able to deliver the RCN by the end of January 2017 as committed in the tender submission. On the other hand, by re-tendering for the purchase of RCN, the BoD effectively deferred the receipt of RCN from January 2017 to March 2017. The decision of the BoD was, therefore, not in accordance with the tender conditions and provisions of the SPM which entailed extra expenditure of ₹93.39 lakh due to purchase of RCN at a higher rate from local market.

The Government replied (November 2022) that the BoD took a considerate decision based on the facts presented to them and in discussion with the L1 bidder on the supply schedules and other facts of the case. It was further replied that the port of loading is usually Mtwara. Since the successful bidder had expressed his intention to load the shipment from Dar-es-Salam port, the BoD had suspicion as the two ports are more than 500 km apart and Mtwara was the major port of loading RCN. There was no lack of transparency in evaluation of bids as the whole tender was cancelled by the BoD and not by the Tender Committee.

The reply is not acceptable. Cancelling a tender citing technical reasons after completing the technical and commercial evaluation was in violation of the SPM and lacked transparency. The tender document did not specify Mtwara as port of loading for the RCN. Hence, rejecting the tender on the ground that port of loading was Dar-es-Salam was not in accordance with the provisions of SPM which provided that the tender document should clearly mention the eligibility criteria to be met by the tenderers and any new condition should not be brought into consideration while evaluating the tenders. Technical evaluation of the bids, which was carried out by a committee which included the Managing Director did not report any adverse remarks on the competency of the successful bidder. The reasons cited by the BoD for cancelling the tender, therefore, were not justifiable.

Thus, the faulty formulation of tender documents and non-compliance with SPM during tender evaluation processes led to extra expenditure of ₹93.39 lakh.

Recommendation: The Government should ensure that the Company specifically mentions all the technical parameters in the tender documents to avoid ambiguity leading to avoidable expenditure.

Kerala State Construction Corporation Limited

3.4 Irregular sanction of mobilisation advance without security and non-recovery of risk and cost liability

Undue favour by the Managing Director, Kerala State Construction Corporation Limited in sanctioning Mobilisation Advance to a contractor in contravention of CVC guidelines resulted in non-recovery of ₹ 77.40 lakh.

As per the Central Vigilance Commission (CVC) directions (April 2007) on mobilisation advance, amount of mobilisation advance, interest to be charged, recovery schedule, *etc.*, should be stipulated in the tender document upfront. In case interest free advance is provided, then it should be clearly stipulated in the tender document and its recovery would be time based and not linked to the progress of the work. The purpose is to ensure that even if the contractor is not executing the work or executing it at a slow pace, the recovery of advance could commence and scope of misuse of such advance could be reduced. CVC further clarified (February 2011) that in order to enable recovery, mobilisation advance should be granted only after obtaining Bank Guarantee equivalent to 110 *per cent* of such advance.

As per Clause 15.6 of the Standard Bidding Document (SBD) in the event of termination of the contract as described in clauses 15.4 and 15.5 or both, the Employer shall be entitled to recover Liquidated Damages up to ten *per cent* of the contract value and forfeit the performance guarantee or Performance Security Deposit made by the Contractor to make good the losses besides getting the work completed by other means at the risk and cost of the Contractor.

'Construction of Kunambila Kurichya colony Road in Kottiyur Grama Panchayath in Kannur District' was part of a project involving construction of ninety roads and three bridges in tribal areas utilising NABARD-RIDF loan. Government of Kerala (GoK) entrusted (May 2015) the work to Kerala State Construction Corporation Ltd. (KSCC) at an estimated cost of ₹ 2.77 crore. For works which are financed through NABARD-RIDF loan, NABARD releases sanctioned amount on re-imbursement basis except for the initial mobilisation advance of 20 *per cent*.

The General Manager (GM), KSCC invited tenders (March 2018) for the aforesaid work. Provision of mobilisation advance was not mentioned in the tender document. The work was awarded to a contractor, Shri Niyas M.D, for ₹2,00,34,382/-. An agreement was executed (September 2018) with 182 days as time of completion. As per the terms of the contract, the contractor remitted ₹29.04 lakh towards the Security Deposit (SD) and Additional Performance Guarantee (APG). Of these, ₹5.01 lakh was in the form of treasury fixed deposit and balance ₹24.03 lakh as bank guarantees.

On a request from the contractor (September 2018), the Managing Director, KSCC accorded (October 2018) sanction to release mobilisation advance amounting to ₹44.31 lakh. However, there was no mention of bank guarantee to be obtained. Further, the recovery of the advance was linked to the progress of the work and not time based, as instructed in the CVC guidelines. The amount was disbursed to the contractor on 01 November 2018.

Due to the slow progress of the work (18 *per cent* only) even after the stipulated date of completion (March 2019), KSCC terminated (November 2019) the contract at the risk and cost of the contractor by invoking Section 2116.2.1 of KPWD Manual 2012. The balance work was retendered and awarded to another contractor, who completed the work in March 2021. KSCC directed the first contractor to remit the risk and cost of ₹97.2 lakh. Since there was no response from the contractor, KSCC recovered (August 2020) ₹24.03 lakh by invoking the bank guarantees furnished by the contractor and ₹5.01 lakh in the form of Treasury deposits was revoked in December 2022. The balance amount to be recovered from the contractor was worked out by KSCC as ₹48.36 lakh (as of September 2022) as detailed in **Table 3.9** below:

Table 3.9: Balance amount to be recovered from contractor worked out by KSCC

Particulars	Amount (in ₹)
Risk and Cost	18,67,192
GST 12 *per cent* of revised agreed PAC	27,28,650
Mobilisation Advance	44,31,000
Interest from 02 November 2018 to 10 September 2020 on mobilisation advance @ 9 *per cent*	7,41,858
Total liability	97,68,700
Less amount in KSCC as SD & APG	29,04,499
Contractors' 1st part bill recovered by KSCC	20,28,424
Balance amount due	48,35,777

In this context, Audit observed the following:

- The amount worked out by KSCC was incorrect, as the SD and APG of ₹29.04 lakh cannot be adjusted against the liability of a contractor as per clause 15.6 of SBD. Hence, the total liability of the contractor was ₹77.40 lakh[236].
- KSCC did not disclose the provision of mobilisation advance in the tender documents, which is in contravention to the CVC guidelines. As a result, level-playing field was denied to potential bidders. As such, the action of the MD, KSCC in ordering the release of mobilisation advance to the contractor was an undue favour.
- The contractor filed a petition before the Honourable High Court of Kerala, which passed (August 2020) an interim order not to take any coercive action against the contractor in respect of any other pending or future works of the petitioner. However, KSCC filed a statement to dismiss the writ petition only on 23 March 2023.

[236] ₹29.04 lakh + ₹48.36 lakh

- Had the MD, KSCC released the mobilisation advance after obtaining BG equivalent to 110 *per cent* of mobilisation advance and made the recovery time based instead of progress of work, the amount (₹77.40 lakh) could have been recovered.

It may be mentioned that Report of the Comptroller and Auditor General of India on Public Sector Undertakings for the year ended 31 March 2016 (Report No. 4 of the year 2017) had similarly pointed out that KSCC released (October 2013 to December 2015) mobilisation advance of ₹11.43 crore without obtaining required Security Deposit of ₹12.56 crore in respect of five work orders of Public Works Department (PWD). As can be seen from the above, KSCC had not taken any corrective action to comply with the CVC guidelines, resulting in loss of ₹77.40 lakh and interest on mobilisation advance (from September 2020) to the exchequer.

The Government replied (May 2023) that KSCC has fully recovered the mobilisation advance. The claim of KSCC is not tenable since the amount recovered as BG and TD could not be considered against recovery towards mobilisation advance as per clause 15.6 of SBD. Further an amount of ₹77.40 lakh is still due from the contractor including the mobilisation advance. The Government also stated that the only option left with KSCC to recover the amount was to initiate Revenue Recovery. However, it was not listed under Section 71 of Revenue Recovery Act, 1968 and hence could not proceed with revenue recovery, though the request for inclusion has been made to the Revenue Department.

It was also stated by Government that the Court has not interfered in taking action against the contractor to recover the risk and cost liability and hence it had not approached the Honourable High Court of Kerala. The reply is not tenable as the Court direction clearly states that no coercive action can be taken against the contractor in respect of any other pending or future works. In addition, KSCC has no powers to recover the amount under Section 71 of Revenue Recovery Act 1968. Both these conditions make the recovery difficult. Further, after Audit pointed out the fact, KSCC had submitted a statement before the Honourable Court on 23.03.2023 to vacate the Order. Thus, irregular sanction of mobilisation advance resulted in contravention of CVC guidelines and non-recovery of amount due to KSCC.

Recommendation: Government should issue strict directions to all Government Departments and accredited agencies entrusted with execution of works to comply with the directions of CVC regarding mobilisation advance.

Kerala State Electricity Board Limited

3.5 Non-release of funds to the Master Trust amounting to ₹26,401.16 crore

The Master Trust could not invest funds and generate return for paying terminal benefits / pension to the employees/ pensioners of the Company as the Company failed to release sufficient funds to the Master Trust. Hence, the purpose of the Government to ensure terminal benefits/ pension, independent of the financial health of the Company, could not be achieved.

The Statutory Corporation, Kerala State Electricity Board (KSEB), was converted into a fully owned Government Company, Kerala State Electricity Board Limited (Company) and all the functions, properties, interests, and all rights and liabilities were transferred to it with effect from 31 October 2013.

The transfer scheme envisaged formation of a Kerala State Electricity Board Limited Employees Master Pension cum Gratuity Trust (Master Trust[237]) protecting the interests of the existing pensioners and the personnel transferred to the Company. The chronology of important events relating to the Master Trust is given in ***Appendix 39***. The liability on account of terminal benefits as per actuarial valuation was ₹12,419 crore as on 31 October 2013. This liability was to be funded jointly by GoK (through budgetary provision over a period of 10 years) and the Company (through issue of 20-year bond and 10-year bond to the Master Trust) as detailed in ***Appendix 40(a)***.

The Master Trust was responsible for disbursement of terminal benefits and pension from 01 April 2018 using the income generated from investment of funds received by redemption of bonds issued by the Company and budgetary support of the GoK, for ₹12,419 crore. In addition, the Company was liable to pay directly to the Trust any increase in actuarial valuation of terminal benefits for the subsequent years.

However, the Company failed to transfer funds to the Master trust as envisaged in the scheme leading to a shortfall of ₹26,401.16 crore. Hence the Master Trust could not invest and earn income from the investment for payment of terminal benefits, raising serious doubts on the sustainability of the Master trust. The shortfall in contribution to the Master Trust by the Company is as given below.

i. Retention of Government's contribution to Master Trust

During the period from November 2013 to March 2018, the GoK paid ₹2,850.61 crore in advance for redemption of 10-year bond and advance payment of budgetary support for transfer to the Master Trust ***(Appendix 40(b))***. The Company, however, did not transfer ₹2,850.61 crore to the Master Trust leading to interest loss of ₹1,026.22 crore[238].

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[237] The Master Trust was formed with the Chairman and Managing Director of the Company as the Chairman and Trustee of the Trust.

[238] ₹2,850.61 crore at 9 *per cent* per annum, simple interest for four years.

ii. Failure to transfer full amount for redemption of bond

The Company had a liability to transfer ₹7,196.08 crore to the Master Trust from 2018-19 to 2021-22. However, it transferred only ₹7,050.66 crore to the Master Trust leading to a shortage of ₹145.42 crore.

iii. Non-payment of actuarial liability for the period 2013–2022

The Company failed to pay the actuarial valuation of the terminal benefits every year and the liability towards terminal benefits accumulated to ₹35,824.13 crore as on 31 March 2022. The net increase in actuarial valuation over the years was ₹23,405.13 crore from ₹12,419 crore in October 2013.

iv. Failure to pay penal interest for delayed payments

The Company failed to transfer the principal and interest to the Master Trust, on 1st of April of every year as envisaged in the re-vesting scheme. This resulted in a liability for payment of additional interest at the rate of 24 *per cent* per annum which worked out to ₹1,210.42 crore as shown in ***Appendix 41*.**

Table 3.10 : Year-wise shortfall in transfer of funds by KSEBL to Master Trust

Sl. No.	Period	Non-payment of increase in actuarial liability (₹ in crore)	Retention of Government's contribution to Master Trust (₹ in crore)	Shortfall in transfer of amount for redemption of bond (₹ in crore)
(1)	**(2)**	**(3)**	**(4)**	**(5)**
1	2012-13	-	52.40	-
2	2013-14	-	296.61	-
3	2014-15	-	638.50	-
4	2015-16	-	638.50	-
5	2016-17	3,728.70	638.50	-
6	2017-18	1,584.88	586.10	-
7	2018-19	1,595.15	-	429.66
8	2019-20	1,032.00	-	208.10
9	2020-21	14,152.56[239]	-	198.81
10	2021-22	1,311.84	-	(691.15)
	Total	**23,405.13**	**2,850.61**	**145.42**
Grand Total (3)+(4)+(5)		**26,401.16**		

239 The Company revised its pay twice – 2016 and 2021, without the approval of GoK. The impact of the pay revision is seen in the sudden jump of actuarial liability from ₹20,359.73 crore in 2019-20 to ₹34,512.29 crore in 2020-21

Thus, as seen from **Table 3.10**, the Company failed to contribute ₹26,401.16 crore[240] on three accounts as stated above, besides causing interest loss of ₹2,236.64 crore[241] to the Master Trust.

The Company replied (February 2023) that due to adverse financial condition, it was not able to pay the full amount of interest and principal of bonds each year to the Master Trust as envisaged. Hence, it had already requested the Government to issue sanction for issue of bonds for the increased actuarial valuation amount as on 31 March 2022.

The Government endorsed (April 2023) the reply of the Company and stated that suitable action would be taken at the earliest for issue of bonds.

The Company also stated that it had already paid ₹47.11 crore in excess to the Master Trust as on 31 March 2022. The reply of the Company is not correct because from April 2018 to March 2022, the Company transferred only ₹7,050.66 crore to the Master Trust against the actual dues of ₹7,196.08 crore, leaving a deficit of ₹145.42 crore. Further, it has not reckoned the interest for delayed remittances and increased liability on account of actuarial valuation over the years.

Thus, the purpose of the Government to protect the interests of personnel and pensioners of the Company by providing them terminal benefits/ pension independent of the financial health of the Company by constituting and enabling a Master Trust was not achieved even after nine years.

Recommendation: Government should ensure that the Company remits the dues to the Master Trust on time as envisaged in the transfer scheme.

3.6 Implementation of pay revision without approval of Government

Implementation of pay revision violating Articles of Association of the Company and orders of Government of Kerala entailed an irregular expenditure of ₹1,011 crore towards arrears of pay and allowances and ₹306.66 crore towards arrears of pension revision.

Articles 55 and 56 of the Articles of Association of the Company require prior approval of Government of Kerala (GoK) in matters of service conditions of the employees. Moreover, the Company has to implement any direction/ instruction in regard to the affairs or conduct of business of the Company from the GoK on any matter.

The Board of Directors of the Company, however, revised the pay, allowances and pension of its employees without the approval of GoK on 26 February 2021. The Company and its predecessor entity, Kerala State Electricity Board (KSEB) have resorted to such irregular revisions several times in the past *viz*., 1995, 2001, 2007, 2011 and 2016. In this regard, Audit noticed the following:

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[240] ₹2,850.61 crore plus ₹145.42 crore plus ₹23,405.13 crore.

[241] ₹1,026.22 crore plus ₹1,210.42 crore.

- The CAG of India had commented[242] on the irregular pay revision in 1995 by the KSEB. GoK had then assured (February 2009) the Committee on Public Undertakings (CoPU) that decisions regarding pay revision of KSEB will be taken only after obtaining approval of the Government. Despite these assurances, the Company revised the pay in 2011, 2016 and 2021 without the prior approval of GoK. The Pay Revision of 2016 is yet to be approved by GoK.
- When the Company had implemented revision of pay and allowances[243] of its officers and workmen in February 2016, GoK had suggested (August 2016) discontinuation of some elements of pay like cadre pay, and implementation of pay revision prospectively with effect from the date of effect of next revision for State Government employees. This was in view of the better scale of pay and perks enjoyed by employees of the Company as against the employees of State Government, and the fragile financial position of the Company. However, the pay revision of 2021 was implemented ignoring these directions of GoK.
- The increased annual financial burden on account of Pay Revision 2021 was estimated at ₹543 crore *per annum.* As a result, the expenditure on emoluments increased from 23.77[244] *per cent* to 46.59[245] *per cent* of its revenue during the period 2017-18 to 2020-21. Further, the steep increase in liability by ₹14,152.56[246] crore on account of increase in terminal benefits as per actuarial valuation, during the period from 2019-20 to 2020-21, was mainly on account of pay revision. This also added to the liability of the Company for transferring funds to the Master Trust as discussed in ***Paragraph 3.5***.
- As the Pay Revision was implemented with retrospective effect from July 2018, the Company paid arrears of pay and allowances (₹1,011 crore) and pension (₹306.66 crore) amounting to ₹1,317.66 crore.

The increased expenditure on account of pay and pension revision will further weaken the already fragile financial position of the Company in view of its negative net worth increasing from ₹8,605.38 crore in March 2020 to ₹15,701.34 crore in March 2022.

The matter was reported to the Government in August 2022. The Company replied (March 2023) that the pay revision was based on a Long-Term Settlement with recognised trade unions, which is a legally binding agreement. The Company cannot deviate from its obligation for want of approval from Government, which is a time-consuming process. The reply is not factual as the Company was authorized to enter into Long-Term Settlement only with approval of Government.

[242] Report No.1 (Commercial) – Government of Kerala- of the Comptroller and Auditor General of India for the year ended 31 March 1997 (Paragraph 4.2.1.1).
[243] Pay revision for the period from July/August 2013 to June/ July 2018.
[244] In 2017-18, the Employee benefit expenses : ₹3,038.40 crore and Income : ₹12,784.95 crore.
[245] In 2020-21, the Employee benefit expenses : ₹7,067.28 crore and Income : ₹15,169.60 crore.
[246] For the period from 2019-20 to 2020-21 (₹34,512.29 crore less ₹20,359.73 crore = ₹14,152.56 crore).

Finance Department, GoK stated (December 2022) that it has requested Power Department to take stringent action such as withholding of grant, taking disciplinary action against the delinquent officers, *etc*. for ignoring the Government directions. The Power Department, however, is yet to act upon this request of the Finance Department.

The reply of Power Department, GoK is still awaited[247](April 2023).

Thus, continuous revision of pay and allowances by the Board of Directors without the approval of the Government is not only violating the Articles of Association of the Company but is also in contempt of the recommendations of the COPU.

Recommendations:

Government should ensure that:

- ***the Company revises its pay and allowances and pension only with the prior approval of the Government***
- ***the Power Department takes stringent action such as withholding of grant, taking disciplinary action against the delinquent Board Members, etc. for ignoring Government's directions.***

3.7 Non-inclusion of price variation clause in purchase order resulted in avoidable extra expenditure

Procurement of High-Tension Aerial Bunched Cable at different rates from the same firm during the same period resulted in avoidable extra expenditure of ₹1.73 crore.

Kerala State Electricity Board Limited (Company) is engaged in the generation, transmission and distribution of electricity in Kerala. The market prices of electrical products showed wide fluctuations due to fluctuations of raw materials used for their manufacture. Kerala State Electricity Board[248] (Board) had decided (May 2008) to include price variation clause (PV) in contracts for purchase of materials[249], if the delivery period exceeds six months. Clause 7.1.4 of the Procurement Manual (2017) of the Company prescribed that IEEMA[250] formula should be used in purchase orders with price variation clause.

The Chief Engineer (Distribution South) (CE-DS) of the Company invited (August 2018) two-part tenders for the supply of 440 km of High-Tension Aerial Bunched Cables (HTABC)[251]. After evaluation of the bids by the Financial Adviser (12 December 2018) and the purchase committee (04 January 2019), the CE-DS placed

[247] The matter was brought to the notice of Government as a Statement of Facts in January 2022. Later the Draft Paragraph was issued and reminder letters were issued on 06 October 2022, 21 December 2022, 13 February 2023 and 15 March 2023. The Draft Paragraph was modified and re-issued (12 May 2023) to the Government. A meeting was also conducted with the Additional Chief Secretary, Power Department on 15 March 2023 for soliciting reply in this regard.

[248] The predecessor entity of KSEBL.

[249] having metal content of 50 *per cent* or more.

[250] Indian Electrical and Electronics Manufacturers' Association.

[251] These cables provide higher safety and reliability, lower power losses and is ideal for power distribution in rural areas, difficult terrains, and also for congested urban areas.

(January 2019) purchase orders with Paramount Communications Limited and Havells India Limited for the supply[252] of 380 km and 132 km, respectively, of HTABC at an all-inclusive rate[253] of ₹8,02,460 per km. The total value of the purchase order was ₹35.31 crore. The purchase order, however, did not include PV clause. The supply was to be completed within 60 days from the date of purchase order. The firms supplied 447.417 km of HTABC, belatedly, during the period from April 2019 to August 2019. As enabled by the purchase order, the CE-DS gave additional orders (September 2020), which had a PV clause, for additional quantity of 110 km of HTABC.

In this connection, Audit noticed (March 2022) that

- The basic price of raw materials used in the manufacture of HTABC decreased by 2.55 *per cent* to 6.35 *per cent* during the delivery period as seen from the IEEMA circulars for the period March 2019 to August 2019. The Company could not take advantage of the downward price variation as the CE-DS had not included PV clause in the tender/ purchase order and thus, had to pay for the entire purchase quantity at the firm rate. The avoidable extra expenditure worked out on this score was ₹1.73 crore as shown in ***Appendix 42.***

- It was noticed that the Chief Engineer (Supply Chain Management) (CE-SCM) of the Company had placed (December 2018) Purchase Orders with two firms[254] with delivery period ranging from 60 to 90 days. Audit noticed that these purchase orders were on variable price basis, as per IEEMA formula and were cleared by the Financial Adviser (29 November 2018) and Purchase Committee (05 December 2018).

- However, the Purchase Orders placed (January 2019) by CE-DS during the same period, were on firm price basis without PV clause. It was noticed that the Financial Adviser and the Purchase Committee[255] were negligent in not pointing out the absence of PV clause during the same period.

The Government replied (October 2023) that PV clause was included in tenders if the delivery period exceeds six months, as decided by its Board in May 2008. If the delivery was completed within 60 days, the anticipated financial loss due to downward trend in price arrived at using the IEEMA price variation formula would not apply.

The reply is not tenable, as no justification to exclude (May 2008) PV clause in contracts with delivery period less than six months was given. The Procurement Manual of the Company (2017) had not prescribed any delivery period in connection with PV clause. As such, there was nothing which prevented the Company from including PV clause in tenders whose delivery schedule was below six months. Further, the delivery period stipulated in the Purchase Orders placed

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[252] On 70:30 ratio.

[253] Basic price of ₹6,46,000.

[254] M/s.APAR Industries Limited and M/s.Paramount Communication Limited.

[255] consisting of Chairman and Managing Director as its Chairman. All the Full Time Directors along with the Financial Adviser are Members and the Chief Engineer (SCM) is the Convener.

by the Chief Engineer (Supply Chain Management) was less than six months. Also, the Company while placing (September 2020) orders for the additional quantity of 110 km of HTABC had included a clause for price variation, even though the supply was to be completed within 60 days. The Company had also acknowledged (June 2022) that after the audit observation, PV clause was included in all the subsequent tenders.

Thus, non-inclusion of PV clause in the contract led to incurring of extra expenditure of ₹1.73 crore.

Responsiveness on the Paras by Government on this Report

3.8 Statements of Facts followed by Draft Audit Paragraphs proposed for inclusion in this Report of the Comptroller and Auditor General of India were forwarded to the Principal Secretaries/ Secretaries of the six Departments[256] concerned drawing their attention to the audit findings and requesting them to send their response within four weeks. Replies to thirteen Compliance Audit Paragraphs were received from Government which is suitably incorporated in this Report. Replies to four Compliance Audit Paragraphs were yet to be received (December 2023) from the State Government.

Thiruvananthapuram,
The 20 June 2024

(S. SUNIL RAJ)
Principal Accountant General
(Audit II), Kerala

Countersigned

New Delhi,
The 03 July 2024

(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India

[256] Archaeology, Museums and Zoos, Industries, Forest and Wildlife, Public Works and Power.

Appendices

Appendix 1
Profile of audited entities
(Referred to in Paragraph 1.2)

Sl. No.	Name of the Department	Objective/ Functions of the Department
1	**Environment and Climate Change**	The main objective of the Directorate of Environment and Climate Change (DoECC) under Environment Department is placing the environmental concerns at the forefront of sustainable development for maintaining the quality of life of the people of the State by strengthening environmental governance for maintaining environmental sustainability of the State; Integrating environmental aspects in the development processes; Investment in environmental management programmes in the State at community level and create a civic movement on upkeep of environmental sustainability.
2	**Forest and Wildlife**	The objectives are to conserve and expand unique and complex natural forests of Kerala for posterity, in particular with regard to water; biodiversity; extent; productivity; soil, environmental, historical, cultural and aesthetic values, without affecting their ecological processes, to conserve, maintain and enhance the existing gene pool of the State for posterity, to reduce pressure on forest through appropriate interventions, to sustainably conserve and manage biodiversity-rich and sensitive ecosystems such as mangroves, sacred groves, coastal areas, wetlands, homesteads, private plantations *etc*., which are outside the control of the Forest Department, to meet the livelihood needs of tribals and other forest dependent communities, to improve the standard of living of the forest dependent tribals and village communities *etc*.
3	**Public Works**	The Public Works Department is the Statutory Authority for designing, planning, monitoring, constructing and undertaking maintenance of public works of the State Government such as Government Buildings, Roads, Bridges *etc*., irrespective of the source of funds for the same
4	**Science and Technology**	The objectives are to promote new areas of Science and Technology and to play the role of a nodal Department for organising, coordinating and promoting Science & Technology activities in the country.
5	**Industries and Commerce**	The objectives are to create necessary industrial infrastructure and provide adequate logistical support to facilitate industrial growth in the state.
6	**Power**	The objective is to increase power generation to ensure availability of power in tune with increased demand.
7	**Cultural Affairs**	The Department of Culture is formed to preserve and promote Kerala's unique culture, art, literature and rituals.
8	**Electronics and Information Technology**	The Department aims to promote digital innovations and make Kerala No.1 digital state.

Sl. No.	Name of the Department	Objective/ Functions of the Department
9	**Port**	The Department aims to enhance the productivity of the ports through innovation and implementation of latest technology solutions in various areas of Port operations and functions.
10	**Tourism**	The Department formulates policies and programs for the co-ordination of activities for the development and promotion of tourism in the State.
11	**Transport**	Aims to have a sustainable, efficient, safe and internationally comparable quality of road infrastructure in general and State Highways infrastructure in particular to achieve enhanced connectivity, quick mobility to a level which accelerate socio-economic development.

Appendix 2
Statement showing age-wise analysis of Inspection Reports and paragraphs outstanding in Departments
(Referred to in Paragraph 1.7.1.1)

Sl. No.	Name of Department	Number of Inspection Reports outstanding				Number of paragraphs outstanding			
		Older than five years	Between three to five years	Up to three years	Total	Older than five years	Between three to five years	Up to three years	Total
1	Cultural Affairs	57	26	9	92	195	212	67	474
2	Electronics & Information Technology	17	2	5	24	159	12	45	216
3	Industries & Commerce	54	20	4	78	158	179	42	379
4	Ports	11	5	0	16	29	18	0	47
5	Tourism	14	2	2	18	68	19	21	108
6	Transport	161	101	32	294	872	1,083	422	2,377
7	Power	19	6	2	27	67	33	10	110
8	Environment	4	2	6	12	18	23	45	86
9	Public Works	257	31	39	327	1,124	255	355	1,734
10	Forests and Wildlife	70	32	62	164	191	125	463	779
11	Science and Technology	18	2	4	24	55	15	15	85
	Total	**682**	**229**	**165**	**1,076**	**2,936**	**1,974**	**1,485**	**6,395**

Appendix 3
Statement showing age-wise analysis of Inspection Reports and Paragraphs outstanding in Public Sector Undertakings
(Referred to in Paragraph 1.7.1.2)

Sl. No.	Name of PSU	Number of Pending IRs				Number of Paragraphs outstanding			
		Older than five Year	Between three to five years	Up to three Years	Total	Older than five Year	Between three to five years	Up to three Years	Total
1	The Kerala State Coir Corporation Limited	1	1	0	2	3	6	0	9
2	Autokast Limited	2	0	0	2	9	0	0	9
3	Bekal Resorts Development Corporation Limited	2	0	1	3	7	0	7	14
4	Foam Mattings (India) Limited	2	0	1	3	9	0	4	13
5	Forest Industries (Travancore) Limited	3	1	1	5	11	10	10	31
6	Handicrafts Development Corporation of Kerala Limited	0	1	1	2	0	7	7	14
7	Indian Institute of Information Technology and Management-Kerala	1	1	0	2	3	8	0	11
8	Kerala Automobiles Limited	2	1	1	4	6	7	5	18
9	Kanjikode Electronics and Electricals Limited	3	0	0	3	8	0	0	8
10	Kannur International Airport Limited	1	0	0	1	21	0	0	21
11	KCCP Limited	0	0	1	1	0	0	5	5
12	Kerala Electrical and Electricals Limited	1	1	1	3	1	5	12	18
13	Keltron Component Complex Limited	3	1	1	5	12	4	2	18
14	Keltron Electro Ceramics Limited	1	1	0	2	3	11	0	14
15	Kerala Artisans Development Corporation Limited	1	0	1	2	4	0	12	16
16	Kerala Cashew Board Limited	0	0	1	1	0	0	8	8
17	Kerala Fibre Optic Network Limited	0	0	1	1	0	0	9	9
18	Kerala High Speed Rail Corporation Limited	1	0	0	1	1	0	0	1
19	Kerala Industrial Infrastructure Development Corporation	5	1	0	6	15	16	0	31

Sl. No.	Name of PSU	Number of Pending IRs				Number of Paragraphs outstanding			
		Older than five Year	Between three to five years	Up to three Years	Total	Older than five Year	Between three to five years	Up to three Years	Total
20	The Kerala Minerals and Metals Limited	1	1	2	4	2	8	13	23
21	Kerala Rail Development Corporation Limited	0	0	1	1	0	0	11	11
22	Kerala State Bamboo Corporation Limited	2	1	1	4	4	5	10	19
23	Kerala State Cashew Development Corporation Limited	0	1	1	2	0	7	15	22
24	Kerala State Coir Machinery Manufacturing Company Limited	0	1	0	1	0	7	0	7
25	Kerala State Drugs and Pharmaceuticals Limited	1	1	1	3	4	9	6	19
26	Kerala State Electronic Development Corporation Limited	1	1	1	3	5	3	13	21
27	Kerala State Film Development Corporation Limited	2	1	0	3	7	8	0	15
28	Kerala State Handloom Development Corporation Limited	1	1	1	3	6	2	12	20
29	Kerala State Industrial Enterprises Limited	3	0	0	3	19	0	0	19
30	Kerala State Information Technology Infrastructure Limited	2	1	0	3	7	6	0	13
31	Kerala State Maritime Development Corporation Limited	1	1	0	2	9	9	0	18
32	Kerala State Mineral Development Corporation Limited	0	1	1	2	0	3	6	9
33	Kerala State Palmyrah Products Development and Workers Welfare Corporation Limited	3	1	0	4	12	4	0	16
34	Kerala State Textile Corporation Limited	3	1	0	4	6	11	0	17
35	Kerala Tourism Development Corporation Limited	1	2	1	4	7	23	12	42
36	Kerala Tourism Infrastructure Limited	2	1	0	3	5	5	0	10
37	Kerala Transport Development Finance Corporation	4	2	0	6	31	20	0	51
38	Kinesco Power and Utilities Pvt Ltd	1	1	0	2	2	8	0	10

Sl. No.	Name of PSU	Number of Pending IRs				Number of Paragraphs outstanding			
		Older than five Year	Between three to five years	Up to three Years	Total	Older than five Year	Between three to five years	Up to three Years	Total
39	Kinfra Export Promotion Industrial Parks	1	1	1	3	3	10	4	17
40	Kinfra Film and Video Park	1	0	1	2	2	0	6	8
41	Kinfra International Apparel Parks Limited	1	1	1	3	2	4	3	9
42	Kerala State Industrial Development Corporation Limited	3	1	1	5	23	2	14	39
43	Malabar Cements Limited	3	1	1	5	8	7	10	25
44	Malabar International Ports and SEZ Limited	0	0	1	1	0	0	5	5
45	Marine Products Infrastructure Development Corporation	0	1	0	1	0	5	0	5
46	The Metal Industries Limited	0	1	1	2	0	3	6	9
47	Muziris Projects Limited	0	1	0	1	0	6	0	6
48	SAIL-SCL	3	1	0	4	14	8	0	22
49	Small Industries Development Corporation	2	1	1	4	14	6	14	34
50	Steel and Industrial Forgings Limited	6	1	1	8	5	6	9	20
51	Steel Industrials Kerala Limited	6	1	1	8	25	7	11	43
52	Sitaram Textiles Limited	1	1	0	2	3	7	0	10
53	The Kerala Ceramics Limited	0	1	0	1	0	2	0	2
54	The Travancore Cements Limited	2	1	0	3	4	11	0	15
55	TRACO Cable Company Limited	3	1	1	5	7	10	13	30
56	Transformers and Electricals Kerala Limited	1	1	1	3	1	7	8	16
57	The Travancore Cochin Chemicals Limited	1	1	1	3	1	1	6	8
58	Travancore Titanium Products Limited	0	1	1	2	0	5	5	10
59	Trivandrum Spinning Mills Limited	1	1	0	2	2	14	0	16
60	United Electrical Industries Limited	2	0	1	3	14	0	9	23
61	Vizhinjam International Seaport Limited	1	0	1	2	5	0	6	11

Sl. No.	Name of PSU	Number of Pending IRs				Number of Paragraphs outstanding			
		Older than five Year	Between three to five years	Up to three Years	Total	Older than five Year	Between three to five years	Up to three Years	Total
62	Kerala State Road Transport Corporation	38	7	7	52	154	73	60	287
63	Kerala State Electricity Board Limited	59	21	13	93	284	135	116	535
64	Kerala State Power Infrastructure Finance Corporation	0	0	1	1	0	0	5	5
65	Kerala State Construction Corporation	0	1	1	2	0	11	9	20
66	Road Infrastructure Company Kerala Limited	1	0	1	2	6	0	4	10
67	Kerala Forest Development Corporation	2	1	0	3	2	6	0	8
68	Roads and Bridges Development Corporation of Kerala Limied	2	1	0	3	7	9	0	16
	Total	**197**	**78**	**60**	**335**	**825**	**567**	**502**	**1,894**

Appendix 4
Details of Encroachment
(Referred to in Paragraph 2.1.7.4)

Name of Division	KFS data – Extent of encroachment (ha)			Audit observation	Under reporting
	As on 31 March 2018	As on 31 March 2021	Increase / Decrease (-)		
Territorial Divisions					
Thiruvananthapuram	0	0.59	0.59	Increased	-
Ranni	1.13	1.74	0.61	Increased	-
Marayoor	0.03	0.03	0	Forest land to the extent of 1903 ha was converted to revenue land and *pattas* issued in 88.46 ha.	
Malayattoor	129.29	127.66	-1.63	Decreased. But 28.50 ha encroachment in Kalady range not recorded. Hence, there was 26.87 ha increase in encroachment.	28.50
Palakkad	190.58	37.69	-152.89	Decreased	-
Mannarkkad	2,700.34 (Actual 677.14 = 2,700.34 - 2,023.20)	664.28	-12.86	Decreased. An extent of 2,023.20 ha land used by tribes for shifting cultivation reckoned as encroachment in 2016 statistics. Hence, actual decrease was only 12.86 ha.	
Wayanad South	1,369.29 (Actual 668.03)	717.63	49.60	Increased.	
Kannur	11.02	50.66	39.64	Increased	-
Wildlife Divisions					
Periyar East	0.01	4.39	4.38	Increased	-
Wayanad	0	0.63	0.63	Increased. 354 ha area encroached was not reported. Hence, total increase in encroachment was 354.63 ha.	354
Total	**1,677.23**	**1,605.30**	**-71.93**		**382.50**

Out of 11 selected divisions:

- There was encroachment of 1,605.30 ha in 10 selected divisions. No encroachments were reported in Parambikulam Tiger Reserve.
- In two divisions (Mannarkad and South Wayanad), the area originally shown in 2016 statistics was calculated erroneously. It was corrected later in 2020. So, the difference was adjusted in 2018 figures to arrive at the actual increase or decrease.
- There was under reporting of encroachment by 382.50 ha due to non-inclusion of encroachments in Malayattoor (28.50 ha) and Wayanad divisions (354 ha).

Appendix 5
Non implementation of sanctioned fencing projects
(Referred to in Paragraph 2.1.8.1, 4th bullet)

Project Name	Details of Project
Krishi Raksha Padhathi	Government of Kerala accorded Administrative Sanction[257] (August 2014) for the project 'Krishi Raksha Padhathi' for the benefit of farmers to protect agricultural crops from the attack of wild animals through various measures such as construction of elephant-proof walls, stone pitched trenches, rail fence, bio-fence and solar fence for a length of 692 km[258] at areas susceptible to HWC. The total project cost was ₹259.81 crore and was planned to be implemented during the period 2014-16. Only ₹3.20 crore (0.01 *per cent*) was utilised under the scheme. The department could not furnish details of work done and/or the reason for failure to implement the scheme.
Integrated Tribal Development Project (ITDP)	To reduce HWCs in the Attappady tribal area, an amount of ₹2.66 crore was allotted[259] in December 2016 under Additional Tribal Sub Plan to Mannarkkad Forest Division for construction of 18.7 km Elephant proof trench in four locations and 2.3 km elephant proof wall in two locations under Attappady and Agali range. In two locations EPTs were constructed at a cost of ₹0.41crore. But citing public protest in the construction and technical issue in executing the same the project was dropped and balance amount of ₹2.29 crore (including interest) was returned in January 2020. Absence of proper studies and ensuring public support before arranging the works led to lapse of fund received.
Construction of crash guard fencing	In order to reduce HWC, Government gave administrative sanction[260] (November 2018) for construction of crash guard fencing in South Wayanad division, Kalpetta for a total length of 25.7 km in four locations under Pulpally and Meppady range for an amount of ₹13.90 crore. The work was technically sanctioned in October 2019. The total length of the work was divided into four reaches and tenders invited as four separate works. Out of the four works two works were not awarded due to delay in finalization of tenders. In respect of two other works though awarded (February 2021), the works could not be commenced as the estimate of two works were prepared without considering actual site condition and hence revised. Ultimately none of the works were started and the objective of reducing HWC by constructing the preventive structure was not achieved.

257 G.O.(MS) No. 73/2014/F&WLD dated 28 August 2014
258 Solar fencing-106 km, Elephant-proof trench-340 km, Elephant-proof wall-139 km, Rail fencing-61 km, Bio-fence-46 km
259 Palakkad District Collector's order No. B2-1790/14/ITDP dated 01 December 2016
260 GO MS No. 46/2018/F&WLD dated 12 November 2018

Appendix 6
Lapses in functioning of Rapid Response Team
(Referred to in Paragraph 2.1.8.8)

Item	Guidelines for management of HEC	RRT Guidelines	Observations on six selected divisions where RRTs are functioning
Staff pattern	The RRT should ideally consist of a biologist and a veterinarian to address all aspect of the conflict	Biologist and a veterinarian not envisaged	Except in RRT Wayanad wildlife division no RRT is having a biologist and/or a veterinarian.
Formation of Primary response team (PRT)	Develop Primary Response Team (PRT) in each village who could work as first level of defence to drive the elephant and keep crowd away till the time the RRT reaches	No provision	Orders/ guidelines for forming PRTs were not issued and no PRTs were seen functioning in selected divisions.
Equipment/ Tools	The persons should be well equipped and disciplined	List of tools to be maintained is given	None of the RRTs have adequate tools and equipment as envisaged in the RRT guidelines of the Department (March 2019).
Training	RRTs and PRTs have to be adequately trained and equipped in HEC mitigation.	Highly trained, experienced and well equipped. Required skills given.	No separate training module was seen designed for the teams. The existing Forest Officers are deputed to RRT without a separate training. Audit noticed instances in which forest staff and temporary watchers were injured / died during elephant driving operations which could have been reduced with proper training.

Appendix 7

Details of rent paid for the period from 2019-20 to 2021-22

(Referred to in Paragraph 2.3.4.1, 3rd bullet)

(₹ in lakh)

Sl. No.	Head of Account	2019-20	2020-21	2021-22	Total
1	2235-Social Security and Welfare	756.63	2,035.46	1,633.64	4,425.73
2	2014-Administration of Justice	714.44	931.18	1,065.63	2,711.25
3	2055-Police	347.10	619.07	662.55	1,628.72
4	2030-Stamps and Registration	124.54	240.35	273.02	637.91
5	2054-Treasury and Accounts Administration	133.21	299.26	130.95	563.42
6	2043-Collection Charges Under State Goods and Services Tax	145.74	212.39	185.87	544.00
7	2230-Labour, Employment and Skill Development	172.77	181.88	161.14	515.79
8	2051-Public Service Commission	139.34	169.36	194.19	502.89
9	2039-State Excise	128.59	208.00	165.97	502.56
10	2204-Sports and Youth Services	118.82	123.63	174.95	417.40
11	3452-Tourism	20.88	28.11	360.58	409.57
12	2202-General Education	134.02	142.87	99.35	376.24
13	2041-Taxes on Vehicles	100.22	163.23	108.10	371.55
14	2210-Medical and Public Health	104.11	121.24	145.37	370.72
15	2075-Miscellaneous General Services	94.34	96.40	156.87	347.61
16	2029-Land Revenue	88.66	130.07	125.18	343.91
17	2058-Stationery and Printing	89.65	155.04	76.01	320.70
18	2062-Vigilance	64.00	126.88	120.61	311.49
19	2045-Other Taxes and Duties on Commodities and Services	29.72	130.27	133.70	293.69
20	2225-Welfare of Scheduled Castes, Scheduled Tribes, Other Backward Classes and Minorities	60.58	86.46	144.76	291.80

Sl. No.	Head of Account	2019-20	2020-21	2021-22	Total
21	4408-Capital Outlay on Food, Storage and Warehousing	89.76	107.79	57.84	255.39
22	2052-Secretariat General Services	38.32	126.02	68.09	232.43
23	2053-District Administration	53.71	57.14	107.09	217.94
24	2402-Soil and Water Conservation	49.73	66.13	77.40	193.26
25	2203-Technical Education	23.66	31.68	133.50	188.84
26	2425-Cooperation	71.94	68.12	43.86	183.92
27	3475-Other General Economic Services	29.77	82.18	34.85	146.80
28	2059-Public Works	31.74	67.43	45.55	144.72
29	3451-Secretariat Economic Services	10.20	92.83	19.53	122.56
30	2702-Minor Irrigation	35.84	51.80	34.20	121.84
31	2056-Jails	21.29	50.43	38.67	110.39
32	2406-Forestry and Wildlife	6.83	54.96	34.77	96.56
33	2851-Village and Small Industries	25.42	43.61	24.24	93.27
34	3454-Census Surveys and Statistics	27.85	28.53	28.22	84.60
35	3435-Ecology and Environment	22.07	28.12	32.87	83.06
36	3054-Roads and Bridges	16.26	14.00	51.61	81.87
37	2205-Art and Culture	23.42	35.11	22.93	81.46
38	2217-Urban Development	23.10	30.02	27.65	80.77
39	2515-Other Rural Development Programmes	33.64	20.16	25.38	79.18
40	3051-Ports and Light Houses	15.74	14.71	38.76	69.21
41	2701-Medium Irrigation	23.23	24.42	17.72	65.37
42	2013-Council of Ministers	11.80	10.40	30.80	53.00
43	2404-Dairy Development	5.15	21.07	22.41	48.63

Sl. No.	Head of Account	2019-20	2020-21	2021-22	Total
44	2711-Flood Control and Drainage	16.98	16.17	15.09	48.24
45	3456-Civil Supplies	4.67	18.45	20.90	44.02
46	2401-Crop Husbandry	13.43	14.00	13.74	41.17
47	2040-Taxes on Sales, Trade *etc.*	9.91	8.95	13.18	32.04
48	2405-Fisheries	7.80	6.69	17.18	31.67
49	2011-Parliament/State/Union Territory Legislatures	0.00	25.23	5.85	31.08
50	2047-Other Fiscal Services	9.36	9.50	9.48	28.34
51	2403-Animal Husbandry	9.95	7.66	3.70	21.31
52	2015-Elections	11.99	6.82	2.20	21.01
53	2700-Major Irrigation	4.55	4.88	8.51	17.94
54	4700-Capital Outlay on Major Irrigation	2.81	4.24	4.77	11.82
55	2853-Nonferrous Mining and Metallurgical Industries	2.27	2.91	5.37	10.55
56	2408-Food, Storage and Warehousing	10.42	0.00	0.00	10.42
57	3056-Inland Water Transport	3.15	2.81	1.83	7.79
58	4701-Capital Outlay on Medium Irrigation	1.55	0.00	4.25	5.80
59	2211-Family Welfare	0.49	2.59	0.00	3.08
60	2220-Information and Publicity	0.00	2.46	0.00	2.46
61	4405-Capital Outlay on Fisheries	0.35	0.50	0.75	1.60
62	2415-Agricultural Research and Education	0.11	0.09	0.08	0.28
	Total	**4,367.62**	**7,461.76**	**7,263.26**	**19,092.64**

Appendix 8
Details of works arranged without Hindrance Free land
(Referred to in Paragraph 2.3.4.4)

Sl. No.	Name of work	Division	Agreement No. & Date	Remarks
1	Construction of gate and compound wall around newly proposed Taluk HQs, Kunnamkulam.	Thrissur	43/2020-21/SE/BCC/TSR dated 19/01/2021	The work could not be started for around 10 months due to non-cutting of trees at the site and delay in fixing boundary
2	Construction of administrative block at Govt. Polytechnic College, Kunnamkulam.	Thrissur	28/2020-2021/ SE/BCC/TSR dated 12/10/2020	Start of work delayed for 6 months due to non-cutting of trees from the site
3	Construction of compound wall for the campus of Govt. Medical College, Thrissur	Thrissur	28/19-20 /SE/BCC/TSR dated 01/10/2019	Work was delayed due to stay order of Honorable High Court
4	Construction of new building for Govt. UP School, Moorkanikkara.	Thrissur	22/19-20 /SE/BCC/TSR dated 13/6/2019	First extension was requested as the site was not provided hindrance free
5	Establishment & modernisation of drug stores under DME, Construction of Central warehouse - Phase II.	Thrissur	12/19-20 /SE/BCC/TSR dated 06/06/2019	3 months delay in executing agreement due to hindrance at the site
6	Construction of compound wall, Science and Arts College, Killimangalam.	Thrissur	48/2019-20/SE/BCC/TSR dated 26/02/2020	The work could not start as planned due to delay in fixing the boundary
7	Construction of new building for Govt. LP School, Kaipamangalam	Thrissur	69/2019-20/EE/B/TSR dated 04/12/2019	10 months delay in executing agreement as the old building at site was not demolished
8	Construction of new building for Govt. LP School, Thozhupadam	Thrissur	85/2019-20/EE/B/TSR dated 13/03/2020	Site Handing Over (SHO) was delayed for six months due to site issues
9	RIDF XX - Construction of Community Health Centre for Paika Hospital	Kottayam	52/SEBSC/2016-17 dated 14/02/2017	SHO was eight months after executing agreement and the hindrances were at site till Nov 2018

Sl. No.	Name of work	Division	Agreement No. & Date	Remarks
10	Construction of new block for District PSC Office, Kottayam	Kottayam	85/SEBSC/2015-16 dated 15/02/2016	SHO was on 24/10/2016 but non-clearance of old building remained as hindrance
11	Construction of Architectural Block at RIT, Pampady	Kottayam	1/SEBSC/2016-17 dated 19/05/2016	Initial extension of time of 6 months was *inter alia* due to non-removal of hindrances like HT cable and waterline
12	Construction of examination hall and research centre at Govt. College, Kottayam	Kottayam	45/SEBSC/2019 - 20 dated 30/10/2019	SHO was on 09/10/2020 after one year due to hindrances at site
13	STDD - Construction of Govt. Tribal UP School, Kosady, Mundakayam	Kottayam	2/SEBC/2017-18 dated 17/04/2017	SHO was on 27/09/2017 only due to delay in forest permission and non-clearance of trees
14	Providing lady by-standers waiting area and toilet facilities at 3rd floor of Cardiology & Cardiothoracic Block at Govt. Medical College	Kottayam	25/SEBC/2017-18 dated 07/07/2017	SHO was on 16/10/2017. The site was not available for work due to hindrances posed by electrical cables
15	Construction of new building for College of Pharmaceutical Science, Kottayam – Phase II	Kottayam	06/SEBSC/2019 - 20 dated 28/05/2019	Tender finalisation was in December 2018, selection notice was issued on 22/02/2019. SHO on 04/06/2019
16	Construction of public comfort station near car shed, ABC Block, Medical College, Kottayam	Kottayam	72/EE/BLDGS/KTM /2018-19 dated 02/02/2019	SHO was on 15/07/2019 after five months of agreement
17	Construction of new office complex for accommodating various Commissions, Pattom	Special Buildings Thiruvananthapuram	78/SEBSC/ 2018-19 dated 14/02/2019	Hindrance was not removed until May 2019
18	New Academic Block - Govt. Engineering College, Barton Hill	Special Buildings Thiruvananthapuram	25/SEBSC/ 2021-22 dated 11/08/2021	Hindrance was not removed until November 2021
19	ITI - Chakkai - Upgradation of the Institute to International	Special Buildings Thiruvananthapuram	25/SEBSC/2020-21 dated 19/08/2020	SHO was on 25/11/2020. The site was not clear for work as the permission from KRFB was not

Sl. No.	Name of work	Division	Agreement No. & Date	Remarks
	Standards - Workshop renovation, construction of main gate road *etc*.			obtained to connect the entrance to road
20	Renovation of the Principal's Office of the Govt. Medical College, Thiruvananthapuram	Special Buildings Thiruvananthapuram	11/SEBSC/2020-21 dated 03/07/2020	A hindrance free site was not actually handed over on time as the office was not shifted
21	Construction of School building for Govt. LP School Meenchanda, Kozhikode	Kozhikode	EE(BC)08/2019-20 dt.07/06/2019	The work was delayed due to delay in demolition of existing building by the corporation
22	Implementation of Plan Schemes during 2017-18 - Govt. Medical College, Kozhikode - Construction of new examination hall	Kozhikode	SE(K)120/2020-21 dated 21/10/2020	The delay in shifting of 3 phase electric lines and pipelines were the hindrances at site
23	USR to indoor basketball court storage room, Govt. Physical Education College, Kozhikode	Kozhikode	EE(BC)2/59/2020-2021 Dt 01/10/2020	The site could not be handed over on time as the College was operating for rehabilitation of street dwellers
24	Construction of compound wall and gate for the Govt. Dermatology Hospital, Chevayur, Kozhikode	Kozhikode	SE(K)88/2020-21 dated 09/06/2020	The site was not handed over on time due to failure in removing trees
25	Construction of building for VHSE Block at GVHSS for Girls, Nadakkavu, Kozhikode	Kozhikode	SE(K)24/2018-19 dated 16/06/2018	SHO was delayed for 5 months after signing the agreement due to hindrance at site
26	Construction of building for Police Station, Kunnamangalam, Kozhikode	Kozhikode	SE(K)70/2018-19 dated 02/03/2019	SHO was only after 5 months of signing the agreement due to delay in demolition of existing quarters at the site
27	Higher Education Department - Construction of Academic Block for	Kozhikode	SE(K)62/2019-20 dated 24/12/2019	SHO was after 2 months of signing the agreement as a building at the site was not demolished

Sl. No.	Name of work	Division	Agreement No. & Date	Remarks
	SARBTM Govt: College, Koyilandy, Kozhikode District			
28	HSE Construction of Higher Secondary Block for Govt. Sanskrit HSS, Meppayil, Vatakara	Kozhikode	SE(K)62/2016-17 dated 27/02/2017	The work was delayed due to delay in allotting the site by the school authorities
29	Construction of Mini Civil Station, Balussery, Kozhikode	Kozhikode	SE (K) 23/2021-22 dated 09/08/2021	The work was delayed due to non-availability of site from the Revenue Department
30	NABARD - Assistance RIDF XXI - Infrastructure works in Govt. Taluk Hospital, Vatakara, Kozhikode	Kozhikode	SE(K)44/2019-20 dated 29/10/2019	As the work was for vertical extension it was delayed due to assessing strength of existing old building
31	Construction of Model Residential School (MRS) Maruthonkara, Kozhikode	Kozhikode	SE(K)11/2017-18 dated 26/05/2017	SHO was on 02/06/2017 but work was not started till Nov 2017 due to non-availability of hindrance free land
32	NABARD - RIDF - XXI - 2015-16 Infrastructure work construction of multipurpose hospital block of District Hospital, Mananthavadi, Wayanad	Wayanad	SE (K) 46/2017-18 dated 07/02/2018	17 months delay in clearing the site after SHO due to not dismantling the old building and removal of trees from the site
33	NABARD - RIDF XXII - 2016-17 Infrastructure works for additional Hospital building in Taluk Hospital, Sulthan Bathery, Wayanad	Wayanad	SE (K) 31/2018-19 dated 21/07/2018	SHO was on 09/11/2018 as clearance from District Disaster Management Authority was not obtained
34	Construction of School building of Govt. High School, Kurumbala, Wayanad.	Wayanad	No. EE/B/16/2020-21 Dated 26/08/2020	SHO of the work was on 04/09/2020, but the site was not cleared by removing trees till 04/10/2021

Appendix 9

Details of works involving issues in Investigation, Estimation, Technical Sanction and Tendering

(Referred to in Paragraphs 2.3.4.5, 2.3.6.1, 2.3.6.3)

Sl. No.	Name of work/Division	Investigation & Estimation issues (*Paragraph 2.3.4.5*)	Issues related to TS without structural design (*Paragraph 2.3.6.1*)	Issues related to awarding of work without ensuring competitive bidding (*Paragraph 2.3.6.3*)
1	Construction of multi-storied building for functioning of various Commissions, Pattom, Thiruvananthapuram/Special Buildings, Thiruvananthapuram	The planning, structural drawing, and preparation of estimates was done by a private agency. The BoQ tender included an item for pile foundation. Due to deficiencies in structural designs initially prepared by the agency which necessitated the changes in foundation and structural redesign after awarding the work.	Not applicable	The consultancy contract for the work of Investigation, Structural Design and Estimation of the Project was awarded to M/s Safe Matrix Pvt. Ltd. based on a single quotation for ₹27 lakh without executing agreement.
2	Higher Education - Technical - Rajiv Gandhi Institute of Technology, Kottayam - Construction of building for Architecture Block, Kottayam	As the investigation was not proper, excess quantity of 253 m^3 hard rock were found to be removed owing to actual site conditions through chemical blasting during execution of work which necessitated in issue of revised AS (February 2019) and TS (February 2020) for ₹13.83 crore and ₹13.77 crore respectively. The change in scope post award of work resulted in excess expenditure to the tune of ₹1.63 crore.	Not applicable	Not applicable
3	Home Department Judiciary - Construction of Court complex, Irinjalakuda, Thrissur	The soil investigation for the above work was entrusted to a private agency. The investigation by the agency could not reveal the presence of hard rock at shallow depths during investigation which resulted in extensive revision of foundation design and consequent delay in execution.	Not applicable	Not applicable

Sl. No.	Name of work/Division	Investigation & Estimation issues (*Paragraph 2.3.4.5*)	Issues related to TS without structural design (*Paragraph 2.3.6.1*)	Issues related to awarding of work without ensuring competitive bidding (*Paragraph 2.3.6.3*)
4	Construction of first and second floor for 450 bedded Hostel for Ladies at Govt. Medical College, Kottayam/ Kottayam	Due to lack of effective site investigation, construction of retaining wall costing ₹80 lakh and reduction of scope of work viz., exclusion of toilet block and 6 rooms from the original plan was necessitated.	Not applicable	Not applicable
5	Construction of Model Residential School, Maruthonkara, Kozhikode/ Kozhikode	As the private agency which conducted the site investigation could not reveal the unsuitability of the location, number of quarters to be constructed was reduced from three to two by saving ₹100 lakh during execution of the work. Moreover, additional amount of ₹35 lakh was to be spent due to increasing depth of the column upto four meters and construction of additional diaphragm walls.	Not applicable	The TS was for constructing academic, administrative blocks, quarters, and other buildings without internal roads, at a cost of ₹19.75 crore. During execution, one out of three residential quarters costing ₹one crore was not taken up and instead, additional work of construction of internal road costing ₹65.30 lakh was entrusted to the same contractor without inviting fresh tender.
6	Construction of male and female ward to Gandhigram Hospital of Dermatology, Koratty, Thrissur/ Thrissur	The project was to construct two in-patient blocks as male and female wards. Due to poor investigation by PWD, the level difference of 2 meters on land, proposed for male ward, was not identified during planning stage leading to extra earth and foundation works during execution of the work.	TS was issued prior to obtaining the design resulting in cost escalation amounting to ₹81 lakh for concrete and reinforcement alone post award of work.	Not applicable

Sl. No.	Name of work/Division	Investigation & Estimation issues (*Paragraph 2.3.4.5)*	Issues related to TS without structural design (*Paragraph 2.3.6.1)*	Issues related to awarding of work without ensuring competitive bidding (*Paragraph 2.3.6.3)*
7	Construction of Golden Jubilee PG Block at Govt. Arts and Science College, Kozhikode/ Kozhikode	Not applicable	TS for this work was issued for ₹12 crore before finalising the structural design in which the pile foundation was provided for 200 numbers of piles of 500mm diameter. In the structural design, the diameter of pile was 500mm, 600mm and 700mm totaling to 240 numbers. Additional expenditure in this regard amounted to ₹53.16 lakh.	AS for the work was for ₹12 crore for constructing 3 storied building (G+2), and the work was awarded to M/s ULCCS Ltd., at their quoted rates based on tender. The scope of the work was later increased to five storied building with a revised (June 2019) cost of ₹19 crore. Department entrusted the additional work to the same contractor which tantamount to awarding of work costing ₹7 crore by waiving tender call.
8	NABARD RIDF XXI construction of multipurpose hospital block at District Hospital, Manathavady, Wayanad/ Wayanad	Not applicable	Contract value of civil work was ₹30.75 crore. During execution the cost of work was enhanced due to changes in design approved by DRIQ board and site-specific issues post award of work resulting in increase of cost (₹32.92 crore) by ₹2.18 crore.	Not applicable
9	District Jail, Mananthavady, construction of Superintendent quarters, Staff quarters & Rest room for staff, Wayanad	The estimate and TS were for single storied load bearing structure. But during excavation, the soil strata was found to be weak, and the structure was converted into RCC. This indicates poor soil investigation before starting the work.	Not applicable	Not applicable
10	Govt. Taluk Hospital, Vatakara, Kozhikode	Not applicable	Not applicable	The work was retendered (19 January 2019) with bid opening date on 23 January 2019. But

Sl. No.	Name of work/Division	Investigation & Estimation issues (*Paragraph 2.3.4.5*)	Issues related to TS without structural design (*Paragraph 2.3.6.1*)	Issues related to awarding of work without ensuring competitive bidding (*Paragraph 2.3.6.3*)
				without opening bid, the Govt. entrusted the work to the accredited agency M/S ULCCS Ltd. at the estimated cost of ₹12.87 crore.
11	Urgent maintenance works for manufacturing unit at Central Prison, Thrissur/ Thrissur	Not applicable	Not applicable	The work e-tendered twice but awarded on quotation basis since bids on e-tender was above EPAC. Major components in the BoQ were changed post award to include GI and poly carb sheets for roofing as against wood and MP tiles originally provided. Even though the scope of work had changed substantially, no fresh tenders were invited to ensure competitive bidding.
12	NABARD RIDF XXII, Infrastructure works for additional hospital building in Taluk Hospital Sulthan Bathery, Wayanad / Wayanad	Not applicable	Not applicable	EPAC and APAC for the work were ₹18.84 crore and ₹14.96 crore respectively. Post awarding of the work, additional work costing ₹3.88 crore was entrusted to the same contractor for constructing retaining wall, electrical room, compound wall, landscaping and power laundry (EPAC-APAC) without ensuring competitive bidding.

Appendix 10
Details of Security Deposits not collected/short collected/expired Bank Guarantees
(Referred to in Paragraph 2.3.5.3)

(₹ in lakh)

Sl. No.	Name of the Circle/Division	Name of the work	Security Deposit to be collected	Security Deposit collected	Non/short collection of Security Deposit	Remarks
PG/APG Not/Short collected						
1	Central Circle/ Thrissur	Establishment & modernisation of drug stores under DME - Construction of Central Warehouse - Phase II, Govt. GMC - TCR - Medical College, Thrissur	6.73	0.00	6.73	Non collection of APG
2	South Circle/Kottayam	Higher Education - Technical - Rajiv Gandhi Institute of Technology, Kottayam - Construction of building for Architecture Block	58.47	5.18	53.29	Short collection of PG
3	South Circle/Kottayam	Higher Education - Technical - Rajiv Gandhi Institute of Technology, Kottayam - Construction of building for Architecture Block	36.17	0.00	36.17	Non collection of APG
4	North Circle/Wayanad	NABARD-RIDF-XXI (2015-16) Construction of multipurpose hospital block at District Hospital, Mananthavady, Wayanad	132.10	0.00	132.10	Non collection of APG
Total					**228.29**	

Extension of ToC without extending PG						
1	North Circle / Wayanad	Construction of new building for Mechanical and Electrical Dept. in Govt. Engineering College, Thalappuzha, Wayanad	12.87	12.87	0.00	PG not extended
2	North Circle / Wayanad	NABARD-RIDF-XXI (2015-16) Construction of multipurpose hospital block, District Hospital, Mananthavady	76.86	76.86	0.00	PG not extended
3	North Circle / Kozhikode	Construction of flat type residential complex for Non-Gazetted Officers of Govt. Medical College, Kozhikode	52.87	52.87	0.00	PG not extended
4	North Circle / Kozhikode	Construction of Academic Block for SARBTM Govt. College, Koyilandi	13.68	13.68	0.00	PG not extended

5	North Circle/ Kozhikode	Construction of Women's Hostel for CKGM College, Perambra	2.72	2.72	0.00	PG not extended
6	Central Circle / Thrissur	Construction of new building for Govt. High School, Kattoor, Irinjalakuda	2.03	2.03	0.00	PG not extended
7	Central Circle / Thrissur	Construction of compound wall, Science and Arts College, Killimangalam	2.57	2.57	0.00	PG not extended
8	Central Circle / Thrissur	Construction of Student Utility Centre at Govt. Polytechnic College, Nedupuzha, Thrissur	4.57	4.57	0.00	PG not extended
9	Central Circle / Thrissur	Construction of W&C wards at General Hospital, Thrissur - Phase II	14.14	14.14	0.00	PG not extended
10	Central Circle / Thrissur	Providing additional facilities to Panampilly College, Chalakudy	5.07	5.07	0.00	PG not extended
11	South Circle/ Special Buildings, Thiruvananthapuram	Construction of 50 bedded ward and administrative block at PHC, Vamanapuram	14.16	14.16	0.00	PG not extended
12	South Circle/ Special Buildings, Thiruvananthapuram	ITI - Chakkai - Upgradation of the Institute to International Standards	7.06	7.06	0.00	PG not extended
13	South Circle/ Kottayam	Construction of Govt. Tribal UP School, Kosady, Mundakkayam	5.18	5.18	0.00	PG not extended
14	South Circle/ Special Buildings, Thiruvananthapuram	Building for accommodating Various Commissions, Pattom	82.04	82.04	0.00	PG not extended
Total			**295.82**	**295.82**	**0.00**	

Extension of ToC without extending APG						
1	Wayanad	Construction of new building for Mechanical and Electrical Dept. in Govt. Engineering College Thalappuzha, Wayanad	22.30	22.30	0.00	APG not extended
2	Kozhikode	Construction of flat type residential complex for Non-Gazetted officers, Govt. Medical College, Kozhikode	300.42	300.42	0.00	APG not extended
3	Kozhikode	Construction of Academic Block for SARBTM Govt. College, Koyilandy	15.40	15.40	0.00	APG not extended
4	Kozhikode	Construction of Women's Hostel for CKGM College, Perambra	12.26	12.26	0.00	APG not extended
5	Thiruvananthapuram	Construction of examination hall and research centre at Govt. College, Kottayam	0.835	0.835	0.00	APG not extended
Total			**351.21**	**351.21**	**0.00**	

BG released prior to completion of DLP						
1	North Circle / Kozhikode	Construction of Academic Block for SARBTM Govt. College, Koyilandi	90.74	90.74	0.00	PG released prior to completion of DLP
Total			**90.74**	**90.74**	**0.00**	

Details of BG expired			
Sl. No.	**Building Circle**	**Name of Work**	**Amount (₹ in lakh)**
1	South	Construction of new block for District Public Service Commission Office - Kottayam	6.50
2	North	General Education Department Annual Plan 2020-21- Construction of school building, Govt. Higher Secondary School, Munderi, Kannur	2.69
3	North	Govt. College, Kodanchery - Plan fund 2017 - 18 Centre of Excellence - Construction of new and modern library building in the College	12.75
4	North	Construction of additional block building to Ladies Hostel in Govt. College, Chittur, Palakkad.	14.99
5	South	Construction of a building for Pilgrim Centre at Ittiyappara, Ranni (Phase I)	128.86
		Total	**165.79**

Appendix 11
Details of Risk and Cost not realized/not assessed
(Referred to in Paragraph 2.3.5.4)

Sl. No.	Division	Name of work	Foreclosed date	R&C amount to be collected (in ₹)	LD to be collected (in ₹)
1	Kollam	Construction of new building, Govt. Rest House, Kundara	09/12/2020	55,60,816	0
2	Kottayam	Construction of new block, District Public Service Commission	07/05/2018	53,76,017	0
3	Thrissur	Construction of Registration Complex, Thrissur	24/05/2014	1,52,72,073	0
4	Idukki	Construction of D block Civil Station, Idukki	13/06/2007	62,93,395	0
5	Ernakulam	Construction of mega office complex under Taxes Department, Ernakulam	28/05/2014	2,15,23,289	0
6	Kannur	General Education Department Annual Plan 2020-21, Construction of School building, GHSS, Munderi, Kannur	28/05/2021	31,65,589	11,83,165
7	Kozhikode	Govt. College, Kodencherry - Plan fund 2017-18 - Centre for excellence - Construction of new and modern library	19/02/2021	73,32,002	20,82,333
8	Palakkad	Construction of additional block building to Ladies Hostel, Govt. College, Chittur	06/04/2022	1,38,41,255	46,13,751
9	Idukki	Construction of additional Judicial Complex, Kattappana	09/12/2019	87,24,374	29,73,550
10	Ernakulam	Construction of Mini Civil Station Phase II, Aluva	28/04/2022	Not assessed	N.A.
11	Pathanamthitta	Construction of a building for Pilgrim Centre at Ittiyappara, Ranni	24/05/2019	Not assessed	N.A.
12	Kollam	Construction of new building for FWC, Kilikollur	13/10/2022	Not assessed	N.A.
13	Kollam	Maintenance work of buildings of Kuttalam Palace and construction of reception block	18/11/2021	Not assessed	N.A.
Total				**8,70,88,810**	**1,08,52,799**

Appendix 12
Details of delay in execution of works
(Referred to in Paragraph 2.3.6.2)

Sl. No.	Name of the work	Time of Completion in months / Upto	Date of Completion/ Extensions	Present status	APAC	Delay in months	Date of Site Handing Over	Delay in percentage
1	Urgent repairs and maintenance work at Kerala House, Mumbai	06 Months 08/09/2020	28/05/2022	Completed	2,72,59,337	20	09/03/2020	333
2	Construction of compound wall to Science and Arts College, Killimangalam, Thrissur	06 Months 05/09/2020	25/01/2022	Completed	1,02,75,582	17	06/03/2020	283
3	Construction of Architectural Block at RIT, Pampady, Kottayam	24 Months 30/05/2018	31/07/2022	Ongoing	11,69,48,494	50	31/05/2016	208
4	Construction of Golden Jubilee P.G. Block - Govt. Arts & Science College, Kozhikode	24 Months 08/05/2019	30/09/2022	Completed	10,00,57,295	41	09/05/2017	171
5	Providing global category Synthetic Surface at Paravattani Stadium football court, Thrissur	06 Months 01/09/2021	16/07/2022	Ongoing	89,23,776	10	02/03/2021	167
6	NABARD - RIDF XXII – 2016-17 Infrastructure works for additional hospital building at Taluk Hospital, Sulthan Bathery, Wayanad	18 Months 08/05/2020	30/09/2022	Ongoing	14,96,00,804	29	09/11/2018	161
7	Construction of retaining wall and compound wall in Govt. Polytechnic College, Pala	18 Months 22/06/2021	22/07/2022	Ongoing	2,12,22,440	13	23/12/2019	72
8	Painting works to Obstetrics' & Gynaecology Block, Medical College, Kottayam	06 Months 06/07/2019	07/03/2020	Completed	45,44,569	8	07/01/2019	133
9	Improvement works of ICU in Institute of Chest Diseases - Construction of Post Operative ICU and checkup facilities for Anesthesia Department, Improvement of drainage facilities in MCH and Converting the Hydrophobia Cell near Ward 2 to TMT Room and Procedure Room for Medicine Department, Medical College, Kozhikode	12 Months 11/05/2021	30/04/2022	Completed	1,79,75,114	12	06/01/2020	100
10	Construction of examination hall cum auditorium and library complex, Nursing College - Phase II, Kottayam	18 Months 09/10/2019	30/08/2021	Completed	3,47,05,064	23	10/04/2018	128
11	Construction of building for PHC Kottur under the scheme 'Setting up of laboratories in PHCs, Kozhikode	12 Months 21/05/2019	17/08/2020	Completed	1,51,36,340	15	22/05/2018	125
12	Kitchen blocks in various Aided Schools, Kaipamangalam, Thrissur	12 Months 11/03/2021	15/05/2022	Ongoing	82,91,067	14	12/03/2020	117

Sl. No.	Name of the work	Time of Completion in months / Upto	Date of Completion/ Extensions	Present status	APAC	Delay in months	Date of Site Handing Over	Delay in percentage
13	Construction of a new block for PWD Rest House, Erumely, Pathanamthitta	09 Months 24/06/2020	24/03/2021	Completed	1,30,80,730	9	25/09/2019	100
14	Construction of public comfort station near car shed in front of ABC Block, Medical College, Kottayam	06 Months 14/01/2020	29/07/2020	Completed	65,66,693	6	15/7/2019	100
15	Renovation of the Principal's Office of the Govt. Medical College, Thiruvananthapuram	09 Months 01/08/2021	01/05/2022	Ongoing	67,02,448	9	02/11/2020	100
16	NABARD - RIDF - XXI - 2015-16 Infrastructure work construction of multipurpose hospital block of District Hospital, Mananthavadi, Wayanad	24 Months 13/02/2020	31/05/2022	Ongoing	30,74,48,596	27	14/02/2018	112
17	Construction of Hospital building at Govt. Homeo Medical College, Kozhikode	18 Months 07/12/2017	07/05/2019	Completed	11,24,73,252	17	08/06/2016	94
18	Construction of MBBS Ladies Hostel - Phase II, Govt. Medical College, Thrissur	12 Months 16/01/2021	31/12/2021	Ongoing	2,12,18,522	11	17/01/2020	92
19	Construction of School Building, Govt. High School Kurumbala, Wayanad.	12 Months 03/09/2021	31/07/2022	Ongoing	78,13,411	11	04/09/2020	92
20	Construction of School Building, Govt. UP School, Chennalode, Wayanad	12 Months 14/01/2022	12/12/2022	Ongoing	74,29,029	11	15/01/2021	92
21	NABARD - Assistance RIDF XXI - Infrastructure works in Govt. Taluk Hospital, Vatakara, Kozhikode	18 Months 03/05/2021	31/08/2022	Ongoing	6,53,13,440	16	04/11/2019	89
22	Construction of Model Residential School (MRS) Maruthonkara, Kozhikode	18 Months 01/12/2018	26/02/2020	Completed	13,93,75,539	15	02/06/2017	83
23	Construction of new School building, Edanadu LP School, Karoor, Kottayam	12 Months 22/10/2021	01/09/2022	Ongoing	99,83,906	10	23/10/2020	83
24	Upgradation of the Institute to International Standards - Workshop renovation, Construction of main gate road *etc*., ITI – Chakkai, Thiruvananthapuram	12 Months 24/11/2021	30/09/2022	Ongoing	2,82,38,352	10	25/11/2020	83
25	Renovation & Extension of computer block, main building & Construction of toilet block, Govt. Women's Polytechnic College, Nedupuzha, Thrissur	12 Months 18/03/2021	17/12/2021	Completed	1,36,49,723	9	19/03/2020	75
26	Urgent maintenance and repairing work to the main building roof at Govt. Women's Polytechnic College Nedupuzha, Thrissur	12 Months 16/02/2021	15/11/2021	Completed	1,05,00,000	9	17/02/2020	75

Sl. No.	Name of the work	Time of Completion in months / Upto	Date of Completion/ Extensions	Present status	APAC	Delay in months	Date of Site Handing Over	Delay in percentage
27	LAC- ADS - 2017-18 - Construction of a building, GLP School, Anayamkunnu, Kozhikode	12 Months 05/11/2021	05/08/2022	Completed	1,29,22,650	9	06/11/2020	75
28	Construction of additional block, Dental College, Kozhikode	12 Months 19/12/2019	18/09/2020	Completed	3,65,59,196	9	20/12/2018	75
29	Construction of Naval Training Centre and cadets' accommodation block for ladies & boys at 1 Kerala Naval NCC at Akulam, Thiruvananthapuram	15 Months 22/12/2021	24/11/2022	Ongoing	8,55,38,037	11	23/09/2020	73
30	Construction of building at Block Primary Health Centre, Vamanapuram, Thiruvananthapuram	18 Months 31/01/2021	28/02/2022	Ongoing	5,66,42,931	13	01/08/2019	72
31	Construction of compound wall, Govt. Medical College, Thrissur	18 Months 09/04/2021	31/05/2022	Ongoing	2,41,03,790	14	10/10/2019	78
32	RIDF XX - Construction of Community Health Centre for Paika Hospital, Kottayam	24 Months 19/10/2019	31/03/2021	Completed	14,67,19,930	17	20/10/2017	71
33	Gender Budget 2015-16 - Providing lady by-standers waiting area and toilet facilities at 3rd Floor of Cardiology & Cardiothoracic Block at Govt. Medical College, Kottayam	10 Months 15/08/2018	08/04/2019	Completed	1,21,24,799	7	16/10/2017	70
34	Annual plan scheme - Modernisation of prisons - 2017-2018 - Construction of Superintendent quarters, Staff quarters and Rest room for staff, District Jail, Mananthavady	20 Months 11/12/2019	05/02/2021	Completed	1,54,79,288	14	12/04/2018	70
35	Vertical extension to be existing building for Labour Room and Operation Theatre of Chelakkara Hospital - Phase I, Thrissur	10 Months 13/11/2021	30/06/2022	Ongoing	96,83,139	7	14/01/2021	70
36	Construction of new building for Govt. School, Chengalloor, Thrissur	12 Months 03/02/2021	12/10/2021	Completed	1,28,52,052	8	04/02/2020	67
37	Establishment & modernisation of drug stores under DME - Construction of central warehouse - Phase II, Govt. Medical College, Thrissur	12 Months 02/07/2020	15/03/2021	Ongoing	1,45,92,574	8	03/07/2019	67
38	Construction of Academic Block for SARBTM Govt. College, Koyilandy, Kozhikode	18 Months 24/08/2021	21/07/2022	Ongoing	5,47,24,658	11	25/02/2020	61
39	USR to indoor basketball court storage room - Govt. Physical Education College, Kozhikode	10 Months 02/10/2021	30/03/2022	Completed	53,16,880	6	03/12/2020	60

Sl. No.	Name of the work	Time of Completion in months / Upto	Date of Completion/ Extensions	Present status	APAC	Delay in months	Date of Site Handing Over	Delay in percentage
40	Construction of compound wall and gate, Govt. Dermatology Hospital Chevayur, Kozhikode	10 Months 15/12/2021	30/06/2022	Ongoing	93,62,179	6	16/02/2021	60
41	Construction of administrative block 1st and 2nd floor, Govt. College, Kottayam	12 Months 10/11/2021	30/06/2022	Ongoing	1,70,53,936	8	11/11/2020	67
42	RIDF-XXII (2016-17) Infrastructure work in Taluk Hospital (Phase I) Vaikom, Kottayam	18 Months 13/02/2020	11/12/2020	Completed	11,61,60,948	10	14/08/2018	56
43	Construction of Govt. Tribal UP School, Kosady, Mundakayam, Kottayam	18 Months 26/03/2019	15/02/2020	Completed	2,07,03,550	10	27/09/2017	56
44	Construction of School building, Govt LP School Meenchanda, Kozhikode	09 Months 24/06/2020	03/11/2020	Completed	78,80,021	5	25/09/2019	56
45	Construction of new office complex for accommodating various Commissions, Pattom, Thiruvananthapuram	30 Months 07/09/2021	31/12/2022	Ongoing	32,81,66,604	16	08/03/2019	53
46	Construction of new building for LP School, Chettiparambu, Irinjalakuda, Thrissur.	20 months 08/03/2021	06/11/2021	Completed	2,11,05,690	8	09/07/2019	40
47	Providing additional facilities to Panampilly College, Chalakudy.	12 months 16/07/2021	12/10/2021	Completed	2,02,83,346	3	17/07/2020	25
48	Construction of Student Utility Centre at Govt. Polytechnic College, Nedupuzha, Thrissur	18 months 04/08/2021	19/02/2022	Completed	1,60,99,815	6	15/02/2020	33
49	Budget Work 2017-18 - additional work required for the completion of Taluk Head Quarters Hospital, Kodungallur	16 months 05/04/2021	27/07/2021	Completed	79,82,216	3	06/12/2019	19
50	Construction of new building for Govt. LP School Thozhupadam, Chelakkara LA Constituency	8 months 23/05/2021	13/10/2021	Completed	69,78,247	5	24/09/2020	63
51	Construction of new building for Govt. LP School, Kaipamangalam	12 months 11/12/2020	10/06/2021	Completed	59,62,166	6	12/12/2019	50
52	Construction of Gazetted Officers quarters in Govt. Engineering College, Mananthavady	24 months 27/05/2018	21/05/2019	Completed	10,37,10,288	12	28/05/2016	50
53	Health & FWD - Annual Plan - 2016-17 - Construction of Nursing School and Hostel - Phase – II in District Hospital, Mananthavady	15 months 25/11/2020	20/01/2021	Completed	1,57,27,190	2	26/08/2019	13
54	Construction of Mechanical Production Lab, - Phase II at Govt. Engineering College, Kozhikode	18 months 09/01/2022	30/05/2022	Completed	1,18,78,237	4	10/07/2020	22

Sl. No.	Name of the work	Time of Completion in months / Upto	Date of Completion/ Extensions	Present status	APAC	Delay in months	Date of Site Handing Over	Delay in percentage
55	HSE Construction of Higher Secondary Block for Govt. Sanskrit HSS, Meppayil, Vatakara	15 months 06/06/2018	29/08/2018	Completed	1,24,90,773	2	07/03/2017	13
56	UGC Scheme - Construction of Women's Hostel for CKGM College, Perambra in Koyilandy Taluk, Kozhikode	18 months 04/11/2019	26/02/2020	Completed	1,08,84,317	4	05/05/2018	22
57	Construction of building for Police Station at Kunnamangalam, Kozhikode	9 months 19/05/2020	24/09/2020	Completed	1,20,13,948	4	20/08/2019	44
58	Annual Plan 2017-18 - Construction of building for VHSE Block at GVHSS for Girls, Nadakkavu, Kozhikode	12 months 29/11/2019	27/02/2020	Completed	73,94,189	3	30/11/2018	25
59	NABARD - RIDF XXIII- Construction of additional infrastructure works for Govt. Girls Higher Secondary School, Parayanchery, Feroke, Kozhikode	16 months 09/10/2021	19/03/2022	Completed	1,79,84,214	5	10/06/2020	31
60	Perambra Constituency- Construction of entrance block, Terrace floor for existing HSS block and staircase for HS block for Avala Higher Secondary School, Kozhikode	12 months 23/05/2020	21/11/2020	Completed	1,19,81,523	6	24/05/2019	50
61	Construction of flat type residential complex for Non-Gazetted Officers, Govt. Medical College, Kozhikode	36 months 01/11/2020	21/11/2022	Completed	21,14,72,198	24	02/11/2017	67
62	Medical Education Service - Construction of flat type residential complex for Gazetted officers, Medical College, Kozhikode	30 months 14/02/2020	25/02/2021	Completed	11,48,86,651	12	15/08/2017	40
63	Construction of new building for Govt. LPBS, Kidangoor	12 months 06/03/2020	27/05/2020	Completed	80,05,514	3	07/03/2019	25
64	Construction of examination hall and research Centre at Govt. College, Kottayam	12 months 08/10/2021	08/03/2022	Ongoing	1,59,04,601	5	09/10/2020	42
65	NABARD - Construction of new building for Kunnumbhagam GHS, Kanjirappally	12 months 24/07/2022	31/12/2022	Ongoing	1,57,63,820	5	25/07/2021	42
66	Construction of new building for SKV Govt. HSS, Neendoor	12 months 22/10/2022		Ongoing	1,69,45,749	2	23/10/2021	17
67	Annual Plan - 2018- 19 - Construction of new building for Govt. Harijan Welfare LPS, Nerekadavu, Vaikom	12 months 12/07/2022		Ongoing	1,10,80,945	5	13/07/2021	42

Sl. No.	Name of the work	Time of Completion in months / Upto	Date of Completion/ Extensions	Present status	APAC	Delay in months	Date of Site Handing Over	Delay in percentage
68	Construction of new building - Phase II for College of Pharmaceutical Sciences, Kottayam	24 months 03/06/2021	30/04/2022	Ongoing	11,06,22,985	11	04/06/2019	46
69	NABARD RIDF XXIII - Infrastructure Works - Construction of new building at G H S Perambra plantation in Kozhikode - Construction of new building at Govt. UP School (Upgraded as GHS) Perambra plantation, Kozhikode	10 months 01/08/2022		Ongoing	1,52,17,994	4	02/10/2021	40
70	MLA-ADS 2019-20 - Infrastructure development for Kizhaparayar FHC, Meenachil, Panchayath	09 months 09/07/2022	30/11/2022	Ongoing	82,86,223	6	10/10/2021	67
71	Construction of five storied building for Vigilance Bureau office, Phase I, Muttathara, Thiruvananathapuram	18 months 12/04/2022	30/10/2022	Ongoing	8,86,12,746	7	13/10/2020	39
72	Renovation of the road from RCC Jn. to Principal Office front and formation of road from Manjadi road to Principal Office back - Govt. Medical College, Thiruvananthapuram	3 months 04/07/2022		Ongoing	97,23,255	6	05/04/2022	200
73	Construction of Court Complex, Irinjalakuda	30 months 31/07/2021	30/03/2022	Ongoing	26,89,00,000	8	01/02/2019	27
74	Construction of W&C wards - Phase II, General Hospital, Thrissur	20 months/ 12/03/2021	12/01/2022	Ongoing	5,65,53,759	10	13/07/2019	50
75	Annual Plan (2018-19) Construction of administrative block, Govt. Polytechnic College, Kunnamkulam	18 months 01/05/2022	01/09/2022	Ongoing	3,22,00,000	4	02/11/2020	22
76	Construction of new building, Govt. Upper Primary School, Moorkanikkara	18 months 07/02/2021	21/06/2021	Ongoing	1,68,56,667	4	08/08/2019	22
77	Construction of building for District Public Health Lab, Thrissur	17 months 13/12/2021	31/07/2022	Ongoing	1,49,73,720	8	14/07/2020	47
78	Construction of new building for GHS School, Kattoor, Irinjalakuda	18 months 07/08/2022		Ongoing	1,35,48,763	5	08/02/2021	28
79	Construction of school building of Govt. LP School, Erumapetty, Kunnamkulam, Thrissur	18 months 14/11/2022		Ongoing	79,94,399	1	15/05/2021	6
80	Construction of new building for Mechanical and Electrical Dept. Govt. Engineering College, Thalapuzha	18 months 20/07/2021	04/09/2022	Ongoing	5,14,54,314	13	21/01/2020	72

Sl. No.	Name of the work	Time of Completion in months / Upto	Date of Completion/ Extensions	Present status	APAC	Delay in months	Date of Site Handing Over	Delay in percentage
81	NABARD – RIDF - XXIII- Infrastructure works for School under RMSA - GHS Beenachi, Wayanad	18 months 24/08/2022		Ongoing	1,62,36,156	4	25/02/2021	22
82	Annual Plan - 2019-20 - Construction of school building of Govt. HS School, Meppadi, Wayanad	15 months 07/11/2022		Ongoing	1,05,67,125	2	08/08/2021	13
83	Construction of new building for Govt. ITI (SCDD), Elathur, Kozhikode	18 months 23/03/2022	22/07/2022	Ongoing	2,29,62,066	4	24/09/2020	22
84	Construction of new building for election warehouse for storage of EVM & VVPAT Machines at Chathamangalam, Kozhikode	18 months 22/01/2022	30/06/2022	Ongoing	2,85,87,050	5	23/07/2020	28
85	Implementation of Plan Schemes during 2017-18 - Construction of new examination hall, Govt. Medical College, Kozhikode	18 months 29/04/2022	29/12/2022	Ongoing	8,56,44,746	8	30/10/2020	44
86	Infrastructure development for Govt. Taluk Hospital, Thamarassery - Phase I	15 months 29/01/2022	30/07/2022	Ongoing	1,86,23,703	6	30/10/2020	40
87	Urgent repair works - Providing sheet roofing for preventing leaking and handrail in step for handicapped people and other repair works *etc*., Mini Civil Station, Mananthavady	7 months 12/06/2022	……	Ongoing	20,55,706	6	13/12/2021	86

Appendix 13
Details of works where Insurance not collected / deductions not effected
(Referred to in Paragraph 2.3.6.4)

Sl. No.	Name of work	Division	APAC (₹ in lakh)	Insurance required for but not collected (₹ in lakh)	Penalty 0.2 per cent to be deducted for non-production of Insurance
1	Urgent repairs and maintenance work at Kerala House, Mumbai	Special Buildings Thiruvananthapuram	272	2.00	0.54
2	Construction of compound wall, Science and Arts College, Killimangalam	Thrissur	102	2.00	0.20
3	Construction of new building, Govt. Higher Secondary School, Kottathara	Wayanad	112	2.00	0.22
4	Construction of building for PHC Kottur under the scheme "Setting up of laboratories in PHCs"-Balussery LAC, Kozhikode	Kozhikode	151	2.00	0.30
5	Construction of examination hall cum auditorium and library complex, Nursing College - Phase II	Kottayam	347	2.00	0.69
6	Medical Education Services - Construction of additional block for Dental College, Kozhikode Phase IV & V	Kozhikode	365	2.00	0.73
7	Construction of MBBS Ladies hostel Phase II, Govt. Medical College, Thrissur	Thrissur	212	2.00	0.42
8	Construction of a new block, PWD Rest House, Erumely	Kottayam	130	2.00	0.26
9	Improvement works of ICU in Institute of Chest Diseases - Construction of Post Operative ICU and checkup facilities for Anesthesia Department, Improvement of drainage facilities in MCH and Converting the Hydrophobia Cell near Ward 2 to TMT Room and Procedure Room for Medicine Department, Medical College, Kozhikode	Kozhikode	179	2.00	0.36
10	ITI – Chakkai - Upgradation of the Institute to International Standards - Workshop renovation, construction of main gate, road *etc*.	Special Buildings Thiruvananthapuram	282	2.00	0.56
11	LAC ADS 2016-17 - Perambra Constituency - Construction of entrance block, terrace floor for existing HSS block and staircase, HS block, Avala HSS, Kozhikode	Kozhikode	119	2.00	0.24
12	Urgent maintenance and repairing works to the main building roof at Govt. Women's Polytechnic College, Nedupuzha, Thrissur	Thrissur	117	2.00	0.23
13	Renovation & Extension of computer block, main building and Construction of toilet block - Govt. Women's Polytechnic College, Nedupuzha, Thrissur	Thrissur	136	2.00	0.27

Sl. No.	Name of work	Division	APAC (₹ in lakh)	Insurance required for but not collected (₹ in lakh)	Penalty 0.2 per cent to be deducted for non-production of Insurance
14	Construction of new building, Govt. LP School, Chengaloor	Thrissur	128	2.00	0.26
15	Construction of W & C wards, General Hospital, Thrissur - Phase II	Thrissur	565	2.00	1.13
16	Construction of 50 bedded ward and administrative block, Block PHC, Vamanapuram	Special Buildings Thiruvananthapuram	566	2.83	1.13
17	Prisons - Annual Plan Scheme - Modernisation of prisons 2017-2018 - District Jail, Mananthavady- Construction of Superintendent quarters, Staff quarters and Rest room for staff	Wayanad	155	2.00	0.31
18	Construction of compound wall for the campus of Govt. Medical College, Thrissur	Thrissur	241	2.00	0.48
19	RIDF XXII (2016-17) H&FWD Infrastructure work, Taluk Hospital (Phase I) Vaikom, Kottayam	Kottayam	1,161	5.00	2.32
20	Construction of building for Police Station, Kunnamangalam	Kozhikode	120	2.00	0.24
21	NABARD assistance under RIDF XXIV (2018-19) – Infrastructure development for Govt. Taluk Hospital Thamarassery - Phase I - Part TS (First & Second Floor of OP Block)	Kozhikode	186	2.00	0.37
22	Construction of Student's Utility Center at Govt. Polytechnic College, Nedupuzha, Thrissur	Thrissur	160	2.00	0.32
23	Construction of new building for LP School, Chettiparambu, Irinjalakuda	Thrissur	211	2.00	0.42
24	Construction of examination hall and research centre, Govt. College, Kottayam	Kottayam	159	2.00	0.32
25	NABARD-RIDF XXIII Construction of additional infrastructure works, Govt. Girls Higher Secondary School, Parayanchery, Kozhikode	Kozhikode	179	2.00	0.36
26	Implementation of Plan Schemes 2017-18 – Govt. Medical College, Kozhikode - Construction of new examination hall	Kozhikode	856	4.28	1.71
27	Budget Work 2017-2018 H&FWD - additional work required for the completion of Taluk Head Quarters Hospital, Kodungallur	Thrissur	79	2.00	0.16
28	Construction of new building for Govt. UP School, Moorkanikkara	Thrissur	168	2.00	0.34
29	Construction of Mechanical Production Lab, Govt. Engineering College, Kozhikode - Phase II	Kozhikode	118	2.00	0.24

Sl. No.	Name of work	Division	APAC (₹ in lakh)	Insurance required for but not collected (₹ in lakh)	Penalty 0.2 per cent to be deducted for non-production of Insurance
30	Annual Plan 2017-18 - Construction of building for VHSE Block at GVHSS for Girls, Nadakkavu, Kozhikode	Kozhikode	73	2.00	0.15
31	Providing additional facilities to Panampilly College, Chalakudy	Thrissur	202	2.00	0.40
32	UGC Scheme - Construction of Women's Hostel for CKGM College, Perambra, Koyilandy Taluk, Kozhikode	Kozhikode	108	2.00	0.22
33	Annual Plan - 2016-17 - Construction of Nursing School and Hostel, District Hospital, Mananthavady - Phase II	Wayanad	157	2.00	0.31
34	Renovation of the Principal's Office, Govt. Medical College, Trivandrum	Special Buildings Thiruvananthapuram	67	2.00	0.13
35	Construction of Naval training centre and cadets accommodation block for ladies & boys at 1 Kerala Naval NCC, Akulam	Special Buildings Thiruvananthapuram	855	4.28	1.71
36	Construction of a building, GLP School, Anayamkunnu, Kozhikode	Kozhikode	129	2.00	0.26
37	Construction of compound wall and gate, Govt. Dermatology Hospital, Chevayur, Kozhikode	Kozhikode	93	2.00	0.19
38	Construction of five storied building, Vigilance Bureau Office, Muttathara - Phase I, Thiruvananthapuram	Special Buildings Thiruvananthapuram	886	4.43	1.77
39	Construction of new building for election warehouse for storage of EVM & VVPAT Machines, Chathamangalam, Kozhikode	Kozhikode	285	2.00	0.57
40	Construction of new building, Govt. ITI (SCDD), Elathur, Kozhikode	Kozhikode	229	2.00	0.46
41	NABARD - RIDF XXII -2016-17 Infrastructure works for additional hospital building, Taluk Hospital, Sulthan Bathery, Wayanad	Wayanad	1,496	5.00	2.99
42	Vertical extension to the existing building for Labour room and Operation Theatre, Chelakkara Hospital	Thrissur	96	2.00	0.19
43	Construction of administration block 1st & 2nd floor	Kottayam	170	2.00	0.34
44	Retaining wall Govt. Polytechnic College, Pala	Kottayam	212	2.00	0.42
45	LP School, Karoor, Thrissur	Thrissur	99	2.00	0.20

Sl. No.	Name of work	Division	APAC (₹ in lakh)	Insurance required for but not collected (₹ in lakh)	Penalty 0.2 per cent to be deducted for non-production of Insurance
46	GMCTCR - Establishment and modernisation of drug stores under DME - Construction of central warehouse - Phase II	Thrissur	145	2.00	0.29
47	GLPS, Neerekadavu, Vaikom	Kottayam	110	2.00	0.22
48	Construction of new building for Mechanical and Electrical Dept, Govt. Engineering College, Thalapuzha	Wayanad	514	2.57	1.03
49	College of Pharmaceutical Sciences Phase II, Kottayam	Kottayam	1,106	5.00	2.21
50	Construction of Academic Block for SARBTM Govt. College, Koyilandy, Kozhikode	Kozhikode	547	2.74	1.09
51	Kunnumbhagam GHS, Kanjirappally	Kottayam	157	2.00	0.31
52	Construction of administrative block, Govt. Polytechnic College, Kunnamkulam	Kozhikode	322	2.00	0.64
53	Construction of building, District Public Health Lab, Thrissur	Thrissur	149	2.00	0.30
54	NABARD – RIDF - XXIII- Infrastructure works for School under RMSA - Samagra Shiksha Kerala GHS Beenachi, Wayanad	Wayanad	162	2.00	0.32
55	Construction of Court Complex, Irinjalakuda (Phase I)	Thrissur	2,689	5.00	5.38
	Total			**131.12**	**37.27**

Appendix 14
Details of works where less Defect Liability Period provided
(Referred to in Paragraph 2.3.6.6)

Sl. No.	Name of work	Agreement by Circle/ Division	Agreed Probable Amount of Contract (₹ in lakh)	Agreement No. and Date	DLP as per agreement in months
1	SC ST Dept. IIMS Palakkad - Construction of third floor, Medical College block at Palakkad	North	786.86	SE(K)63/2019-20 26/12/2019	36
2	Construction of academic block, SARBTM Govt College, Koyilandy	North	547.25	SE(K)62/2019-20 24/12/2019	36
3	Construction of building, PWD Rest House, Sulthan Bathery	North	223.21	SE(K)58/2019-20 16/12/2019	36
4	Construction of a building, GMLPS, Marayoor	North	92.17	SE(K)56/2019-20 9/12/2019	36
5	Construction of E.Narayanan Memorial Auditorium, Engineering College, Thalassery	North	180.32	SE(K)60/2019-20 16/12/2019	36
6	Construction of new building, Govt. TTI for Men Model UP School, Kannur	North	92.57	SE(K)57/2019-20 10/12/2019	36
7	General Education Dept. Construction of building, KPR GHSS, Kalliassery	North	210.64	SE(K)55/2019-20 09/12/2019	36
8	Construction of three storied building, GHSS, Palayad	North	391.19	SE(K)61/2019-20 20/12/2019	36
9	Construction of Annexure to PWD Rest House, Vadakkanchery	North	222.77	SE(K)64/2019-20 26/12/2019	36
10	Construction of super speciality block, District Hospital, Palakkad	North	123.07	SE(K)54/2019-20 04/12/2019	36
11	Construction of new building for Mechanical and Electrical Dept. Govt. Engineering College, Thalappuzha	North	514.54	SE(K)69/2019-20 13/01/2020	36
12	Construction of School building, GMLP School, Chandakkunnu, Nilambur	North	106.66	SE(K)68/2019-20 09/01/2020	36
13	Construction of new building, Regional Public Health Laboratory, Puthupperiayaram, Palakkad	North	113.33	SE(K)67/2019-20 04/01/2020	36
14	Construction of PWD Complex, Kannur 1st Phase, Block II	North	137.48	SE(K)65/2019-20 01/01/2020	36
15	Construction of new building and construction of second floor in existing building, GHS Theyyani	North	155.53	SE(K)66/2019-20 01/01/2020	36

Sl. No.	Name of work	Agreement by Circle/ Division	Agreed Probable Amount of Contract (₹ in lakh)	Agreement No. and Date	DLP as per agreement in months
16	Construction of School building of GHSS East Hill, Kozhikode	North	126.35	SE(K)79/2019-20 20/02/2020	36
17	Construction of new building, Kurikkathur Anganavadi, Kozhikode	Kozhikode	10.95	EE(BC)Price2/45 /2019-20 16/12/2019	36
18	Demolishing existing building and construction of new building for sub centre, Kuruvangad	Kozhikode	29.78	EE(BC)Price2/49 /2019-20 24/12/2019	36
19	LAC-ADS 2017-18 Construction of School building for Parayancheri Govt HSS for Boys, Puthiyara	Kozhikode	36.15	EE(BC)Price2/50 /2019-20 3/1/2020	36
20	Construction of Kitchen block at Govt. Technical School, Dwaraka, Wayanad	Wayanad	18.93	EE/B/26/2019-20 dated 06/12/2019	36
21	Construction of Heritage Museum at Kalloor, Noolpuzha	Wayanad	18.12	EE/B/27/2019-20 dated 09/12/2019	36
22	Kitchen blocks in various Aided School in Kaipamangalam	Thrissur	82.91	84/2019-20/EE/B/TSR dated 06/03/2020	36
23	Construction of new building for Govt. LP School, Kaipamangalam	Thrissur	59.62	69/2019-20/EE/B/TSR dated 04/12/2019	36
			4,280.40		

Appendix 15

Details of buildings pending handing over to user Department

(Referred to in Paragraph 2.3.6.7)

Sl. No.	Name of work/building	Division	Date of completion	Expenditure (₹ in lakh)	Delay in months (upto 11/2022)
1	Construction of twin cottage for Village Office at Narippatta	Kozhikode	22/02/2020	46.35	33
2	Construction of building for Govt. UP School at Kumbalachola, Narippatta	Kozhikode	21/10/2020	81.90	25
3	LAC ADS 2017-18 - Construction of building, PHC, Kayakkody Grama Panchayat in Nadapuram LAC	Kozhikode	21/10/2020	41.61	25
4	Construction of Model Residential School, Maruthankara	Kozhikode	21/02/2020	810.83	33
5	LAC ADS 2017-18 - Construction of new building for PHC at Edachery	Kozhikode	21/10/2020	41.31	25
6	Construction of School building for Govt. HSS, Azhiyur	Kozhikode	29/07/2020	30.71	28
7	Construction of new building for Homeo Dispensary, Tunery	Kozhikode	29/09/2020	21.76	26
8	Construction of new building in Govt. Technical High School, Kozhikode	Kozhikode	17/05/2020	77.04	30
9	Construction of School building for Govt. UP School, Padinjattumuri	Kozhikode	01/06/2020	77.04	28
10	Construction of additional block for Dental College, Kozhikode	Kozhikode	18/09/2020	364.41	25
11	Construction of building for Kakkad Village Office	Kozhikode	20/09/2020	21.06	25
12	Construction of building for Mavoor Govt. HSS, Kunnamangalam	Kozhikode	29/01/2022	104.46	10
13	Construction of Model Police Station, Kunnamangalam	Kozhikode	05/04/2021	118.62	19
14	Construction of building for Parayancheri Govt. Vocational HSS	Kozhikode	09/02/2021	39.17	14
15	Construction of Anganwadi building at Kannanchinnanpalam, Perumanna	Kozhikode	13/08/2020	13.13	27
16	Construction of building for Azhchavattom Govt. HSS	Kozhikode	25/03/2022	26.57	8
17	Construction of Hospital building at Govt. Homeo Medical College, Kozhikode	Kozhikode	06/05/2019	11.03	29
18	Construction of new building for Veterinary Dispensary, Kakkadompoyil	Kozhikode	16/04/2019	40.67	16
19	Construction of quarters and rest rooms for District Jail, Mananthavady	Wayanad	05/02/2021	153.33	21
20	Construction of Nursing School and Hostel, District Hospital, Mananthavady	Wayanad	20/01/2021	174.07	22
21	Construction of classroom building for Polytechnic College, Dwaraka	Wayanad	27/03/2019	56.37	44

Sl. No.	Name of work/building	Division	Date of completion	Expenditure (₹ in lakh)	Delay in months (upto 11/2022)
22	Construction of electronic block for Govt. Poly Technic Meenangadi	Wayanad	09/01/2020	154.18	34
23	Construction of staff quarters at Ambalavayal Village Office	Wayanad	27/03/2020	22.91	32
24	Construction of staff quarters at Thomattuchal Village	Wayanad	27/05/2020	21.25	30
Total				**2,549.78**	

Appendix 16
List of Buildings where handing over was delayed
(Referred to in Paragraph 2.3.6.7)

Sl. No.	Name of work	Division	Date of completion	Date of handing over the buildings	APAC (₹ in lakh)	Delay in months
1	Construction of Women's hostel for CKGM College, Perambra	Kozhikode	26/02/2020	26/11/2021	102.83	20
2	Construction of building, PHC, Kottur	Kozhikode	31/08/2020	28/05/2022	143.71	20
3	Construction of flat type residential complex for Gazetted Officers, Govt. Medical College, Kozhikode	Kozhikode	25/02/2021	28/12/2021	771.30	10
4	Construction of classroom building for Govt. HSS, Achoor	Wayanad	05/05/2020	22/07/2021	55.23	13
5	Construction of new classroom building for Govt. LP School, Puliyarmala	Wayanad	18/10/2021	14/07/2022	29.10	8
6	Construction of Principal quarters of NMSM Govt. College, Kalpetta	Wayanad	12/08/2021	22/06/2022	29.24	9
7	Construction of permanent District Early Intervention Centre, Kalpetta	Wayanad	28/09/2019	18/12/2020	198.65	14
8	Construction of building for Govt. LP School, Ambalavayal	Wayanad	31/03/2020	18/02/2021	76.91	10
9	Construction of school building for Govt. Vocational Higher Secondary School, Ambalavayal	Wayanad	31/03/2020	18/02/2021	77.28	10
10	Construction of Heritage Museum, Kalloor	Wayanad	17/12/2020	16/09/2022	22.02	20

Appendix 17
Frequency of Quality Control Tests
(Referred to in Paragraph 2.3.7.1, 2nd bullet)

Material		**Test required**					**Frequency**
Mortar ingredients (400-4)	Water	pH value	Acidity	Alkalinity	*Per cent* of solids		3 tests from each source
	Cement	Fineness	Soundness	Setting time	Compressive strength	Consistency of standard cement	For every 50 tonnes
	Sand	Deleterious constituents	Silt contents	Gradation	Bulking		For every 20 cum except gradation (40cum)
	Brick for Masonry (403-6)	Dimensional tolerance	Water absorption	Efflorescence	Compressive strength		As per table 400-7 and 400-8
	Laterite stones	Water absorption	Specific gravity		Compressive strength		Table 400-19
Concrete	Reinforcing steel (600-7)	Tensile strength	Proof stress	Percentage elongation	Elongation at maximum force	Bend and rebend test	2/3 per cast according to the weight at least two weeks before commencement of concrete works
		Slump					Every 5 cum
		Cube test slab					Every 20 cum
		Cube test columns					Every 5 cum

Appendix 18
List of works with Nil QC tests and without QC tests on masonry items
(Referred to in Paragraph 2.3.7.1, 2nd bullet)

Sl. No.	Name of the work	Division	QC tests conducted	QC test on masonry works
1	Construction of compound wall and gate, Govt. Dermatology Hospital Chevayur, Kozhikode	Kozhikode	Nil	Not conducted
2	Construction of Mechanical Production Lab at Govt. Engineering College, Kozhikode - Phase II	Kozhikode	Nil	Not conducted
3	Construction of School building of Govt. U P School, Chennalode, Wayanad	Wayanad	Nil	Not conducted
4	Election commission construction of warehouse for storage of EVMs and VVPAT machines at Chathamangalam, Kunnamangalam	Kozhikode	Nil	Not conducted
5	Providing lady by-standers waiting area and toilet facilities at 3rd Floor of Cardiology & Cardiothoracic Block at Govt. Medical College, Kottayam	Kottayam	Nil	Not conducted
6	Construction of Hospital Block, Govt. Homeo Medical College, Kozhikode	Kozhikode	Nil	Not conducted
7	USR to indoor basketball court storage room Govt. Physical Education College, Kozhikode	Kozhikode	Nil	Not conducted
8	ITI - Chakkai - Upgradation of the Institute to International Standards - Workshop renovation, Construction of main gate road *etc*.	Special Buildings Thiruvananthapuram	Nil	Not conducted
9	LAC - ADS - 2017-18 - Construction of a building for GLP School, Anayamkunnu, Karassery Grama Panchayath, Kozhikode	Kozhikode	Nil	Not conducted
10	Infrastructure development for Kizhaparayar FHC, Meenachil, Panchayath	Kottayam	Nil	Not conducted
11	NABARD – RIDF - XXIII- Infrastructure works for School under RMSA - GHS Beenachi, Wayanad	Wayanad	Nil	Not conducted
12	NABARD assistance under RIDF XXIV 2018-19 infrastructure development for Govt. Taluk Hospital, Thamarassery Phase I	Kozhikode	Nil	Not conducted
13	RUSA- FUND - Renovation of existing college building at SARBTM Govt. College Koyilandy, Kozhikode	Kozhikode	Nil	Not conducted
14	UGC Scheme - Construction of Women's Hostel for CKGM College, Perambra, Koyilandy Taluk Kozhikode	Kozhikode	Nil	Not conducted
15	Annual Plan 2017-18 - Construction of building for VHSE Block at GVHSS for Girls, Nadakkavu, Kozhikode	Kozhikode	NA	Not conducted

Sl. No.	Name of the work	Division	QC tests conducted	QC test on masonry works
16	Construction of flat type residential complex for Gazetted Officers at Govt. Medical College, Kozhikode	Kozhikode	NA	Not conducted
17	Construction of additional block for Dental College, Kozhikode, Phase IV and phase V	Kozhikode	NA	Not conducted
18	Construction of building for PHC, Kottur	Kozhikode	NA	Not conducted
19	Construction of examination hall and research Centre at Govt. College, Kottayam	Kottayam	NA	Not conducted
20	Construction of flat type residential complex for non-Gazetted officers at Govt. Medical College, Kozhikode	Kozhikode	NA	Not conducted
21	Construction of Mini Civil Station, Balussery	Kozhikode	NA	Not conducted
22	Construction of Model Residential School Maruthonkara, Kozhikode	Kozhikode	NA	Not conducted
23	Construction of new block for District PSC Office at Kottayam	Kottayam	NA	Not conducted
24	Construction of new building for Govt. ITI (SCDD), Elathur, Kozhikode	Kozhikode	NA	Not conducted
25	Construction of new building for Govt. LP School, Kaipamangalam	Thrissur	NA	Not conducted
26	Construction of new building for Govt. LPBS, Kidangoor	Kottayam	NA	Not conducted
27	Construction of plus two block for GVHS School, Desamangalam.	Thrissur	NA	Not conducted
28	General Education - Annual plan - 2017-18 - Construction of School building for Govt. LP School, Meenchanda, Kozhikode	Kozhikode	NA	Not conducted
29	Implementation of Plan Schemes during 2017-18 - Govt. Medical College, Kozhikode Construction of new examination hall	Kozhikode	NA	Not conducted
30	Construction of Golden Jubilee PG block at Govt. Arts and Science College, Kozhikode	Kozhikode	NA	Not conducted
31	Annual Plan 2017-18 - Construction of Academic Block for SARBTM Govt. College, Koyilandy	Kozhikode	NA	Not conducted
32	HSE Construction of Higher Secondary Block for Govt. Sanskrit H SS Meppayil, Vatakara	Kozhikode	NA	Not conducted
33	LAC ADS 2016-17 - Construction of Entrance block, terrace floor for existing HSS block and staircase for HS block for Avala HSS, Kozhikode	Kozhikode	NA	Not conducted
34	LAC-ADS (2018-19) LAC - Construction of building for Police Station, Kunnamangalam	Kozhikode	NA	Not conducted
35	NABARD - Construction of new building for Kanjirappally, Kunnumbhagam GHS	Kottayam	NA	Not conducted

Sl. No.	Name of the work	Division	QC tests conducted	QC test on masonry works
36	NABARD assistance RIDF XXI infrastructure works in Govt. Taluk Hospital, Vatakara, Kozhikode	Kozhikode	NA	Not conducted
37	NABARD RIDF XXIII - Construction of additional infrastructure works for Govt. Girls Higher Secondary School, Parayanchery, Kozhikode	Kozhikode	NA	Not conducted
38	NABARD RIDF XXIII - Construction of new building at Govt. UP School (Upgraded as GHS) Perambra, Kozhikode	Kozhikode	NA	Not conducted
39	RIDF XX - Construction of Community Health Centre for Paika Hospital	Kottayam	NA	Not conducted
40	STDD - Construction of Govt. Tribal UP School, Kosady, Mundakayam	Kottayam	NA	Not conducted

Appendix 19

Details of works without approved Design Mix

(Referred to in Paragraph 2.3.7.1, 4th bullet)

Sl. No.	Name of the work	Division
1	NABARD assistance under RIDF XXIV (2018-19) - Infrastructure Development for Govt. Taluk Hospital Thamarassery – Phase I – Part -TS (first and second floor of OP Block)	Kozhikode
2	Construction of new building for election warehouse for storage of EVM & VVPAT Machines at Chathamangalam, Kozhikode	Kozhikode
3	Construction of additional block for Dental College, Kozhikode - Phase IV & V	Kozhikode
4	RUSA - FUND - Renovation of existing college building at SARBTM Govt. College, Koyilandy, Kozhikode	Kozhikode
5	Construction of compound wall and gate for the Govt. Dermatology Hospital, Chevayur, Kozhikode	Kozhikode
6	UGC Scheme - Construction of Women's Hostel for CKGM College, Perambra in Koyilandy Taluk, Kozhikode	Kozhikode
7	HSE Construction of Higher Secondary Block for Govt. Sanskrit HSS, Meppayil, Vatakara	Kozhikode
8	Construction of Mechanical Production Lab at Govt. Engineering College, Kozhikode - Phase II	Kozhikode
9	NABARD RIDF XXIII - Infrastructure works under RMSA(SSK) - Construction of new building at G H S Perambra Plantation in Kozhikode - Construction of new building at Govt. UP School (Upgraded as GHS) Perambra Plantation in Kozhikode	Kozhikode
10	Construction of plus two block for GVHS School, Desamangalam	Thrissur
11	Deposit Work - Vertical Extension to the existing building for Labour Room and Operation Theatre of Chelakkara Hospital - Phase I	Thrissur

Appendix 20
Lapses in setting up of Field Lab at site noticed during Joint Physical Verification
(Referred to in Paragraph 2.3.7.2)

Sl. No.	Name of work	Division	Field Lab
1	NABARD - RIDF - XXI (2015-16) Infrastructure work like construction of multipurpose hospital block of District Hospital, Mananthavadi, Wayanad	Wayanad	Not available
2	NABARD RIDF XXII (2016-17) Infrastructure works for additional hospital building in Taluk Hospital, Sulthan Bathery, Wayanad	Wayanad	Not available
3	Infrastructure works for additional hospital building in Taluk Hospital, Vythiri	Wayanad	Not available
4	Construction of new building at Mental Health Centre, Kozhikode	Kozhikode	Not available
5	Construction of additional block for Dental College, Kozhikode	Kozhikode	Not available
6	Construction of new office complex for accommodating various Commissions at Pattom, Thiruvananthapuram	Thiruvananthapuram	Randomly placed
7	Construction of Naval training centre and cadets accommodation block for ladies & boys at 1 Kerala Naval NCC at Akkulam	Thiruvananthapuram	Randomly placed

Appendix 21
Non/Short deployment of contractor's engineering personnel at site for monitoring the work

(Referred to in Paragraph 2.3.7.3, 2nd bullet)

Sl. No.	Name of work	Division	No. of technical persons required	No. of technical persons deployed
1	Construction of new building for Govt. LPBS, Kidangoor	Kottayam	2	Nil
2	Providing lady by-standers waiting area and toilet facilities at 3rd Floor of Cardiology & Cardiothoracic Block at Govt. Medical College, Kottayam	Kottayam	2	Nil
3	STDD - Construction of Govt. Tribal UP School, Kosady, Mundakayam	Kottayam	4	Nil
4	Renovation of the road from RCC Jn. to Principal office front and formation of road from Manjadi road to Principal office back Govt. Medical College, Thiruvananthapuram	Special Buildings Thiruvananthapuram	2	Nil
5	Resurfacing of internal road, repair work to drain providing cement concrete flooring to the vehicle shed and allied works in SAT Hospital, Thiruvananthapuram	Special Buildings Thiruvananthapuram	1	Nil
6	ITI - Chakkai - Upgradation of the Institute to International Standards - Workshop renovation, construction of main gate road *etc*.	Special Buildings Thiruvananthapuram	6	Nil
7	Improvement works of ICU in Institute of Chest Diseases - Construction of Post Operative ICU and check-up facilities for Anesthesia Department, Improvement of drainage facilities in MCH and Converting the Hydrophobia Cell near Ward 2 to TMT Room and Procedure Room for Medicine Department in Medical College, Kozhikode	Kozhikode	4	Nil
8	Construction of new building for GHS School, Kattoor, Irinjalakuda	Thrissur	2	1
9	Construction of School building for Govt. LP School, Meenchanda, Kozhikode	Kozhikode	2	1
10	UGC Scheme - Construction of Women's Hostel for CKGM College, Perambra, Koyilandy Taluk, Kozhikode	Kozhikode	2	1
11	Higher Education Department - Annual Plan 2017-18 - Construction of Academic Block for SARBTM Govt. College, Koyilandy, Kozhikode	Kozhikode	6	1
12	NABARD - Assistance RIDF XXI - Infrastructure works in Govt. Taluk Hospital, Vatakara, Kozhikode	Kozhikode	6	3

13	Construction of new building for election warehouse for storage of EVM & VVPAT machines, Chathamangalam, Kunnamangalam Constituency, Kozhikode	Kozhikode	4	1
		Total	**43**	**8**
Joint Physical Inspection of ongoing works				
14	Medical Education Services - Construction of additional block for Dental College, Kozhikode - Phase IV & V	Kozhikode	4	1
15	Mental Health centre, Kozhikode	Kozhikode	6	1
16	Construction of new office complex for accommodating various Commissions at Pattom, Thiruvananthapuram	Special Buildings Thiruvananthapuram	9	1
17	Construction of Naval training centre and cadets accommodation block for ladies & boys at 1 Kerala Naval NCC at Akkulam, Thiruvananthapuram	Special Buildings Thiruvananthapuram	6	1
		Total	**25**	**4**

Appendix 22
Loss due to allowance of actual conveyance for materials in case of four major items
(Referred to in Paragraph 2.5(a))

Name of work	Number/Name of item	Executed quantity in m^3	Rate/ m^3 as per sanctioned estimate with actual conveyance (₹)	Rate allowing minimum conveyance plus cost index (₹/m^3)*	Excess Rate/m^3 (₹)	Excess Amount (₹)
Construction of Fly over at Thondayad	Appendix B-10) RCC M30	1,687.13	10,904	10,481	423	7,13,656
	Appendix B-12) RCC M45	3,458.46	13,604	12,413	1,191	41,19,026
	Appendix C-3) Construction of embankment	651.45	540	394	146	95,112
	Appendix – E/2/ PCC M15	5,488.90	7,516	7,152	364	19,97,960
Construction of Fly over at Ramanattukara	Appendix B-10) RCC M30	956.07	10,904	10,481	423	4,04,418
	Appendix B-11) RCC M45	3,139.22	13,604	12,413	1,191	37,38,811
	Appendix C-3) Construction of embankment	27,913.26	540	394	146	40,75,336
	Appendix – E/2/ PCC M15	6,802.56	7,516	7,152	364	24,76,132
					Total	**1,76,20,451**

* Applicable rates from PRICE software as per DSoR 2014

Appendix 23
Unwarranted provisions in the estimate
(Referred to in Paragraph 2.5(b))

1. Excess expenditure on work of Pile load test:

Name of work/ Agreement Number	Item Number/Quantity and Rate as per agreement	Quantity executed (m)	Rate/ m^3 as per sanctioned estimate (₹)	Amount paid in ₹
Construction of Fly over at Thondayad	Appendix B- Item 8- Pile load test	3,855	300	11,56,500
Construction of Fly over at Ramanattukara	1)Appendix II- Item 6- Pile load test	4,470	300	13,41,000
	2) Appendix VIII- Construction of Neelithodu bridge- Item 6 Pile load test	300	300	90,000
	3)Appendix IX (ii)- Construction of service bridge- Item 6 Pile load test	600	300	1,80,000
Total				**27,67,500**

2. Excess expenditure on work of Chipping and removing of excess of RCC pile:

Name of work	Item of work	Executed quantity in m^3	Rate/ m^3 as per sanctioned estimate (₹)	Excess Amount (₹)
Construction of Fly over at Thondayad	Appendix-B 7) Chipping and removing excess length of RCC pile	29.65	11,494	3,40,797
Construction of Fly over at Ramanattukara	Appendix-B 7) Chipping and removing excess length of RCC pile	35.55	11,494	4,08,612
	Appendix-H 7) Chipping and removing excess length of RCC pile	6.1	11,034	67,307
	Appendix-I 7) Chipping and removing excess length of RCC pile	8.14	11,034	89,817
Total				**9,06,533**

3. Excess expenditure on work of Driving down MS liner already fabricated to the required depth:

Name of work	Item of work	Executed quantity in metres (m)	Rate/m as per sanctioned estimate (₹)	Amount (₹)
Construction of Fly over at Thondayad	Appendix-B 4) Driving down 1000mm dia MS liner already fabricated to the required depth	210	1,554	3,26,340
Construction of Fly over at Ramanattukara	Appendix-B 5) Driving down 1200mm dia MS liner already fabricated to the required depth	225	1,554	3,49,650
	Appendix-H 5) Driving down 1200mm dia MS liner already fabricated to the required depth	45	1,492	67,140
	Appendix-I Driving down 1200 mm dia MS liner already fabricated to the required depth	60	1,492	89,520
			Total	**8,32,650**

4. Excess expenditure on work of Bored cast in situ reinforced piles:

Name of work	Item of work	Executed quantity in metres (m)	Rate/m as per sanctioned estimate (₹)	Amount (₹)
Construction of Fly over at Thondayad	Appendix-B 6) Bored cast in situ reinforced piles of size 1000mm (rock penetration of 60 cm depth in each bore hole).	50.40	35,455	17,86,932
Construction of Fly over at Ramanattukara	Appendix-B - 3) Bored cast in situ reinforced piles of size 1200mm (rock penetration of 100 cm depth in each bore hole).	42	50,703	21,29,526
	Appendix-H - 3) Bored cast in situ reinforced piles of size 1200mm (rock penetration of 60 cm depth in each bore hole).	7.2	48,680	3,50,496
	Appendix-I 3) Bored cast in situ reinforced piles of size 1200mm (rock penetration of 60 cm depth in each bore hole).	9.6	48,680	4,67,328
			Total	**47,34,282**

5. Excess expenditure on work of Bored cast in situ M 35 grade RCC pile:

Name of work	Item of work	Executed quantity in metres (m)	Rate/m as per sanctioned estimate (₹)	Rate/m excluding 5 *per cent* (₹)	Excess cost/m (₹)	Excess paid (₹)
Construction of Fly over at Thondayad	Appendix-B 5) Bored cast in situ M 35 grade RCC pile (1000mm dia)	1,000.57	14,182	13,506	676	6,76,385
Construction of Fly over at Ramanattukara	Appendix-B 2) Bored cast in situ M 35 grade RCC pile (1200mm dia)	1,279.73	20,281	19,315	966	12,36,219
					Total	**19,12,604**
					Grand Total (1+2+3+4+5)	**1,11,53,569**

Appendix 24
Excess amount paid/ non-recovered amount in respect of Bitumen
(Referred to in Paragraph 2.6)

(₹ in lakh)

Sl. No.	Name of work (Date of completion)	Estimated cost of bitumen to be recovered as per adequacy (A)	Purchase cost of bitumen reimbursed* (B)	Amount to be recovered on differential cost of bitumen (A-B)	Repayment/ adjustment made in after final bill / final bill (Date of payment)	Excess amount paid/ non recovered amount	Remarks
Excess amount paid by reopening the closed work bills through after final bill							
1	Reconstruction of Kottekanni bridge (Korathi kundu) (03/2018)	69.18	59.06	10.12	10.12 (08/2020)	10.12	The differential cost recovered from final bill was refunded through after final bill.
2	Improvements to Neeleswaram - Edathode Road (06/2017)	131.48	86.58	44.90	135.48 (06/2019)	58.56	Excess payment included differential cost of ₹44.90 lakh and tender premium calculation error of ₹13.66 lakh, after adjusting previous short payment error of ₹76.92 lakh.
3	Improvements to Anachappa – Chattamala – Kattamkavala road (02/2018)	25.48	23.66	1.82	6.83 (11/2019)	2.81	Excess payment included differential cost of ₹1.82 lakh and refund of cost of empty drums ₹0.99 lakh initially recovered.
					Sub total	**71.49**	
Non/short recovery and/or refund of recovered amount in subsequent bills							
4	Providing BM & BC to old MCC Road, Bengara - Manjeshwar-	265.22	222.22	43.00	41.63 (10/2019)	43.00	₹41.63 lakh recovered in the 2nd and part bill was refunded in the

Sl. No.	Name of work (Date of completion)	Estimated cost of bitumen to be recovered as per adequacy (A)	Purchase cost of bitumen reimbursed* (B)	Amount to be recovered on differential cost of bitumen (A-B)	Repayment/ adjustment made in after final bill / final bill (Date of payment)	Excess amount paid/ non recovered amount	Remarks
	Kuloor road and Meeyappadavu-Chigurpade road (09/2018)						final bill. The total differential cost recoverable was ₹43.00 lakh.
5	Improvements to Hosdurg-Panathur road (SH) - Chemberi - Koolichal under Kasaragod Development Package (03/2018)	64.30	59.72	4.58	-	4.58	No recovery of cost of bitumen used was made.
6	Thekkil-Alatty road (1st phase) (12/2017)	76.38	67.05	9.33	-	15.25	Short estimate cost recovery of ₹44.81 lakh and short invoice amount reimbursement of ₹35.48 lakh led to excess payment of ₹9.33 lakh. Adding erroneous tender rebate of ₹ 5.92 lakh led to a total excess payment of ₹15.25 lakh
					Sub total	**62.83**	
					Total	**134.32**	

*Since the purchase cost of bitumen as per adequacy was not available, the total purchase cost as per hand receipt was taken.

Appendix 25
Details of mineral reserves in Kerala as of March 2022
(Referred to in Paragraph 2.7.1)

Sl. No.	Major minerals	Quantity (lakh MT)
1	Ilmenite	36.34
2	Rutile	2.00
3	Zircon	4.78
4	Sillimanite	6.80
5	Limestone	83.34
6	Monazite	0.10
	(a) Sub-total	**133.36**
Sl. No.	**Minor minerals**	**Quantity (lakh MT)**
1	Granite Building Stone	4,868.26
2	Granite Dimension Stone	1.10
3	Laterite (Cement)	4.46
4	China clay (Minor)	52.77
5	Silica sand	3.15
	(b) Sub-total	**4,929.74**
	(c) Total mineral reserves (a+b)	**5,063.10**
	Percentage of Minor minerals to total mineral reserves (b/c*100)	**97.37 *per cent***

(Source: Data provided by DMG)

Appendix 26
Loss of revenue due to short recovery of royalty
(Referred to in Paragraph 2.7.8.1)

(₹ in lakh)

Sl. No.	Period of extraction/sale	Quantity (MT)	Average sale price (₹)	Total sale price	Royalty leviable	Royalty levied	Short-levy
1	30-04-2021 to 29-05-2021	1000	622.00	6.22	1.56	0.95	0.61
2	24-06-2021 to 13-07-2021	2000	709.00	14.18	3.55	1.90	1.65
3	15-07-2021 to 08-08-2021	2000	686.50	13.73	3.43	1.90	1.53
4	16-08-2021 to 30-08-2021	1500	669.00	10.04	2.51	1.43	1.08
5	09-08-2021 to 02-09-2021	1000	643.00	6.43	1.61	0.95	0.66
6	27-08-2021 to 15-09-2021	2000	643.00	12.86	3.22	1.90	1.32
7	16-10-2021 to 14-11-2021	2500	651.00	16.28	4.07	2.38	1.69
8	19-11-2021 to 18-12-2021	2000	650.50	13.01	3.25	1.90	1.35
9	01-12-2021 to 04-01-2022	3000	637.00	19.11	4.78	2.85	1.93
10	29-12-2021 to 06-02-2022	3000	636.33	19.09	4.77	2.85	1.92
11	13-01-2022 to 26-02-2022	4000	645.50	25.82	6.45	3.80	2.65
Total							**16.39**

(Source: DMG records)

Appendix 27
Non-recovery of royalty and price for excess extraction of minerals
(Referred to in Paragraph 2.7.8.4)

(Quantity in lakh MT and amount in ₹ crore)

Sl. No.	Name of lessee (with previous lease number and lease period)	District	Permitted quantity	Extracted quantity	Excess extraction	Amount recoverable		Total
						Royalty	Price	
1	Shri Denny Joseph; 72/2015-16/2014/M3/2015 (10 years)	Idukki	0.60	3.47	2.87	0.69	1.38	2.07
2	Shri T. R. Raviprasad; 484/2011-12/5772/M3/2011 (9 years)		0.45	0.68	0.56	0.13	0.27	0.40
3	Shri K. C. George; 121/2010-11/1477/M3/2010 (10 years)		1.80	0.62	0.47	0.15	0.30	0.45
4	Cochin Blue Metals Pvt. Ltd.; 45/2009-10/2558/M3/2009 (10 years); 278/2014-15/6638/M3/2014 (5 years)	Kottayam	5.15	8.90	3.90	0.94	1.87	2.81
5	Poabs Enterprises Pvt. Ltd.; 663/2010-2-11/9943/M3/2010 (6 years); 928/2011-12/685/M3/2012 (5 years)	Kollam	4.50	6.63	2.13	0.51	1.02	1.53
6	Shri K. M. Mohammed Nazeer; 694/2005-06/1713/M3/2006 (12 years)	Kannur	1.68	4.84	3.16	0.76	1.52	2.28
7	Malabar Construction Materials Pvt. Ltd.; 13/2002-2003/311/M3/2002 (12 years); 470/2006-07/7713/M3/2006 (8 years)		0.33	4.38	4.05	0.97	1.94	2.91
Total						**4.15**	**8.30**	**12.45**

(Source: Compiled from DMG records)

Appendix 28
Non-recovery of royalty, price, and fine
(Referred to in Paragraph 2.7.8.9)

Sl. No.	Name of the District	Demand notice No. and date	Quantity extracted (in MT)	Type of Mineral	Royalty and Price (₹)
1	HQ/ Idukki	DOI/1211/M/2016 dated 05/06/2017	21,650.00	GBS	15,58,800
2	HQ/ Wayanad	DOW/M-108/2016 dated 27/12/2016	934.00	OE	56,040
3	HQ/ Alappuzha	DOA/2864/MM/15 dated 05/12/2016	6,416.00	OE	3,84,960
4	HQ/ Wayanad	DOW/M-957/15 dated 16/06/2017	832.00	OE	49,920
5	HQ/ Kozhikode	DOZ/M-87/15 dated 19/01/2017	8,092.00	OE	4,85,520
6	Idukki	DOI/1333/M/14 dated 25/02/2016	45,337.50	GBS	32,64,300
7	Idukki	DOI/1211/M/2016 dated 25/03/2017	21,650.00	GBS	15,58,800
8	Idukki	DOI/178/M/13 dated 05/12/2016	24,440.00	GBS	17,59,680
9	Idukki	DOI/993/M/2020 dated 15/05/2021	6,28,223.33	GBS	4,52,32,080
10	Idukki	DOI/1274/M/2009 dated 19/02/2021	10,83,430.70	GBS	7,80,07,010
11	Idukki	DOI/404/M/16 dated 24/12/2018	2,10,490.00	GBS	1,51,55,280
12	Thiruvananthapuram	592/DOT/EM/2016 dated 31/10/2017	716 .00	OE	42,960
13	Thiruvananthapuram	1832/DOT/ML/2015 dated 11/12/2015	2,338.00	GBS	1,68,336
14	Thiruvananthapuram	2155/DOT/EM/2015 dated 02/05/2017	1,57,500.00	OE	31,50,000
15	Kollam	DOQ/S2/1485/2016 dated 30/12/2016	6,300.00	GBS	4,53,600
16	Kollam	1362/DOQ/S2/2016 dated 01/02/2019	7,617.00	OE	4,57,020
17	Kollam	1319/DOQ/S2/2017 dated 16/11/2017	500.00	LBS	36,000
18	Kollam	99/DOQ/S2/2017 dated 28/03/2017	3,120.00	OE	1,87,200
19	Kollam	DOQ/S2/1485/2016 dated 30/12/2016	1,035.00	GBS	74,520
20	Kollam	502/DOQ/S2/2018 dated 10/11/2020	2,376.00	OE	1,42,560
21	Kollam	1435/DOQ/S2/2016 dated 07/11/2017	2,210.00	OE	1,32,600

Sl. No.	Name of the District	Demand notice No. and date	Quantity extracted (in MT)	Type of Mineral	Royalty and Price (₹)
22	Kollam	1435//DOQ/S2/2016 dated 07/11/2017	2,376.00	OE	1,42,560
23	Kollam	781/DOQ/S2/2017 dated 29/05/2017	24,192.00	OE	14,51,520
24	Kollam	969/DOQ/S2/2017 dated 15/02/2018	8,000.00	OE	4,80,000
25	Kollam	1846/DOQ/S2/2016 dated 13/09/2017	960.00	GBS	69,120
26	Kollam	Form – II dated 09/04/2018	7,460.00	GBS	5,37,120
Total					**15,50,37,506**

(Source: DMG records)

OE = Ordinary Earth
GBS = Granite Building Stone.

Appendix 29

Quantity of illegal extraction for which penalty of ₹25,000 each was imposed

(Referred to in Paragraph 2.7.10)

Sl. No.	Name of offender (Shri/ Smt.)	District/ Office	Demand Notice No. (and date)	Quantity (MT)
1	Thankamony Nair	Ernakulam	DOE/1258/E1/16 (01-11-2016)	481
2	Santhosh Paul		DOE/1042/E1/16 (22-10-2016)	1,000
3	Hajara		DOE/2635/16 (date not available)	3,864
4	Abdul Rahim		DOE/2971/E1/16 (08-02-2017)	2,893
5	Shiju and Cicily		DOE/493/E1/17 (06-06-2017)	43,175
6	K. A. Paulose		DOE/1132/E2/16 (25-05-2017)	1,84,040
7	Thomas	Kottayam	528/DOY/ML/2017 (24-07-2017)	2,424
8	Vysakh R. and Beena R.		1713/DOY/EM/2017 (11-10-2017)	1,69,066
9	Aniyan Mathew	Mineral Squad (Central Region)	206/KMS(CR)/2016 (30-11-2016)	3,31,451

(Source: DMG records)

Appendix 30
Non-recovery of market rate for unlawful extraction and disposal of minor minerals
(Referred to in Paragraph 2.7.10)

Sl. No.	District	Name	Demand Notice No. and date	Qty. (MT)	Price recovered by DMG @ ₹48/MT	Market Rate (₹ per MT)	Price at Market Rate (₹)	Difference (₹)
1	Idukki	Shri Chacko Mathew	300/18-19/DOI/404/M/16 dtd.24.12.2018	84,196.00	40,41,408	644.00	5,42,22,224	5,01,80,816
2	Idukki	Greenworth Infrastructures Pvt. Ltd.	DOI/993/M/2020 dtd.12.07.2021	6,28,223.33	3,01,54,720	580.79	36,48,65,827	33,47,11,108
3	Idukki	Shri A.A.Jafer, Anakettiparambil	DOI/1211/M/2016 dtd.25.03.2017	21,650.00	10,39,200	512.44	1,10,94,326	1,00,55,126
4	Idukki	Shri Riyas K Seethi,	101/18-19/DOI/1333/M/14 dtd.21.05.2018	45,337.50	21,76,200	644.00	2,91,97,350	2,70,21,150
5	Kollam	L Saiju, Akkavila Sajinan.	3435/DOQ/S2/2017 dt.03.01.2022	7,567.50	3,63,240	580.79	43,95,128	40,31,888
6	Kollam	Krishnamoorthi	554/DOQ/S2/2017 dt.03.09.2021	1,35,515.00	65,04,720	580.79	7,87,05,756	7,22,01,037
7	Kollam	Joseph Jacob, Poabs.	2804/DOQ/S2/17 dt.17.03.2022	18,223.00	8,74,704	580.79	1,05,83,736	97,09,032
8	Kollam	VI Kuriachan, EG Granites,	3403/DOQ/S2/2008 dt.05.07.2017	6,07,140.00	2,91,42,720	512.44	31,11,22,821	28,19,80,102
9	Kollam	Tesna Mines	2879/DOQ/S2/2018 dt.16.08.2021	23,810.00	11,42,880	580.79	1,38,28,609	1,26,85,730

Sl. No.	District	Name	Demand Notice No. and date	Qty. (MT)	Price recovered by DMG @ ₹48/MT	Market Rate (₹ per MT)	Price at Market Rate (₹)	Difference (₹)
10	Kollam	Tesna Mines	2879/DOQ/S2/2018 Dt.15.11.2021	17,357.50	8,33,160	580.79	1,00,81,062	92,47,902
11	Thiruvananthapuram	S Biju,	791/DOT/ML/2017 dtd.29.11.2019	1,06,600.00	51,16,800	638.17	6,80,28,922	6,29,12,122
12	Thiruvananthapuram	Ushadevi P,	4033/DOT/ML/2015 dtd.15.09.2020	4,53,900.00	2,17,87,200	625.52	28,39,23,528	26,21,36,328
13	Thiruvananthapuram	Binu Thomas	4033/DOT/ML/2015 dtd.15.09.2020	73,500.00	35,28,000	625.52	4,59,75,720	4,24,47,720
14	Thiruvananthapuram	Krishnamoorthy	4033/DOT/ML/2015 dtd.15.09.2020	67,950.00	32,61,600	625.52	4,25,04,084	3,92,42,484
15	Thiruvananthapuram	Krishnamurthi, Ushadevi & Binu Thomas	4033/DOT/ML/2015 dtd.15.09.2020	3,60,825.00	1,73,19,600	625.52	22,57,03,254	20,83,83,654
16	Thiruvananthapuram	Krishnamurthi,	4033/DOT/ML/2015 dtd.06.05.2020	30,100.00	14,44,800	625.52	1,88,28,152	1,73,83,352
17	Thiruvananthapuram	Somasekharan Nair,	1063/DOT/ML/2021 dtd.25.03.2021	45,231.53	21,71,113	625.52	2,82,93,227	2,61,22,114
18	Thiruvananthapuram	Vijayamohanan,	1433/DOT/ML/2019 dtd.16.02.2022	1,29,367.25	62,09,628	580.79	7,51,35,205	6,89,25,577

Sl. No.	District	Name	Demand Notice No. and date	Qty. (MT)	Price recovered by DMG @ ₹48/MT	Market Rate (₹ per MT)	Price at Market Rate (₹)	Difference (₹)
19	Thiruvananthapuram	Lijo Mathew, Delta M Sand Pvt Ltd.	350/DOT/ML/2020 dtd.14.02.2020	2,39,721.30	1,15,06,622	638.17	15,29,82,942	14,14,76,320
20	Thiruvananthapuram	Delta MSand Pvt. Ltd.	173/DOT/ML/2021 dtd.21.06.2021	81,700.00	39,21,600	580.79	4,74,50,543	4,35,28,943
Total					**15,25,39,914**		**187,69,22,416**	**172,43,82,505**

(Source: DMG records)

Appendix 31
Location co-ordinates of sites where suspected illegal quarrying in adjacent lands was noticed
(Referred to in Paragraph 2.7.13.2)

Sl. No.	Latitude and longitude co-ordinates	Remarks	District
1	9º45’27.40”N and 76º36’52.81”E	Close proximity to quarry with KOMPAS ID KOT/Q/2022/150	Kottayam
2	9º45’26.02”N and 76º36’56.53”E		
3	9º45’23.54”N and 76º36’54.31”E		
4	9º42’08.64”N and 76º34’00.45”E	Close proximity to quarry with KOMPAS ID KOT/Q/2015/36	
5	9º42’00.13”N and 76º33’54.16”E		
6	9º41’55.25”N and 76º33’50.02”E		
7	9.36.50.10”N and 76.49.18.59”E	No proximity to an existing quarry	
8	9.44.59.00”N and 76.44.56.25”E		
9	8º48’07.74”N and 76º56’13.15”E	No proximity to an existing quarry	Kollam
10	8º48’03.82”N and 76º56’20.30”E		
11	8º48’04.53”N and 76º56’34.22”E		
12	8º48’06.86”N and 76º56’44.63”E		
13	8º47’49.40”N and 76º57’05.18”E		
14	8º47’43.28”N and 76º56’49.38”E		
15	8º47’36.41”N and 76º57’06.58”E		
16	8º47’24.33”N and 76º57’02.46”E		
17	8º48’21.49”N and 76º55’53.06”E		
18	8º46’41.28”N and 76º59’36.49”E		
19	8º58’02.77”N and 76º58’33.91”E		
20	8º58’01.70”N and 76º58’52.47”E		
21	8º57’40.93”N and 76º59’05.01”E		
22	8º58’08.28”N and 76º58’11.62”E		
23	9º02’09.72”N and 76º54’54.82”E		

Sl. No.	Latitude and longitude co-ordinates	Remarks	District
24	9º02'29.07"N and 76º47'38.52"E		
25	8º47'55.44"N and 76º57'49.18"E		
26	9º02'36.66"N and 76º47'37.12"E		
27	9º02'38.74"N and 76º47'32.69"E		
28	9º02'35.09"N and 76º47'30.31"E		
29	9º02'40.04"N and 76º47'08.60"E		
30	9º02'34.64"N and 76º47'04.45"E		
31	9º04'07.79"N and 76º46'54.01"E		
32	9º05'53.25"N and 76º46'01.99"E		
33	9º05'41.39"N and 76º46'00.72"E		
34	8º53'21.40"N and 76º46'46.75"E	Close proximity to quarry with KOMPAS ID KOL/Q/2018/258	
35	8º53'13.13"N and 76º46'52.62"E		
36	8º53'44.58"N and 76º46'33.97"E		
37	8º47'28.56"N and 76º59'25.10"E	Close proximity to quarry with KOMPAS ID KOL/Q/2019/278	
38	8º36'03.02"N and 76º54'06.03"E	No proximity to an existing quarry	Thiruvananthapuram
39	8º27'39.79"N and 77º01'27.22"E	Close proximity to quarries with KOMPAS IDTHI/Q/2015/80, THI/C/2017/44, THI/D/2017/46	
40	8º28'06.71"N and 77º01'25.41"E	Close proximity to quarries with KOMPAS ID THI/Q/2015/83, THI/C/2017/23, THI/D/2017/45	
41	8º27'59.74"N and 77º01'16.88"E	Close proximity to quarry with KOMPAS ID THI/Q/2015/84	
42	8º28'18.35"N and 77º01'19.28"E	Close proximity to quarry with KOMPAS ID THI/Q/2015/83	
43	8º28'19.51"N and 77º01'13.86"E		
44	8º28'23.77"N and 77º01'18.22"E		
45	8º28'27.50"N and 77º01'09.69"E		
46	8º30'30.36"N and 77º02'53.17"E	Close proximity to quarry with KOMPAS ID THI/Q/2018/213	
47	8º37'56.93"N and 76º51'06.37"E	Close proximity to quarry with KOMPAS ID THI/Q/2021/292	
48	11º37'58.46"N and 76º02'08.02"E	In close proximity to quarry of MMT Construction	Wayanad

Sl. No.	Latitude and longitude co-ordinates	Remarks	District
49	11º37'57.62"N and 76º02'09.81"E		
50	11º37'59.67"N and 76º02'05.70"E		
51	11º37'51.00"N and 76º02'09.64"E		
52	11º35'25.36" N and 76º02'18.18" E	Proximity to quarry measuring 4069 square metre	
53	11º35'52.43"N and 76º02'32.50"E	Proximity to an existing quarry	
54	11º37'05.94"N and 76º02'21.03"E	Proximity to an existing quarry	
55	11º37'13.89"N and 76º02'26.91"E	No proximity to an existing quarry	
56	11º38'11.76"N and 76º12'31.64"E	Proximity to an existing quarry	
57	11º38'20.18"N and 76º11'56.22"E	No proximity to an existing quarry	
58	11º37'12.04"N and 76º02'13.52"E	No proximity to an existing quarry	
59	9º53'03.32"N and 76º44'59.92"E	Proximity to quarries with KOMPAS ID IDU/D/2017/8, IDU/C/2018/65, IDU/C/2017/35 and IDU/D/2018/39	Idukki
60	9º54'19.52"N and 76º38'30.54"E	No proximity to an existing quarry	
61	9º55'04.94"N and 76º37'50.11"E	No proximity to an existing quarry	
62	9º54'02.03"N and 76º35'50.20"E	Proximity to an existing quarry	
63	9º51'03.96"N and 76º39'14.83"E	Proximity to an existing quarry	
64	9º56'47.71"N and 76º56'12.63"E	Proximity to quarries with KOMPAS ID IDU/D/2017/3 and IDU/C/2017/32	
65	9º56'41.67"N and 76º56'23.13"E	No proximity to an existing quarry	
66	9º53'18.06"N and 77º12'58.17"E	Proximity to quarries with KOMPAS ID IDU/C/2016/25 and IDU/D/2018/61	
67	11º46'48.02"N and 75º37'27.76"E	Proximity to quarry with KOMPAS ID KAN/Q/2017/164	Kannur
68	11º46'57.79"N and 75º37'25.27"E		
69	11º47'04.11"N and 75º37'35.68"E		
70	11º47'14.01"N and 75º37'50.22"E	Proximity to KAN/Q/2016/86	
71	11º47'23.67"N and 75º38'03.12"E		
72	11º47'19.35"N and 75º38'06.92"E		

Sl. No.	Latitude and longitude co-ordinates	Remarks	District
73	11º47'49.23"N and 75º38'19.34"E	Proximity to quarries with KOMPAS ID KAN/C/2017/113, KAN/D/2015/4, KAN/C/2018/125, KAN/D/2017/97, KAN/D/2015/27and KAN/D /2015/19,	
74	11º47'56.78"N and 75º38'08.41"E		
75	11º47'58.87"N and 75º38'18.24"E		
76	11º48'18.04"N and 75º38'07.91"E		
77	11º50'01.05"N and 75º37'52.91"E	Proximity to quarry KAN/Q/2016/61	
78	11º51'29.50"N and 75º36'55.91"E	Proximity to quarries with KOMPAS ID KAN/Q /2016/111 and KAN/Q/2016/93	
79	11º52'43.38"N and 75º35'26.35"E	No proximity to an existing quarry	
80	11º56'03.05"N and 75º31'23.56"E	Proximity to quarry KAN/D/2019/237	
81	11º56'15.30"N and 75º31'31.74"E	Proximity to quarry KAN/C/2018/126	
82	11º56'20.76"N and 75º31'35.46"E	Proximity to quarries KAN/C/2018/126 and KAN/C/2018/123	
83	11º56'30.76"N and 75º31'12.28"E	Proximity to quarry KAN/Q/2018/205	
84	12º04'29.39"N and 75º28'56.69"E	No proximity to an existing quarry	
85	12º03'31.71"N and 75º28'33.46"E	Proximity to quarry KAN/Q/2018/177	
86	12º03'56.55"N and 75º26'26.76"E	Proximity to quarry KAN/Q/2018/209	
87	12º06'25.31"N and 75º26'11.90"E	Proximity to quarry KAN/Q/2018/195	
88	12º03'20.84"N and 75º37'46.25"E	Proximity to quarries KAN/Q/2016/63, KAN/Q/2016/37 and KAN/Q/2016/66.	
89	12º03'24.95"N and 75º28'31.76"E	Proximity to quarry KAN/Q/2018/177	

(Source: KOMPAS data and Google Earth Pro imagery)

Appendix 32
Illegal mining outside permitted quarrying area
(Referred to in Paragraph 2.7.13.3)

Sl. No.	KOMPAS ID	District	Permitted area of mining as per KOMPAS (square metre)	Area mined outside permitted area (square metre)	Area mined outside permitted area (percentage in excess of permitted area)
1	KOT/Q/2015/2	Kottayam	34780	31708	91.17
2	KOT/Q/2022/150		9151	1721.23	18.81
3	KOT/Q/2015/1		55665	137164	246.41
4	KOT/Q/2017/99		16931	147859	873.30
5	KOT/Q/2015/36; KOT/Q/2018/120		4024	4486.88	111.50
6	PAT/Q/2018/138	Pathanamthitta	14957	5420	36.24
7	KOL/Q/2018/255	Kollam	40860	8929	21.85
8	KOL/Q/2018/258		38298	75202	196.36
9	KOL/Q/2020/284		158997	39178	24.64
10	KOL/Q/2019/278		22652	47283.96	208.74
11	IDU/Q/2015/2	Idukki	85614.06	107620.54	125.70
12	IDU/Q/2019/67		46418.10	18514.82	39.89
13	IDU/Q/2021/70; IDU/Q/2018/59		33691.87	77190.70	229.11
14	IDU/Q/2015/36		6252.10	26720.78	427.39
15	THI/Q/2015/80	Thiruvananthapuram	22627.61	57630.62	254.69
16	THI/Q/2015/26		8813.49	73712.57	836.36
17	THI/Q/2018/213		10630.18	33324.58	313.49
18	THI/Q/2018/189		61602	7219	11.72
19	KAN/Q/2017/164	Kannur	31870.43	41680.23	130.78
20	KAN/Q/2015/10		7600.60	38609.66	507.98
21	KAN/Q/2015/9; KAN/Q/2020/309		21535.8	1234057.06	5730.26
22	KAN/Q/2019/273		7764	39456	508.19
23	KAN/Q/2017/170		13636	33694	247.10
24	KAN/Q/2018/248; KAN/Q/2017/168		44389	145641	328.10
25	KAN/Q/2017/174		14915	68612	460.02
26	WAY/Q/2015/9	Wayanad	9109	35042	384.70
27	WAY/Q/2016/52		2915	18359	629.81
28	WAY/Q/2015/3		4069.91	8764.61	215.35
29	WAY/Q/2018/72		26984	4722	17.50

(Source: KOMPAS data and Google Earth Pro imagery)

Appendix 33
Suspected cases of mining in buffer zone
(Referred to in Paragraph 2.7.13.4)

Sl. No.	KOMPAS ID	District	Remarks
1	KOT/Q/2015/2	Kottayam	Extraction in area between boundary pillars 4 to 7, 9 to 14, 15 to 16, and 17 to 18. Quantity extracted was assessed at 50575 MT.
2	KOT/Q/2022/150		Illegal mining noticed outside boundary pillars 11 to 13
3	KOT/Q/2015/1		Illegal mining noticed outside boundary pillars 1 to 3, 9 to 13, and 13 to 15. Revenue Department reported extraction of 1.56 lakh MT outside lease area.
4	KOT/Q/20177/99		Illegal mining noticed outside boundary pillars 1 to 4, 4 to 6, and 6 to 9.
5	KOT/Q/2015/36; KOT/Q/2018/120		Illegal mining noticed outside boundary pillars 1 to 4
6	PAT/Q/2018/138	Pathanamthitta	Illegal mining noticed in area outside boundary pillars 5, 6, 7, 8 and 9.
7	WAY/Q/2018/72	Wayanad	Illegal mining between boundary pillars 1 to 6, and 9 to 14
8	WAY/Q/2017/65		Safety zone not maintained at boundary pillars numbered 2 to 3, 4 to 5, and 5 to 1.
9	WAY/Q/2015/3		Safety zone not maintained around any boundary pillar (1 to 4).
10	WAY/Q/2016/52		Boundary pillars not marked in KOMPAS. Extraction from excess area than that allotted.
11	WAY/Q/2015/9		Boundary pillars not marked in KOMPAS. Extraction from excess area than that allotted.
12	KOL/Q/2018/255	Kollam	Illegal mining noticed outside boundary pillars 7 to 9
13	KOL/Q/2018/258		Illegal mining noticed outside boundary pillars 24 to 26, 26 to 4, 16 to 18, and 8 to 16
14	KOL/Q/2020/284		Illegal mining noticed outside boundary pillars 22 to 2, and 3 to 5
15	KOL/Q/2019/278		Illegal mining noticed outside boundary pillars 1 to 11, 11 to 18, and east side
16	KOL/Q/2019/261		Illegal mining noticed outside boundary pillars 3 to 6, 39 to 60, and 31 to 36
17	THI/Q/2018/189	Thiruvananthapuram	Illegal mining noticed outside boundary pillars 15 to 17, and 27 to 30.
18	THI/Q/2015/58		Illegal mining noticed outside boundary pillars 22 to 27, 4 to 13, 13 to 11, 19 to 22, and 33 to 34.
19	THI/Q/2015/80		Safety zone not maintained around boundary pillars 1 to 17, 21 to 23, and 23 to 1.
20	THI/Q/2015/26		Safety zone not maintained around any boundary pillar (1 to 6).
21	THI/Q/2018/213		Safety zone not maintained around any boundary pillar (numbered 1 to 9).
22	IDU/Q/2015/2	Idukki	Safety zone not maintained around any boundary pillar (1 to 24).
23	IDU/Q/2019/67		Safety zone not maintained at boundary pillars 5 to 11, 15 to 18, and 21 to 1, and 1 to 5.
24	IDU/Q/2018/59; IDU/Q/2021/70		Safety zone not maintained at boundary pillars 1 to 3, 5 to 6, and 6 to 1 of IDU/Q/2018/59. Also, safety zone not maintained around adjacent quarry number IDU/Q/2021/70.
25	IDU/Q/2015/36		Safety zone not maintained around any boundary pillar (1 to 7).
26	KAN/Q/2017/164	Kannur	Safety zone not maintained around boundary pillars 1 to 6, 9 to 13, and 13 to 1.
27	KAN/Q/2015/10		Safety zone not maintained around any boundary pillar (1 to 7).
28	KAN/Q/2019/273		Safety zone not maintained around all boundary pillars (1 to 5, and 7 to 8).
29	KAN/Q/2017/170		Safety zone not maintained around boundary pillars 2 to 4, 7 to 8, and 8 to 1.
30	KAN/Q/2018/248; KAN/Q/2017/168		Safety zone not maintained around boundary pillars 1 to 14, 27 to 32, and 32 to 1 of KAN/Q/2018/248. Also, buffer zone not maintained around boundary pillars 6 to 18, and 24 to 25 of KAN/Q/2017/168.
31	KAN/Q/2017/174		Buffer zone not maintained around any boundary pillar (1 to 14).

(Source: DMG records and satellite imagery)

Appendix 34
Quarrying without bench cutting
(Referred to in Paragraph 2.7.13.5)

Sl. No.	KOMPAS ID	District
1	KOT/Q/2015/2	Kottayam
2	KOT/Q/2022/150	
3	KOT/Q/2015/1	
4	KOT/Q/20177/99	
5	KOT/Q/2015/36; KOT/Q/2018/120	
6	THI/Q/2018/189	Thiruvananthapuram
7	THI/Q/2015/58	
8	THI/Q/2015/80	
9	THI/Q/2015/26	
10	THI/Q/2018/213	
11	PAT/Q/2018/138	Pathanamthitta
12	WAY/Q/2018/72	Wayanad
13	WAY/Q/2015/3	
14	WAY/Q/2015/9	
15	WAY/Q/2016/52	
16	WAY/Q/2017/65	
17	KOL/Q/2018/255	Kollam
18	KOL/Q/2018/258	
19	KOL/Q/2020/284	
20	KOL/Q/2019/278	
21	KOL/Q/2019/261	
22	IDU/Q/2015/2	Idukki
23	IDU/Q/2019/67	
24	IDU/Q/2018/59; IDU/Q/2021/70	
25	IDU/Q/2015/36	
26	KAN/Q/2015/10	Kannur
27	KAN/Q/2015/9; KAN/Q/2020/309	
28	KAN/Q/2019/273	
29	KAN/Q/2017/170	
30	KAN/Q/2018/248; KAN/Q/2017/168	
31	KAN/Q/2017/174	
32	KAN/Q/2017/164	

(Source: KOMPAS data and Google Earth Pro imagery)

Appendix 35

Extra Expenditure due to arbitrary purchase of raw material
(Referred to in Paragraph 3.1.13)

Year	Supplier	Quantity (Kg)	Total value of purchase	Quantity discount received	Net Value	Cost per Kg (₹)	Cost in excess of the least rate during the year (₹)	Extra Cost (₹ in crore)
			(₹ in crore)					
(1)	(2)	(3)	(4)	(5)	(6) = (4) – (5)	(7)	(8)	(9) = (3) x (8)
2017-18	Bharat Aluminium Company Ltd – Raipur	8,36,354	14.34	0.45	13.89	166.06	15.26	1.28
2017-18	Hindalco Industries Ltd. (Kochi)	80,128	1.25	0	1.25	156.18	5.38	0.04
2017-18	National Aluminium Company Ltd.	20,39,446	32.08	1.13	30.95	151.74	0.95	0.19
2017-18	Vedanta Aluminium Ltd.	5,76,804	9.00	0.30	8.70	150.79	0	
2018-19	Bharat Aluminium Company Ltd – Raipur	41,91,741	70.28	1.61	68.67	163.82	3.58	1.50
2018-19	National Aluminium Company Ltd.	9,20,533	15.43	0.46	14.97	162.61	2.37	0.22
2018-19	Vedanta Aluminium Ltd.	61,431	0.99	0.01	0.98	160.24	0	
2019-20	Bharat Aluminium Company Ltd - Raipur	4,23,207	6.53	0.18	6.35	150.10	8.65	0.37
2019-20	Hindalco Industries Ltd. Bangalore	22,94,062	34.87	0.87	34.00	148.21	6.76	1.55
2019-20	National Aluminium Company Ltd.	15,06,351	22.15	0.84	21.31	141.45	0	
2019-20	Vedanta Aluminium Ltd.	11,43,317	17.21	0.87	16.34	142.93	1.48	0.17
2020-21	Hindalco Industries Ltd. Bangalore	25,40,272	42.49	1.52	40.97	161.27	3.51	0.89
2020-21	National Aluminium Company Ltd.	21,97,527	35.81	0.91	34.90	158.80	1.04	0.23
2020-21	Vedanta Aluminium Ltd.	21,77,163	35.04	0.69	34.35	157.76	0	
	Total	**2,09,88,336**						**6.44**

Appendix 36
Unproductive wages due to shortage of working capital
(Referred to in Paragraph 3.1.14.1)

Irumpanam Unit							
Year	**Available labour days per annum**	**No. of Factory employees**	**Total labour hours paid @ 8 Hrs per day**	**Actual Productive labour hours utilized**	**Un-utilised labour hours paid**	**Labour cost per hour (₹)**	**Value of un-utilised labour (₹)**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6) = (4) – (5)**	**(7)**	**(8) = (6) x (7)**
2017-18	293	124	2,90,656	1,84,780	1,05,876	126.60	1,34,04,335
2018-19	293	124	2,90,656	2,47,712	42,944	159.48	68,48,543
2019-20	293	113	2,64,872	2,22,968	41,904	193.18	80,95,123
2020-21	293	111	2,60,184	2,15,224	44,960	157.88	70,98,233
2021-22	293	101	2,36,744	95,168	1,41,576	202.33	2,86,44,497
Total			**13,43,112**	**9,65,852**	**3,77,260**		**6,40,90,731**
Thiruvalla Unit							
2017-18	293	141	3,30,504	1,64,952	1,65,552	157.18	2,60,21,463
2018-19	293	137	3,21,128	1,91,104	1,30,024	169.56	2,20,46,390
2019-20	293	125	2,93,000	1,58,896	1,34,104	161.59	2,16,69,238
2020-21	293	114	2,67,216	1,42,560	1,24,656	212.94	2,65,44,070
2021-22	293	106	2,48,464	1,04,080	1,44,384	210.60	3,04,07,862
Total			**14,60,312**	**7,61,592**	**6,98,720**		**12,66,89,023**
Grand Total			**28,03,424**	**17,27,444**	**10,75,980**		**19,07,79,754**

Appendix 37
Loss due to labour inefficiency
(Referred to in Paragraph 3.1.14.2)

Year	Productive labour hours	Other cables	ACSR produced	Total production	Production per labour hour	Best output per hour	Hours required for production as per best output achieved	Unproductive labour hours	Average labour rate per hour	Value of unproductive / idle labour hours (₹)	Percentage of unproductive hours on total productive labour hours
		(Km)									
(1)	**(2)**	**(3)**	**(4)**	**(5) = (3)+(4)**	**(6)**	**(7)**	**(8) = (5) / (7)**	**(9)= (2)–(8)**	**(10)**	**(11) = (9) x (10)**	**(12)**
Irumpanam unit											
2017-18	1,84,780	35,979	15,011	50,990	0.275949	0.2759	1,84,813	0	126.60	0	0
2018-19	2,47,712	29,995	23,207	53,202	0.214774	0.2759	1,92,831	54,881	159.48	87,52,422	22.16
2019-20	2,22,968	9,291	20,186	29,477	0.132204	0.2759	1,06,841	1,16,128	193.18	2,24,33,414	52.08
2020-21	2,15,224	8,113	29,338	37,451	0.174009	0.2759	1,35,741	79,483	157.88	1,25,48,776	36.93
2021-22	95,168			7,961	0.083652	0.2759	28,855	66,313	202.33	1,34,17,109	69.68
Thiruvalla unit											
2017-18	1,64,952	123	7,943	8,066	0.048900	0.2759	29,236	1,35,717	157.18	2,13,31,841	82.28
2018-19	1,91,104	585	12,647	13,232	0.069243	0.2759	47,961	1,43,143	169.56	2,42,71,327	74.90
2019-20	1,58,896	159	13,182	13,341	0.083961	0.2759	48,354	1,10,542	161.59	1,78,62,482	69.57
2020-21	1,42,560	336	17,133	17,469	0.122535	0.2759	63,315	79,245	212.94	1,68,74,430	55.59
2021-22	1,04,080			6,584	0.063259	0.2759	23,864	80,216	210.60	1,68,93,490	77.07
TOTAL	**17,27,444**			**2,37,773**			**8,61,811**	**8,65,668**		**15,43,85,291**	

Appendix 38

Loss due to sale without upward price revision clause

(Referred to in Paragraph 3.1.15.2)

Month	Supplied Qty (km)	Rate claimed after applying price variation formula	Agreed Rate (₹)	Loss per km (₹)	Total Loss (₹)
March 2021	2,723.04	36,116.40	35,772	344.40	9,37,817
April 2021	1,389.14	37,348.24	35,772	1,576.24	21,89,621
May 2021	1,448.05	38,288.94	35,772	2,516.94	36,44,666
June 2021	1,100.87	38,900.14	35,772	3,128.14	34,43,667
Total	**6,661.10**				**1,02,15,771**

Appendix 39
Chronology of important events relating to Master Trust
(Referred to in Paragraph 3.5)

Period	Event	Particulars
June 2003	Electricity Act, 2003	Section 131 - Reorganisation of Board
September 2008	Kerala Electricity First Transfer Scheme, 2008	All the functions, properties and all interests, rights in properties, all rights and liabilities of the erstwhile Kerala State Electricity Board (KSEB) were vested in the State Government
October 2013/ January 2015	Kerala Electricity Second Transfer Scheme (Re-vesting)	All the functions, properties and all interests, rights in properties, all rights and liabilities of the KSEB vested in the State Government were re-vested to the Company Kerala State Electricity Board Limited (KSEBL)
31 October 2013	Actuarial Valuation	Value of unfunded liability of KSEB against terminal benefits : ₹12,419 crore
February 2015	Formation of Kerala State Electricity Board Limited Employees Master Pension cum Gratuity Trust	To manage the funds and to disburse the terminal benefits, pension *etc.*, thus protecting the interest of the existing pensioners and the personnel transferred to the Company
February 2015	Contribution of State Government through KSEBL	₹1,522.53 crore by way of retention of Electricity Duty from 01/04/2008 to 31/03/2012 by KSEBL
2012-13 to 2017-18	Contribution of State Government through KSEBL	₹4,373.14 crore Out of this, only ₹1,522.53 crore was transferred to the Master Trust by KSEBL and ₹2,850.61 crore was not transferred to Master Trust.
	Contribution of KSEBL	₹3,782.62 crore
01April 2017	Two Bonds were issued by KSEBL	1) 20 year Bond with coupon rate of 10 per cent per annum : ₹8,144 crore 2) 10 year Bond with coupon rate of 9 per cent per annum : ₹3,751 crore
2018-19 to 2021-22	Contribution of State Government through KSEBL	₹2,554.00 crore
	Contribution of KSEBL	₹4,496.66 crore
March 2022	Actuarial Valuation	Liability of KSEBL towards terminal benefits - ₹35,824.13 crore

Appendix 40(a)

Funding pattern of unfunded liability by Government of Kerala and KSEBL

(Referred to in Paragraph 3.5)

Funded by	Particulars	Amount (₹ in crore)
Company (Bonds issued to the Master Trust)	Twenty-year bond with a coupon rate of 10 *per cent* per annum	8,144
	Ten-year bond with a coupon rate of 9 *per cent* per annum	3,751
GoK	Through budgetary provision over a period of ten years	524
Total		**12,419**

Appendix 40(b)

Contribution of Government of Kerala towards Master Trust through KSEBL

(Referred to in Paragraph 3.5)

Sl. No.	Period	Particulars	Amount (₹ in crore)
1	2012-13	Budgetary support towards terminal liability	52.40
2	2013-14	Budgetary support towards terminal liability and Instalment of principal and interest on bond	296.61
3	2014-15	Budgetary support towards terminal liability and Instalment of principal and interest on bond	638.50
4	2015-16	Budgetary support towards terminal liability and Instalment of principal and interest on bond	638.50
5	2016-17	Budgetary support towards terminal liability and Instalment of principal and interest on bond	638.50
6	2017-18	Instalment of principal and interest on bond	586.10
		Total	**2,850.61**

Appendix 41
Liability for payment of additional interest due to belated transfer of funds for redemption of Bonds
(Referred to in Paragraph 3.5)

(₹ in crore)

Year	Instalment amount payable on 1st April of the year	Total amount actually paid on various dates in the year	Penal interest at the rate of 24 *per cent* per annum from the due dates to the actual date of payment
2018-19	1,807.70	1,378.04	256.46
2019-20	1,766.98	1,558.88	332.14
2020-21	1,726.26	1,737.05	354.82
2021-22	1,685.54	2,376.69	267.00
		Total	**1,210.42**

Appendix 42

Avoidable extra expenditure

(Referred to in Paragraph 3.7)

Sl. No.	Name of party	Quantity (in KM)	Month of supply	Price fixed in the PO (₹)	GST @ 18 *per cent*	Variable price calculated based on IEEMA circular (₹)	GST @ 18 *per cent* on updated variable price (₹)	Difference (₹)	Loss (₹)
1	**2**	**3**	**4**	**5**	**6 =(18 *per cent* of 5)**	**7**	**8 =(18 *per cent* of 7)**	**9 =(5+6) - (7+8)**	**10 = (3*9)**
1	Havells India LTD	84.139	April 2019	6,46,000	1,16,280	6,29,520.40	1,13,313.67	19,445.93	16,36,160.74
2	Paramount Communications	0.485	April 2019	6,46,000	1,16,280	6,29,520.40	1,13,313.67	19,445.93	9,431.27
3	Havells India LTD	48.186	May 2019	6,46,000	1,16,280	6,22,996.81	1,12,139.43	27,143.77	13,07,949.54
4	Paramount Communications	102.04	June 2019	6,46,000	1,16,280	6,11,673.01	1,10,101.14	40,505.84	41,33,215.91
5	Paramount Communications	207.87	July 2019	6,46,000	1,16,280	6,05,009.49	1,08,901.71	48,368.80	1,00,54,421.85
6	Paramount Communications	4.693	August 2019	6,46,000	1,16,280	6,05,669.30	1,09,020.47	47,590.22	2,23,340.91
	Total	**447.417**							**1,73,64,520.22**