



**REPORT OF THE COMPTROLLER
AND AUDITOR GENERAL OF INDIA**
on
ECONOMIC SECTOR
for the year ended March 2018



लोकहितार्थ सत्यनिष्ठा
Dedicated to Truth in Public Interest



Government of Kerala
Report No. 2 of the year 2019

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PREFACE

This Report for the year ended March 2018 is prepared for submission to the Governor of Kerala under Article 151 of the Constitution of India.

The Report contains significant results of the performance audit and compliance audits of the Departments of Government of Kerala under the Economic Services including Departments of Public Works, Fisheries and Co-operation.

The instances mentioned in this Report are those which came to notice in the course of test audit of records during the year 2017-18 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 2017-18 are also included wherever necessary.

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

Chapter I

Introduction

CHAPTER I

INTRODUCTION

1.1 About this Report

This Report of the Comptroller and Auditor General of India (C&AG) relates to matters arising from performance audit of selected programmes and activities and compliance audit of Government Departments and Autonomous Bodies under the Economic Sector.

Compliance audit refers to the examination of transactions relating to expenditure 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 the competent authorities are being complied with. On the other hand, performance audit, in addition to compliance audit, also includes examination of whether the objectives of the programme/activity/ department are achieved economically, efficiently and effectively.

The primary purpose of the Report is to bring to the notice of the State Legislature, the important results of audit. Auditing Standards require that the materiality level for reporting should be commensurate with the nature, volume and magnitude of the transactions. 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 a synopsis of the significant deficiencies and achievements in the implementation of selected schemes, the significant audit observations made during compliance audit and follow-up on the previous Audit Reports.

1.2 Profile of units under audit jurisdiction

The Accountant General (Economic & Revenue Sector Audit), Kerala conducts audit of 10 Departments and 16¹ Autonomous Bodies under the Economic Sector in the State. The Departments are headed by Additional Chief Secretaries/Principal Secretaries/Secretaries, who are assisted by Directors/ Commissioners/Chief Engineers and subordinate officers under them. The position of expenditure incurred by the Government during the year 2017-18 in comparison with preceding year is given in **Table 1.1**.

¹Including (i) ‘Command Area Development Authority’, wound up with effect from 31/03/2017 but the accounts of which for the years 2015-16 and 2016-17 are yet to be finalised and (ii) the Kerala State Sericulture Co-operative Federation Limited.

Table 1.1 Comparative position of expenditure incurred by the Government

Disbursements	2016-17			2017-18			(₹ in crore) Percentage (+) Excess (-) Deficit
	Plan	Non-plan	Total	Plan	Non-plan	Total	
Revenue Expenditure							
General Services	181.39	41,013.94	41,195.33	418.30	45,105.47	45,523.77	(+)10.50
Social Services	9,773.34	23,991.38	33,764.72	12,425.84	23,450.43	35,876.27	(+)06.25
Economic Services	3,537.62	7,117.73	10,655.35	3,337.60	8,013.48	11,351.08	(+)06.53
Grants-in-aid and Contributions	---	5,480.91	5,480.91	---	7,197.23	7,197.23	(+)31.31
Total	13,492.35	77,603.96	91,096.31	16,181.74	83,766.61	99,948.35	(+)09.72
Capital Expenditure							
Capital outlay	8,945.65	1,180.30	10,125.95	7,993.68	755.19	8,748.87	(-)13.60
Loans and advances Disbursed	375.25	785.04	1,160.29	1,380.82	159.77	1,540.59	(+)32.78
Repayment of public debt	---	---	7,706.01			13,132.10	(+)70.41
Contingency Fund	--	--	---			---	---
Public Account disbursements	--	--	1,79,910.43			2,07,174.17	(+)15.15
Total	9,320.90	1,965.34	1,98,902.68	9,374.50	914.96	2,30,595.73	(+)15.93
Grand Total	22,813.25	79,569.30	2,89,998.99	25,556.24	84,681.57	3,30,544.08	(+)13.98

Source: Report of the Comptroller and Auditor General of India for the year ended 31 March 2018 (State Finances)

1.3 Authority for Audit

C&AG's authority for audit 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[C&AG's (DPC) Act]. C&AG conducts the audit of expenditure of the departments of the Government of Kerala under Section 13² of the C&AG's (DPC) Act. C&AG is the sole auditor in respect of one Autonomous Body³ in the Economic Sector, which is audited under Sections 19(3)⁴ and 20(1)⁵ of the C&AG's (DPC) Act. Besides, C&AG also conducts audit of 15 other Autonomous

² Audit of (i) all transactions from the Consolidated Fund of the State (ii) all transactions relating to the Contingency Fund and Public Accounts and (iii) all trading, manufacturing, profit & loss accounts, balance sheets and other subsidiary accounts.

³ Command Area Development Authority.

⁴ Audit of the accounts of Corporations established by law made by the State Legislature on the request of the Governor.

⁵ Audit of accounts of any body or authority on the request of the Governor, on such terms and conditions as may be agreed upon between the C&AG and the Government.

Bodies in the Economic Sector under Section 14⁶ & 15 of C&AG's (DPC) Act, which are substantially funded by the Government. Principles and methodologies for various audits are prescribed in the Auditing Standards and the Regulations on Audit and Accounts, 2007 issued by the C&AG.

1.4 Organisational structure of the Office of the Accountant General (Economic and Revenue Sector Audit), Kerala

Under the directions of the C&AG, the Accountant General (E&RSA), Kerala conducts the audit of Government Departments/Offices/Autonomous Bodies/Institutions under the Economic and Revenue Sector which are spread all over the State. The Accountant General (E&RSA) is assisted by three Group Officers.

1.5 Planning and conduct of Audit

The audit process starts with the assessment of risks faced by various departments of the Government based on the 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. Based on this risk assessment, the frequency and extent of audit are decided.

After completion of audit of each unit, Inspection Reports (IRs) containing audit findings are issued to the heads of the offices. The departments are requested to furnish replies to the audit findings within four weeks from the date 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, which are submitted to the Governor of the State under Article 151 of the Constitution of India for being presented to the State Legislature.

During the year 2017-18, the Economic Sector Audit Wing utilised 2,812 party days to carry out audit of 231 units.

1.6 Significant audit observations

In the last few years, Audit reported on several significant deficiencies in the implementation of various programmes/activities as well as on the quality of internal controls in selected departments through performance audits, which impact the success of programmes and functioning of the departments. Similarly, deficiencies noticed during the compliance audit of government departments/organisations were also reported upon.

⁶ Audit of all (i) receipts and expenditure of a body/authority substantially financed by grants or loans from the Consolidated Fund of the State and (ii) all receipts and expenditure of any body or authority where the grants or loans to such body or authority from the Consolidated Fund of the State in a financial year is not less than rupees one crore.

The present report contains findings of one performance audit and 12 compliance audit paragraphs. The significant audit observations are discussed below:

1.6.1 Performance audit of programme/department

1.6.1.1 Quality control measures in maintenance of roads by Public Works Department

The Performance Audit was conducted to examine whether the system for implementing quality control measures was efficient during the execution of works and whether the quality control measures adopted in the maintenance of roads, including road and traffic safety, were adequate and effective. The Audit findings are grouped under (i) Quality Control, (ii) Quality Assurance and (iii) Maintenance, including road safety.

Audit noticed that the mandatory quality control tests envisaged in the PWD Manual were not included in the tender and contract documents. Divisional Offices/Quality Control Labs and the office of the Chief Engineer (Designs) which controlled the Quality Control wing did not have a panel of the approved labs. The Government of Kerala circumvented the Quality control tests stipulated by the Ministry of Road Transport and Highways (MoRTH) by restricting the cost of works. Works with large estimates were split up into smaller amounting works in order to avoid quality control tests.

Audit test checked 282 works. It was found that field laboratories mandatory for works costing more than rupees two crore were not set up by contractors at the site of 85 works. Further, 119 works costing ₹366.09 crore did not have mandatory first-tier quality control tests comprising of 37 tests and 106 works were subjected to four to nine tests only. Second tier tests were conducted only in 85 works costing ₹495.32 crore. Non-adoption of approved job mix formula affected the quality of road works. The departmental supervision of works was inadequate. In eight out of nine ongoing works verified by Audit, the contractors did not deploy qualified engineering personnel at the works sites. The Department lacked proper monitoring mechanism to ensure that quality control tests were conducted during execution of works.

The Department did not carry out road maintenance works as prescribed in the PWD Manual, Indian Road Congress (IRC)/MoRTH specifications and the QC Manual. The Roads Divisions did not maintain road chart of important roads. The maintenance and renewal works of roads were not being prioritised as envisaged in the PWD Manual. The PWD Roads wing did not have a mechanism for the timely detection and rectification of defects of roads. Audit observed that lapses in arranging periodic renewal works resulted in severe damage to the carriageway, causing distress to the road users. Unsuitable methods were used in maintenance works.

Road drainages and shoulder berm were not maintained properly which affected the quality of many roads. Lapses in the restoration of roads after carrying out trenching works damaged the road surface, creating discomfort to road users.

(Chapter 2)

1.6.2 Compliance Audit Paragraphs

1.6.2.1 Functioning of Agency for Development of Aquaculture Kerala

The Agency for Development of Aquaculture, Kerala (the Agency) is an autonomous body functioning under the Department of Fisheries with the objective to promote aquaculture and other related activities. The Compliance Audit was conducted to examine whether the programmes were implemented according to the existing regulations and guidelines; and whether the financial management of the Agency was effective.

Audit noticed that the hatchery and farms functioning under the Agency did not comply with the regulatory requirements stipulated in the Coastal Aquaculture Authority Act, 2005. The Agency failed to adhere to the guidelines issued by Coastal Aquaculture Authority (CAA) for culturing of Whiteleg shrimp (*Litopenaeus vannamei*). This contributed to the failure of two crops of Whiteleg shrimp cultivated in the farm at Poyya. The Agency implemented the project 'Promotion of Rice cum Shrimp Farming in Kaipad Lands' in the years 2013-14 and 2014-15 with the objectives of enhancing overall productivity of the wet land ecosystem, promotion of sustainable aquaculture practices, sustaining of paddy cultivation and increasing the per capita income of farmers. The project, however, failed due to non-adherence to the project guidelines, though a subsidy of ₹1.22 crore was paid to the beneficiary groups.

Audit noticed that the Agency did not stock feeds under the recommended storage conditions and that bulk purchase of feed resulted in retention and usage of time expired feed. The three Polymerase Chain Reaction (PCR) Laboratories run by the Agency for assisting the farmers in shrimp seed tests did not have CAA recognition, defeating the standardization initiatives of CAA. The Agency farmed genetically improved fishes without adhering to the safeguards recommended by the Kerala State Bio-diversity Board (KSBB) raising potential risk to bio-diversity.

The Agency retained unutilised government grants in its bank accounts violating government instructions to retain the same in Treasury Savings Bank Accounts. It was also noticed that the Agency submitted utilization certificates to the Government without actually utilising the grants given by the Government.

Audit observed that the finalization and audit of annual accounts of the Agency was in arrears from the year 2014-15 onwards. The Public Accounts Committee (PAC) (2014-16) in its 66th Report (July 2014) expressed displeasure at the slackness shown by the Agency in preparing the Annual Reports and Accounts and recommended for

disciplinary action against the officials concerned. The Agency did not maintain the basic accounting records.

(*Paragraph 3.1*)

1.6.2.2 Other Compliance Audit Paragraphs

- Department paid an amount of ₹88.80 lakh to a select group of 74 owners of illicit china nets disregarding the fact that they were already paid compensation of ₹92.5 lakh and were not eligible for the second payment.

(*Paragraph 3.2*)

- Departmental lapse in enforcing the provisions of the Kerala Co-operative Societies Act, 1969 regarding audit fees resulted in non-collection/short collection of audit fee of ₹16.69 crore.

(*Paragraph 3.3*)

- Ineffective internal control system of the Co-operation Department led to non-remittance/short remittance of dividend of ₹95.44 lakh by Co-operative Societies to the Government.

(*Paragraph 3.4*)

- Lack of prudence and total disregard of rules on Survey and Registration of boats made ₹1.82 crore spent on the purchase of nine ferro cement hulled boats by the Kerala State Co-operative Consumers' Federation Ltd., infructuous.

(*Paragraph 3.5*)

- Failure to recover the cost of bitumen from the work bills at the rates included in the revised estimate resulted in excess payment of ₹99.72 lakh to the contractor.

(*Paragraph 3.6*)

- Incorrect calculation of volume of work by the Department based on fictitious level measurement quantities resulted in inadmissible payment of ₹1.54 crore to the contractor.

(*Paragraph 3.7*)

- Failure of the Department in the management of securities from contractors resulted in extension of undue favour amounting to ₹15.73 crore to contractors, besides placing of avoidable financial burden of ₹1.34 crore on the Government.

(*Paragraph 3.8*)

- Non-finalisation of tender by the Department within the prescribed firm period resulted in avoidable expenditure of ₹3.17 crore.

(*Paragraph 3.9*)

- Construction of three bridges without approach/access roads resulted in their idling, making ₹20.38 crore spent on their construction unfruitful.

(Paragraph 3.10)

- Reimbursement of the cost of bitumen at market rates violating the provisions of the PWD Manual and agreement conditions resulted in inadmissible payment of ₹12.89 crore to the contractors on 65 road works.

(Paragraph 3.11)

- Due to the non-adherence to the CRZ notification in implementation of projects by the Department of Tourism, the project proponent, there was loss of Government of India assistance to the tune of ₹9.55 crore in respect of two projects and irregular expenditure of ₹8.97 crore in respect of three projects out of six projects examined.

(Paragraph 3.12)

1.7 Lack of responsiveness of Government to Audit

1.7.1 Outstanding Inspection Reports

The Handbook of Instructions for Speedy Settlement of Audit Objections/Inspection Reports (IRs) issued by the State Government in 2010 provides for prompt response by the Executive to the IRs issued by the Accountant General (AG) to ensure action for rectification in compliance with the prescribed rules and procedures and accountability for the deficiencies, lapses etc., noticed during the inspection. The Heads of Offices and next higher authorities are required to comply with the observations contained in the IRs, rectify the defects and omissions and promptly report their compliance to the AG within four weeks of receipt of the IRs. Half-yearly reports of pending IRs are being sent to the Secretaries of the Departments concerned to facilitate monitoring of audit observations.

As on 30 June 2018, 472 IRs containing 1,932 paragraphs were outstanding against PWD (Roads and Bridges), Irrigation, Agriculture & Farmers' Welfare and Forests & Wildlife Departments. Year-wise details of IRs and paragraphs outstanding are detailed in **Appendix 1.1**.

A review of the IRs pending due to non-receipt of replies in respect of these four departments revealed that the Heads of offices did not furnish even the initial replies in respect of 47 IRs containing 276 paragraphs.

1.7.2 Departmental Audit Committee Meetings

During the year 2017-18, six Audit Committee Meetings were held wherein 124 out of 824 IR paragraphs pertaining to the period between 2009-10 and 2015-16 relating to departments of Public Works (Roads and Bridges), Water Resources (Irrigation), Agriculture & Farmers' Welfare, Food, Civil Supplies & Consumer affairs were settled.

1.7.3 Response of departments to the draft paragraphs

Twelve Draft Paragraphs and a Performance Audit paragraph were forwarded demographically to the Additional Chief Secretaries/Principal Secretaries/ Secretaries of the departments concerned between December 2018 and February 2019 with a request to furnish their responses within the time limit. The Government replies in respect of Performance Audit and two compliance Audit paragraphs are awaited. The replies received are suitably incorporated in this Report.

1.7.4 Follow-up action on Audit Reports

The Finance Department issued (January 2001) instructions to all administrative departments of the Government that they should submit Statements of Action Taken Notes on audit paragraphs included in the Audit Reports directly to the Legislature Secretariat with copies thereof to the Audit Office within two months of their being laid on the table of the Legislature.

Five out of the 10 departments did not submit Statements of Action Taken Notes for 10 paragraphs for the periods from 2012-13 to 2015-16, even as of January 2019. Action Taken Notes on audit paragraphs were due from the Departments of Water Resources (four), Public Works, Fisheries & Ports (two each), Agriculture & Farmers' Welfare and Forests & Wildlife (one each).

1.7.5 Paragraphs to be discussed by the Public Accounts Committee

There were 15 paragraphs relating to 10 Departments pertaining to the period from 2012-13 to 2015-16 pending discussion by the Public Accounts Committee as of January 2019. Pending audit paragraphs include one from Transport, Coastal Shipping & Inland navigation; two each from Public Works, Fisheries & Ports, Forests & Wildlife; three paragraphs from Agriculture & Farmers' Welfare and five from Water Resources departments.

Chapter II

Performance Audit

CHAPTER II

PERFORMANCE AUDIT

PUBLIC WORKS DEPARTMENT

2. Quality control measures in maintenance of roads by Public Works Department

2.1 Introduction

The public roads in Kerala are maintained by the Public Works Department (PWD), Local Bodies, Irrigation Department, Kerala State Electricity Board Limited, Forest and Wildlife Department, Railways, etc. PWD roads constitute 15 *per cent* of the total road network in the State and carry nearly 80 *per cent* of the total road traffic. The Roads wing and National Highways (NH) wing of the State PWD undertake the maintenance and quality control measures of the roads.

The Government of Kerala (GoK) introduced a three-tier quality monitoring system¹ under clauses 2401 and 2406 of the Kerala PWD Manual, revised edition 2012 (PWD Manual). Subsequently, for achieving the desired level of quality in public works as envisaged in the PWD Manual, GoK also set up² a Quality Control (QC) wing in the Department with effect from 01 October 2013 and established testing laboratories in all the districts. Quality Control test results in accordance with relevant codes/standards were made mandatory for passing work bills of all works costing more than ₹15 lakh. The Quality Control tests are to be carried out with reference to the Ministry of Road Transport and Highways (MoRTH) specifications (**Appendix 2.1**).

In order to enable the engineers and supervisory staff to check the different activities of construction with reference to the quality aspects and to ensure that the standards envisaged were achieved, GoK issued (July 2015³) an exclusive manual named the Kerala PWD Quality Control Manual (QC Manual) incorporating provisions for enhancing road safety. Every officer of the PWD entrusted with the execution of public works is expected to follow the guidelines strictly in the discharge of duties. Further, the PWD also issued⁴ PWD Quality Control Laboratory Manual (Laboratory Manual) in July 2015 for guiding the engineers and technical staff of the Quality Control Laboratories (QC Labs) and the field engineers on the procedures for conducting quality control tests.

It is the responsibility of the State PWD to maintain the traffic worthiness of the road networks throughout the year. The State has varying climatic conditions and

¹The first tier quality control tests are to be conducted by the contractor at his own cost, the second tier tests by the QC wing on random basis during execution of works and the third-tier tests to be done by technical experts after completion of the project

²In terms of G.O (MS) No. 79/PWD/2013 dated 28/09/2013

³Vide G.O (Rt) No. 1339/2015/PWD dated 10/09/2015

⁴Vide G.O(Rt) No. 1346/2015/PWD dated 11/09/2015

geographical patterns. There are high ranges and plains with varying temperature between 10°Celsius and 40°Celsius. The State also witnesses two rainy seasons viz. Southwest monsoon (June - September) and Northeast monsoon (October - November). These factors necessitate appropriate quality control measures for proper maintenance of roads.

The Quality Control wing is headed by Chief Engineer (Design) who is assisted by Director (Investigation and Quality Control) under whom there are three regional laboratories and 11 district laboratories. All the laboratories have the same function.

2.2 Audit Objectives

To examine whether,

- the system for implementing quality control measures was efficient during the execution of works; and
- the quality control measures adopted in the maintenance of roads, including road safety, were adequate and effective.

2.3 Audit criteria

The audit criteria were derived from:

- Kerala PWD Manual, Revised Edition, 2012
- Kerala PWD Quality Control Manual, 2015
- Kerala PWD Quality Control Laboratory Manual, 2015
- MoRTH/Indian Road Congress (IRC) specifications
- Orders/Circulars/Instructions issued by GoK and PWD

2.4 Scope and methodology of Audit

The Performance Audit was conducted from June to October 2018 and covered the period from 2015-16 to 2017-18.

The sampling of units consisted of four⁵ Roads⁶ Divisions out of the 16 Divisions, selected on the basis of stratified random sampling method and two⁷ NH Divisions out of eight divisions, selected using simple random sampling method. Six out of the 14 QC Labs related to the selected Roads and NH Divisions were also taken in to the selected sample. Audit scrutinised records relating to 282 road works costing ₹790.77 crore, of which 92 works cost more than rupees two crore each, 133 works cost between ₹15 lakh and two crore and 57 works cost ₹15 lakh each or less. Audit also

⁵Thiruvananthapuram, Idukki, Palakkad and Kozhikode

⁶CE R&B is bifurcated into two separate offices of CE Roads and CE Bridges. The scope of the PA is limited to Roads wing only

⁷Alappuzha and Muvattupuzha

conducted 77 Joint Physical Verifications (JPV) of road sites including nine on-going works, along with officials of the PWD for assessing the effectiveness of the quality control measures in the maintenance of roads, including safety aspects.

In addition to these, Audit also covered offices of the PWD in the Government Secretariat, offices of Chief Engineers of Roads, National Highways, Designs and other related offices. An entry conference was held on 31 May 2018 in which the audit objectives, audit criteria, scope and methodology were discussed with the representatives of the Government/Department. The exit conference with the representatives of the Government/Department was held on 08 February 2019 to discuss the audit findings. The Government has not furnished reply despite several reminders (September 2019).

2.5 Audit findings

To keep the road network traffic worthy throughout the year, the quality of roads is to be ensured through Quality Assurance and Quality Control measures. This also includes adoption of appropriate methods for the execution and maintenance of road works.

There are three tiers of quality control tests. The first tier tests consisting of 37 types of tests are to be conducted by the contractor at his cost, either at the field lab or at an approved lab (for works costing ₹15 lakh or more). The second tier tests consisting of the same tests as in the first tier are to be conducted by the Quality Control Wing. The third tier (for works costing rupees five crore or more) is a review of the first and second tier tests, to be conducted by technical experts.

The audit findings are grouped under three categories, namely (i) Quality Control, (ii) Quality Assurance and (iii) Maintenance, including road safety.

2.5.1 Quality Control

Quality control encompasses the observation technique and activities used to verify that the products delivered are of acceptable quality and that they are complete and correct. It aims to identify defects in the finished products.

According to the PWD Manual and the QC Manual, quality control measures mainly consist of the conduct of first tier quality control tests at the cost of the contractor, setting up of field laboratory, conduct of second tier tests by the Quality Control wing of PWD, ensuring quality control during the execution and proper monitoring.

According to the MoRTH specifications, 37 types of quality control tests are required to be conducted for construction of roads, depending on the item of work and the quantity of work executed. Audit observed the following lapses in this regard:

2.5.1.1 Inadequacy of quality control tests in works costing above ₹15 lakh

First tier Quality Control tests are mandatory for all road works having estimated cost of more than ₹15 lakh. Out of the 282 works test checked, in 225 such works costing ₹784.73 crore, Audit noticed the following:

- In 99 works costing ₹355.13 crore, the first-tier tests conducted were limited to only four tests consisting of sieve analysis, gradation of aggregate, bitumen content and compressive strength of concrete.
- In seven works costing ₹63.51 crore, in addition to the above, tests such as California Bearing Ratio (CBR) value, elongation and flakiness index, water absorption test, core density and specific gravity and spread rate of bitumen were also conducted. The balance 119 works costing ₹366.09 crore did not have any of the first-tier quality control tests.

As this was a test audit in the sampled works in selected road divisions and the audit observation is of a nature that may reflect in other works not covered in test audit, Department may, therefore, like to internally examine the position in rest of the works with a view to ensure that requirements of quality control, as prescribed, are being met. The Department should take necessary remedial measures and also fix responsibility for the lapses in all such cases.

In the exit conference the Department stated that directives would be issued to enforce the first-tier quality control tests strictly in all works.

2.5.1.2 Non-establishment of field laboratory for works costing more than rupees two crore

According to the Government Circular⁸, contractors shall establish a field laboratory at the project site if the estimated cost of the project is above rupees two crore. As per the MoRTH specification 901.2, the contractor's laboratory shall be manned by qualified Materials Engineer/Civil Engineer assisted by experienced technicians and the set-up should be got approved by the PWD Engineer.

If the quality control tests are done in the field laboratory, the test results shall be signed by the Overseer/Assistant Engineer supervising the work and by the contractor. A copy of the test results shall be forwarded by the Assistant Engineer to the Assistant Executive Engineer/Executive Engineer for review.

Audit noticed that out of the 282 works test checked, the cost of 92 works exceeded the limit of rupees two crore; but field laboratories were set up by the contractors only in seven works costing ₹101.69 crore. There was no evidence of setting up of field laboratories by the contractors in respect of 85 works⁹ costing ₹611.85 crore.

In the seven cases where field laboratories were set up, the required number of tests was not conducted and the required number of samples was not tested.

⁸ No. 23631/G2/2013/PWD dated 1/11/2013

⁹ Seven out of eight such works in NH Division, Alappuzha, 16 out of 17 works in NH Division, Muvattupuzha, 20 out of 21 works in Roads Division, Thiruvananthapuram; 11 out of 15 works in Roads Division, Kozhikode; 18 works in Roads Division, Idukki and 13 works in Roads Division, Palakkad

Failure in setting up of field laboratories and non-conduct of the required tests is a compromise on the quality of works and an undue favour to the contractors to the extent of the expenses involved in the setting up of field laboratories, their manning and the cost of quality control tests.

As this was a test audit in the sampled works in selected road divisions and the audit observation is of a nature that may reflect in other works not covered in test audit, Department may, therefore, like to internally examine the position in rest of the works with a view to ensure that requirements of quality control, as prescribed, are being met. The Department should take necessary remedial measures and also fix responsibility for the lapses in all such cases.

2.5.1.3 Shortcomings in the conduct of second tier quality control tests

The Quality Control Wing is authorised to inspect and conduct Quality tests in all projects undertaken by the PWD including maintenance and repair works, irrespective of the estimated cost. Quality control tests as per IRC/MoRTH specifications/QC Manual are to be conducted depending on the item of work and the quantity of work executed.

Audit test checked 282 works and observed the following:

- Second tier tests were conducted only in 85 works costing ₹495.32 crore.
- In the entire works test checked, it was also noticed that the QC Labs conducted mostly four types of tests, viz. gradation of aggregates, binder content, sieve analysis and compressive strength of cement concrete. Other essential tests like assessing of viscosity using bitumen viscometer and assessing of dry density of the compacted layer using modified proctor compaction apparatus were not conducted even though the QC Labs had the required equipment.

This left the equipment idle and the quality tests conducted by the QC Labs inadequate. Inadequacy of tests affected the life expectancy of roads.

JPV revealed the following issues:

- In the Bituminous Concrete sample taken¹⁰ during the JPV in Alappuzha district, bitumen content was found to be more than the tolerance limit given in the job mix formula. Excess bitumen content caused bleeding of bitumen making the road slippery.
- Bituminous concrete surfacing in another road work¹¹ under NH Division, Alappuzha was done without consolidation which created voids in the road and exposed the aggregates.

¹⁰IRQP from Chainage 0/000 km to 428/000 km in NH 66 in Alappuzha district

¹¹CRF 2016-17 Improvements to Channavaly-Thiruvizha-Thuruthankavala-Kayippuram Road in Alappuzha district

- In another road work¹² in Kozhikode district, the road surface close to a culvert sank due to improper compaction of sub base. Audit noticed that quality control test to ascertain the density of the compacted layer was not done in the work.

As this was a test audit in the sampled works in selected road divisions and the audit observation is of a nature that may reflect in other works not covered in test audit, Department may, therefore, like to internally examine the position in rest of the works with a view to ensure that requirements of quality control, as prescribed, are being met. The Department should take necessary remedial measures and also fix responsibility for the lapses in all such cases.

2.5.1.4 Lapses in quality control during execution of works

➤ Absence of proper job mix formula affecting the quality of road

Job mix formula is the end result of a successful mix design of recommended mixture aggregate and bitumen binder arrived at after various tests on materials. Its correct application ensures the life of the road.

The contractor is to submit the job mix formula before the commencement of work, after ensuring that it is based on a correct and truly representative sample of the materials that will actually be used in the work and that the mixture and its different ingredients satisfy the physical strength requirements. All the Bituminous Macadam (BM) and Bituminous Concrete (BC) works on roads shall be done by adopting job mix formula. A test check of 88 BM and BC works revealed the following:

- Job mix formula of 15 works out of 48 works subjected to second tier quality control tests by QC Labs varied from the approved formula.
- Bitumen VG 30 was used for laying BC overlay in two works in place of Natural Rubber Modified Bitumen specified for the works.
- JPV of two works in Idukki¹³ and Thiruvananthapuram¹⁴ districts revealed that the surface of the roads was damaged at many locations within the Defect Liability Period (DLP). It was noticed that instead of submitting job mix formula suitable for these works, the contractors adopted job mix formula of other works.



Picture 1: Aggregates stripped off the BC surface of a road in Thiruvananthapuram district (photo taken on 04/10/2018)

There was no evidence in the records to show that rectification works were carried out.

¹²Name of road: Cherooppa - Kuttikadavu Road

¹³NABARD RIDF- XXI improvements of Marika – Kolani Road

¹⁴Peroorkada - Manikanteswaram – Nettayam Road

In the exit conference the Department confirmed that each work should have separate job mix formula and that adoption of job mix formula of other works affected the quality of work.

➤ **Non-maintenance of proper temperature of bitumen**

As per MoRTH specifications, temperature of bitumen mix varies from 80°Celsius to 175°Celsius depending upon the grade of bitumen, stages of work, location of work and item of work.

Audit observed that

- In six works executed under three Divisions¹⁵, the Quality Control wing found the temperature of the bitumen mix used to be lower than the minimum temperature required.

In a meeting (August 2018) held with contractors in the presence of Executive Engineer, Roads Division, Idukki, the contractors admitted that they used small mixing machines and carriage auto rickshaws to mix and carry the bitumen mix to the work sites and that due to the lower atmospheric temperature of Idukki district, the minimum temperature of bitumen mix could not be maintained. This reflected adversely on the quality of the roads.

There was no evidence in the records to show that any rectification work was carried out.

In the exit conference, the Department accepted the audit observations and stated that the issue in Idukki district would be solved in future as more road works would be executed using BM and BC.

➤ **Non conduct of Roughness Index tests**

BM and BC were introduced in road works to improve the riding quality of roads. Failure to adhere to the specifications on mixing, laying and compaction of bituminous surface affects the riding quality. In order to assess the riding quality of the road, the contractors are to conduct Roughness Index Tests after completion of BC layer.

Audit noticed that out of 79 (13 NH and 66 Roads works) completed works of BM and BC, roughness index test was conducted only in six NH works.

No test was conducted in the 66 works costing ₹352 crore executed under Roads wing due to which the Department was unable to assess whether the specifications for mixing, laying and compaction of bituminous surface were correctly followed.

¹⁵Roads Divisions, at Thiruvananthapuram and Palakkad and NH Division, Muvattupuzha

In the exit conference, the Department stated that direction would be issued to conduct the tests henceforth at the contractor's cost. The Department need to ensure that the directions issued are followed by all concerned.

➤ **Non-conduct of third party tests wherever required**

As per QC Manual 2015, third party test is carried out by an independent laboratory other than that of the contractor or the Department. This is required when certain specific tests cannot be carried out with the facilities available in the laboratory of the contractor or the Department.

Audit noticed that none of the six QC Labs selected for audit had the facility for conducting quality control tests of road safety items like road marking paints, sign boards, retro reflective sign boards, crash barriers, road studs, delineators, etc. Audit also noticed that first tier quality control tests of road safety items were not conducted in 55 completed works test checked. The Department should have insisted on conducting third party quality control tests in such cases. Instances of early damage to road safety items were noticed during JPV under three quality control Sub Divisions¹⁶.

In the exit conference the Department stated that the result of quality control test of items shall be called for before paying work bills in future.

➤ **Non deployment of qualified personnel by contractors at work sites**

According to Section 2102 of the PWD Manual, in the case of works costing more than rupees two lakh, the contractor shall engage engineering personnel to ensure effective supervision.

JPV of the nine on-going works showed that engineering personnel of the contractor were not present during the execution of eight works. Audit also noticed the following lapses in quality control due lack of supervision:

- At a worksite¹⁷ on the Thrissur-Shoranur Road where side drains were under construction, there was no supervision either by the Department or by the contractor. As a result, cement concrete in the ratio of 1:2:4 was used instead of adopting design mix of M20 grade as agreed in the contract.
- At the site of another road work¹⁸ on NH 49, in the absence of supervision the contractor executed 20 mm thick open graded chipping carpet using only one layer of six mm aggregates instead of using two layers of 12mm and six mm aggregates. Skipping of one layer of 12mm affected the quality of work.

¹⁶Kozhikode, Alappuzha and Thiruvananthapuram

¹⁷PR. work 2017-18 improvements to Kodungallur - Shoranur Road using cement concrete drain at chainage km 42/600

¹⁸Near Puthencruz Police Station in Ernakulam on NH 85 Madurai – Kochi Road 2018-19 urgent patch repair from chainage km 202/000 to 274/000

The Department may look into other similar cases and take action to rectify the defects. Responsibility for the lapses may be fixed on the officials concerned.

During the exit conference the Department agreed that qualified personnel of the contractor should be present at work sites and assured their presence at the work sites in future. Non-ensuring of supervision by qualified persons affected the quality of work adversely and benefitted the contractor.

Recommendation No.1: The Department may strengthen the quality control mechanism by ensuring compliance with the provisions of quality control/PWD Manuals and MoRTH specifications by the contractors.

2.5.2 Quality Assurance

According to the QC Manual, quality assurance is the planned and systematic activities implemented in a quality system so that quality requirements for a product/service will be fulfilled. Quality Assurance consists of inclusion of mandatory quality control tests in the contracts, intimation of works to QC Labs for the conduct of second tier quality control tests, identifying and empanelling of approved laboratories for quality control tests, supervision and monitoring of work by the Department. The lapses in this regard noticed by Audit are narrated in the following paras:

2.5.2.1 Non-inclusion of list of mandatory quality control tests in the tender and contract documents

According to Section 2103 of the PWD Manual, a list of mandatory tests should be prepared and attached with the tender documents. This would help to ensure quality control in the works, as contract conditions are legally binding on both the contractor and the Department. Audit observed that the tendering authorities did not incorporate the list of quality control tests and their frequency in the tender documents.

In the exit conference, the Chief Engineer (Roads) stated that the second phase of the Project Information and Cost Estimation (PRICE) software scheduled to be introduced in April 2019 would contain a provision for including the list of mandatory quality control tests in the tender and contract documents.

2.5.2.2 Non-intimation of works

According to the QC Manual, the agreement authority shall forward a copy of the contract documents to the Assistant Executive Engineer of the concerned QC Lab within 10 days of executing the agreement. The Assistant Executive Engineer-in-charge of the work shall ensure that the date of commencement of each item of work is intimated to the QC Lab in a timely manner so that the second tier quality control tests can be arranged by the QC Lab.

Audit observed that the four selected Roads divisions executed 2,557 works during the period covered in audit, but agreement copy of only 683 works (26.71 *per cent*)

were received in the respective QC Labs. Roads Division, Thiruvananthapuram which executed 971 work agreements did not send any contract document to the QC Lab. Out of 279 agreements intimated by two divisions¹⁹, 27 works were received in the respective QC Labs after completion of the works. As a result, those works escaped from the ambit of second tier quality control tests. Further, Audit also noticed that the Quality Control Wing did not have a mechanism to monitor timely receipt of contract details from the agreement executing authorities.

JPVs conducted by Audit revealed that the status of nine on-going works was not intimated to the concerned QC Labs.

During the exit conference, the Chief Engineer (Designs) accepted the audit finding and assured that the issue would be addressed on implementation of the second phase of PRICE software which would include a module for monitoring the execution and progress of works.

2.5.2.3 Absence of approved QC Labs to conduct first tier QC tests

According to the PWD Manual, all works executed by the PWD shall be tested in laboratories approved by PWD and the expense thereof shall be borne by the contractor. In case of any difference between the results of the first and second tier tests or when certain specific tests cannot be carried out with the facilities available in the laboratory of the Contractor/Department or when the results are suspected to be manipulated, third party testing is to be carried out in another approved laboratory.

Audit noticed that the Department did not identify or empanel any approved laboratory and that neither the selected divisions and QC Labs nor the office of the Chief Engineer (Designs) which controls the Quality Control wing had a panel of approved laboratories. As a result, the contractors depended on other sources for conducting first tier quality control tests. The correctness of those test results was not verifiable as those agencies were not liable to provide the details to PWD.

Audit found that the Department did not take quality control seriously even after six years of implementing the revised PWD Manual 2012.

During the exit conference, the Department stated that a proposal to consider all Government/Government aided Engineering Colleges as approved labs would be submitted to the Government soon. This is indicative of the fact that the very basis of quality control which is the first tier quality control tests was neither ascertained affirmatively in the contract condition, nor was the requirement of quality control considered as an integral part of the road works. The roads so constructed were thus, devoid of the important quality control assurance and for such lapses responsibilities need to be fixed on the officials responsible.

¹⁹Roads Divisions, Palakkad and Kozhikode

2.5.2.4 Absence of periodic training on quality control

According to para 313.8 of the PWD Manual, periodic training on quality control shall be given to the field officers to familiarize themselves with the various quality control measures.

Audit noticed that this was not being followed by the Department as shown below:

- During 2016-17 no training was conducted by the QC Labs in Thiruvananthapuram, Idukki and Alappuzha districts.
- The list of officials not trained in quality control as furnished by the Department consisted of 343 technical staff, including Executive Engineers, Assistant Executive Engineers, Assistant Engineers and Overseers who supervise and monitor works in the field.

In the exit conference, the Department stated that training was an important aspect in strengthening quality assurance of works and that training would be conducted at regular intervals in future.

2.5.2.5 Circumventing the requirement of quality control tests by restricting the cost of works

➤ **Splitting up of works to escape the first tier quality control tests**

According to the PWD Manual, all works executed by the PWD shall be tested in PWD approved laboratories and the expenses thereon borne by the contractor. But, as per QC Manual, 2015 first tier quality control tests are mandatory only for works costing more than ₹15 lakh. Executive Engineer has the financial power to issue Technical Sanction to works costing up to ₹50 lakh and execute contracts of such works.

Audit noticed that 28 works relating to five Divisions having a total value of ₹8.16 crore were split into 63 small works of ₹15 lakh each or less. By doing so, those works which were arranged on continuous stretches of roads during the period 2015-16 to 2017-18 escaped from the ambit of first tier quality control tests.

During the exit conference, the Department accepted that it was not a good practice as it would affect the quality and economy of the works.

➤ **Necessity of quality checks by QC Labs (Tier II tests) at work sites without prior intimation**

According to QC Manual, the progress of all works being carried out is to be intimated to the QC Labs. The Department did not comply with the requirement. Further, officials of the Quality Control wing visited the work sites after giving prior intimation. This made the contractors and the field staff vigilant and the quality control tests conducted on those occasions always produced satisfactory results.

JPVs conducted unannounced at nine on-going works revealed the following:

- In seven works, MoRTH specifications were not observed.
- One work²⁰ in Ernakulam district, reported as completed on 31 May 2018 was still going on at the time of visit.
- In Palakkad district, the poor quality of a cement concrete structure in a work²¹ gave it a honey comb like appearance. The retaining wall of the road constructed was not stable.
- The cement concreting of side drain going on at the site of a work²² in Thrissur district was not intimated to the QC Lab. The findings of the JPV were at variance with those observed by the Quality Control wing during their pre-intimated quality checks, as mentioned in Table 2.2 below:



Picture 2: Improperly constructed retaining wall of a road leaning inward in a work in Palakkad district (photo taken on 29/09/2018)

Table 2.2

Observations on quality control aspects in pre-intimated and un-intimated visits conducted by the Quality Control wing at a work site

Components of cement concrete work	Observations made by QC wing during the pre-intimated visits to the work sites	Observation made during the JPV on 24/09/2018 without intimation
Cement	Major branded OPC grade cement was used.	The properties of the brand of PPC grade cement being used were neither known nor tested for quality by QC Labs.
Vibrator	Vibrators were used.	Vibrator was not used.
Mixer	Cement concrete mixed in a mixer for two to three minutes for homogeneous combination.	Cement concrete was mixed for less than two minutes.
Aggregates	Aggregates of different grades were kept in different heaps.	Aggregates were kept in one heap.
Supervision	Technical staffs of both the department and the contractor were present at the work site.	No technical staff were present at site.

The Department may look into other similar cases and take action to rectify the defects. Responsibility for the lapses may be fixed on the officials concerned.

²⁰MLA ADS 2016-17- Improvements to Keezhillam - Manari Road by providing BM and BC between Chainage 0/000 km to 2/000 km

²¹Para – Karattukalam Road in Palakkad district

²²RP work 2017-18 improvements to Kodungallur – Shoranur Road with cement concrete drain at Chainage 42/600 km

2.5.2.6 Lapses in supervision at work sites

Supervision is the act of monitoring an activity and making certain that everything is done correctly.

➤ Inadequate supervision by departmental staff

According to Section 2103 of the PWD Manual, every work has to be properly supervised to ensure that it is carried out in accordance with the required specifications. The Overseer having control of a work shall be responsible for maintaining the quality of all items of work. Certain important items of work shall be supervised by the Assistant Engineer/Assistant Executive Engineer.

During JPV Audit came across four on-going works which did not have departmental supervision.

- At one work site²³ where a departmental Overseer was present, the construction of an Irish drain using cement concrete mix of M20 grade was carried out without using a vibrator to ensure that the mix was free of air bubbles and was even.
- In road works, the uniform application of tack coat (bitumen) on the entire surface is essential to ensure the bonding of a new layer with the existing surface. In a road work in Ernakulam district²⁴, the aggregates were spread without applying bitumen uniformly on the entire surface of the road even though the Overseer of the Department was present at the site.
- Prime coat is a coat of bitumen emulsion required to be applied on a non-bituminous layer before spreading a bituminous layer over it, for proper bonding. This item was included in the work schedule of the contract, but the Overseer at the work site was not aware of it. As a result, the work was executed without doing the item. This lapse caused the aggregates to come off the surface and revert the road to its damaged condition. Leaving the loose aggregates on the road caused accidents to two wheelers.



Picture 3: New bituminous layer laid on non-bituminous surface without clearing the loose soil and applying prime coat for bonding caused peeling off of the new layer (photo taken on 14/09/2018)

²³At Challikkal in Palakkad –Perinthalmanna Road

²⁴Deposit work 2017-18, restoration work in Puthencruz - Brahmapuram Road from Puthencruz junction, Pannikuzhy OH tank to Karimugal near Community Hall

Audit observed that the checklists mentioned in Appendices III to VI²⁵ of the QC Manual for concrete pour monitoring, earth work monitoring, non-bituminous sub base/base layers and bituminous layer which were to be prepared by the technical staff, especially the Overseer supervising the work, were not prepared. The Department attributed the lapse to the heavy workload being faced by the staff during working seasons.

The response of the Department is not acceptable as this indicated failure in the optimum utilisation of available manpower. The Department may look into such cases and take remedial action. Responsibility for the lapses may be fixed on the officials concerned.

2.5.2.7 Absence of monitoring mechanism

The lapses in quality assurance measures mentioned above could have been addressed through proper monitoring. Lapses were noticed in monitoring also as narrated below:

➤ **Non-review of quality control activities by Superintending Engineers and Director (Investigation and Quality Control)**

Review by higher officials is necessary to monitor and check any lapse/deficiency in the quality control system. As per the Government Circular²⁶ the Director, Investigation and Quality Control (I&QC) shall conduct quarterly review of quality control activities and submit recommendations to the Chief Engineer (Designs). The Superintending Engineer shall also conduct quarterly review of implementation of the two tier quality control system and forward reports to the Government under intimation to the Chief Engineers and the Director (I&QC). The Chief Engineer's Committee shall give timely instructions for effective implementation of the quality control system in the Department.

Audit noticed that the five selected Circle offices and the Director (I&QC) did not conduct quarterly review of quality control activities and submit recommendations to the Chief Engineer (Designs).

Non-compliance with the Government instructions on review and monitoring of quality control activities by higher authorities weakened the quality control mechanism.

In the exit conference, the Department stated that the second phase of PRICE software scheduled to be implemented in April 2019 would enable review and monitoring of quality control measures more effectively.

²⁵ These appendices contain various information of an item of work executed so that quality of work can be ensured through many parameters

²⁶ No.10434/C3/2014/PWD (May 2014)

➤ **Payment of work bills without ensuring check list for quality control monitoring**

According to section 2214 of PWD Manual 2012, the work bill submitted for payment shall be accompanied by quality control test results. Checklists for monitoring quality control²⁷ are to be furnished along with the work bills for making payment to the contractor. They are a summary of the first and second tier quality control tests conducted on various items of work and materials. It helps the divisional authorities to take appropriate action before making payments.

Audit noticed that none of the work bills of 282 works test checked were accompanied by check lists. Bills payments amounting to ₹595.23 crore were made without ensuring conduct of quality control tests.

The Department, during the exit conference assured that steps would be taken to ensure attachment of the checklists along with each work bill in future. The above lapses points to the fact that the Departmental officials did not give any importance to quality control.

➤ **Daily/weekly/monthly reports of quality control tests not prepared**

According to section 903.1 of MoRTH specifications, testing frequencies are to be set forth²⁸ and daily, weekly, monthly reports on test results shall be prepared by departmental officials. The reports should indicate the location of sampling and testing, deviation from the specified values for materials and works and remedial action taken by the Contractor for removal of defective work. The Engineer shall certify the test record stating that the tests were done in his presence and as per the methodology prescribed.

Audit noticed that none of the six divisions test checked prepared such reports, which indicated lapses in conducting the prescribed tests.

➤ **Non conduct of tier three tests**

As per PWD/QC Manual, third tier quality control tests (Technical Audit) for projects costing more than rupees five crore shall be conducted by an external agency/expert empanelled for the purpose within six months of the completion of a project. All tests carried out in the first and second tier shall be reviewed during the technical audit.

Audit observed that, out of the 282 works test checked, 33 works costing ₹448.95 crore were of more than rupees five crore, but none of the works was subjected to Technical Audit as envisaged, which resulted in non-review of the quality control measures in those works.

²⁷ Summary of quality control tests done and action taken on failed items prepared in Appendix I/II of Quality Control Manual

²⁸ Targets and achievements in respect of quality control tests

During the exit conference, the Department stated that tier three tests would be ensured in works arranged through Kerala Infrastructure Investment Fund Board (KIIFB) fund. The Department should ensure that not only the works arranged through KIIFB but also all works costing more than rupees five crore are subjected to tier three tests.

Recommendation No.2: The Department may include a list of mandatory first tier quality control tests in the bid documents, ensure intimation of works to Quality Control wing and impart adequate training on quality control to the field staff.

2.5.3 Maintenance Strategy, including Road Safety

The maintenance of roads is an elaborate activity. It comprises maintenance of basic records as well as maintenance of structures including their inspection at prescribed intervals. The basic objectives of maintenance are to afford riding comfort, convenience and safety to the public. Even the good quality roads show signs of distress over a period of time due to the increasing vehicular traffic, changing climate and other reasons. Road maintenance on a regular basis is required to minimise these effects and to extend the life of the road. The PWD/Quality Control Manuals and IRC/MoRTH specifications describe the maintenance strategy of roads in detail.

Audit found that the Department did not carry out road maintenance works as prescribed in the Manuals and IRC/MoRTH specifications, as narrated below:

2.5.3.1 Non-maintenance of road chart

Section 2602.4.2 of the PWD Manual specifies that for each important road a road chart shall be maintained in the form given in Appendix 2600H which would give all the data about the history of renewal of surface of different sections of the road. This would help in the selection of reaches requiring renewal or special attention.

Audit observed that three out of the four Roads Divisions selected did not maintain a road chart. As a result, resurfacing work of many roads was not done for years. At the same time in three cases early resurfacing of roads and overlapping of works were noticed.

In the exit conference, the Department stated that the issue of road chart was expected to be resolved with the introduction of second phase of PRICE software.

2.5.3.2 Use of unsuitable methods for maintenance works

As per Section 3004.1 of MoRTH specification adopted by PWD, the materials (particularly patching and overlay materials) used in maintenance operations shall be of a standard not less than those specified for the original construction. Maintenance treatments required under the contract or instructed by the Engineer may include pothole and patch repair, crack-sealing, fog spray, dusting, slurry sealing, surface dressing, overlays and specialist repairs.



Picture 4: Potholes filled with 36 mm aggregates without cutting the potholes into regular shape (photo taken on 24/09/2018)



Picture 5: Usage of 36mm aggregate for bitumen levelling course in violation of GOK stipulation (photo taken on 27/09/2018)

Use of unsuitable methods for road maintenance works compromises the quality of roads and make them accident prone.

During JPVs irregular methods²⁹ were seen used for maintenance works. In addition to the above, Audit also found the following lapses in maintenance of roads:

- Pothole filling was done in two road works³⁰ using 36 mm metal without using bitumen binder, in violation of MoRTH specification.
- As per the contract specification of a work³¹ in Kozhikode district, damages to the road were to be rectified using Wet Mix Macadam. Instead, the rectification work was done using 36 mm metal, violating the contract condition and MoRTH specification.



Picture 6: Detached loose aggregates from filled up potholes being cleared by the public due to improper method of construction (photo taken on 24/09/2018)

²⁹ Such as earth filled potholes, oversized stone used for filling potholes, chipping carpet over BC surface and cement concrete used for filling potholes in bituminous road were noticed in 11 Roads

³⁰ Pre-monsoon works 2018-19 to Kodungallur-Shoranur Road and Pre-monsoon works 2018-19 to Cheruthuruthy-Ponnani Road

³¹ Flood damage work-Urgent pothole repair in Kattangal - Mavoor Road between chainage 4/000 km to 7/400 km

- GoK prohibited (February 2017) the use of 36 mm metal in levelling course since it has voids. In a road work³² in Palakkad District, 36 mm metal was used as levelling course disregarding the GoK direction.
- In Thrissur-Shoranur Road, at Mulloorkara Junction, the local people were seen clearing loose 12 mm aggregates from the road using iron broom. People expressed concern over the inferior quality of rectification work done. It was stated that there were recurrent two-wheeler accidents due to skidding over the loose aggregates.
- As per Specification 501.6 of the MoRTH, the wheels of roller machine shall be in good working order, to prevent the mix from sticking to the wheels. Only sufficient moisture to prevent adhesion between the wheels of the rollers and the mix should be used. In a road work³³ in Ernakulam district it was found that excess water was being poured on the wheels of the road roller which flowed down on the newly laid road surface which could cause early damage to the road.
- On a visit to the above road work, it was found that chipping carpet work was going on over an existing bituminous concrete layer. As per the PWD norms, chipping carpet was not to be laid over existing bituminous concrete.

Besides, a surprise inspection by the technical inspection wing of the Finance Department on NH 66 in Alappuzha district revealed rectification works being carried out using 36 mm aggregates and premix chipping carpet, instead of BM and BC originally used in the work. The Chief Technical Examiner of the inspection wing remarked that non usage of standard items not only damaged the new surface but also damaged the old bituminous concrete layer.

The Department may look into other similar cases and take action to rectify the defects. Responsibility for the lapses may be fixed on the officials concerned.

2.5.3.3 Use of unsuitable items for road overlay works using open graded premix chipping carpet

➤ Violation of MoRTH specification

MoRTH specifications were adopted in Kerala by PWD in October 2013, according to which, bitumen overlay of Open Graded Premix Chipping Carpet³⁴ (OGPC) work was to be done using graded aggregates³⁵. Audit observed the following violations:

³² Near Puthur junction in Kalmandapam –Kalpathy Road

³³ Near Puthencruz Police Station in NH 49

³⁴ OGPC is a two centimetre thick bituminous wearing course laid over old bituminous surface or over Water Bound Macadam (WBM) surface, in which two grades of aggregates with binder content are spread separately and each time compacted using road roller

³⁵ Graded aggregate means using different size of aggregates so as to have a uniform consistency in concrete

- Under Roads Division, Idukki, out of 81 works test checked, 39 OGPC works costing ₹26.44 crore were done using 12 mm and 6mm aggregates, instead of graded aggregates.
- Further, a tack coat was to be provided using bitumen emulsion or bitumen VG 10 as part of the chipping carpet work. Out of 81 works test-checked, in 24 works VG 30 was used instead of bitumen emulsion/VG 10 which undermined the quality of work. During the meeting of contractors arranged (August 2018) by the Executive Engineer at the instance of Audit, the contractors confirmed that they used VG 30, pouring it like threads instead of spraying it over the entire area.

Adoption of improper methods of work can reduce the life of the road constructed.

➤ **Violation of GoK direction**

GoK directed (February 2017) that OGPC shall be replaced with Close Graded Premixed Chipping Carpet (CGPC)/Mix Seal Surfacing (MSS). Audit noticed that, 79 chipping carpet works arranged under Roads Division, Idukki did not adopt CGPC/MSS even after issue of the Government direction.

During the JPV conducted in Idukki district, it was noticed that a 200 metre long portion of road constructed (May 2018) using OGPC instead of CGPC between chainage 55/000 km to 56/000 km of the Thodupuzha–Puliyamala Road had peeled off.

During the exit conference, the Department stated that CGPC had more life and quality than OGPC and confirmed that in Idukki district OGPC was still being used in road works as it was cost effective.

Cost effectiveness should not be allowed to prevail over the quality and life of roads.

2.5.3.4 Non conduct of timely maintenance

➤ According to the PWD manual, the Assistant Engineer/Overseer shall inspect the roads under his control at least once a month and report on the condition of roads for taking preventive maintenance. The frequency of this inspection shall be increased during the monsoons and calamities.

Audit found no evidence of routine inspection conducted in any of the four selected Roads Divisions. Absence of periodical inspections allowed initial defects like cracks to go unnoticed and later to develop into potholes.

➤ Section 2601.1 of the PWD Manual states that road maintenance is required on a regular basis to keep the effect of road distress to a minimum, to extend the life of the road and to provide a high level of service to users. As per section 514.2 of MoRTH specification, preventive maintenance measures such as micro surfacing may be used as surface sealing treatment to improve skid resistance, surface durability and

to seal fine and medium cracks on an existing pavement surface which is structurally sound, but shows signs of premature ageing, aggregate loss, cracks etc.

JPV conducted in 77 reaches revealed the following:

- Cracks, the initial symptoms of road damage, were seen in 12 road reaches in Idukki³⁶, Ernakulam³⁷, Thrissur³⁸ and Palakkad³⁹ Districts.
- Potholes/stripping of road surface were found in 29 road reaches in Thiruvananthapuram⁴⁰, Alappuzha⁴¹, Idukki⁴², Ernakulam⁴³, Palakkad⁴⁴ and Kozhikode⁴⁵ Districts.



Picture 7: Potholes in front of Taluk Hospital, Thuravur in NH 66

Failure in rectification of minor cracks and other initial defects in time leads to developing of potholes, causing hardships to road users and increase in the maintenance cost.

In the exit conference, the Department stated that introduction of a separate maintenance wing might help in improving maintenance activities of roads in the coming years.

2.5.3.5 Arrangement of work during defect liability period

A Defect Liability Period (DLP) is a period of time following the practical completion of a work during which the contractor remains liable under contract for rectifying any defects which become apparent.

According to the agreement conditions, every time the Engineer gives notice of a defect to the Contractor before the end of the DLP, the Contractor shall correct the notified defect within the time specified in the notice. If the contractor has not corrected the defect within the specified time, the Engineer will assess the cost for correcting the defect and the contractor will pay this amount.

³⁶ At many places between Paramada Junction and Cheruthoni Junction in Thodupuzha – Puliyamala Road

³⁷ Between Manakkadavu bridge and Pallikkara Junction in Ernakulam – Muvattupuzha Road

³⁸ Between Vazhakode and Cheruthuruthi in Thrissur – Shoranur Road

³⁹ Mundur – Koottupatha Road in Palakkad district

⁴⁰ Perrorkada – Manikanteswaram – Nettayam Road

⁴¹ Chainage 368/000 to 387/300 km of NH 66

⁴² Chainage 2/600,3/300 and 3/400 km of Uppukunnu – Paramada Road

⁴³ Valayanchirangara – Mannoor Road

⁴⁴ Between Koottupatha and Para in Palakkad – Para – Pollachi Road

⁴⁵ East Hill – Karaparamba Road in Kozhikode district

Audit noticed that the Department awarded three new works costing ₹31.61 crore during the DLP of three⁴⁶ existing road works in order to rectify the inferior quality of work done. It was also noticed that in respect of another work⁴⁷ the Department awarded eight new works costing ₹1.06 crore, immediately after the DLP of the work.

The Department issued notices to contractors of three⁴⁸ of the works during the DLP of the works for rectification of defects, but they did not comply. Notice was not issued to the contractor in respect of one work.⁴⁹

In reply to an audit enquiry, the Superintending Engineer, North Circle, Kozhikode stated that the expenditure incurred on rectification of defects of one⁵⁰ work would be recovered from the contractor concerned. No action was proposed or taken by the Department in the other three cases.

In the exit conference, the Department accepted that new works were not permissible during DLP. However, negligence of the departmental officials enabled the contractors to compromise on the quality of works. Further the department did not recover the cost of the defective work from the contractors in three works, and incurred extra expenditure on correcting defects. Responsibility for lapses may be fixed on the officials concerned.

2.5.3.6 Inadequacy/Absence of drainage

As per Section 1503.13 and 2407.19 of the PWD Manual, drains are an integral part of roads and must be provided for all roads. They must be permanent structures and must be properly maintained, considering the heavy



Picture 8: Lack of drainage caused water logging and potholes, reducing the width of carriageway in NH 66 (photo taken on 14/08/2018)



Picture 9: Lack of side drain caused water logging preventing access to bus waiting shed in NH 66

monsoon rains in the State. The main objective of drainage is to prevent early damage

⁴⁶ One work each under Roads Divisions Palakkad-(A), Kozhikode-(B) and NH Division, Alappuzha-(C)

⁴⁷ Under NH Division, Alappuzha-(D)

⁴⁸ Works (A), (C) and (D)

⁴⁹ Work (B)

⁵⁰ Work (A)

to the pavement due to the entry of excess water and to prevent saturation up to a depth of one meter below the top of the sub grade. Strength and life of the pavement greatly depends on the moisture present in and below the pavement. Performance and durability of the pavement is inversely proportional to the quantum and duration of the presence of moisture in the road structure. Absence of drainage facilities and improper construction of drainages lead to water logging and damage of roads.

Audit noticed lapses in the maintenance of drainages in 18 road reaches visited during JPVs which included issues such as water logging of roads and consequent damage of road surface, non-construction of drainage/improper construction of drainage, etc.

In one instance⁵¹, under Roads Division, Idukki, absence of flood water drainage facility necessitated the reconstruction of a retaining wall and cement concrete drain.

The Department accepted that absence of proper drainages affected the quality of roads and stated that fund shortage was a major concern in maintaining drainages and shoulders.

2.5.3.7 Improper maintenance of shoulder

According to the PWD Manual, maintenance of shoulder is an important part of maintenance activity so as to facilitate easy access and drainage. Audit noticed that the Department did not take periodical action to maintain the shoulder except at the time of carrying out resurfacing work.

During the JPV of 20 road reaches, Audit noticed lapses in the maintenance of shoulders. The lapses consisted of non-maintenance of correct gradient of shoulder which blocked the flow of rain water to the drain/caused drop at the edges of the roads.

2.5.3.8 Lapses in road cutting and restoration works

According to the PWD Manual, for any work involving cutting of the PWD roads, the organizations which request permission for cutting the roads themselves shall restore the roads to their original condition within a stipulated time, under the supervision of PWD.

Audit noticed the following lapses in this regard.

- Kerala Water Authority dug a portion of the NH 220 under NH Division, Muvattupuzha without the permission of the PWD. The PWD demanded ₹2.84 crore which was not remitted by Kerala Water Authority.

⁵¹ FD - 2013-14 Construction of retaining wall and CC drain at eroded portion of Vellathooval-Ponmudi Road at km 00/700 and km 01/200 (Agreement No. 316/EE/13-14 dated 19/09/2013)

- In Thrippunithura, immediately after completion of a road surfacing work using BM and BC by the NH wing of PWD, the Roads wing granted permission for digging the road without consulting the NH wing.



Picture 10: Unattended restoration works after laying of pipelines reduced the width of carriage way(photo taken on 07/09/2018)



Picture 11: Unattended pipe leakage caused pothole in newly resurfaced road (photo taken on 07/09/2018)

In addition to the above, similar lapses were noticed during JPV of restoration works in 10 road reaches. The lapses included long delay in restoration of road surface to its original condition after road cutting, restoration of road surface using non-compactated 36mm aggregates instead of bituminous overlay specified by MoRTH, improper restoration of road leading to settlement of the restored portion, trenching of hilly area roads along the filling side instead of the cutting side and formation of potholes due to unattended pipe leakage.

As this was a test audit in the sampled works in selected road divisions and the audit observation is of a nature that may reflect in other works not covered in test audit, Department may, therefore, like to internally examine the position in rest of the works with a view to ensure that requirements of quality control, as prescribed, are being met. The Department should take necessary remedial measures and also fix responsibility for the lapses in all such cases.

Recommendation No.3: The Department may strengthen the road maintenance system by preparing and maintaining Road Charts and by ensuring that the maintenance activities are carried out in compliance with MoRTH and GoK stipulations.

2.6 Conclusions

Review of the quality control system revealed that the Department was not able to implement the quality improvement programme satisfactorily due to the following:

- The Department did not ensure setting up of field labs, continuous monitoring of quality, proper supervision and monitoring of works. Performance of the Quality Control wing was poor and the departmental supervision of works was inadequate. These lapses defeated the benefits envisaged by the introduction of the quality control system and compromised on the riding quality of roads.

- The Department failed to include mandatory Quality Control tests in the contract documents, to intimate contracts/ progress of work to Quality Control wing and to identify and empanel approved labs for conducting quality control tests. The Department also diluted the MoRTH specifications for road works. As a result, quality assurance of works could not be ensured.
- The Department did not maintain road charts, did not follow the maintenance strategy for timely identification and rectification of defects and did not adopt a preventive maintenance strategy. Unsuitable materials and improper methods were adopted for road maintenance. This affected the quality and life of roads adversely.
- The drainage systems of roads were inadequate and were not maintained properly. Improper maintenance of shoulder of roads coupled with lapses in road cutting and restoration works reduced the life and usability of roads, necessitating frequent repairs and maintenance.

Departmental lapses in ensuring quality assurance and quality control in the maintenance of roads resulted in compromising of value for the money spent on the sampled 282 works worth ₹790.77 crore examined by Audit. The objective of ensuring quality control in road works was thus, defeated due to the lackadaisical approach of the Department. As this was a test audit in the sampled works in selected road divisions and the audit observation is of a nature that may reflect in other works not covered in test audit, Department may, therefore, like to internally examine the position in rest of the works with a view to ensure that requirements of quality control, as prescribed, are being met. The Department should take necessary remedial measures and also fix responsibility for the lapses in all such cases.

Chapter III

Compliance Audit

CHAPTER III**COMPLIANCE AUDIT****FISHERIES DEPARTMENT****3.1 Functioning of Agency for Development of Aquaculture Kerala (ADAK)****3.1.1 Introduction**

The Agency for Development of Aquaculture, Kerala (the Agency) is an Autonomous Body registered (May 1989) under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act, 1955. It functions under the Department of Fisheries.

The Agency is mandated to promote aquaculture¹ and its related activities in the State. Towards this, it undertakes implementation of various schemes sanctioned by the Government. The Agency operates six aquaculture farms² which function as model/demonstration farms, a hatchery³, three PCR (Polymerase Chain Reaction) Laboratories⁴ and an Aquarium⁵.

The Agency is headed by an Executive Director, assisted by a Joint Executive Director, and a Deputy Director. Various schemes undertaken by the Agency are implemented through its two Regional Offices at Alappuzha and Ernakulam, headed by respective Regional Executives.

The objective of the Audit was to examine whether the programmes were implemented according to the existing regulations and guidelines.

Audit scrutinised the records relating to the Agency in the Department of Fisheries, Directorate of Fisheries, Agency Headquarters, regional and field offices of the Agency and covered the period from 2013-14 to 2017-18. Audit also conducted joint physical verification (JPV)/beneficiary survey of selected schemes, wherever found necessary.

¹ Aquaculture means growing any aquatic animals or plants by collecting and conserving them naturally or artificially in restricted circumstances in any private or public water body or in any aquatic environment and includes cage culture, pen culture, running water fish culture, ornamental fish farming, fish farming in reservoirs

² At Eranholi, Kadapuram, Poyya, Njarackal, Edakochi and Ayiramthengu

³ At Odayam engaged in the production of post larvae *Penaeus monodon*

⁴ Two independent PCR labs at Thevara and North Paravur and one PCR lab attached to Hatchery at Odayam

⁵ At Neyyar

3.1.2 Audit findings

3.1.2.1 Non-compliance with provisions of Coastal Aquaculture Authority Act, 2005

The Coastal Aquaculture Authority (CAA) was established under the Environment (Protection) Act, 1986 as per the directives of the Hon'ble Supreme Court in order to protect the coastal environment from indiscriminate exploitation. The CAA regulates the coastal aquaculture⁶ activities through the provisions of the Coastal Aquaculture Authority Act, 2005 (the Act). The Act stipulates mandatory registration of farms and adherence to the guidelines/instructions issued by the CAA.

All the six farms and the hatchery operated by the Agency are located in coastal areas and so, come under the purview of the Act. Two of the farms, located at Kadapuram and Edakochi, were directly under the Department of Fisheries prior to the year 2016. Compliance with the provisions of the Act and the Rules made thereunder by the other four farms and one hatchery which were under the Agency from the beginning is given in Table 3.1 below:

Table 3.1: Status of compliance with CAA registration norms

Sl No.	Farm/ Hatchery	CAA Registration No.	Activity Registered for	Deviation from Registration conditions noticed
1.	Odayam (Hatchery)	Not obtained	-	-
2.	Ayirem thengu	Not obtained	-	-
3.	Eranholi	KL-II-2013 (668)	Traditional Farm practice ⁷ of fish and shrimp culture	The registration expired on 7 th April 2018 but the farm was yet to apply for renewal. Different species of fish were being cultured following non-traditional farm practices.
4.	Poyya	KL-II-2015 (1068)	Traditional Farm practice of fish and Shrimp culture including 4 hectares for Pacific white shrimp (<i>Litopenaeus vannamei</i>)	Contrary to the activity registered for, major portion of the farm land (24.27 hectares of 39.15 hectares) was used for culturing fish using non-traditional farming practice. During the years 2015-16 and 2016-17 <i>L. Vannamei</i> was cultured.
5.	Njarackal	KL-II-2016 (1271)	Culture of <i>Penaeus monodon</i>	Instead of culturing <i>Penaeus monodon</i> , the farm cultured milk fish (<i>Chanoschanos</i>)

⁶ “Coastal aquaculture” means culturing, under controlled conditions in ponds, pens, enclosures or otherwise, in coastal areas, of shrimp, prawn, fish or any other aquatic life in saline or brackish water; but does not include fresh water aquaculture; (Section 2(1)(c) of The Coastal Aquaculture Authority Act, 2005)

⁷ In traditional farming, seeds of shrimps and fish are allowed to enter through tidal water and then trapped. After a short duration of growth, they are periodically harvested during full moon and new moon periods

The Agency, mandated to promote development of aquaculture in the State undermined the efforts to promote responsible and sustainable aquaculture through its non-compliance with the regulatory requirements.

Audit also observed that though the farms and the hatchery did not comply with the regulatory requirements, the Government sanctioned projects without insisting on the compliance with CAA norms.

The Government replied (September 2019) that the agency initiated/would initiate actions to comply with the regulatory requirements.

Operational issues

3.1.2.2 Non-adherence to guidelines in culturing of White leg shrimp

White leg shrimp (*Litopenaeus vannamei*) is an exotic species of shrimp. As it is vulnerable to viral infections that afflict native crustaceans⁸, the CAA notified (April 2009) detailed guidelines for the culture of this species with emphasis on adoption of strict bio-security measures. The CAA also issued certain specific “Do’s and Don’ts” for its culture, a copy of which was forwarded to the agency by the CAA.

The guidelines and other instructions *inter alia* prohibited the culture of other crustacean species within the same farm and discouraged the farming of White leg shrimp if the neighbouring farms cultured non-SPF⁹ native species. The depth of water in the farm ponds was to be maintained at 1.5 metres.

The Government accorded (May 2015) administrative sanction to the project ‘Revamping of Poyya farm’ at a cost of ₹1.15 crore. The components of the project included farming of White leg shrimps and fin fishes namely, Pompano, Sea bass, Grey mullet and Pearl spot. The Agency obtained (July 2015) permission from the CAA for culturing White leg shrimps in four hectares of the farm at Poyya in Thrissur district.

The Agency cultured two crops of SPF white leg shrimp. The first crop seeds were stocked (12 January 2016) in two ponds of one hectare each. The culture period of the species was 120 days. But the crop was subjected to distress harvest¹⁰ on the 68th day as shrimp mortality was noticed. The harvest yielded 365 kg against the target of 11,200 kg¹¹. In a report submitted (April 2016) to the Director of Fisheries (DoF), the

⁸ An arthropod of the large, mainly aquatic group Crustacea such as a crab, lobster, shrimp, or barnacle

⁹ SPF - ‘Specific Pathogen Free’ is a term used as a guarantee which denotes free of particular pathogens

¹⁰ As decided by the Technical Committee in March 2016

¹¹ As per Detailed Project Report

Executive Director contended that the shortfall was either due to low productivity of the ponds or infection of EHP¹² for which testing facilities were not available.

The Agency did another crop (May 2016) of the same species which also showed mortality. The harvest made (June 2016) after 53 days yielded 1,400 kilograms of shrimp. The dead shrimps were found positive for White Spot Syndrome Virus (WSSV). The Deputy Director of Fisheries opined (September 2016) that the outbreak of WSSV might have occurred due to the entry of disease carriers in to the culture ponds through clay bunds which were not sufficiently compact, allowing minor seepages. Audit observed the following:

- The Agency maintained the water level in the ponds at one meter instead of 1.5 meter stipulated by CAA.
- In contravention to the guidelines, during the same period the Agency also farmed mud crabs, a crustacean species, which are one of the carriers of viral pathogens. Introduction of the viral pathogens through crabs which move from pond to pond over and through land barriers could not be ruled out.

Non-adherence to the guidelines issued by the MoA/CAA could also have contributed to the failure of both the crops. Further, it was observed that in violation of CAA registration conditions the agency farmed other fin fishes under the project, which also failed to achieve its target.

The farmers of the State were thus deprived of the benefits that would have accrued by successful introduction of the new species through the new technology.

The Government replied (February 2019) that the guidelines were an advice or good management practice which could be altered to suit local conditions. The reply is not acceptable as the registration conditions clearly state that the owner shall comply with all instructions/conditions issued by the CAA.

3.1.2.3 Non-achievement of project objectives

Traditional brackish water paddy-shrimp farming system of Northern Kerala called Kaipad farming is an integrated organic farming system. The rice obtained from the paddy cultivated in these wetlands is included in the Geographical Indication¹³ Registry as ‘Kaipad Rice’ due to its unique qualities. In Kannur district, out of the total area of 2,500 hectare of Kaipad land, 1,265 hectare has remained fallow for years. Revival of the Kaipad lands was a must for preventing damages to the saline wetlands, to improve the overall productivity of the wetland ecosystem, to promote

¹² ‘Enterocytozoonhepatopenaei’ (EHP) is an yeast-like fungus belonging to a group called “microsporidia”, which are obligate intracellular parasites. Microsporidia are ubiquitous pathogens and are important components of terrestrial and aquatic ecosystems worldwide

¹³ As per the provisions of the Geographical Indication of Goods (Registration and Protection) Act, 1999

sustainable aquaculture practices through integration of agriculture and pisciculture and to provide social and economic benefits to rural areas.

As part of reviving the fallow Kaipad lands, the Agency implemented the project ‘Promotion of Rice cum Shrimp Farming in Kaipad Lands’¹⁴ (project) in Kannur district during the years 2013-14 and 2014-15 with a total outlay of ₹5.12 crore¹⁵. The project was to be implemented in 180 hectare of Kaipad land through 36¹⁶ beneficiary groups to be selected, each possessing a minimum holding of 5 hectare (unit size) of Kaipad land. The Agency was responsible for the selection of beneficiaries, constitution of a monitoring committee and supervision of project activities to ensure successful implementation of the project.

The project, implemented through 32 beneficiary groups against the targeted number of 36 groups with a coverage of 160 hectares was not implemented efficiently. This resulted in discontinuation of the project by 23 beneficiaries, though a part subsidy of ₹1.22 crore¹⁷ was disbursed to them, as shown in the Table 3.2.

Table – 3.2
‘Project year’ wise number of beneficiaries who discontinued the farming activities, amount of subsidy paid to them and reasons for discontinuation

(₹ in crore)

Project Year	Number of beneficiaries selected	Number of beneficiaries discontinued the farming activity	Amount of subsidy provided to the discontinued beneficiary groups (₹)	Reasons for discontinuation
2013-14	17	13	0.77	Non-availability of workers, boundary disputes, damaged sluice, non-survival of shrimp seeds, destruction of crop, inadequacy of storage and marketing facilities etc.*
2014-15	15	10	0.45	Legal issues developed due to improper scrutiny of documents etc.**
Total	32	23	1.22	

* As conveyed by the beneficiaries in a survey conducted by Audit (**Appendix 3.1**)

** As per official records

A survey of the beneficiary groups of the project year 2013-14 conducted by Audit revealed that 13 beneficiary groups discontinued the farming activity after the 2nd year due to reasons mentioned in the Table above.

¹⁴ Coastal Inter-tidal wetlands of north Kerala where the farming of salt tolerant traditional tall paddy varieties for agriculture and brackish water species of shrimp and fish are practiced

¹⁵ ₹2.56 crore each for 2013-14 and 2014-15

¹⁶ Eighteen in 2013-14 and 18 in 2014-15

¹⁷ ₹0.77 crore in 2013-14 (given to 13 beneficiaries) + ₹0.45 crore in 2014-15 (given to 10 beneficiaries) = ₹1.22 crore

Seven beneficiary groups of the project which commenced in 2014-15 did not even start the farming activity, while three groups discontinued farming after the first year (**Appendix 3.2**). Audit noticed that the Agency did not verify the land lease documents furnished by the seven beneficiary groups against the revenue records. As a result, the Agency could not detect the false land lease certificates issued by the Secretary, Puzhathy Grama Panchayat from where these beneficiary groups leased the required land. Consequent legal disputes resulted in non-commencement of farming activity by these seven groups.

In respect of the three beneficiary groups, who discontinued farming, the Agency did not take any action to assess the reasons for their discontinuance. . Records produced to Audit indicated that the Agency did not set up a monitoring committee during both the project years which adversely affected the projects.

Thus, the above deficiencies in implementing the projects resulted in non-revival of farming in at least 115 hectare of Kaipad land, despite of incurring ₹1.22 crore towards subsidy to the 23 beneficiary groups.

The Government replied (February 2019) that bunds constructed by the beneficiary groups would have long term benefits for both paddy and fish culture. The reply was not tenable as Audit observed that out of the 23 non-functional beneficiary groups, the bunds and sluices of only five groups were intact enabling revival of farming. In the remaining cases, either the bunds did not exist or the sluices were damaged.

The Government also stated that the Agency had no expertise in checking the authenticity of a revenue document. The reply was not tenable. The Agency was to exercise adequate precaution before releasing government money by ascertaining the actual status of the leased land with reference to the revenue records.

The Agency had successfully implemented a similar project commenced during 2012-13, leading to the revival of 90 hectare of Kaipad land in Kannur district. Non-adherence to project guidelines in the succeeding years resulted in under achievement of the project (only 28 *per cent*) besides depriving the beneficiary groups of the social and economic benefits envisaged under the project.

3.1.2.4 Promotion of farming of exotic species without adequate safeguard

The Government accorded administrative sanction (June 2014) for the development of model fish farms for implementing Innovative Aquaculture Practices by the Agency. A component of the scheme was farming of genetically improved fishes like Genetically Improved Farm Tilapia (GIFT)¹⁸.

An expert level meeting (July 2014) of the Kerala State Bio-Diversity Board (KSBB), also attended by an official of the Agency, observed that as per the Government of

¹⁸ Genetically Improved Farm Tilapia (GIFT) is developed from exotic fish species known as Tilapia which are native to Africa and the Middle-east through continuous feeding of hormone 17 α methyl testosterone. GIFT is an aggressive omnivore and voracious feeder

India (GoI) guidelines, farming of GIFT was impossible to practice in the State where monsoon flooding was a common phenomenon. The species was an aggressive omnivore and voracious feeder attaining a weight of 400-600 grams in six months. The escape of GIFT to the natural water bodies of the State could be suicidal for the indigenous fish *Etroplus surantensis*¹⁹ as *Tilapia* shared the same domain and niche. Therefore, KSBB recommended (July 2014) farming of GIFT after strict adherence with certain safeguards which included locating of ponds away from natural water bodies and providing cemented walls for the ponds. The GoI guidelines also required at least one acre of water spread area for GIFT culture. But, the State Government lowered (November 2014) the requirement of water spread area to 50 cents citing constraints in the availability of land. The Agency implemented the project in five selected private farms.

Audit observed that the recommendations of KSBB were not adhered to while selecting the farms. As a result, the project was implemented in farms having pond area of less than 50 cents and in farms located near natural water bodies. The farming of GIFT, a non-native genetically altered species, in violation of the regulations was a potential risk to bio-diversity.

The Government stated (February 2019) that the agency implemented the project in areas having water spread areas of below 50 cents due to its inability to identify water spreads having the required area.

The reply is not acceptable. If the agency was unable to meet the criteria for farming of GIFT, it should have taken up promotion of other species envisaged in the project which had no restrictions.

3.1.2.5 Improper feed management

The Agency predominantly farms various types of fin fishes in its farms to demonstrate their economic viability. Neither the CAA nor the Agency prescribed any guidelines on the farming of fin fishes. Further, the Agency also did not prescribe any procedure for feed stock management.

Audit observed that the Agency did not have a dedicated feed storage facility in three²⁰ of its farms but the feed was stored either in rooms prone to seepage or in semi-open area. The feed, which accounted for around 67 per cent of the operational cost (excluding labour) was procured in bulk by the Agency. The manufacturers prescribed 90 days shelf life for feeds from the date of manufacture, when stored under ideal conditions. It was observed that the Agency issued feed for use even after 150 days of its manufacture.

The Government replied (February 2019) that the Agency had many on-going projects aimed at improving the infrastructure facilities of the farms including feed

¹⁹ Pearl spot – given the status of State Fish

²⁰ Poyya, Ayiramthengu and Njarackal

storage and that on completion of the same, a better feed storage management would be possible.

Issues in Financial Management and Accounts

3.1.2.6 Irregular retention of Government grants

As per Government instructions (between July 1999 and May 2016)²¹ balances of all funds released by the Government to autonomous bodies as grants/loans etc., should not be kept in bank accounts but should be remitted back to the Government or kept in Treasury Savings Bank Accounts. The Agency, however, retained substantial amounts received as grant from the Government for implementing various project, as mentioned in the Table 3.3

Table 3.3
Details of irregular retention of money by the Agency

Sl. No	Name of Project	Grant received # (₹)	Expen- diture incurred (₹)	Balance retained (₹)	Remarks
1.	Promotion of rice cum shrimp farming in Kaipad lands	3.30	1.86	1.44	Money was retained in the bank account since payment of subsidies were not made by the Agency due to reasons mentioned in para 3.1.2.3
2.	Revamping of Poyya Farm	1.03	0.68	0.35	The project undertaken without feasibility study, failed to achieve the targeted results and was closed after incurring an expenditure of ₹68 lakh. ²² and the balance was retained in bank account
3.	Revival of Productivity of Pearl Spot and Giant Prawn on life cycle approach in Vembanad Ecosystem.	12.70	5.35	7.35@	As per the guidelines, the balance amount of ₹4.26 crore (excluding the committed expenditure) as of 30 September 2016 should have been surrendered to the Government. Instead, the money was retained in the Treasury Savings Bank account of the Agency.

Excluding managerial expenses.

@ Balance as on 30 September 2016 including committed expenditure of ₹3.09 crore.

²¹ Circular Nos. 7/99/Fin. dated 21/01/1999, 75/09/Fin dated 29/08/2009 and Govt. order dated 27/05/2016

²² Expenditure statement of Farm Manager, Poyya Farm

The Government stated (February 2019) that ₹1.44 crore was kept in bank accounts as the Farm Manager did not have a TSB account and that ₹0.35 crore was reallocated to other farming activities in Poyya Farm. The amount of ₹7.35 crore was retained for meeting committed expenditure.

The reply is not acceptable as instructions of the Government should have been followed scrupulously in the above cases. Subsequent allocations should have been obtained from the Government, wherever necessary, for meeting further expenditure.

➤ **Unauthorised retention of project savings of ₹1.42 crore**

Article 176 (a) of the Kerala Financial Code states that sanction to an estimate should always be regarded as being strictly limited to the precise objects for which the estimate was intended. Any anticipated or actual savings in a sanctioned estimate for a specified work should not, without the special sanction of a competent authority, be applied to any additional work which was not originally contemplated, unless it is fairly contingent on the actual execution of the work.

During the period 2013-18, the Agency implemented 20 projects sanctioned by the Government. The administrative sanctions of the projects *inter-alia* included a component for supply of fish/shrimp seeds for the projects. The Agency undertook the supply of fish/seeds for which it was permitted to charge a margin of 10 *per cent* of the cost of seeds procured.

Scrutiny of the seed sales invoices revealed that against ₹3.34 crore chargeable to the projects towards the actual cost of seed (including 10 *per cent* margin), the Agency charged ₹4.76 crore (43 *per cent* above), at the estimated rates sanctioned by the Government. Retention of the resultant savings of ₹1.42 crore by the Agency in excess of the limits permitted by the Government was unauthorised. Obtaining of surplus grants from the Government and retention of savings beyond the permitted limits, affected the financial position of the Government adversely to that extent.

The Government replied (September 2019) that the savings, if any, were mainly utilised for improvement of assets of the Agency.

The reply is not tenable as the administrative sanctions did not envisage the activities for which the savings were utilised.

➤ **Submission of Utilisation Certificate without actual utilization of Government grants**

According to the provisions of the Kerala Financial Code, while furnishing Utilisation Certificates (UC) of grants received from the Government, the Executive Director was required to ensure that the money was actually utilized for the purposes for which it was sanctioned and also mention the details of checks exercised in the UCs. Audit noticed that the UCs submitted by the Executive Director to the Fisheries Department in respect of three projects were factually incorrect as shown in the Table 3.4.

Table 3.4
List of incorrect UCs furnished by Executive Director to the Government
(₹ in crore)

Sl. No.	Name of Project	Grant received from Fisheries Department	Amount spent as of March 2018	Amount for which UC submitted
1.	‘Promotion of rice cum shrimp farming in Kaipad lands’ commenced in 2013-14	2.00	1.40	2.00
2.	Revival of Productivity of Pearl Spot and Giant Prawn on life cycle approach in Vembanad Ecosystem.	12.69	8.89	10.16
3.	Revamping of Poyya farm	1.15	0.67	1.15

In reply, the Government stated (February 2019) that the UCs were issued treating the funds as utilized since the committed liabilities were to be met from the funds received. The reply was not acceptable as provisions of the Kerala Financial Code were not adhered to in these cases.

Submission of inflated UCs prevented the Fisheries Department from assessing the actual financial position of the Agency judiciously and releasing the subsequent instalments to the Agency accordingly.

3.1.2.7 Status of Accounts

Mention was made in Report No. 3 of the CAG of India for the year ended 1997 regarding delay in preparation of accounts. The Public Accounts Committee (PAC) (2014-16) in its 66th Report (July 2014) expressed displeasure at the slackness of the Agency in preparing the Annual Reports and Accounts and recommended to take disciplinary action against the officials concerned. The Committee also insisted on updating the annual accounts immediately.

Despite this, as of September 2018 the Agency finalised and audited the annual accounts up to the year 2014-15 only. It also did not forward the audited accounts for the year 2013-14 to the Finance Secretary and the Registrar as stipulated in the rules. Further, Audit also noticed that the Agency did not maintain the registers for recording the receipt of grants, their disbursement/utilisation, creditors and debtors relating to the purchases and sales of seeds.

The Government in reply (February 2019) admitted the facts and stated that this would be complied with, in future.

3.1.3 Conclusion

The Agency was mandated to promote aquaculture activities in the State by operating model farms and implementing various projects. The farms operated by the agency did not function as model farms as they lacked mandatory registration/violated the conditions of registration. The Agency failed to demonstrate the economic viability of

aquaculture farming. The beneficiary group-oriented projects implemented by the agency did not achieve the targets due to non-compliance with the guidelines and deficiency in monitoring. The Agency also failed to abide by the financial regulations resulting in retention of Government funds outside the Government account and retention of the savings from the projects as its income. It failed to maintain the accounts up to date, despite instructions from Public Accounts Committee. Thus, the Agency was unable to discharge its mandated activities properly.

3.2 Irregular payment of compensation to fishermen

The Department paid an amount of ₹88.80 lakh to a select group of 74 owners of illicit china nets disregarding the fact that they were already paid compensation of ₹92.5 lakh and were not eligible for the second payment.

The Department of Fisheries established on 1 November 1956 is considered to be one of the most important, productive and developmental sectors of the State. It implements the policy of the Government of Kerala for the socio-economic development of fishermen and schemes for increasing infrastructure in the coastal area.

According to Section 4(3) of the Travancore Cochin Fisheries Act 1950 and Rule 8(1) of the Kerala Inland Fisheries and Aquaculture Rules 2013, only licensed individuals have the right to engage in fishing.

The Inland Waterways Authority of India declared (February 1993) the waterway between Kollam and Kottapuram as National Waterway-3. In order to make the waterway navigable, it was necessary to remove/shift the fishing nets and stakes installed in the channel. The Government sanctioned a compensation of ₹2.5 lakh²³ (June 2013) per net to the fishermen holding valid licenses for china/stake nets installed in the navigation channel, for their removal. The owners of unlicensed china/stake nets were also made eligible for the compensation, but at half the rates applicable to the licensed owners. This was commented in Chapter II of the Audit Report of the Comptroller and Auditor General of India on the Economic Sector, Government of Kerala, for the year ended March 2015.

The Department paid compensation amounting to ₹13.33 crore to the owners of licensed and unlicensed china/stake nets during the period 2013-14 to 2017-18.

Audit noticed that, in addition to the above payment the Department also paid compensation amounting to ₹88.80 lakh to a select group of 74 owners of illicit china nets belonging to Kayamkulam area alone, under a special package, based on a decision taken in a meeting convened (November 2014) by the Home Minister. The meeting took the following decisions:

- (i) Owners of the 74 unlicensed china nets who wished to avail the compensation of ₹1.25 lakh per net declared by the Government were free to avail it.

²³ G.O.(Rt) No.38/13/F&PD dated 17/06/2013

(ii) For those who did not opt for the compensation, a special employment package would be provided to sustain their livelihood.

The package envisaged purchase of a traditional fishing boat, a net and a 9.9 Yamaha engine by each beneficiary unit²⁴ utilising an assistance of ₹1.20 lakh²⁵ to be paid by the Department, along with a contribution of ₹30,000 by each beneficiary unit.

Contrary to the decisions taken in the meeting, the Government sanctioned both the compensation of ₹1.25 lakh and the special employment package of ₹1.20 lakh to each of the 74 beneficiaries. Director of Fisheries disbursed²⁶ ₹88.80 lakh to the 74 beneficiaries under the special package.

Audit noticed the following:

- The decision of the meeting was to extend special employment package to those who did not opt for the compensation. Contrary to this the 74 beneficiaries were paid both the compensation and the special employment package.
- This double benefit was not extended either to the owners of unlicensed china nets of other areas or to the owners of licensed china nets. So, the action of the Department was discriminatory.
- The Department did not ensure compliance with the conditions of the special employment package by the beneficiaries which resulted in its largescale mis-utilisation.
- A joint survey conducted by Audit along with the departmental officials among 28 beneficiaries revealed that none of them utilised the assistance as envisaged; instead, most of them used it to clear personal debts.

Thus, the payment of additional benefit of ₹88.80 lakh to a select group of 74 owners of illicit china/stake nets was not in order and discriminatory. Besides, the Department also failed to ensure proper utilisation of assistance by the beneficiaries under the special package.

The matter was referred (February 2019) to the Government. In reply, (March 2019) the Government accepted that the special employment package was to be implemented for those net owners alone (including two workers) who were not willing to accept the compensation of ₹1.25 lakh declared by the Government.

²⁴ A unit consisted of the owner and two labourers working the net

²⁵ Each member of the unit was to be paid ₹40,000

²⁶ GO(Rt) No. 413/15/F&PD dated 04/06/2015

CO-OPERATION DEPARTMENT

3.3 Short collection of Audit Fee from Co-operative Societies

Departmental lapse in enforcing the provisions of the Kerala Co-operative Societies Act, 1969 regarding audit fees resulted in non-collection/short collection of ₹16.69 crore.

The Co-operation Department is responsible for the disbursement of assistance and loans sanctioned by the Government/National Co-operative Development Corporation to Co-operative institutions for implementing various schemes, monitoring the utilization of funds, recovery of principal/interest on loans etc. In addition to this, it also discharges important statutory functions like audit of co-operatives.

Section 63 of the Kerala Co-operative Societies Act, 1969 (the Act) stipulates that the Director of Co-operative Audit (DCA) has to audit the accounts of all Co-operative Societies (Societies) registered with the Registrar of Co-operative Societies (RCS) in the State at least once in a year. Sub Section 6 below Section 64 of the Act stipulates that the amount of fee for auditing the accounts of Society each year shall be such as may be fixed²⁷ by the DCA in accordance with rules made in this behalf. Rule 65 of the Kerala State Co-operative Societies Rules states that every Co-operative Society shall pay audit fee to the Government within one month of the receipt of the annual audit certificate.

The responsibility for collecting the dues is vested with the RCS who has delegated it to the Assistant Registrars of Co-operative Societies (General) at Taluk level. Sub Sections (1) and (2) of Section 79 of the Act stipulate that in the case of non-payment of audit fees within the specified period of 30 days, it shall be recoverable in the same manner as arrears of public revenue due on land, that is to say, first from the property of the Society and later from the members, past members or estates of deceased members subject to the limit of their liability. If the defaulted Societies fail to remit the audit fees, Revenue Recovery (RR) actions are initiated against them.

As per the records maintained by the RCS (General), there were 15,624 Societies in Kerala²⁸ as of 31 March 2018, of which 11,892 were functioning and 3,732 non-functioning.

Audit noticed that as on 31 August 2018 an amount of ₹16.69 crore was pending collection towards audit fee since the year 1972-73 from 5,396 Societies functioning

²⁷ The audit fee is calculated at the rate of 50 paisa for every ₹100 or part thereof on the working capital, the value of sales or the gross income as the case may be, provided that the maximum audit fees payable by the Society shall not exceed rupees one lakh, subject to other lower limits in specified cases

²⁸ As furnished by the office of the Registrar of Co-operative Societies, Kerala

under seven²⁹ departments in the State. This included ₹1.76 crore due from 640 profit making Societies. Major portion (83.52 per cent) of the pending audit fee related to societies functioning under two departments, viz., the Co-operation Department (₹9.67 crore from 3,882 Societies) and the Handlooms and Textiles Department (₹4.09 crore from 270 Societies). RCS initiated revenue recovery action against 384 Societies involving ₹1.25 crore, but no amount was recovered from any of them.

Audit test checked the records maintained by eight³⁰ offices of Assistant Registrars of Co-operative Societies (ARCS) (General) from five³¹ districts and found the following:

- Audit Fee Register was not being maintained up to date by seven of the eight taluk level offices.
- ARCS (General), Thrissur stated that the data on pending audit fee was compiled by collecting the information from the Societies over phone as the register was not updated properly.
- This points at the inadequacy of the internal control mechanism of the Department.

The matter was reported (December 2018) to the Government. In reply, (March 2019), the Government stated that a collection drive was on and that an amount of ₹6.68 crore was collected during the period from 17 December 2018 to 31 December 2018.

Audit verified the figures furnished by the Joint Registrars of Co-operative Societies, Thrissur (₹1.47 crore) and Thiruvananthapuram (₹59.74 lakh) and found that the collection from these districts was overstated by ₹1.02 crore and ₹8.09 lakh respectively. This again highlights the inadequacy of internal control.

3.4 Non-remittance of dividend due to the Government by Co-operative Societies

Ineffective internal control system of the Co-operation Department led to non-remittance/short remittance of dividend amounting to ₹95.44 lakh by Co-operative Societies to the Government.

The Kerala Co-operative Societies Act, 1969 provides³² for payment of dividend to members on their paid-up share capital at such rates as may be prescribed³³. The dividend becomes due after the date on which the general body meeting passes the

²⁹ The Departments of Co-operation, Khadi & Village Industries, Fisheries, Industries, Handlooms, Dairy Development and Coir

³⁰ Offices of the Assistant Registrars at Kasargod, Hosdurg, Tirur, Perinthalmanna, Thrissur, Cherthala, Ambalapuzha and Kollam

³¹ Kasargod, Malappuram, Thrissur, Alappuzha and Kollam

³² Sub section 2(a) of Section 56

³³ Not exceeding 25 per cent (as amended in 2010)

dividend. The Registrar of Co-operative Societies (RCS) issued (July 2010) instructions to all the District/Taluk level offices of the Department to ensure that dividend declared by the Co-operative Societies (Societies) on the Government share capital contributions were remitted.

(a) As of 31 March 2017 the Government of Kerala (GoK) made share capital contribution in 3,755 Societies. According to the Demand Collection and Balance (DCB) Statement prepared by RCS as on 31 December 2018, a total of ₹1.18 crore was pending collection from 77 Societies towards dividend on Government shares for the period up to 2016-17.

As reported by the RCS (July 2019) and the Joint Registrar of Co-operative Societies (General), Thiruvananthapuram (May 2019), an amount of ₹76.67 lakh for the said period was collected from 16 Societies since 31 December 2018, leaving a balance of ₹41.61 lakh.

A test check of the records maintained in the offices of the Assistant Registrars of Co-operative Societies revealed that entries made in the ‘Register of Share capital contribution to Co-operative Societies’ containing the details of dividend payable by the Societies on Government shares were incomplete and not up to date. As a result, the exact amount of dividend due to the Government was not ascertainable from the records.

Audit also noticed that the Department lacked an effective internal audit system. The GoK, Finance (IAC A) Department issued (June 2005) instructions³⁴ to all departments to strengthen their internal audit system. The Co-operation Department, however, formed³⁵ an internal audit wing only in December 2017. As intimated³⁶ (September 2019) by the RCS no internal audit was conducted in the Department before 14 May 2019.

The Government in its reply (April 2019) accepted that the Register of Share Capital Contribution to Co-operative Societies was not being maintained by the field offices up-to-date. It was stated that instructions were issued for collecting institution-wise details of outstanding amounts of dividend and to maintain the register up-to-date. The Government also clarified that the dividends declared by Societies were not taken as demand in the DCB Statements furnished by the Joint Registrars of Co-operative Societies. Instead, the amount of dividend remitted by the Societies was shown as both demand and collection in the DCB statements. This led to the variation between the Departmental figures and the Audit figure.

(b) Scrutiny of the details of outstanding dividend furnished by the Joint Registrars of Co-operative Societies (district level offices) revealed that 23 Societies from three³⁷ districts did not pay dividend to the Government at the same rates at

³⁴ Circular No.32/2005/Fin dated 10/06/2005

³⁵ No. Fin.A(1)37247/2017 dated 19/12/2017

³⁶ No. Fin(1)4961/19 dated 05/09/2019 of Registrar of Co-operative Societies

³⁷ Pathanamthitta, Ernakulam and Thrissur

which they paid it to other members. This deprived the Government of dividend amounting to ₹53.83 lakh (**Appendix 3.3**).

The absence of an effective internal control mechanism in the Department, thus resulted in non-remittance/short-remittance of dividend amounting to ₹95.44³⁸ lakh to the Government by Co-operative Societies.

3.5 Infructuous expenditure on Floating Triveni Supermarket Project

Lack of prudence and total disregard of rules on Survey and Registration of boats made ₹1.82 crore spent on the purchase of nine ferro-cement hulled boats by the Kerala State Co-operative Consumers' Federation Ltd. infructuous.

The Kerala State Co-operatives Consumers' Federation Ltd. (CONSUMERFED) registered under the Travancore-Cochin Co-operative Societies Act 1951 is an apex body of the consumer Co-operatives in the State of Kerala. CONSUMERFED started functioning on 07 October 1965 and its functions involve bulk procurement of consumer goods and their supply to affiliated and/or other Co-operative Societies.

During the period from June 2009 to September 2012, CONSUMERFED purchased seven³⁹ Mobile floating Triveni⁴⁰ supermarkets (floating Triveni) with ferro-cement hull at a cost of ₹181.77 lakh and paid an advance of ₹20 lakh for two more. Seven of the Trivenis ceased⁴¹ their operation between April 2014 and September 2016. CONSUMERFED, therefore, decided (March 2017) to dispose them off in auction. Two attempts (April 2018 and May 2018) to auction them did not evoke any response from the public. Finally, four of the seven floating Trivenis were auctioned off (March 2019) for a sum of ₹91,658. There was no demand for the balance three.

Audit scrutiny revealed the following:

- The first floating Triveni was purchased by CONSUMERFED in June 2009 from M/s Floatels Hospitalities Private Limited, (Floatels) Thiruvananthapuram at a cost of ₹21.50 lakh to make essential commodities available to the people who lived in isolated and inaccessible areas surrounded by water in Kuttanad, Alappuzha.
- CONSUMERFED placed further orders with Floatels for three more floating Trivenis in September 2010 for a total cost of ₹76.5 lakh and another three floating Trivenis in October 2011 for a total cost of ₹83.77 lakh. It placed orders for another batch of three in September 2012 by paying an advance of ₹20 lakh.

³⁸ ₹41.61 lakh + ₹53.83 lakh = ₹95.44 lakh

³⁹ Three Trivenis at Alappuzha, two at Kollam, one at Kottayam and one at Ernakulam

⁴⁰ Triveni is a brand division of CONSUMERFED under which food & grocery, cosmetics, household items, electrical, textiles etc. are sold through super markets; super store, mega marts etc.

⁴¹ With effect from 08/04/2014, 31/03/2016, 22/06/2016, 07/07/2016 (three boats) and 30/09/2016

- Subsequently, CONSUMERFED cancelled (8 January 2014) the order for one of the Trivenis included in the last batch, and did not take delivery of the remaining two, though they were constructed (September 2018), as the operation of Trivenis was found uneconomical.
- Audit observed that CONSUMERFED introduced the project in Kuttanad without even assessing its feasibility based on an announcement made by the Minister of Co-operation in the Legislative Assembly (July 2008) that CONSUMERFED would start a Floating Triveni in Kuttanad. As a result, most of the seven units commissioned ran on loss from the very beginning for want of adequate patronage.
- All these vessels were made of ferro-cement hull. The Chief Inspector of Boats, Irrigation Department refused (November 2009) to issue Inspection Certificate to these vessels as under the Travancore Public Canals and Public Ferries Act and Rules, Inspection Certificate could not be issued for vessels with ferro-cement hull.
- In spite of the rejection of inspection certificate for the vessels, CONSUMERFED continued to purchase six more ferro-cement hulled vessels and paid advance for three more.
- All the seven floating Trivenis ceased activity after being in service for four to six years and the vessels which were left unattended thereafter, sank in water or were in bad condition as mentioned in **Appendix 3.4**. It was further noticed that an amount of ₹6.47 lakh was spent towards maintenance, lifting of capsized vessels and valuation fees.

Thus, decision of the CONSUMERFED to proceed with procurement of vessels for floating supermarkets without feasibility study and Inspection Certificate led to unfruitful expenditure of ₹1.88 crore⁴².

The Government, in its reply (April 2019) stated that the reason for failure of the floating Triveni supermarkets was not inadequate patronage or lack of feasibility study but due to fast development of basic infrastructure facilities. It was also stated that at the time of purchase of boats and placing of orders for subsequent purchases there was no restriction on the registering of boats manufactured using ferro-cement. Further, four of the seven floating Trivenis were auctioned off (February 2019) for a total amount of ₹0.92 lakh.

The Government reply is not acceptable. The fact that three of the seven Trivenis were making loss from the very beginning and that two went in to loss after the first year of their commissioning supports the audit observation that there was inadequate planning and patronage for the project. Further, the Government stand that there was no restriction on registering of ferro-cement boats at the time of placing of orders for subsequent purchases is not tenable, as CONSUMERFED invited (August 2010)

⁴² ₹181.77 lakh + ₹6.47 lakh

quotations for further supply of such boats after the Chief Inspector of Boats rejected (November 2009) the application for registration of the first boat.

PUBLIC WORKS DEPARTMENT

3.6 Excess payment of ₹99.72 lakh to a contractor due to under-recovery of the cost of bitumen used in a work

Failure to recover the cost of bitumen from the work bills at the rates included in the revised estimate resulted in excess payment of ₹99.72 lakh to the contractor.

The Kerala Public Works Department (PWD) is responsible for the design, construction and maintenance of all roads and bridges coming under its jurisdiction in the State, irrespective of the source of fund.

The PWD, Government of Kerala ordered (September 2003) that contractors would be required to purchase bitumen and complete the works except in the case of works costing up to rupees six lakh (enhanced to ₹15 lakh in February 2004) subject to the condition that no tender excess would be allowed and only the actual cost of bitumen would be reimbursed.

Audit test checked (August 2018) 373 work files from the six Roads Divisions⁴³ under the administrative control of the Superintending Engineer (Roads & Bridges), North Circle, Kozhikode (SE). It was found that the final bill of one⁴⁴ work arranged under the PWD Roads Division, Kasaragod completed on 30 March 2013 was not settled. The work was awarded (February 2011) by SE to a contractor⁴⁵ at 35 *per cent* above the estimated cost of ₹4.45 crore based on the Schedule of Rates (SoR) of 2009. Subsequently, items such as Bituminous Macadam (BM) and Bituminous concrete (BC) were incorporated as extra items, revising (December 2011) the estimate cost to ₹11.50 crore. Later, at the contractor's request the Government approved (March 2012) the rates for the extra items related to BM and BC works as per the SoR 2010 and a supplementary agreement was executed for the extra items along with 35 *per cent* tender premium.

The rate of bituminous items⁴⁶ in the original agreement was arrived at by reckoning the cost of bitumen as ₹26,260/Metric Tonne (MT) based on SoR 2009. The rates of BM and BC and other connected items in the revised estimate were, however, approved reckoning the cost of bitumen as ₹33,189/MT⁴⁷, ₹28,951/MT⁴⁸ and

⁴³ Six Divisions North Circle are at Palakkad, Manjeri, Kozhikode, Kannur, Wayanad & Kasaragod

⁴⁴ NABARD-RIDF XV-Improvements to Parappa-Malome Road from km 0/000 to 14/500

⁴⁵ Shri.T.A.Abdul Rahiman

⁴⁶ Providing bitumen premixed leveling course, Providing 20 mm thick premixed chipping carpet over WBM surface and providing 20mm premixed chipping carpet over existing BT surface

⁴⁷ Providing, laying and rolling of built up spray grout layer over prepared base & Providing and laying Bituminous macadam

⁴⁸ Providing and applying tack coat with bitumen emulsion

₹34,749/MT⁴⁹ based on SoR 2010. Audit noticed that the Department reimbursed the actual purchase cost of bitumen to the contractor. But while making payments to the contractor on the work bills, instead of recovering the cost of bitumen as per SoR 2010, the Department recovered it at the rate of ₹26,260/MT as per SoR 2009. It was also seen that the Department treated the final bill submitted by the contractor for ₹3.40 crore as part bill thereby trying to create the impression that recoveries, if any, required would be made against subsequent claims.

Thus, failure of the Department to recover the cost of bitumen at the rates included in the revised estimate, resulted in excess payment of ₹99.72 lakh to the contractor, as given in the table 4.1.

Table 4.1

Calculation of short recovery of cost of bitumen on extra items

Name of the bituminous item	Quantity of bitumen used in each item (in MT)	Rate of bitumen as per SoR 2010 included in the revised estimate (₹ per MT)	Rate at which cost of bitumen was recovered from work bill (as per SoR 2009) (₹ per MT)	Cost of bitumen required to be recovered from work bill as per SoR 2010 (₹)	Cost of bitumen actually recovered from work bill (as per SoR 2009) (₹)	Short recovery (₹)
(1)	(2)	(3)	(4)	(5) = (2)x(3)	(6) = (2)x(4)	(7) = (5)-(6)
Built up spray Grout	278.562	33,189	26,260	92,45,194	73,15,038	19,30,156
Bituminous Macadam	399.168	33,189	26,260	1,32,47,987	1,04,82,152	27,65,835
Bituminous Concrete	306.229	34,749	26,260	1,06,41,152	80,41,574	25,99,578
Tack coat	33.724	28,951	26,260	9,76,344	8,85,592	90,752
Total				3,41,10,677	2,67,24,356	73,86,321
Inadmissible amount of tender premium allowed to contractor due to short deduction of cost of bitumen = (₹73,86,321 x 35 per cent)						25,85,212
Grand Total						99,71,533

The matter was referred (December 2018) to the Government. The Government in reply (May 2019) stated that the excess payment was worked out to ₹95.52 lakh and that directions were given to Chief Engineer to take urgent steps to recover the excess payment from the contractor.

⁴⁹ Providing and laying Bituminous concrete

3.7 Overpayment on account of fictitious level measurements and incorrect calculations

Incorrect calculation of volume of work by the Department based on fictitious level measurements resulted in inadmissible payment of ₹1.54 crore to the contractor.

According to Clause 113.3 of the MoRTH Specifications⁵⁰ for Road and Bridge works, the finished thickness of sub-bases, base, bituminous layers and concrete courses to be paid on volume basis shall be computed based on level measurements. This involves two sets of surface data, namely original ground level (initial level) which is taken before starting the work and formation level (final level) which is taken after execution of the work. The volume of the filling or cutting work done is determined by reckoning the difference between the initial and the final levels. The initial levels and final levels are recorded in the Level Field Book (LF Book) and the volume of work is calculated in separate calculation sheets. Finally, the abstract of the details are taken to Measurement Book, on the basis of which the final bill of the work is prepared for payment to the contractor.

The Superintending Engineer of NH South Circle, Thiruvananthapuram awarded (March 2017) a work⁵¹ to a contractor⁵² at a contract amount of ₹31.11 crore, to be executed through NH Division, Alappuzha. The work was commenced on 13 March 2017 and completed on 10 January 2018 at a cost of ₹32.61 crore. The work also involved the following bituminous items:

- (i) Recycling of existing bituminous pavement with cold in place recycling method, including rolling and finishing with appropriate roller.
- (ii) Tack coat⁵³ for laying Bituminous Concrete (BC) layer.
- (iii) Laying of 50 mm BC layer as wearing course⁵⁴ over the tack coat surface.

Audit noticed that the Department measured and recorded (on 18 May 2017 and 19 May 2017) the initial levels of the work done in a portion of the road between chainage 15/410 km to 22/030 km in the LF Book after measuring and recording (from 05 May 2017 to 15 May 2017) the final levels, which was practically impossible.

A Joint Physical Verification (JPV) conducted by Audit along with departmental officials at nine randomly selected points⁵⁵ of the reach (chainage 00/00 km to 22/030

⁵⁰ Clause 113.3 of Ministry of Road Transport & Highways Specifications for Road and Bridge works (Fifth Revision)

⁵¹ ‘Periodical renewal from km 406/00 to 428/00 of NH 66 (old NH 47) in the State of Kerala’ (involving a length of 22/030 km)

⁵² Contractor, M/s EKK Infrastructure Ltd. vide Agreement No. 6/SENH/SC/16-17 dated 08/03/2017

⁵³ A thin adhesive layer of bitumen applied between two existing bituminous layers for bonding

⁵⁴ Wearing course is the top layer of the road surface

km excluding the rail over bridge portion) revealed varying thickness of BC between 30 mm and 61 mm; the average being 44 mm. But, the Department paid the contractor reckoning a uniform thickness of 50 mm. This resulted in excess payment of ₹1.29 crore (**Appendix 3.5**) to the contractor due to incorrect calculation of volume.

Even taking a uniform thickness of 50 mm, the total volume of BC executed as per LF Books was only 10,433.227 cum. However, audit noticed that the volume of BC executed, as worked out by the Department in the calculation sheets, was 10,673.560 cum⁵⁶. Reckoning of measurements in excess of those recorded in the LF Books resulted in an inadmissible payment of ₹24.75 lakh to the contractor (**Appendix 3.5**).

On this being pointed out, the Executive Engineer (EE), NH Division, Alappuzha replied (October 2018) that in the recycling process⁵⁷ there was no provision for using a Paver⁵⁸ to make the surface perfectly level and that for correcting the camber⁵⁹ of the road, the thickness at the centre portion was made thicker than the edges. The reply corroborated the findings of the JPV that the thickness of BC was not uniform. However, the levels recorded in the LF Book showed a uniform thickness of 50mm on the entire stretch of work executed.

Thus, adoption of incorrect level measurements and subsequent incorrect calculation of the volume of work by the Department resulted in inadmissible payment of ₹1.54 crore to the contractor (₹24.75 lakh + ₹1.29 crore).

The matter was referred (December 2018) to the Government. The Government in its reply (January 2019) claimed that the thickness of the BC layer executed by the Department over the cold milled and recycled layer was exactly 50 mm on the entire stretch as recorded in the LF book, as it was done with adequate precision of thickness using sensor paver. In the same reply, the Government also admitted that the top surface of the cold milled and recycled layer below the BC was not of uniform finish as no paver was used.

The Government reply that the Department had executed BC over the cold milled and recycled layer at a uniform thickness of 50 mm is not acceptable as when a new BC layer is laid using a paver over an undulated surface, it is impossible to ensure uniform thickness of the new layer at all locations due to the undulations below it.

⁵⁵ Chainage 409/100 km (two points), 407/800 km (two points), 416/100 km, 417/200 km (two points), 422/000 km, 426/000 km

⁵⁶ The total quantity of BC as per level calculation sheet was 10,946.399 cum (from chainage 0/000 km to 22/030 km); after excluding the rail over bridge portion the balance quantity was 10,673.560 cum

⁵⁷ It is the method of Reclaimed Asphalt Pavement (RAP) construction where the existing BT surface is investigated for the bitumen content, water content and other properties and then required additional raw materials for the designed quantities such as fresh aggregates, cement, foamed bitumen, water etc. are added and recycled to build the new RAP

⁵⁸ A paver is a construction equipment used to lay asphalt on roads flat

⁵⁹ Camber indicates slightly convex or arched shape of a road. It is a gradual downward slope from the centre to each side to enable water to flow off the road

During the exit meeting (07 June 2019), CE (Roads) stated that the thickness of BC over the cold milled and recycled layer would vary. CE (Roads) also accepted that the volume of BC could be calculated by adopting the method of multiplying the tack coat area with the thickness of BC, if the thickness of BC was the same throughout the length of the road.

3.8 Departmental lapse in the management of securities from contractors

Failure of the Department in the management of securities from contractors resulted in extension of undue favour amounting to ₹15.73 crore to contractors, besides placing of avoidable financial burden of ₹1.34 crore⁶⁰ on the Government.

According to KPWD Manual/Selection Notice of works, the contractors are to furnish securities covering the period of completion of work/Defect Liability Period (DLP). The securities can be furnished in the form of bank guarantees, pledging of treasury saving accounts and pending bills of other completed works of the contractor.

A Bank guarantee (BG) is a promise from a bank that the liabilities of a debtor⁶¹ will be met in the event of the debtor (contractor) failing to fulfil his/her contractual obligations. The liability of the bank under the BG stands completely discharged or extinguished if no claim or demand is made within the agreed date.

There are 16 Roads Divisions and eight NH Divisions under the PW Department. Audit scrutinised 282 works costing ₹790.77 crore, executed under six divisions (four Roads Divisions and two NH Divisions out of the 24 Divisions) and noticed irregularities in 52 works.

Out of the 52 works, in 49 works costing ₹172.93 crore Audit observed the following irregularities which resulted in extending of undue benefit to the contractors:

- Five works showed inadequacy of securities submitted by the contractors amounting to ₹24.38 lakh (**Appendix 3.6**).
- Securities of 13 works amounting to ₹5.18 crore ordered to be adjusted from pending bills of other works by the agreement executing authorities were not adjusted by the respective divisional officers (**Appendix 3.7**).
- Securities collected in 14 works amounting to ₹3.46 crore were released prematurely by the divisional officers (**Appendix 3.8**).
- Bank Guarantees worth ₹6.85 crore kept as security in 24 works were not renewed by the divisional officers concerned before expiry (**Appendix 3.9 and 3.10**).

⁶⁰ ₹10.77 lakh + ₹31.28 lakh + ₹32.72 lakh + ₹59.22 lakh = ₹133.99 lakh rounded to ₹1.34 crore

⁶¹ In the case of a work undertaken through contracts, the debtor means the contractor for the work

In the remaining three works costing ₹19.74 crore, Audit observed the following irregularities which brought additional financial burden of ₹1.34 crore on the Government (**Appendix 3.11**):

- The Department arranged⁶² repair works costing ₹10.77 lakh to rectify the defects developed during the DLP of a work⁶³ as the contractor concerned did not carry out the same. The Department, however, could not realise the cost from the contractor as the validity of the bank guarantee⁶⁴ for the work furnished by the contractor was not extended to cover the DLP.

On this being pointed out, the SE replied (October 2018) that necessary direction was given to the Executive Engineer to recover the cost from the bills pending payment to the contractor.

- In another instance, the contractor did not complete the work⁶⁵ awarded to him even after allowing several extensions of time. The Department, therefore, terminated⁶⁶ (August 2018) the contract at the risk and cost⁶⁷ of the contractor. However, as the validity of the BG⁶⁸ worth ₹64 lakh furnished by the contractor was not renewed before its expiry in August 2013, the Department lost the opportunity to recover the expenditure on the balance work to be executed, to the extent of the BG.
- In the third case⁶⁹ involving a BG of ₹59.22 lakh⁷⁰, the contractor completed (May, 2013) the work but did not rectify the defects noticed during the DLP (up to 30 May 2016) despite repeated requests/reminders⁷¹ from departmental officials. So, after the DLP the Department arranged necessary rectification works at a cost of ₹106.27 lakh (**Appendix 3.12**). It was noticed that in spite of the inaction by the contractor, the Department did not invoke the BG, instead released

⁶² Agreement No.EE/PL/117/2017-18 dated 27/11/2017- Contractor- G. Janardhanan, Palakkad- Contract amount ₹10.77 lakh (First and final bill under preparation)

⁶³ Work- ‘Improvement by providing BM (50 mm) and BC (25mm) to Vazhakode – Alathur Road from 22/648 km to 29/648 km’- Contractors- M/s Kudroli Builders - Contract amount ₹2.89 crore

⁶⁴ BG No. 126/2013-14 dated 12/08/2013, of South Indian Bank, Panaji, Goa for ₹28.95 lakh- Valid till 11/11/2015

⁶⁵ Budget Work 2009-10-, Improvements to Upputhara – Kottamala - Wagamon Road, -Agreement No. 10/SECCA/2010-11 dated 25/04/2010- Contractor Sri K.C. Antony. Contract amount ₹3.13 crore

⁶⁶ Order No. DIP-2897/09 dated 11/08/2018

⁶⁷ In such cases, cost of the balance work is recoverable from the original contractor.

⁶⁸ BG 1/2010 dated 19/04/2010 (₹31,27,905) and BG 3/2010 dated 25/04/2010 (₹32,72,260) of South Indian Bank, Bharananganam

⁶⁹ IRQP from chainage 444/000 to 462/000km on NH 47 (now NH 66) in the State of Kerala- Agreement No. 3/SENH/SC/2012-13 dated 16/07/2012, Contractor - M/s Concord Construction, Kasaragod - Contract amount ₹13.72 crore

⁷⁰ Bank Guarantee No. IBG 45896 dated 20/09/2013, ₹42,61,000 and No. IBG 45179 dated 30/08/2013, ₹16,60,985 of Federal Bank Ltd. Kanhangad

⁷¹ On May 2015, June 2015, July 2015, September 2015, October 2015, November 2015, February 2016 and last in May 2016

it to the contractor. Consequently, the Government had to bear the cost of the rectification works to the extent of the BG.

Departmental failure in the management of securities from contractors, thus resulted in undue favours worth ₹15.73 crore to the contractors, besides placing avoidable financial burden of ₹1.34 crore⁷² on the Government. This also points at the inadequacy of the internal controls of the Department. It was observed that the responsibility for the lapses was not fixed on the officials concerned.

The matter was reported to the Government (December 2018). During the exit meeting (May 2019), the Department accepted the lapses in internal control and stated that such lapses would be eliminated on the introduction of an e-module in the second phase of PRICE software.

3.9 Avoidable expenditure due to delay in finalisation of tenders

Non-finalisation of tender by the Department within the prescribed firm period resulted in avoidable expenditure of ₹3.17 crore.

According to Section 2009.5 of the PWD Manual (Revised Edition) 2012 (the Manual), consideration of tenders and decision thereon shall be completed well before the date of expiry of the firm period⁷³ noted in the tender, so that the letter of acceptance is issued in writing to the selected bidder before the expiry of the firm period which shall not exceed two months in the normal course. If delay in finalization of the tender is anticipated, the officer who invited the tender shall get the consent of the lowest two bidders for extending the firm period by one month, or more as required. All officers concerned with the consideration of tenders shall deal with them expeditiously to settle the contract before the expiry of the firm period.

The Superintending Engineer, PWD (Roads and Bridges), North Circle, Kozhikode (SE) executed agreements for 289 works under Roads Division, Manjeri during the period 2015-16 to 2017-18. Audit scrutinised the files of 75 works and found the following irregularity in one work.

The work⁷⁴ was initially tendered by the SE at an estimated cost of ₹9.16 crore. Only two contractors submitted (23 April 2014) bids and the Government approved⁷⁵ (16 October 2014) the lower bid quoted by M/s PMR Construction Company for ₹8.73 crore, which was 5.92 *per cent* below the estimate.

The firm period of the tender expired (22 June 2014) long before the Government approved the tender. The contractor who had already extended the firm period up to

⁷² ₹10.77 lakh + ₹31.28 lakh + ₹32.72 lakh + ₹59.22 lakh = ₹133.99 lakh rounded to ₹1.34 crore

⁷³ The firm period of a tender is the period from the date of opening of the tender to the date up to which the offer given in the tender is binding on the bidder. (Sec. 2009.5 of PWD Manual Revised 2012)

⁷⁴ ‘Improvements and providing BM&BC to Trikkulam - Theyyala road between 0/000 km to 7/800 km in Malappuram District’

⁷⁵ GO(Rt)No.1439/2014/PWD dated 16/10/2014

31 August 2014 refused to extend it any further. So, the SE re-tendered (October 2014) the work. The only bid received was from M/s PMR Construction Company who quoted their rates at 49.30 *per cent* above the estimate. The Government accepted⁷⁶ (September 2015) the offer at a reduced rate of 37.68 *per cent* above the estimate. Accordingly, the SE executed (November 2015) the agreement⁷⁷ with the Contractor who completed the work (27 October 2016) at a total cost of ₹11.90 crore (October 2017).

A scrutiny of the finalisation process of the initial tender by Audit revealed that against an admissible period of sixty days, the Department took 175⁷⁸ days to get the lowest bid approved by the Government Tender Committee (GTC). SE forwarded the tender proposal to the Chief Engineer (CE) on 24 April 2014 and the CE forwarded the same to the GTC on 20 June 2014, just three days before the expiry of firm period.

According to the Government of Kerala notification (January 2010), Local Market Rate (LMR) justification is not required for bids which are below the estimate rate. In spite of that the Government returned (2 July 2014) the tender recommendation to the CE with the direction to re-submit the same along with LMR justification. This further delayed the approval of the tender proposal leading to retender of the work and its award at higher rate.

Thus, failure on the part of the departmental officials to adhere to their own norms regarding finalisation of tender within the firm period led to the re-tendering of the work, eventually causing an additional expenditure of ₹3.17 crore to the State exchequer.

The matter was referred (December 2018) to the Government. The Government in its reply (July 2019) stated that delay had occurred in the submission of the tender proposal due to the then prevailing model code of conduct declared by the Election Commission in view of Parliament Election of 2014.

The reply, attributing the delay on the election is not acceptable as the Department caused further delay of nearly three and a half months after the election, which cannot be justified.

3.10 Idling of bridges for want of approach roads

Construction of three bridges without approach/access roads resulted in their idling, making ₹20.38 crore spent on their construction unfruitful.

Section 15.2.2(d) of the PWD Manual (Pre-revised) stipulates that the land for carrying out works should either have already been acquired or otherwise available or steps should have been taken for such acquisition and the proceedings should have

⁷⁶ GO(Rt)No.1457/2015/PWD dated 30/09/2015

⁷⁷ SE(K)234/2015-16 dated 21/11/2015

⁷⁸ 23/04/2014 to 16/10/2014

reached a stage where there is reasonable prospect of land becoming available before the contractor starts the work. In no case should tenders be invited before making sure that the land required would be ready for being handed over to the contractor to start the work in time.

The Superintending Engineers (Roads & Bridges) of North Circle, Kozhikode and Central Circle, Aluva arranged 133 bridge works during the period from 01 April 2013 to 31 March 2018. Audit scrutinised 29 of these works having a contract value of ₹202.27 crore and observed the following irregularities in three works⁷⁹:

- Two⁸⁰ of these bridge works consisted of the construction of both bridge and approach roads while the third work⁸¹ was confined to the construction of bridge alone, as land acquisition for the approach roads was not made.
- Construction of the bridges was completed on 31 December 2013, 25 March 2017 and 14 July 2017 respectively, at a total cost of ₹20.38⁸² crore but they have not been opened to the public for want of approach/access roads.
- Approach roads were not constructed for Kovilakam Thazham and Thazhepalam bridges, while Murikkallu bridge which was constructed along with approach roads could not be accessed due to non-completion of the bypass road on which the bridge was constructed.
- Defect Liability Period (DLP) of bridge works is 36 months. All the defects that arise during the DLP of a bridge are to be rectified by the contractor at his own cost. After the DLP, it becomes the liability of the Department. Audit noticed that the DLP of the Thazhepalam bridge expired on 30 December 2016 and that of the other two bridges would expire on 24 March 2020 and 13 July 2020.
- An amount of ₹20.38 crore spent on the construction of the three bridges, thus, remains unfruitful for the past several years without achieving their envisaged benefit.

The matter was referred to the Government (January 2019) and the reply is awaited (July 2019). During the exit meeting held on 07 June 2019 the Department concurred with the audit observations and stated that land acquisition process for the approach roads was under way.

⁷⁹KovilakamThazham bridge across Ramanpuzha river, Thazhepalam bridge across Tirurpuzhaand Murikkallu bridge across Muvattupuzhariver

⁸⁰KovilakamThazhambridge and Murikkallu bridge

⁸¹Thazhepalam bridge

⁸²₹20.38crore = ₹2.21 crore + ₹14.68 crore + ₹3.49 crore

3.11 Violation of agreement conditions and provisions of the revised PWD Manual

Reimbursement of the cost of bitumen at market rates violating the provisions of the PWD Manual and agreement conditions resulted in inadmissible payment of ₹12.89 crore to the contractors on account of 65 road works.

The Superintending Engineer (SE), Roads & Bridges, North Circle, Kozhikode, tendered (from April 2012 to March 2014) 484 works for which Technical Sanction (TS) was given by the Chief Engineer (Roads & Bridges). The Notice Inviting Tenders (NIT) of these works included the condition that bitumen required for the work should be purchased by the bidder. As per the tender schedules of the works the cost of departmental materials was 'Nil'. Therefore, the contractors were to quote the tender percentages after reckoning the cost of bitumen also.

In August 2014, the All Kerala Government Contractor's Association represented to the Government that they incurred huge losses due to the increase in the cost of bitumen and that the cost difference of bitumen be reimbursed to them. The Secretary to the Government, Public Works Department (PWD) permitted⁸³ (October 2014) reimbursement of the cost difference of bitumen for the above works tendered by SE, R&B North Circle, subject to the condition that the total expenditure of such works would be limited to the TS amount.

Audit scrutiny (during May-July 2018) of 137 works out of the 484 works tendered, revealed the following:

- The Department paid ₹12.89 crore as cost difference of bitumen to the contractors in 65 works (**Appendix 3.13**).
- According to clause 2104 of the Revised PWD Manual, only those works costing up to the TS powers (₹100 lakh) of the SE were eligible for departmental supply of bitumen. The Department violated this provision, as all the 65 works for which cost difference of bitumen was paid exceeded this limit.
- The Notice Inviting Tenders (NIT) which forms part of the agreement executed by the contractors included the condition that bitumen required for the work should be purchased by the bidder. The contractors were aware of this condition while quoting their rates and so had no right to claim cost difference.
- The Finance Department opined (April 2016) that the order permitting reimbursement of the cost difference of bitumen was an extension of undue benefit to some contractors since the contractors had already agreed to execute the works at an agreed amount.

⁸³ G.O.(RT) No.1014/2014/PWD dated 30/10/2014

Thus, violation of the provisions of the PWD Manual and the contract conditions by the Department itself resulted in inadmissible payment of ₹12.89 crore to the contractors.

The matter was referred to the Government (January 2019) and the reply is awaited (July 2019). During the exit meeting (07 June 2019) also, the Department declined to comment on the matter.

TOURISM DEPARTMENT

3.12 Implementation of projects in Coastal Regulatory Zone (CRZ) areas

Due to the non-adherence to the CRZ notification in implementation of projects by the Department of Tourism, the project proponent, there was loss of Government of India assistance to the tune of ₹9.55 crore in respect of two projects and irregular expenditure of ₹8.97 crore in respect of three projects out of six projects examined.

According to the Coastal Regulation Zone (CRZ) Notification issued (January 2011) by the Ministry of Environment and Forests (MoEF), Government of India (GoI), construction works in the designated areas of CRZ can be undertaken only with the prior approval of the MoEF. For obtaining prior approval under CRZ Notification, the project proponent shall apply to the State Coastal Zone Management Authority with the project layout superimposed on the CRZ map indicating High Tidal Lines and Low Tidal Lines demarcated by an authorised agency.

During the period 2011 to 2018, Department of Tourism, Government of Kerala (DoT) implemented 28 projects for ₹82.52 crore in areas falling under CRZ. In order to assess the compliance of the DoT with the requirements of CRZ Notifications, Audit examined six projects out of the 28 projects. Audit observations are discussed below:

- Although the project proponent was to obtain prior clearance from Kerala Coastal Zone Management Authority (KCZMA) as per the CRZ notification, DoT, the project proponent, entrusted the implementation of all the six projects examined by Audit to various agencies⁸⁴ without obtaining prior CRZ clearance from KCZMA. The agencies, in turn, awarded the work to contractors without any CRZ clearance.

⁸⁴Kerala Irrigation Infrastructure Development Corporation; District Tourism Promotion Council, Malappuram; Inland Navigation Directorate, KITCO Ltd. and Harbour Engineering Department.

- In respect of the projects for development of Kottapuram House Boat Terminal and development of Ottumburam beach, DoT did not apply for CRZ clearance so far (July 2019). The reasons for non-submission of application in respect of these two projects were not recorded.

Out of the above two projects, construction works of the project for development of Ottumburam beach was completed incurring an expenditure of ₹1.29 crore. Work was yet to start in respect of the other project. As the construction work in respect of one project was executed without CRZ clearance, the amount of ₹1.29 crore incurred became irregular.

GoK replied (September 2019) that though the executing agency submitted a final bill for ₹1.29 crore in respect of the Development of Ottumburam Beach project, only ₹1.12 crore was released. The District Tourism Promotion Council has taken steps to obtain CRZ clearance for completing the project. In respect of ‘Development of Kottappuram House Boat Terminal’, the Inland Navigation Department, GoK was directed to take steps for obtaining CRZ clearance.

The reply was not acceptable as the CRZ clearance for the projects were to be obtained beforehand. In respect of the above projects, the same not obtained as of September 2019, even after incurring expenditure of ₹1.29 crore.

- Out of the four projects⁸⁵ for which CRZ clearance was applied, KCZMA accorded approval only for two⁸⁶ projects. In respect of one project⁸⁷, KCZMA denied (July 2018) clearance on the ground that the plot area was insufficient while in respect of the other project⁸⁸, KCZMA issued (July 2015) show-cause notice for violation of CRZ notification. The DoT incurred an expenditure of ₹7.68 crore as on March 2019 in respect of these two projects. As the KCZMA did not issue CRZ clearance for these two projects, the amount of ₹7.68 crore incurred was irregular.

GoK replied (September 2019) that the Tourism Department filed an appeal before the KCZMA for obtaining CRZ clearance for the project at Thalassery while in respect of the project at Kayamkulam, GoK replied that the project was exempted from CRZ regulations and that the documents in support of the above were submitted to KCZMA.

⁸⁵Construction of new building for KITTS training centre at Thalassery, Development of Kappil Beach and Boat Club, Development of Payyambalam Beach walkway, Kannur and House boat terminal at Kayamkulam.

⁸⁶Development of Kappil Beach and Boat Club and Development of Payyambalam Beach walkway, Kannur.

⁸⁷Construction of new building for KITTS training centre at Thalassery.

⁸⁸House boat terminal at Kayamkulam.

The reply was not acceptable as the failure of the DoT to obtain prior CRZ clearance necessitated the need for appeal before the KCZMA. These appeals were not allowed by the KCZMA as of September 2019.

In respect of ‘Development of Kappil Beach and Boat Club’ and ‘House boat terminal at Kayamkulam’ projects, the implementing agency⁸⁹ proceeded with the work on the assumption that the local body would obtain CRZ clearance. But the local bodies did not obtain CRZ clearance. GoI assistance of ₹3.23 crore and ₹7.83 crore respectively was sanctioned for their implementation. As per the conditions for sanction of GoI assistance, the projects were to be completed within 24 and 36 months respectively.

GoI released (March 2013) first instalment amounting to ₹1.51 crore in respect of these two projects. Release of subsequent instalments was dependent on submission of utilisation certificate.

Due to non-obtaining prior CRZ clearance, the KCZMA stopped the work in respect of these two projects. Consequently, there was delay in submission of utilisation certificate for the amount released and completion of the projects. Hence, the subsequent instalments of GoI assistance amounting to ₹9.55 crore was not released and the DoT met the expenditure using GoK funds.

In respect of the project for ‘Development of Kappil Beach and Boat Club’, GoK replied (September 2019) that the delay in completion was due to non-availability of land and the long span of time required to obtain clearance from KCZMA.

The reply was not acceptable as the availability of land did not hamper the implementation of the project. The stoppage of work by the KCZMA was due to non-obtaining prior CRZ clearance. The DoT submitted application for CRZ clearance only after stoppage of work by the KCZMA. The CRZ clearance is still awaited.

⁸⁹ Kerala Irrigation Infrastructure Development Corporation.

Thus, due to non-adherence to the CRZ notification in implementation of projects, there was loss of GoI assistance to the tune of ₹9.55 crore in respect of two projects and irregular expenditure of ₹8.97 crore in respect of three projects out of the six projects examined.

**Thiruvananthapuram,
The**

**(S. Sunil Raj)
Accountant General
(Economic and Revenue Sector Audit)
Kerala**

Countersigned

**New Delhi,
The**

**(RAJIV MEHRISHI)
Comptroller and Auditor General of India**

Appendices

Appendix – 1.1

Year-wise break up of outstanding Inspection Reports (IRs) as on 30 June 2018

(Reference: Paragraph 1.7.1 - Page: 07)

Year	Up to 2014-15	2015-16	2016-17	2017-18	2018-19 (Upto 30 June 2018)	Total
PUBLIC WORKS DEPARTMENT (ROADS AND BRIDGES)						
Number of IRs	75	10	15	5	NIL	105
Number of paragraphs	451	115	128	58	NIL	752
Number of IRs for which initial reply has not been received (number of paragraphs)	NIL	NIL	7(53)	3(34)	NIL	10(87)
IRRIGATION DEPARTMENT						
Number of IRs	64	22	NIL	7	4	97
Number of paragraphs	188	82	NIL	51	23	344
Number of IRs for which initial reply has not been received (number of paragraphs)	1(2)	4(21)	NIL	NIL	4(22)	9(45)
AGRICULTURE AND FARMERS' WELFARE DEPARTMENT						
Number of IRs	90	48	NIL	03	03	144
Number of paragraphs	194	102	NIL	28	22	346
Number of IRs for which initial reply has not been received (number of paragraphs)	1(4)	5(15)	NIL	3(22)	4(20)	13(61)
FORESTS AND WILDLIFE DEPARTMENT						
Number of IRs	81	23	19	3	0	126
Number of paragraphs	261	74	137	18	0	490
Number of IRs for which initial reply has not been received (number of paragraphs)	3(9)	2(7)	9(59)	1(8)	NIL	15(83)
					Total IR	472
					Total Paras	1,932

Appendix – 2.1
Control Tests and their minimum frequency
(Reference: Paragraph 2.1 - Page: 09)

A. For Sub-Bases and Bases (Excluding Bitumen Bound Bases)

Sl No	Type of Construction	Test	Frequency (min.)
1	Granular	i) Gradation ii) Atterberg limits iii) Moisture content prior to compaction iv) Density of compacted layer v) Deleterious constituents vi) CBR	One test per 400 cubic meters One test per 400 cubic meters One test per 400 cubic meters One test per 1,000 square meters As required As required
2	Lime/Cement Stabilised Soil Sub-base	i) Quality of lime/cement ii) Lime/ Cement content iii) Degree of pulverisation iv) CBR or Unconfined Compressive Strength test on a set of 3 specimens v) Moisture content prior to compaction vi) Density of compacted layer vii) Deleterious constituents	One test for each consignment subject to a minimum of one test per 5 tonnes Regularly, through procedural checks Periodically as considered necessary As required One set of two tests per 500 square meters One set of two tests per 500 square meters As required
3	Water Bound Macadam	i) Aggregate Impact Value ii) Grading of aggregate iii) Combined Flakiness and Elongation indices iv) Atterberg limits of binding material v) Atterberg limits of screenings	One test per 1,000 cubic meters of aggregate One test per 250 cubic meters One test per 500 cubic meters of aggregate One test per 50 cubic meters of binding material One test per 100 cubic meters of aggregate
4	Wet Mix Macadam	i) Aggregate Impact Value ii) Grading of aggregate iii) Combined Flakiness and Elongation Indices iv) Atterberg limits of portion of aggregate passing 425 micron sieve v) Density of compacted layer	One test per 1,000 cubic meters of aggregate One test per 200 cubic meters of aggregate One test per 500 cubic meters of aggregate One test per 200 cubic meters of aggregate One set of three tests per 1,000 square meters

(Source: Table 900-3: MoRTH specification for Roads and Bridges)

Appendix 2.1 (Cont'd.....)
B. For Bituminous works and their minimum frequency

Sl No	Type of Construction	Test	Frequency (min.)
1	Prime Coat/Tack Coat/Fog Spray	i) Quality of binder ii) Binder temperature for application iii) Rate of spread of Binder	Number of samples per lot and tests as per IS:73, IS:217 and IS:8887 as applicable At regular close intervals Three tests per day
2	Seal Coat/Surface Dressing	i) Quality of Binder ii) Aggregate Impact Value or Los Angeles Abrasion Value iii) Combined Flakiness and Elongation Indices iv) Stripping value of aggregates (Immersion Tray Test) v) Water absorption of aggregate vi) Water sensitivity of mix vii) Grading of aggregate viii) Soundness (Magnesium Sulphate/Sodium Sulphate) ix) Polished stone value (not applicable for SAM/SAMI) x) Temperature of binder in boiler, aggregate in dryer and mix at the time of laying and compaction xi) Rate of spread of materials xii) Percentage of fractured faces (When gravel is used)	Same as mentioned under Serial No.1 One test per 200 cubic meters of each source and whenever there is change in the quality of aggregate One test per 100 cubic meters of aggregate for each source and whenever there is change in the quality of aggregate One test of each source and whenever there is change in the quality of aggregate --do-- --do-- Two tests per day One test for each source and whenever there is change in the quality of aggregate --do-- At regular intervals Same as mentioned under Serial No.1 One test per 100 cubic meters of aggregate
3	Open -graded Premix Surfacing/Close-graded Premix Surfacing	i) Quality of binder ii) Aggregate Impact Value or Los Angeles Abrasion Value iii) Combined Flakiness and Elongation Indices iv) Stripping value v) Water absorption of aggregates vi) Water Sensitivity of mix vii) Grading of aggregates viii) Soundness (Magnesium Sulphate and Sodium Sulphate) ix) Polished stone value x) Temperature of binder at application xi) Binder content xii) Percentage of fractured faces	Same as mentioned under Serial No.1 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 At regular interval Two tests per day per plant Same as mentioned under Serial No.2

Appendix 2.1 (Cont'd.....)

Sl No	Type of Construction	Test	Frequency (min.)
4	Bituminous Macadam	i) Quality of binder ii) Aggregate Impact Value or Los Angeles Abrasion Value iii) Combined Flakiness and Elongation Indices iv) Stripping value v) Water absorption of aggregates vi) Water Sensitivity of mix vii) Grading of aggregates viii) Soundness (Magnesium Sulphate/Sodium Sulphate) ix) Percentage of fractured faces x) Binder content xi) Control of temperature of binder and aggregate for mix and of the mix at the time of laying and rolling xii) Density of Comp layer xiii) Rate of spread of Mixed Material	Same as mentioned under Serial No.1 Same as mentioned under Serial No.2 One test per 350 cum for each source Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.3 Same as mentioned under Serial No.2 One test per 700 square meters area At regular intervals
5	Dense Bituminous Macadam/Bituminous Concrete	i) Quality of binder ii) Aggregate Impact Value/ Los Angeles Abrasion Value iii) Flakiness and Elongation Indices iv) Soundness test (Sodium or Magnesium Sulphate test) v) Water absorption of aggregates vi) Sand equivalent test vii) Plasticity Index viii) Polished stone value ix) Percentage of fractured face x) Mix grading	Number of samples per lot and tests as per IS:73 or IRC:SP:53, IS:15462 One test per 350 cubic meters of aggregate for each source and whenever there is change in the quality of aggregate One test per 350 cubic meters of aggregate for each source and whenever there is change in the quality of aggregate One test for each source and whenever there is change in the quality of aggregate One test for each source and whenever there is change in the quality of aggregate One test for each source and whenever there is change in the quality of aggregate One test for each source and whenever there is change in the quality of aggregate One test for each source and whenever there is change in the quality of aggregate One test per 350 cubic meters of aggregate when crushed gravel is used One set for individual constituent and mixed aggregate from dryer for each 400 tonnes of mix subject to minimum of two tests per day plant

Appendix 2.1 (Cont'd.....)

Sl No	Type of Construction	Test	Frequency (min.)
		xi) Stability and voids analysis of mix including theoretical maximum specific of loose mix. xii) Moisture Susceptibility of mix (AASHTO T283) xiii) Temperature of binder in boiler, aggregate in dryer and mix at the time of laying and compaction xiv) Binder content xv) Rate of spread of mix material xvi) Density of Compacted layer	Three tests for stability, flow value, density and void contents for each 400 tonnes of mix subject to minimum of two tests day per plant One test for each mix type whenever there is change in the quality or source of coarse or fine aggregate At regular intervals One set for each 400 tonnes of mix subject to minimum of two tests per day plant After every 5 th truck load One test per 700 square meters area
6	Sand Asphalt Base course	i) Quality of binder ii) Aggregate Impact Value or Los Angeles Abrasion Value iii) Sand equivalent test iv) Plasticity Index v) Mix grading & binder content vi) Stability of Mix vii) Control of temperature of binder in boiler, aggregate in the dryer and mix at the time of laying and rolling viii) Thickness of layer ix) Density of Compacted layer	Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.2 Same as mentioned under Serial No.5 Same as mentioned under Serial No.2 and 3 Same as mentioned under Serial No.5 Same as mentioned under Serial No.2 Same as mentioned under Serial No.5 Same as mentioned under Serial No.5
7	Slurry seal and Micro surfacing	i) Quality of Aggregate Sand Equivalent Value Water Absorption Soundness Test (Sodium/Magnesium Sulphate Test) ii) Quality of Emulsion iii) Aggregate Moisture iv) Aggregate Gradation v) Binder Content vi) Calibration of Machine vii) Quantity of Slurry (By weight of aggregate)	One per source/ site One per lot of 20 t as per IS:8887 Two per day Two per day at site Two per lane per km Once per Project Daily (Travel time of Machine)

Appendix 2.1 (Cont'd.....)

Sl No	Type of Construction	Test	Frequency (min.)
8	Stone Matrix Asphalt	i) Quality of binder ii) Aggregate Impact Value/ Los Angeles Abrasion Value iii) Flakiness and Elongation Indices iv) Soundness Test (Sodium and Magnesium Sulphate Test) v) Water absorption of aggregate vi) Sand equivalent test vii) Plasticity Index viii) Polished stone value ix) Percent of fractured faces x) Mix grading xi) Air voids and VMA analysis of mix including theoretical maximum specific gravity of loose mix xii) Moisture Susceptibility of mix (AASHTO T 283) xiii) Temperature of binder in boiler, aggregate in dryer and mix at the time of laying and compaction xiv) Binder content xv) Rate of spread of mix material xvi) Density of compacted layer	Number of samples per lot and tests as per IS:73 or IRC:SP:53, IS:15462 One test per 100 cubic meters of aggregate One test per 100 cubic meters of aggregate One test for each method for each source and whenever there is change in the quality of aggregate One test for each source and whenever there is change in the quality of aggregate One test for each source One test for each source One test for each source One test per 50 cubic meters of aggregate when crushed gravel is used One set for individual constituent and mixed aggregate from dryer for each 400 tonnes of mix subject to minimum of two tests per day per plant Three tests per day One test for each mix type whenever there is change in the quality or source of coarse or fine aggregate At regular intervals One set for each 400 tonnes of mix subject to minimum of two tests per day per plant After every 5 th truck load One test per 250 square meters area
9	Mastic asphalt	i) Quality of binder ii) Aggregate Impact Value and Los Angeles Abrasion Value iii) Combined Flakiness and Elongation Indices iv) Stripping value v) Water Sensitivity of mix vi) Grading of aggregates	Same as mentioned under Serial No.5 Same as mentioned under Serial No.5 Same as mentioned under Serial No.5 Same as mentioned under Serial No.2 Same as mentioned under Serial No.5 Two tests per day per plant on the individual constituent and mixed aggregates from the dryer

Appendix 2.1 (Cont'd.....)

Sl No	Type of Construction	Test	Frequency (min.)
		vii) Water absorption of aggregates viii) Soundness (Magnesium Sulphate/Sodium Sulphate) ix) Percentage of fractured faces x) Binder content and aggregate grading xi) Control of temperature of binder and aggregate for mixing and of the mix at the time of laying and rolling xii) Rate of Spread of Mixed Material xiii) Hardness number	Same as mentioned under Serial No.5 Same as mentioned under Serial No.5 Same as mentioned under Serial No.5 Same as mentioned under Serial No.3 At regular close intervals Regular control through check of layer thickness Minimum two tests per day
10	Recycled Material Grading of aggregate		Two tests per day
11	Cold Mixes		All tests as per S.No.5
12	Quality of Modified Binder		Number of samples per lot and tests as per IS:15462
13	Geotextiles		The requirements of Section 700 shall apply

(Source: Table 900-4 of MoRTH specification for Roads and Bridges)

Appendix – 3.1

Promotion of Rice cum Shrimp farming in Kaipad Lands, 2013-14: Consolidated details of beneficiary survey

(Reference Para 3.1.2.3 (Table 3.2) page 37)

Sl No	Name of beneficiary group	Amount of subsidy given (₹)	No. of years for which farming done	Reasons for discontinuation of farming	Constraints	Harvest details	
						Rice (Kg)	Fish (₹)
1	Aiswarya Swayam Sahaya Sangam	8,18,997	Five years	Nil	Crops of two years were destroyed. Subsidy was not fully released. The facility for procuring and selling of rice was less.	82,000	3,78,000
2	Samridhi Sahaya Sangam	8,18,997					
3	Nankalam Vayal Karshaka Sangam	6,76,644	Five years	Still continuing	Subsidy was not received fully; only initial support was received from the Agency	10,000	4,00,000 per year
4	Sukrutham Karshaka Sangam	6,76,644					
5	Annadayini Activity Group	5,91,548					
6	Aarathi Activity Group	5,91,548	Fish-2 yrs.	Non-availability of workers for rice farming; machines could not be used in the fields; less support from the Agency	Based on a Court order, the right to harvest fish was vested with the Panchayat for four months and with Karshaka Samithi for eight months. So, the beneficiary groups could not harvest.		
7	Aavani Activity Group	5,91,548	Rice-Continuing partially			Nil	
8	Kanakasree Activity Group	5,91,549					
9	Pulari Activity Group	5,91,548					
10	Punarijani Activity Group	5,91,548					

Appendix 3.1 (Cont'd.....)

Sl No	Name of beneficiary group	Amount of subsidy given (₹)	No. of years for which farming done	Reasons for discontinuation of farming	Constraints	Harvest details	
						Rice (Kg)	Fish (₹)
11	Dalil Kaipad Nel-Malsya Ulpadaka Samithi	6,03,050				1,000	Nil
12	Nidooni Kaipad-1 Nel-Malsya Ulpadaka Samithi	6,03,050	One year	1. Boundary dispute; 2. Rice yield was not as expected; 3. Sluice was damaged	Due to boundary dispute, farmers could not enter the area; Support from the Agency was received only during the first year		
13	Nidooni Kaipad-2 Nel-Malsya Ulpadaka Samithi	6,03,050					
14	Kairali Swasraya Sangam	5,06,365	Two years	Most of the shrimp seeds did not survive; Agency did not support after the first year.	Farming was difficult without cutting the mangroves which covered the area	4,000	200 kg shrimp 100 kg others
15	Haritha Swasraya Sangam	5,06,365			Paddy Crop was destroyed due to non-opening of Kattampally Regulator; the Agency was not supportive after the first year.	No	2,000
16	Padappa Nel-Malsya Ulpadana Samithi	6,56,396					Nil
17	Chelerikai Nel-Malsya Ulpadana Samithi	6,76,396					
		1,06,95,242					

Source : Departmental Records

Appendix – 3.2

Promotion of Rice cum Shrimp Farming in Kaipad Lands, 2014-15: Details of beneficiaries and status of farming

(Reference Para 3.1.2.3 page 38)

Sl No	Name of Beneficiary Group	Status of farming as per ADAK records
1	Adithya Swayam Sahaya Sangham, Pinarayi, Eranholi	No farming activity done
2	Udayam Swayam Sahaya Sangham, Pinarayi	No farming activity done due to disputes between groups
3	Nanma Swasraya Sangham, Mullool	Farming activity is done
4	Kandanada Kaipad Swayam Padannakkara, Pinarai	Only Fish farming is conducted
5	Sreyas Activity Group, Ezhome	Farming activity is done
6	Panneri Panthottam Krishi Vikasana Sangham, Panneri, Thaliparamba	Farming activity is done
7	Navarathna Group, Kayyam, Panchalayi	Only Fish farming is conducted
8	Pullooppy - I Jalakarshaka samithi, Puzhathi	No farming activity done
9	Pullooppy - II Jalakarshaka samithi, Puzhathi	No farming activity done
10	Samrudhi Activity Group, Puzhathi	No farming activity done
11	Niravu Activity Group, Puzhathi	No farming activity done
12	Kanivu Activity Group, Puzhathi	No farming activity done
13	Kaipad Swayam Sahaya Sangham, Puzhathi	No farming activity done
14	Edacheri Nelkarshaka Samithi, Puzhathi	No farming activity done
15	Chittarikka Haritha Swayam Sahaya Sangham, Andallur	No farming activity done

*Source: Departmental Records

Appendix – 3.3

Difference in the rate of dividend paid to Government and other members

(Reference: Paragraph 3.4(b) page 48)

Sl No	Name of Society	Share capital contribution of Government in Societies (₹)	Percentage of Dividend declared to		Amount of dividend paid to Govt. with reference to Col (5) (₹)	Balance payable to Govt. with reference to Col (4) (₹)
			Other Members	Govt.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)

Pathanamthitta District

1	Vallicode SCB 2016-17	Not Shown	14	3	19,110	70,070
				Total	19,110	70,070

Ernakulam District: Kunnathunadu Taluk

2	Krariyeli SCB Ltd No.E199					
	2008-09	1,00,000	20	3	3,000	17,000
	2009-10	1,00,000	20	3	3,000	17,000
	2010-11	1,00,000	20	3	3,000	17,000
	2011-12	1,00,000	20	3	3,000	17,000
3	Koovappady SCB Ltd 319					
	2011-12	1,00,000	25	3	3,000	22,000
	2012-13	1,00,000	25	3	3,000	22,000
4	Keezhillam SCB Ltd 3989					
	2008-09	2,00,040	10	3	3,001	17,003
	2010-11	2,00,040	15	3	3,001	27,005
	2012-13	2,00,040	15	3	3,001	27,005
5	Mudakkuzha SCB Ltd 693					
	2011-12	1,00,000	20	3	3,000	17,000
	2012-13	1,00,000	20	3	3,000	17,000
6	Mamala SCB Ltd 2799					
	2011-12	1,00,000	25	3	3,000	22,000
	2012-13	1,00,000	25	3	3,000	22,000
	2012-13	1,00,000	25	3	3,000	22,000

Appendix 3.3 (Cont'd.....)

(1)	(2)	(3)	(4)	(5)	(6)
7	Vadavukodu FSCB Ltd No 651				
	2011-12	50,000	10	3	1,500
	2013-14	50,000	10	3	1,500
	2014-15	50,000	10	3	1,500
	2015-16	50,000	10	3	1,500
	2016-17	50,000	10	3	1,500
				Total	49,503
					3,00,513

Ernakulam District: Kothamangalam Taluk

(1)	(2)	(3)	(4)	(5)	(6)	(7)
8	354 Kothamangalam SCB Ltd					
	2001-02	2,40,000	10	3	7,200	16,800
	2002-03	2,40,000	10	3	7,200	16,800
	2003-04	2,40,000	10	3	7,200	16,800
	2004-05	2,40,000	10	3	7,200	16,800
	2005-06	3,40,000	15	3	10,200	40,800
	2006-07	3,40,000	15	3	10,200	40,800
	2007-08	3,40,000	20	3	9,700	58,300
	2008-09	3,20,000	20	3	10,200	53,800
	2009-10	3,30,000	20	3	10,682	55,318
	2010-11	3,30,000	20	3	9,900	56,100
	2011-12	3,30,000	25	3	9,900	72,600
	2012-13	3,05,000	25	3	9,253	66,997
	2013-14	2,80,000	25	3	8,628	61,372
	2014-15	2,55,000	25	3	7,900	55,850
	2015-16	2,30,000	25	3	7,150	50,350
9	1577 Mathirappilly SCB					
	1996-97	99,500	12	3	2,985	8,955
	1997-98	99,500	14	3	2,985	10,945
	1998-99	99,500	14.5	3	2,985	11,443
	1999-00	99,500	20	3	2,985	16,915
	2000-01	99,500	20	3	2,985	16,915
	2001-02	99,500	17	3	2,985	13,930
	2002-03	99,500	16	3	2,985	12,935
	2004-05	99,500	20	3	2,985	16,915
	2005-06	99,500	20	3	2,985	16,915
	2007-08	99,500	20	3	2,985	16,915
	2008-09	99,500	25	3	2,985	21,890

Appendix 3.3 (Cont'd.....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
10	E-167 Kozhippilly SCB Ltd.					
	1975-76	40,000	10	3	1,200	2,800
	1976-77	40,000	10	3	1,200	2,800
	1977-78	50,000	8	3	1,500	2,500
	1979-80	50,000	5	3	1,500	1,000
	1981-82	55,000	5	3	1,650	1,100
	1982-83	55,000	10	3	1,650	3,850
	1983-84	55,000	5	3	1,650	1,100
	1986-87	60,000	10	3	1,800	4,200
	1987-88	60,000	10	3	1,800	4,200
	1988-89	83,000	10	3	2,490	5,810
	1989-90	83,000	10	3	2,490	5,810
	1990-91	83,000	10	3	2,490	5,810
	1991-92	83,000	10	3	2,490	5,810
	1992-93	83,000	10	3	2,490	5,810
	1993-94	73,000	10	3	2,190	5,110
	1994-95	73,000	20	3	2,190	12,410
	1996-97	73,000	10	3	2,190	5,110
	1997-98	73,000	5	3	2,190	1,460
	1998-99	73,000	20	3	2,190	12,410
	1999-00	73,000	20	3	2,190	12,410
	2008-09	1,00,000	20	3	3,000	17,000
	2009-10	1,00,000	15	3	3,000	12,000
	2010-11	1,00,000	20	3	3,000	17,000
	2011-12	2,00,000	25	3	6,000	44,000
	2012-13	2,00,000	25	3	6,000	44,000
	2013-14	2,00,000	25	3	6,000	44,000
				Total	2,31,888	11,23,670

Thrissur District

(1)	(2)	(3)	(4)	(5)	(6)	(7)
11	Killimangalam FSCB – 2016-17	2,00,000	15	3	6,000	24,000
12	Pazhuvil S C B Ltd No 126 – 2016-17	4,40,000	8	3	13,200	22,000
13	Venginissery SCB Ltd No. 528 – 2016-17	1,00,93,500	15	3	3,02,805	12,11,220
14	Annamanada SCB – 2016-17	8,80,000	25	3	26,688	1,93,312

Appendix 3.3 (Cont'd.....)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
15	Karalam SCB – 2016-17	72,90,000	10	3	2,26,125	5,02,875
16	Karuvannure SCB – 2016-17	25,90,000	25	3	77,700	5,69,800
17	Nellayi Parappookkara SCB – 2016-17	2,50,000	15	3	7,500	30,000
18	Vallivattam SCB – 2016-17	1,90,000	12.5	3	5,700	18,050
19	West Chalakkudy SCB – 2016-17	90,000	25	3	3,000	19,500
20	Kattoor SCB – 2016-17	72,25,000	20	3	3,02,831	11,42,169
21	Orumanayur SCB Ltd. R 209 – 2016-17	8,04,600	18	5	49,747	95,081
22	Punnayoorkulam SCB Ltd. P 417 – 2016-17	1,84,500	12	3	5,535	16,605
23	Guruvayur Vyapari Vyavasayi CS – 2016-17	2,00,000	25	3	6,000	44,000
			Total		10,32,831	38,88,612
			Grant Total		13,33,332	53,82,865

*Source: Records furnished by the Department

Appendix 3.4

Details of expenditure incurred on purchase of floating Trivenis

(Reference – Paragraph 3.5 – Page 49)

Boat No.	Purchase Cost ₹ in lakhs)	Date of commissioning& current location	Date from which super market not functioning	Reported condition of the vessels	Value assessed in May 2017 ₹)	Expenditure incurred on repair, maintenance, etc. ₹)
1	21.50	07/06/2009 (Kuttanad Triveni) at Kainakary	07/07/2016	Sank in water (2/2018)	6,50,000	
2	25.50	01/03/2011 (Thakazhi Triveni) at Thrikkunnappuzha	22/06/2016	Sank in water (2/2018)	10,00,000	
3	25.50	20/06/2011 (Kundara Triveni) at Sanghakadavu	07/07/2016	Sank in water (3/2018)	10,00,000	
4	25.50	23/07/2011 at Panangad	08/04/2014	Boat in very bad condition	5,00,000	
5	24.75+12.5% tax = 27.84	19/02/2012 (Harippad Triveni) at Thottupally)	31/03/2016	Sank in water (2/2018)	12,50,000	
6	24.75+12.5% tax = 27.84	29/04/2012 (Puthupally Triveni) at Kanjiram	30/09/2016	Require repairs	12,50,000	
7	24.75+13.5% tax = 28.09	06/06/2012 (Chavara Triveni) at Kulangara	07/07/2016	Sank in water (3/2018)	9,50,000	
	181.77 lakh (a)					
8	20 lakh paid as advance	Boats not taken over	-	-		20,00,000 (b)
9			-	-		
10	Order cancelled			-		
Expenditure towards maintenance						4,10,375 (c)
Expenditure towards lifting of capsized vessel at Takazhi, Alappuzha						1,60,000 (d)
Fee paid to approved valuer						76,000 (e)
Grand Total						208.24 lakh (f)
(f) = (a) + (b) + (c) + (d) + (e)						

*Source: Records furnished by the Department

Appendix – 3.5

Calculation of overpayment made to contractor on account of fictitious/incorrect level measurements

(Reference – Paragraph 3.7 – Page 53)

A	Tack coat area of road surface from chainage 0/000 km to 22/030 km (excluding bridge portion) over which BC was laid and measured		2,08,664.53 sqm
B	Thickness of BC as per level measurements recorded in LF books		50 mm
C	Volume of BC executed as per LF Books	A x B	10,433.227 cum
D	Volume of BC as worked out by the department in calculation sheets for payment		10,673.560 cum
E	Fictitious volume of BC calculated and considered for payment	D – C	240.333 cum
F	Contract Rate for providing BC		₹10,300/cum
G	Amount paid to contractor on account of fictitious quantity of work done	E x F	₹24,75,430 Say ₹24.75 lakh
H	Average thickness of BC noticed during JPV		44 mm
I	Hence, excess thickness of BC	B – H	6 mm
J	Excess volume of BC for which payment was made to the contractor	A x I	1,251.99 cum
K	Amount paid to contractor in excess of the work actually executed	J x F	₹1,28,95,497 Say ₹1.29 crore
L	Total over payment	G + K	₹1.54 crore

*Source: Records furnished by the Department

Appendix – 3.6**List of works in which securities were inadequate**

(Reference: Paragraph 3.8-page 54)

Sl No	Name of work in which SD/PG was to be submitted	Name of Division to which the work relates	Amount of security required (in ₹)	Security collected (in ₹)	Shortage in collection (in ₹)	Remarks
1	R/P 2015-16 Urgent BT patch repairs and Bit CC in Kattappana - Erattayar Road km 1/000 to 2/000 (Agt. No.116/EE/2015-16 dated 19/12/2015)	Roads Division, Idukki	1,23,100	25,000	98,100	Contract Value (CV): ₹9,21,680 13.35 per cent Date of Completion (DoC) 01/02/2016
2	O/R 2015-16 Providing 20mm CC to Alakode - Karimannoor Road (Via. Kathipara - Pallithazham) km 0/000 to 2/000 (Agt. No. 166/EE/2015-16 dated 29/02/2016)	Roads Division, Idukki	1,23,700	44,400	79,300	₹17,74,069 6.97 per cent DoC 26/03/2016
3	R/P 2015-16 Providing 20mm bit CC in Puthupariyaram - Poothakavu Road km 3/000 to 5/160 (Agt. No. 136/EE/2015-16 dated 08/01/2016)	Roads Division, Idukki	3,66,600	1,12,300	2,54,300	₹22,45,707 16.32 per cent DoC 01/03/2016
4	R/P 2015-16 urgent patch repairs and bit CC to Meemmutty - Kuvilletam Road from km 0/000 to 3/000 (Agt. No.142/EE/15-16 dated 02/02/2016)	Roads Division, Idukki	2,58,342	49,000	2,09,342	₹18,32,819 14.10 per cent DoC 04/03/2016
5	RIDF XV - Improvement to Kanjar - Koovappally - Chakkikavu - Elaveezhapoonchira - Melukavu - Kanjiramkavala Road (Agt. No. 144/SECCA/10-11 dated 10/03/2011)	Roads Division, Idukki	82,97,448	65,00,000	17,97,448	₹8,29,74,479 10.00 per cent Not completed
TOTAL			91,69,190	67,30,700	24,38,490	

*Source: Records furnished by the Department

Appendix – 3.7

List of works in which security was not adjusted against pending bill of other works

(Reference: Paragraph 3.8 - page 54)

Sl No	Name of work for which Security (SD/PG) was to be submitted	Name of Division to which the work relates	Name of the work pending bill of which was to be adjusted as SD/PG	Amount required to be adjusted as SD/PG but not adjusted (₹)	Remarks
1	Improvements to Vandiperiyar – Spencer Junction to Sathram Road km 0/000 to 13/800 (Agt. No. 30/SECCA/2014-15 dated 10/10/2014)	Roads Division, Idukki	'Improvements to Painav - Thannikandam – Peppara - Maniyarkudy - Asokakavala Road km 0/000 to 14/500'.	1,34,52,000	₹13,45,15,592 10 per cent Date of Completion (DoC) 14/09/2015
2	B/W 2013-14 Improvements to Ayyappapara - Venmny Road km 0/000 to 1/800 (Agt. No. 74/SECCA/2014-15 dated 10/03/2015)	Roads Division, Idukki	'BW 2012-13 improvements to Kurumbalamattom – Manikunnelpeedika – Vandamattom - Pallikavala Road km 0/000 to 1/200'.	11,52,900	₹1,52,38,602 7.57 per cent DoC 28/05/2016
3	Improvements to Ernakulam Thekkady SH portion from Parakadavu - Ankanvettu Road km 21/600 to 27/400 (Agt. No. 118/SECCA/2016-17 dated 04/11/2016)	Roads Division, Idukki	'BW 2013-14 improvements to Thallakanam – Keerithodu Road km 0/000 to 3/000' and 'B/W Narakathanam – Thankamany Road km 4/250 to 6/250'.	3,24,92,100	₹13,75,04,998 23.62 per cent DoC 30/05/2019
4	R/P 2015-16 Providing 20mm CC in Elamdesam - Vettimattom Road (Via. Kathipara - Pallithazham) km 0/000 to 2/500 (Agt. No.151/EE/2015-16 dated 23/02/2016)	Roads Division, Idukki	O/R 2014-15 urgent patch repair to Kappaluvenga – Nellathanmi Road km 2/000 to 4/000	1,64,700	₹21,94,578 7.50 per cent DoC 26/03/2016

Appendix 3.7 (Cont'd.....)

SI No	Name of work for which Security (SD/PG) was to be submitted	Name of Division to which the work relates	Name of the work pending bill of which was to be adjusted as SD/PG	Amount required to be adjusted as SD/PG but not adjusted (₹)	Remarks
5	R/P 2015-16 Providing 20mm CC in Thodupuzha - Vadakkemuri Road km 0/100 to 1/300 (Agt. No. 132/EE/2015-16 dated 07/01/2016)	Roads Division, Idukki	R/P 2014-15 Providing 20mm CC in Thodupuzha - Vadakkemuri Road km 0/000 to 1/300	3,24,400	₹21,97,166 14.76 per cent Doc 29/02/2016
6	Restoration for the execution of RAPDRP project of KSEB in an around of Vattiyoorkaavu area by providing BM&BC (Agt. No. EE/82/2016-17) DoC – 30/08/2016, DLP – 28/09/2018)	Roads Division, Thiruvananthapuram	MLA – ADF- 2014 providing side drain and resurfacing of Tutors lane.	2,10,500	Contract Value (CV) ₹42,08,831 4.86 per cent Doc 30/08/2016
7	Improvements to Nedumangad - Karipoor road by providing 50 mm BM&BC (Agt. No. 69/SESC/16-17) DoC – 26/12/2017, DLP – 23/01/2021	Roads Division, Thiruvananthapuram	Easing curve for Kattakada - Kottoor road between km 1/500 to 1/700	14,66,500	CV 2,93,28,294 4.89 per cent Doc 26/12/2017
8	RP 2015-16 resurfacing using BM&BC between km 5/300 to 5/700 of Mukkam - Kumaranellur - Koodaranji road (Agt. No. EE/144/2015-16 dated 14/03/2016) DoC -25/04/2016, DLP – 25/05/2018	Roads Division, Kozhikode	Improvements to Mukkam – Cheruvadi - Kavilada road Chainage km 0/000 to 5/100	1,32,350	CV ₹26,46,824 5.29 per cent Doc 25/04/2016
9	RP 2015-16 junction improvement works and providing BM&BC surfacing on Malappuram - Theyyappa road from km 4/400 to 6/700. (Agt. No. EE/28/2016-17 dated 20/04/2016) DoC – 22/03/2017, DLP -19/04/2019	Roads Division, Kozhikode	SLTF- 2015 RP renewal BT on PUKC road between km 5/500 to 7/000	1,22,400	CV ₹24,47,010 4.90 per cent Doc 22/03/2017

Appendix 3.7 (Cont'd.....)

Sl No	Name of work for which Security (SD/PG) was to be submitted	Name of Division to which the work relates	Name of the work pending bill of which was to be adjusted as SD/PG	Amount required to be adjusted as SD/PG but not adjusted (₹)	Remarks
10	Renewal of surface with BM&BC between km 0/400 to 0/800 of Thiruvambady – Koodaranjihi - Koombara- Thollumukkom road (Agt. No. 147/2015-16 dated 14/03/2016) DoC – 25/04/2016, DLP – 21/05/2018	Roads Division, Kozhikode	Improvements to Mukkam - Cheruvady - Kavilada road Chainage 0/000 to 5/100	1,32,150	CV ₹26,48,107 5.29 per cent DoC 25/04/2016
11	Urgent patch work in Sreekrishnapuram – Muriyankanni - Chethallur road. km 0/000 to 7/000 and km 7/800 to 12/600 (Agt. No. EE/PL/20/2015-16 dated 12/06/2015)	Roads Division, Palakkad	RP to Pathiripala – Kongad road km 0/000 to 0/500 and 5/400 to 6/300	49,350	CV ₹19,81,627 2.49 per cent DoC 26/12/2015
12	13 th FCA-14-15 Pattambi- Amayoor road km 10/000 to 11/316. (Agt. No.EE/PL/101/2014-15 dated 15/11/2014)	Roads Division, Palakkad	RP to Pattithara – Puleri road km 0/000 to 1/900	87,200	CV ₹17,43,621 5 per cent DoC 30/06/2016
13	Heavy maintenance to SH 53 Palakkad – Perinthalmanna road by providing BM & BC from km 35/600 to 41/000 (Agt. No. SE (K) 134/2015-16 dated 22/09/2015)	Roads Division, Palakkad	Providing BM&BC to Koppam- Pengattiri road km 0/000 to 7/400	20,15,200	CV ₹4,30,03,514 4.69 per cent DoC 24/03/2016
TOTAL				5,18,01,750	

*Source: Records furnished by the Department

Appendix – 3.8**List of works in which securities were released before due date**

(Reference: Paragraph 3.8- page 54)

Sl No	Name of work	Name of Division to which the work relates	Date of completion	DLP Up to	Amount of security (₹)	Date of release of security	Remarks
1	Improvements to Peringamala - Kakkamoola road km 0/000 to 2/400. (Agt. No.163/SESC/2015-16 dated 08/01/2016)	Roads Division, Thiruvananthapuram	04/10/2017	04/10/2019	4,84,750	Released before 15/03/2019. Actual date not on record.	Contract Value (CV) ₹ 1,93,88,130 2.50 per cent Date of Completion (Doc) 04/10/2017
2	R/P 2015-16 Providing 20mm CC in Elamdesam-Vettimattom Road (Via. Kathipara - Pallithazham) km 0/000 to 2/500. (Agt. No.151/EE/2015-16 dated 23/02/2016)	Roads Division, Idukki	26/03/2016	One year from date of completion	55,000	24/05/2016	CV ₹21,94,578 2.50 per cent Doc 26/03/2016
3	O/R 2015-16 Providing urgent bitumen patch works and bit CC works from km 1/000 to 4/000 in Iruttukanam - Anachal Road. (Agt. No.101/EE/2015-16 dated 30/10/2015)	Roads Division, Idukki	20/02/2016	Six months from date of completion	97,200	24/02/2016	CV ₹19,42,858 5 per cent Doc 20/02/2016
4	B/W 2014-15 Improvements to Kombodinjal North-Kombodinjal South Road km 0/000 to 0/850. (Agt. No.121/EE/2015-16 dated 26/12/2015)	Roads Division, Idukki	27/12/2016	One year from date of completion	1,76,900	11/08/2017	CV ₹35,37,751 5.00 per cent Doc 27/12/2016
5	O/R 2015-16 Providing 20mm CC to Alakode - Karimannoor Road (Via. Kathipara - Pallithazham) km 0/000 to 2/000. (Agt. No.166/EE/2015-16 dated 29/02/2016)	Roads Division, Idukki	26/03/2016	One year from date of completion	44,400	24/05/2016	CV ₹17,74,069 2.50 per cent Doc 26/03/2016

Appendix 3.8 (Cont'd.....)

Sl No	Name of work	Name of Division to which the work relates	Date of completion	DLP Up to	Amount of security (₹)	Date of release of security	Remarks
6	F/D 2013-14 Providing 20mm CC to Vazhithala - Parakkadavu Road km 2/000 to 3/000. (Agt. No.605/EE/2013-14 dated 27/11/2013)	Roads Division, Idukki	28/03/2015	One year from date of completion	1,42,700	26/02/2016	CV ₹28,53,186 5 per cent Doc 28/03/2015
7	O/R 2015-16 Urgent BT patch repairs to Karikode - Velliyanattom Road km 0/000 to 2/000. (Agt. No.130/EE/2015-16 dated 07/01/2016)	Roads Division, Idukki	23/02/2016	Six months from date of completion.	74,600	29/08/2016	CV ₹14,90,670 5 per cent Doc 23/02/2016
8	R/P 2015-16 Providing 20mm CC in Thodupuzha-Vadakkemuri Road km 0/100 to 1/300. (Agt. No.132/EE/2015-16 dated 07/01/2016)	Roads Division, Idukki	29/02/2016	One year from date of completion	56,000	16/03/2017	CV ₹21,97,166 2.55 per cent Doc 29/02/2016
9	R/P 2015-16 Providing 20mm bit CC in Puthupariyaram - Poothakavu Road km 3/000 to 5/160. (Agt. No.136/EE/2015-16 dated 08/01/2016)	Roads Division, Idukki	01/03/2016	One year from date of completion	1,12,300	24/05/2016	CV ₹22,45,707 5 per cent Doc 01/03/2016
10	R/P 2015-16 Providing 20mm CC to km 0/000 to 2/000 of Kallar - Mankulam Road. (Agt. No.145/EE/2015-16 dated 18/02/2016)	Roads Division, Idukki	23/03/2016	One year from date of completion	63,000	24/05/2016	CV ₹26,49,699 2.38 per cent Doc 23/03/2016
11	2015-16 Construction of retaining wall in Muniyara-Vallakkadavu Road km 0/000 to 0/100. (Agt. No.172/EE/2015-16 dated 04/03/2016)	Roads Division, Idukki	28/05/2016	18 months from date of completion	49,900	16/11/2017	CV ₹9,96,131 5 per cent Doc 28/05/2016

Appendix 3.8 (Cont'd.....)

Sl No	Name of work	Name of Division to which the work relates	Date of completion	DLP Up to	Amount of security (₹)	Date of release of security	Remarks
12	CRF 2016-17 - Improvements to the road connecting from Gandhi Square Mini Byepass - Kannankulangara - Puthiyakavu - Maradu - Gregorius School in Ernakulam District. (Agt. No.3/SENH/CC/Kochi/17-18 dated 04/07/2017)	NH Division, Muvattupuzha	Work due for completion on 16/05/2018 was extended to 30/11/2018		2,15,44,500	16/05/2018 (BG submitted for unbalanced bid with validity up to 02/10/2018 was released on the direction of CE (NH))	CV ₹9,21,18,261 2.34 per cent DoC not known
13	Widening the carriage way and improvements to Thiruvananthapuram Madapathinkadavu road km 7/800 to 25/100. (Agt. No.67/SESC/2015-16 dated 8/9/2015)	Roads Division, Thiruvanan-thapuram	26/05/2016	23/06/2019	1,04,11,800	SE stated that the SD was released prematurely	CV ₹20,82,34,322 5 per cent Doc 26/05/2016
14	Improvements to resurfacing to Panchikkadu -Aruvippuram road in Neyyattinkara Municipality. (Agt. No.130/SESC/2015-16 dated 25/11/2016)	Roads Division, Thiruvanan-thapuram	31/08/2018	28/09/2020	12,97,800	SE replied that the SD was released prematurely due to oversight	CV ₹2,59,54,904 5 per cent Doc 31/08/2018
				TOTAL	3,46,10,850		

*Source: Records furnished by the Department

Appendix – 3.9

List of works in which validity of bank guarantee expired before completion of work

(Reference: Paragraph 3.8 - Page: 54)

Sl No	Name of work	Name of Division to which the work relates	Date of completion of work	Amount of BG (₹)	Date of expiry of BG	Remarks
1	Improvements to PMG Plamoodu road by providing BM and BC (Agt. No.229/SESC/ 2016-17 dated15/02/2017)	Roads Division, Thiruvananthapuram	18/12/2017	5,95,300	14/08/2017	Contract Value (CV) ₹99,07,733 6 per cent Date of Completion (DoC) 18/12/2017
2	Improvement to Kattuputhussery - Nettayam road from km 0/00 to 1/350 in Pallickal Panchayath by providing BM and BC (Agt. No.17/SESC/ 2017-18 dated 12/05/2017)	Roads Division, Thiruvananthapuram	31/03/2018	1,12,100	09/01/2018	CV ₹1,20,38,902 0.93 per cent DoC 31/03/2018
3	Improvements to Peringammala Panchayath Office junction to Agri farm road from km 0/000 to 6/500. (Agt. No.105/SESC/2013-14 dated 3/10/2013)	Roads Division, Thiruvananthapuram	29/02/2016	13,09,600	24/11/2015	CV ₹2,52,02,845 5.20 per cent DoC 29/02/2016
4	BW 2016-17 Improvements to Nedumkandom - Cumbummettu Road (Agt. No. 66/SECCA/17-18 dated 29/06/2017)	Roads Division, Idukki	Extended up to 30/12/2018	62,74,400	27/06/2018	CV ₹3,71,70,683 16.88 per cent DoC 30/12/2018
5	Improvements to Karikode – Velliyanattom Road (Agt. No. 116/SECCA/ 17-18 dated 03/10/2017)	Roads Division, Idukki	ToC of the work was extended up to 31/03/2019	27,54,400	27/10/2018	CV ₹3,41,24,028 8.07 per cent DoC 31/03/2019
6	Improvements to Rajakumari South-Rajakumari North- Periya canal road km 3/350 to 10/000 (Agt. No.16/SECCA/16-17 dated 24/05/2016)	Roads Division, Idukki	T.O.C extended upto 10/05/2018, Completed on 12/04/2019	57,14,626	19/02/2017	CV ₹2,85,73,130 20 per cent DoC 12/04/2019

Appendix 3.9 (Cont'd.....)

Sl No	Name of work	Name of Division to which the work relates	Date of completion of work	Amount of BG (₹)	Date of expiry of BG	Remarks
7	BW 16-17 improvements to Mundiyeruma – Udumbanchola road km 0/000 to 4/500. (Agt. No. 63/SECCA/2017-18 dated 28/06/2017)	Roads Division, Idukki	As on 31/01/2019, the work was in progress	25,18,300	27/06/2018	CV ₹2,22,86,249 11.30 per cent DoC As on 31/01/2019, the work was in progress
8	CRF 2016-17 improvements to Channaveli – Thiruvizha – Thiruthankavala - Kayipuram road in Alappuzha (Agt. No.1/SENH/SC/2017-18 dated 29/04/2017)	NH Division, Alappuzha	9/4/2018	59,77,000	21/3/2018	CV ₹9,62,84,000 6.21 per cent DoC 09/04/2018
9	CRF 2016-17 improvements to Kalarcolde-Vadayakkal- Gallelio Jn. Kappu Jn. Viyari palli-Viyasa Jn. Ayyarkovikal road in Alappuzha Dist. (Agt. No.3 SENH/SC/17-18 dated 05/07/2017)	NH Division, Alappuzha	20/02/2019	2,05,13,000	21/12/2018	CV ₹14,99,56,000 13.68 per cent DoC 20/02/2019
10	B/W 2013-14 Improvements to Chembakappara - SNDP Padi – Puthiyattupady Road km 0/000 to 2/000 (Agt. No. 26/SECCA/2015-16 dated 16/07/2015).	Roads Division, Idukki	22/05/2017	5,02,000	15/04/2016	CV ₹2,00,72,876 2.50 per cent DoC 22/05/2017
11	Improvements to Peringammala Panchayath Office junction to Agri farm road from km 0/000 to 6/500. (Agt. No.105/SESC/2013-14 dated 03/10/2013)	Roads Division, Thiruvananthapuram	29/02/2016	25,49,300	24/11/2015	CV ₹2,52,02,845 10.12 per cent DoC 29/02/2016
12	RIDF XV -Improvement to Kanjar-Koovappally-Chakkikavu-Elaveezhapoonchira-Melukavu-Kanjiramkavala Road (Agt. No.144/SECCA/10-11 dated 10/03/2011)	Roads Division Idukki	Work not completed	65,00,000	validity of the BG furnished was expired on 18/02/2019	CV ₹8,29,74,479 7.83 per cent DoC Work not completed as RIDF XV funding stopped by NABARD
			TOTAL	5,53,20,026		

*Source: Records furnished by the Department

Appendix – 3.10

List of works in which validity of Bank Guarantee (Security Deposit) expired before completion of DLP of the work

(Reference: Paragraph 3.8 - Page: 54)

Sl No	Name of work	Name of Division to which the work relates	Date of completion of work	Date up to which SD is required to be valid (DLP+28 days)	Date on which validity of BG expired	Amount (₹)	Remarks
1	Providing JBIC reformation work in km 2/900 to 3/790 in Nemnanda - Cheekilode road (Agt. No.EE/60/2014-15 dated 06/06/2014)	Roads Division, Kozhikkode	15/12/2014	12/01/2016	31/08/2015	65,500	Contract Value (CV) ₹13,09,850 4.96 per cent Date of Completion (DoC) 15/12/2014
2	Improvements to Kadambattuonam-Elankam kshetram-Punnavila road Chainage km 0/000 to 1/450 (Agt. No.100/SESC/ 2016-17 dated 25/06/2016)	Roads Division, Thiruvananthapuram	23/05/2017	20/06/2019	20/02/2019	2,65,550	CV ₹1,06,20,310 2.50 per cent DoC 23/05/2017
3	Improvements to Pulloor Mukku-Decent Mukku road from km 0/00 to 2/100 (Agt.No.94/SESC/ TVM/2016-17 dated 23/06/2016)	Roads Division, Thiruvananthapuram	23/06/2016	21/07/2019	20/01/2019	2,54,450	CV ₹1,01,76,637 2.50 per cent DoC 23/06/2016
4	Improvements by providing BM and BC to Poojappura Mudavaannugal Punnackanughal road km 0/000 to 1/175 (Agt. No. 80/SESC/2016-17 dated 07/06/2016)	Roads Division, Thiruvananthapuram	28/03/2017	25/04/2019	31/01/2019	3,76,600	CV ₹1,50,63,749 2.50 per cent DoC 28/03/2017
5	Providing BM and BC to Chappath Thudiyankonam road km 0/000 to 1/500 (Agt. No. 141/SESC/15-16 dated 10/12/2015)	Roads Division, Thiruvananthapuram	30/05/2017	27/06/2019	07/07/2018	7,05,100	CV ₹2,82,01,066 2.50 per cent DoC 30/05/2017
6	Improvement to Balaramapuram Vizhinjam road between km 0/000 to 3/300 by providing 50 mm BM & 25mm BC (Agt. No.219/SESC/15-16 dated 24/02/2016)	Roads Division, Thiruvananthapuram	26/08/2017	23/09/2019	31/10/2018	7,89,950	CV ₹3,15,97,582 2.50 per cent DoC 26/08/2017

Appendix 3.10 (Cont'd.....)

Sl No	Name of work	Name of Division to which the work relates	Date of completion of work	Date up to which SD is required to be valid (DLP+28 days)	Date on which validity of BG expired	Amount (₹)	Remarks
7	Improvements to Navaikulam Kattuputhusseri Nettayam road from km 3/000 to 15/800. (Agt. No. 78/SESC/2016-17 dated 02/06/2016)	Roads Division, Thiruvananthapuram	25/01/2017	22/02/2020	30/05/2018	7,48,600	CV ₹2,99,43,704 2.50 per cent DoC 25/01/2017
8	Providing BM and BC Vattiyoorkavu-Vellaikadavu road. (Agt. No.144/SESC/2016-17 dated 20/07/2016)	Roads Division, Thiruvananthapuram	25/04/2018	23/05/2020	14/03/2019	5,31,850	CV ₹2,12,72,280 2.50 per cent DoC 25/04/2018
9	B/W 13-14 Improvements to Kattappana - Kumily Bye Pass Road from Karimpanady to Chappathu km 0/000 to 2/200 (Agt. No.140/SECCA/2013-14 dated 19/02/2013)	Roads division , Idukki	17/07/2014	14/08/2015	10/06/2015	2,00,000	CV ₹1,98,91,548 1.01 per cent DoC 17/07/2014
10	Improvements to Kilimanoor Adayam on stretch km 0/000 to 3/000 of Kilimanoor - Kadakkal road. (Agt No.76/SESC/16-17 dated 02/06/2016)	Roads Division, Thiruvananthapuram	31/05/2017	28/06/2019	31/01/2019	7,47,500	CV ₹2,98,98,809 2.50 per cent DoC 31/05/2017
11	Improvements to Poonoor Polickal – Kattippara road km 0/000 to 8/265 in Kozhikode Dist. (Agt No. SE (K) 71/2014-15 dated 18/10/2014)	Roads Division Kozhikode	28/12/2015	25/01/2018	17/05/2017	73,74,800	CV ₹7,38,54,667 9.98 per cent DoC 28/12/2015
12	NABARD RIDF-XIX- Improvements to Kappad - Thusharagiri Adivaram road (Agt No. SE (K) 423/2015-16 dated 22/03/2016)	Roads Division Kozhikode	29/04/2017	27/05/2019	31/10/2018	11,22,350	CV ₹4,48,92,264 2.50 per cent DoC 29/04/2017
					TOTAL	1,31,82,250	

*Source: Records furnished by the Department

Appendix – 3.11

Repair works arranged at Departmental cost soon after the DLP / Validity of SG

(Reference: Paragraph 3.8 - Page: 55)

SI No	Original Work	Division	Contract Amount	SG / DLP Details	Rectification Work	Contract Amount
1	'Improvement by providing BM (50mm) and BC (25mm) to Vazhakode – Alathur Road from km 22/648 to 29/648' by M/s Kudroli Builders	Palakkad	₹289 lakh	BG No. 126/2013-14 dt 12 August, 2013, of South Indian Bank, Panaji, Goa for ₹28.95 lakh-Valid till 11 November, 2015	Agreement No EE/PL/117/2017-18 dt 27 November, 2017- by -G.Janardhanan, Palakkad	₹10.77 lakh
2	Budget Work 2009-10-, Improvements to Upputhara – Kottamala - Wagamon Road, - Agreement No. 10/SECCA/2010-11 dated 25/04/2010- Contractor Sri K.C. Antony	Idukki	₹313 lakh	BG 1/2010 dated 19 April, 2010(₹31,27,905) and BG 3/2010 dated 25 April, 2010 (₹32,72,260) of South Indian Bank, Bharananganam	The department lost the opportunity to recover the expenditure on the balance work to be executed, to the extent of the BG	
3	IRQP from Chaining 444/000 to 462/000 km on NH 47 (now NH 66) in the State of Kerala- Agreement No. 3/SENH/SC/2012-13/ dated 16/07/2012- by M/s Concord Construction, Kasaragod	NH	₹1,372 lakh	Defects developed during DLP. However no rectification carried out despite repeated requests/reminders. DLP expired on 30/05/2016	After the DLP the department arranged necessary rectification works at a cost of ₹106.27 lakh (Appendix 3.12)	₹106.27 lakh

*Source: Records furnished by the Department

Appendix – 3.12**Repair works arranged soon after the DLP**

(Reference: Paragraph 3.8 - Page: 55)

Sl No	Name of work	Division	Date of proposal of estimate	Project Cost (in ₹)
1	NH 66 16-17 OR Urgent rectification for potholes between km 453/000 to 454/500 (Agt No. 12/EE/NH/ALP/16-17)	NH Division Alappuzha	06/06/2016	12,64,478 Date of Completion (DoC) 04/08/2016
2	NH 66 16-17 Urgent rectification for potholes between km 444/000 to 445/500 (Agt No. 13/NH/33/ALP/16-17)	NH Division Alappuzha	06/06/2016	12,35,730 DoC 04/08/2016
3	NH 66 16-17 O/R for 16-17 urgent rectification for potholes between km 454/500 to 457/000 (Agt No. 19/EE/NH/ALP/16-17)	NH Division Alappuzha	18/06/2016	13,69,032 DoC 06/07/2016
4	NH 66 Urgent rectification for potholes between km 445/000 to 447/000 (Agt No 18/EE/NH/ALP/16-17)	NH Division Alappuzha	18/06/2016	13,76,039 DoC 06/07/2016
5	NH 66 O/R Urgent rectification for potholes between km 447/000 to 448/000 (Agt No. 25/EE/NH/ALP/16-17)	NH Division Alappuzha	25/07/2016	13,75,098 DoC 09/08/2016
6	NH 66 O/R 16-17 Urgent rectification for potholes between km 448/000 to 449/000 (Agt No. 24/EE/NH/ALP/16-17)	NH Division Alappuzha	25/07/2016	13,40,842 DoC 28/08/2016
7	NH 66 O/R Urgent rectification of potholes between km 458/000 to 459/000 (Agt No. 1/EE/NH/ALP/18-19)	NH Division Alappuzha	25/07/2016	13,55,457 DoC 15/08/2016
8	NH 66 Urgent rectification for potholes between km 449/000 to 450/000 (Agt No. 26/EE/NH/ALP/16-17)	NH Division Alappuzha	25/07/2016	13,11,779 DoC 29/07/2016
Total				1,06,28,455

*Source: Records furnished by the Department

Appendix – 3.13

Inadmissible Payment to Contractors – Details of Works

(Reference: Paragraph 3.11 - Page: 59)

Sl No	Name of work	Name of PWD Roads Division	Name of Contractor	Cost difference of bitumen paid to the contractor (in ₹)
1	Budget work 2012-13 - Improvements and Providing BM&BC works to Kozhikode-Nilambur-Gudallur Road km 92/000 to 101/500 (Ghat Section) in Malappuram District	Manjeri	M/s.ABM4 Builders	23,26,800
2	Improvements to Koottampara-Ramankuth-Oruvankuzhi Thondy road km 0/000 to 4/000 in Malappuram District	-do-	TAN-B Constructions	37,50,847
3	Improvements to Pookattiri-Edayoor road between km 0/000 to 5/200 in Kottakkal Legislative Assembly Constituency in Malappuram District	-do-	P.Ahmmmed Kutty	21,73,332
4	Improvements to Koottuparamba-Edaikkal-Kaniparamba road km 0/000 to 2/600 in Malappuram District	-do-	P.T.Hamza	5,88,038
5	Improvements to Bidathi-Chirakkattukunnu village office road km 0/000 to 3/400 in Malappuram District	-do-	M/s Infrahite Infrastructure Pvt. Ltd.	13,35,718
6	Improvements and providing 50 mm BM and 25 mm BC to Vettichira-Kadampuzha-Koottilangadi road km 6/800 to 17/400 in Malappuram District	-do-	Malabar Tech	95,97,647
7	Improvements to Omanoor-Theendapara-Olavattor road from km 0/000 to 4/500 in Malappuram District	-do-	K.K.Abdul Kareem	9,29,721
8	Improvements to Valillapuzha-Elamaram-Erattamuzhi road km 0/000 to 6/850 in Malappuram District	-do-	Abdul Gafoor.K.	21,93,914
9	Improvements to Poovathingal-Kallaratti-East Vadakkumuri-Vazhikkadavu-Pathanapuram road between km 0/000 to 5/000 in Malappuram District	-do-	Daybro Constructions	38,961
10	Budget Work 2012-13 Improvements and providing BM & BC to Maravattom-Kottur-Kavathikalam road km 3/200 to 5/570 in Malappuram District	-do-	Ernad Engineering Enterprises	10,49,972
11	Budget Work 2012-13 Providing BM&BC to Chappanangadi-Indianoor-Kottakkal road km 3/630 to 6/660 in Malappuram District	-do-	Vasanth Constructions	26,95,444
12	Improvements to Cheroor-Kilinikode-Purakani road km 0/000 to 4/550 in Malappuram District	-do-	P.Mohammed	5,61,135
13	Improvements to Athanikkal-Velloor-Alakkad-Thadaparamba-Arimbra road in Malappuram District	-do-	Sakeer.K.S.	4,94,938

Appendix 3.13 (Cont'd.....)

Sl No	Name of work	Name of PWD Roads Division	Name of Contractor	Cost difference of bitumen paid to the contractor (in ₹)
14	Budget Work 2012-13 Providing BM&BC works to Manjeri-Olipuzha road between km 9/750 to 11/350 in Malappuram District	-do-	Malabar Tech	22,95,426
15	Providing BM&BC and other improvements to Anakkayam-Oruvambram road km 5/750 to 12/200 in Malappuram District	-do-	M/s.Malabar Associates	53,01,447
16	Providing BM&BC to Manjeri-Kizhissery road km 3/800 to 10/200 in Malappuram District	-do-	Vasanth Constructions	49,45,885
17	Budget work 2012-13:Providing BM&BC works to Manjeri Bye pass road Ist reach (km 0/000 to 1/350) and 4th reach (0/000 to 1/855) in Malappuram District	-do-	Vasanth Constructions	33,48,081
18	NABARD-Providing BM&BC to Kolathur-Malappuram road km 10/000 to 16/000 in Malappuram District	-do-	M/s PMR Constructions	83,19,869
19	NABARD RIDF XVIII-Providing BM&BC to Athikarathodi-Kuttaloor road km 0/000 to 5/660 in Malappuram District	-do-	M/s PMR Constructions	26,18,886
20	Budget Work 2012-13 Providing BM&BC works to Pathanapuram-Moorkanad road (1st reach) between km 2/500 to 5/000 in Malappuram District	-do-	Malabar Tech	25,66,746
21	Budget work 2012-13 Providing BM&BC works to Manjeri-Olipuzha road between km 11/350 to 12/800 in Malappuram District	-do-	M/s PMR Construction Company	18,62,600
22	NABARD-Improvements to Othayi-Pulliyilpara-Kizhakkechathalloor Road km 0/00 to 3/200 and km 0/00 to 3/00 in Malappuram District	-do-	Malabar Tech	30,56,770
23	Improvements and providing BM&BC works to Kollamchina-Pukayoor road from km 0/000 to 3/520 in Malappuram District	-do-	P. Mohammed	29,19,230
24	Improvements and providing BM&BC works to Kadalandi-Chettiyarmadu road from km 0/000 to 2/000 in Malappuram District	-do-	P. Mohammed	21,65,501
25	Improvements and providing BM&BC works to Mamburam Link road from km 0/000 to 2/000	-do-	EKK & Company	23,75,331
26	Improvements and providing BM&BC works to Tirurangadi-Muttichira road between km 0/000 to 2/350 in Malappuram District	-do-	P. Mohammed	32,03,528
27	Improvements and providing BM&BC works to Parappanangadi-Areacode SH road between km 5/200 to 9/000 in Malappuram District	-do-	M/s PMR Construction Company	61,95,854
28	Providing BM&BC surfacing to Murivazhikkal-Pachattiri-Pariyapuram-Arikkanchira road in Malappuram District	-do-	Infrahite Infrastructure Pvt. Ltd.	6,08,183

Appendix 3.13 (Cont'd.....)

Sl No	Name of work	Name of PWD Roads Division	Name of Contractor	Cost difference of bitumen paid to the contractor (in ₹)
29	Improvements to Alungal-Mangalam-Koottayikkadavu road km 0/000 to 3/985 in Malappuram District	-do-	M/S Beta Constructions	12,78,345
30	Providing BM&BC surfacing to BP Angadi-Mangattiri-Vettom road in Malappuram District	-do-	M/S Beta Constructions	23,50,843
31	Providing BM&BC surfacing to Tirur-Edarikkode road km 0/000 to 12/345 in Malappuram District	-do-	M/s Malabar Tech.	88,32,121
32	Budget work 2012-13 - Providing BM&BC works to Manjeri-Elankur-Wandoor road km 0/000 to 2/400 in Malappuram District	-do-	Malabar Plus constructions	26,19,904
33	Budget work 2012-13 - Improvements and providing BM&BC to Vaniyambalam-Amarambalam road km 0/000 to 5/400 in Malappuram District.	-do-	M/s Malabar Associates	37,39,034
34	NABARD RIDF XVIII- Improvements and widening the carriage way of Mathur Banglow School-Puliyanoor Moolode Vettikade road from km 0/00 to 3/300 in Palakkad District	Palakkad	M. A. Muhammed Shafi	5,11,446
35	Improvements and widening the carriage way Vandazhy Muslim Palli-Kanthalam road between km 0/000-7/000 in Palakkad District	-do-	C Dhileesh	2,00,000
36	Improvements to 2nd mile-Monnamkuzhi-Kulappadam Road km 0/00 to 1/800 in Palakkad District	-do-	M. T. Abdul Kabeer	2,73,087
37	Improvements of Mannarkkad Kodathippadi Changaleri Nhettarakkadavu road km 0/00 to 5/600 in Palakkad District	-do-	M/s. TAN-B Constructions	13,98,784
38	Providing BM & BC to Cheruthuruthy-Perumbilavu Road (9/400 to 15/475) Working chainage km 9/400 to 13/000 in Palakkad Dist.	-do-	T. N. Abdul Hameed Khan	4,14,350
39	LAC-ADF 2012-13 - Improvements to Vattoli Bazar-Thiruvancheriopoyil-Kottanada-Thayyilpeedika-Manjappalam-Parambinthodu-Vakayad-Naduvannur Road from km 1/200 to 7/500	Kozhikode	VP Biju	11,14,864
40	Improvements to Anelakkadavu-Bappangadu (Koyilandy) road between km 0/000 to 3/680.	-do-	Anjana Constructions	5,64,923
41	Improvements and providing BM BC to Cheruvattakkadavu-Mallesserythazham road from km 0/000 to 2/250 in Kozhikode District	-do-	ULCCS Ltd	12,63,105
42	NABARD RIDF XVIII - Improvements to Chaliyam-Kadalundikadavu road from km 0/000 to 3/000 in Kozhikode District	-do-	PMR Construction Co.	19,38,699
43	Providing BM BC to Balussery-Koorachundu road between km 0/000 to 5/000.	-do-	ULCCS Ltd	20,95,849

Appendix 3.13 (Cont'd.....)

Sl No	Name of work	Name of PWD Roads Division	Name of Contractor	Cost difference of bitumen paid to the contractor (in ₹)
44	LAC-ADF 2012-13 - Improvements to Payyoli cheerpu-Puthiyangadi Bundu-Keezhariyur road km 0/000 to 2/000, 4/000 to 6/200 under Perambra Assembly Constituency.	-do-	B. U. Abdul Rahiman	5,20,455
45	Widening and BT to Kallachi Town Villyapalli road (Tipu Sulthan Road) in between km 0/000 to 1/200	-do-	Ibrahim Haji	2,19,689
46	Improvements to Meenmutty-Koorottupara-Puliyilakkattupady road (Nellipoil to Puliyilakkattupady) from km 0/000 to 4/950	-do-	PTS Hitech project India Private limited.	7,34,433
47	Improvements to Palath Palolithazham road km 0/000 to 4/400	-do-	K Abdul Hazeez	6,19,201
48	Improvements to Koduvally-REC Road BM BC (km 1/650 to 4/615)	-do-	PTS Hightech Project India Private Limited	8,94,105
49	NABARD RIDF XVIII- Improvements to Odayanchal Cherupuzha road (Edathodu-Vellarikundu) km 6/500 to 16/500 in Kasaragod District.	Kasaragode	KSCC Ltd	72,35,360
50	Improvements to Pokkundu - Kurumathur-Therthala- Therlayikadavu Road km 0/000 to 7/500 in Kurumathur and Chengalayi Grama Panchayath in Kannur District	Kannur	V. P. Abdul Khader	10,72,273
51	NABARD RIDF XVIII- Improvements to Kanhirathinkeezel- Mathiparamba km 0/000 to 2/200 in Kannur District	-do-	Joseph Velupuzhakkal	6,42,779
52	Improvements to Chinakkal- Kattampally- Mayyil-Kololam road b/w. km 6/800 to 8/500 (Kambil Town) Kannur District.	-do-	Ibrahim Haji	2,06,199
53	Improvements to Edanad- Kunhimangalam road km 0/000 to 13/230 (Ist reach 0/000 to 3/000, 4/000 to 5/000, 11/530 to 13/230.	-do-	C. L. Muhammed Haneef	6,72,770
54	NABARD RIDF XVIII- Improvements to Chembanthotty-- Puranjan road km 0/000 to 5/700.	-do-	U Muhamad Kunhi	12,82,941
55	Improvements to Punnakadavu- Kunnaru-Palakkode road km 0/000 to 7/200 in Kannur District.	-do-	P.M Mansoor	5,58,131
56	Construction of blacktopped road connecting Aralam farm Block No.10 to Block No. 13 and Kakkuvapalam km 0/000 to 3/570 in Kannur District.	-do-	Shameer P	6,15,842
57	Construction of road connecting Aralam farm Block No.7, Block No. 10 and Block No. 9 (8 km) in Kannur.	-do-	Thomas Kannamthanathu	14,09,284

Appendix 3.13 (Cont'd.....)

Sl No	Name of work	Name of PWD Roads Division	Name of Contractor	Cost difference of bitumen paid to the contractor (in ₹)
58	Improvement to Kakkad- Pallipram- Mundayad road km 0/00 to 2/800 in Kannur District	-do-	S Mohammed Harish B	9,76,506
59	Improvements to Varam - Kadakkode- Karikkinkadanchira km 0/000 to 3/900	-do-	MK Anil Kumar	16,32,422
60	Construction of road connecting Block No. 10 godown Block 12 (Wayanad Tribal Settlement area) Kakkuvapalam in Aralam resettlement area. km 0/00 to 9/00.	-do-	Muhammed Haji K	1,44,976
61	Malabar Package-Improvements to 19th Mile Pazhassi Dam Garden km 0/00 to 6/270 (BM & BC) Balance work from km 5/000 to 6/270	-do-	K Moideenkutty Hajee	8,13,904
62	LAC-ADF Improvements to Kavumannam Kalikuni Parathodeu road in Thariyode Panchayath in between km 0/000 to 2/850 In Wayanad District	Kalpetta	UMK Engineering and Construction Co.	2,06,040
63	Construction of Niravilpuzha Bridge at km 27/100 of Mananathavady Pakramthalam road in Wayanad District	-do-	ULCCS Ltd	84,525
64	Improvements to Suganthagiri Chennayikavala Amba VI th Unit road in between km 0/000 to 8/600 in Pozhuthana Grama Panchayath in Wayanad District	-do-	V.C.Kunhabdulla	1,62,590
65	Upgradation of Karimkutty Palookkara Maniyamkode Kalpetta road in between km 0/000 to 8/000 in Wayanad District	-do-	General Manager KSCC Ltd	90,086
			Total	12,89,09,669

*Source: Records furnished by the Department

Glossary of Abbreviations

Glossary of Abbreviation used in the report

Abbreviation	Full Form
AB	Autonomous Body
ADAK	Agency for Development of Aquaculture Kerala
ARCS	Assistant Registrars of Co-operative Societies
AS	Administrative Sanction
B/W	Budget Work
BC	Bitumen Concrete
BG	Bank Guarantee
BM	Bitumen Maccadam
CAA	Coastal Aquaculture Authority
CBR	California Bearing Ratio
CE	Chief Engineer
CGPC	Close Graded Premixed Chipping Carpet
CRF	Central Road Fund
CRZ	Coastal Regulatory Zone
CV	Contract Value
DCA	Director of Co-operative Audit
DCB	Demand, Collection and Balance
DLP	Defect Liability Period
DoC	Date of Completion
DoF	Director of Fisheries
DoT	Department of Tourism
DPR	Detailed Project Report
E&RSA	Economic & Revenue Sector Audit
EE	Executive Engineer
EHP	Enterocytozoon hepato penaei
FM	Finance Manager
GIFT	Genetically Improved Farm Tilapia
GoI	Government of India
GoK	Government of Kerala
GTC	Government Tender Committee
HPV	Hepatopancreatic Parvo Virus
I&QC	Inspection & Quality Control
ICAI	Institute of Chartered Accountants of India
IHHNV	Infectious Hypodermal and Hematopoietic Necrosis
IR	Inspection Report
IRC	Indian Road Congress

Abbreviation	Full Form
IRQP	Improvement of Rider Quality Programme
JPV	Joint Physical Verification
KCZMA	Kerala Coastal Zone Management Authority
KITTS	Kerala Institute of Tourism and Travel Studies
KITCO	Kerala Industries and Technical Consultancy Organisation
KSBB	Kerala State Biodiversity Board
LF Book	Level Field Book
LMR	Local Market Rate
LSGD	Local Self Government Departments
MBV	Monodon Baculo Virus
MoA	Ministry of Agriculture
MoEF	Ministry of Environment and Forests
MoRTH	Ministry of Road Transport and Highways
MSS	Mix Seal Surfacing
NH	National Highway
NIT	Notice Inviting Tender
NRMB	Natural Rubber Modified Bitumen
OGPC	Open Graded Premix Chipping Carpet
OPC	Ordinary Portland Cement
PAC	Public Accounts Committee
PCR	Polymerase Chain Reaction
PG	Performance Guarantee
PPC	Portland Pozzolana Cement
PRICE	Project Information and Cost Estimation
PWD	Public Works Department
QA	Quality Assurance
QC	Quality Control
R&B	Roads & Bridges
RCS	Registrar of Co-operative Societies
RMMS	Road Maintenance Management System
RR	Revenue Recovery
SD	Security Deposit
SE	Superintending Engineer
SoR	Schedule of Rates
SPF	Specific Pathogen Free
TOC	Time of Completion
TS	Technical Sanction

Abbreviation	Full Form
TSB	Treasury Savings Bank
UC	Utilisation Certificate
VG	Viscosity Grade
WBM	Water Bound Macadam
WSSV	White Spot Syndrome Virus

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