



**Report of the
Comptroller and Auditor General of India
on
Economic Sector
for the year ended 31 March 2015**



**Government of Gujarat
Report No. 5 of the year 2015**

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GOVERNMENT OF GUJARAT

(Report No. 5 of the year 2015)

TABLE OF CONTENTS

	Paragraph	Page
Preface		iii
CHAPTER I – INTRODUCTION		
About this Report	1.1	1
Audited Entity Profile	1.2	1-2
Authority for Audit	1.3	2-3
Organisational structure of the Office of the Principal Accountant General (E&RSA), Gujarat	1.4	3
Planning and conduct of Audit	1.5	3
Significant audit observations	1.6	3-8
Response of the Government to Audit	1.7	9-10
CHAPTER II – PERFORMANCE AUDIT		
FORESTS AND ENVIRONMENT DEPARTMENT		
Conservation of Wetlands	2.1-2.11	11-36
CHAPTER III – COMPLIANCE AUDIT		
NARMADA, WATER RESOURCES, WATER SUPPLY AND KALPSAR DEPARTMENT		
Construction of High Level Canals	3.1	37-50
Avoidable payment of electricity charges	3.2	50-52
Infructuous expenditure	3.3	52-54
Loss of interest	3.4	54-55
NARMADA, WATER RESOURCES, WATER SUPPLY & KALPSAR AND FINANCE DEPARTMENTS		
Excess payment	3.5	55-57
ROADS AND BUILDINGS DEPARTMENT		
Loss due to non-recovery of cost of cement saved in mix design	3.6	57-59
Avoidable expenditure	3.7	59-61

	Paragraph	Page
Excess Payment	3.8	61-62
INDUSTRIES & MINES AND FINANCE DEPARTMENTS		
Excess payment	3.9	62
FORESTS AND ENVIRONMENT DEPARTMENT		
Functioning of Common Effluent Treatment Plants	3.10	63-73
FORESTS & ENVIRONMENT AND INDUSTRIES & MINES DEPARTMENTS		
Development of Balasinor Dinosaur Park	3.11	73-77

APPENDICES

Appendix No.	Subject	Refer Paragraph	Page
I	Year-wise breakup of outstanding Inspection Reports as on 30 September 2015	1.7.1	79
II	Statement showing important wetlands identified by the Gujarat Biodiversity Board	2.1 and 2.7.2	80
III	Details showing funds released and utilised for conservation of wetlands under NWCP	2.8.2.1	81
IV	Statement showing the project wise details of HLC project	3.1.1	82
V	Statement showing the details of avoidable expenditure on contract demand	3.2	83-84
VI	Statement showing the loss of interest due to non-payment of advance payment	3.4	85-86
VII	Details showing the recovery to be made from the contractor due to less consumption of cement as per mix design	3.6	87
VIII	Details of operational CETPs in the State of Gujarat	3.10.5	88-89
IX	Statement showing the prescribed standard for outlet norms of GPCB to CETPs for discharging the treated effluent	3.10.6.1	90
X	Details showing non-compliance of outlet norms of GPCB by CETPs	3.10.6.1	91

PREFACE

1. This Report for the year ended March 2015 has been prepared for submission to the Governor of Gujarat under Article 151 of the Constitution of India.
2. The Report contains findings of Performance Audit of “Conservation of Wetlands” and significant results of the Compliance Audit of the Departments of the Government of Gujarat under the Economic Services, including Departments of Roads and Buildings, Narmada, Water Resources, Water Supply & Kalpsar (Water Resources), Forests and Environment, Finance and Industries & Mines.
3. The instances mentioned in this Report are among those, which came to notice in the course of test audit of accounts for the period 2014-15 as well as those which had come to notice in earlier years, but could not be reported in previous Audit Reports; instances relating to the period subsequent to 2014-15 have also been included wherever necessary.
4. Audit has been conducted in conformity with the Regulations on Audit and Accounts, 2007 and the Auditing Standards, 2002 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) presents matters arising from Performance Audit and Compliance Audit of the Departments of the Government of Gujarat in the Economic Sector.

The Compliance Audit refers to examination of the 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 competent authorities are being complied with. On other hand, performance audit, besides conducting a compliance audit, also examines whether the objectives of the programme/ activity/ Department are achieved economically and efficiently.

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

This chapter explains the planning and extent of audit, provides a synopsis of the significant audit observations made during various types of audits and also briefly analyses the follow-up on the previous Audit Reports. Chapter-II contains Performance Audit of “Conservation of Wetlands” of Forests and Environment (F&E) Department of Government of Gujarat (GoG). Chapter-III contains Compliance Audit which includes two theme based audits *namely* (i) “Construction of High Level Canals” by Water Resources (WR) Department and (ii) “Functioning of Common Effluent Treatment Plants” under Forests & Environment Department and nine individual audit observations on the expenditure transactions of Government Departments.

1.2 Audited Entity Profile

The Principal Accountant General (Economic & Revenue Sector Audit), Gujarat conducts audit of the expenditure incurred by 10 Departments under the Economic Services in the State at the Secretariat level and also the field offices, 53 autonomous bodies and 67 public sector undertakings (PSUs) falling under the jurisdiction of these 10 Departments. 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 summary of fiscal transactions of the Government of Gujarat during the year 2013-14 and 2014-15 is given in **Table 1**:

Table 1: Summary of fiscal operations

(₹ in crore)

Receipts			Disbursements				
	2013-14	2014-15		2013-14	2014-15		
					Non-Plan	Plan	Total
Section-A: Revenue							
Revenue receipts	79,975.74	91,977.78	Revenue expenditure	75,258.54	60,065.41	26,586.30	86,651.71
Tax revenue	56,372.37	61,339.81	General services	26,820.37	28,761.35	1,241.97	30,003.32
Non-tax revenue	7,018.31	9,542.61	Social services	32,381.78	19,884.80	16,829.35	36,714.15
Share of Union taxes/duties	9,701.93	10,296.35	Economic services	15,730.72	10,883.70	8,514.98	19,398.68
Grants from Government of India	6,883.13	10,799.01	Grants-in-aid and Contributions	325.67	535.56	0.00	535.56
Section-B: Capital							
Misc. Capital receipts	0.00	241.00	Capital Outlay	22,677.37	84.00	24,073.76	24,157.76
Recoveries of Loans and Advances	140.69	621.38	Loans and Advances disbursed	603.22	48.72	301.18	349.90
Public Debt receipts*	19,343.04	19,453.94	Repayment of Public Debt*	6,203.91	-	-	5,509.20
Contingency Fund	0.00	0.11	Contingency Fund	0.11	-	-	14.16
Public Account receipts	52,019.52	62,387.52	Public Account disbursements	50,039.25	-	-	52,309.01
Opening Cash Balance	18,689.89	15,386.48	Closing Cash Balance	15,386.48	-	-	21,076.47
Total	1,70,168.88	1,90,068.21		1,70,168.88			1,90,068.21

Source: Finance Accounts of the respective years.

* Excluding net transactions under ways & means advances and overdrafts.

1.3 Authority for Audit

The authority for audit by the C&AG is derived from the Articles 149 and 151 of the Constitution of India and the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. The C&AG conducts audit of expenditure of the Departments of Government of Gujarat under Section 13¹ of the C&AG's (DPC) Act. The C&AG is the sole auditor in respect of bodies/ authorities which are audited under Sections 19(2)², 19(3)³ and 20(1)⁴ of the C&AG's (DPC) Act. In addition, C&AG also conducts audit

¹ This section empowers C&AG to audit transactions made from the Consolidated Fund of the State, transactions relating to the Contingency Fund and Public Accounts, and trading, manufacturing, profit & loss accounts, balance sheets and other subsidiary accounts.

² Audit of the accounts of Corporations (not being Companies) established by or under law made by the Parliament in accordance with the provisions of the respective legislations.

³ Audit of accounts, on the request of the Governor, of Corporations established by law made by the State Legislature.

⁴ Where the audit of the accounts of any body or authority has not been entrusted to the CAG by or under any law made by Parliament, he shall, if requested so to do by the Governor of a State, undertake the audit of the accounts of such body or authority on such terms and conditions as may be agreed upon between him and the Government.

of other autonomous bodies, under Section 14⁵ of C&AG's (DPC) Act, which are substantially funded by the Government. Principles and methodologies for various audits are prescribed in the Regulations on Audit and Accounts, 2007 and the Auditing Standards, 2002 issued by the C&AG.

1.4 Organisational structure of the Office of the Principal Accountant General (E&RSA), Gujarat

Under the directions of the C&AG, the Office of the Principal Accountant General (Economic & Revenue Sector Audit), Gujarat conducts audit of Government Departments/ Offices/ Autonomous Bodies/ Institutions under the Economic and Revenue Sector which are spread over the State. The Principal Accountant General (Economic & Revenue Sector Audit) is assisted by one Senior Deputy Accountant General and three Deputy Accountants General.

1.5 Planning and conduct of Audit

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

After completion of audit of each unit, Inspection Reports containing audit findings are issued to the heads of the Departments. The Departments are requested to furnish replies to the audit findings within one month of receipt of the Inspection Reports. Whenever replies are received, audit findings are either settled or further action for compliance is advised. The important audit observations arising out of these Inspection Reports are processed for inclusion in the Audit Reports, which are submitted to the Governor of State under Article 151 of the Constitution of India.

During 2014-15, in the Economic Sector Audit Wing 14,535 man-days⁶ were utilised for compliance audit covering 231 units and performance audits. The audit plan covered units/ entities based on risk assessment.

1.6 Significant audit observations

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

⁵ This section empowers the C&AG to audit receipts & expenditure of (i) a body/ authority substantially financed by grants or loans from the Consolidated Fund of the State and (ii) 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 are not less than ₹ one crore.

⁶ Inclusive of the party days provided for the audit of PSUs. The related audit findings have been included in the Audit Report on PSUs separately.

The present Report contains one performance audit and 11 compliance audit paragraphs (including two theme based audits) of expenditure audit pertaining to the Roads and Buildings (R&B) Department, Forests and Environment (F&E) Department, Narmada, Water Resources, Water Supply and Kalpsar (NWRWS&K) Department, Finance Department and Industries & Mines Department.

1.6.1 Performance Audit

Chapter II of this report contains Performance Audit observations relating to “Conservation of Wetlands” of F&E Department of GoG.

Conservation of Wetlands

Wetland is an area where water is the primary factor controlling the environment and associated plant and animal life. It includes areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, areas of marine water the depth of which at low tide does not exceed six meters. Wetlands are habitat to aquatic flora and fauna, support all forms of life, mitigate floods, recharge ground water and provide buffer shorelines against erosion.

Ministry of Forests and Environment (MoFE) launched (1985-86) National Wetland Conservation Programme (NWCP). Gujarat State has eight Wetlands of national importance *viz.*, Nal Sarovar, Thol Lake, Khijadiya Lake, Wadhvana Lake, Great Rann of Kachchh (GRK), Little Rann of Kachchh (LRK), Pariej Lake and Nani Kakrad under NWCP. Nal Sarovar is a Ramsar Site. There are also 19 other wetlands not identified but deserved to be wetlands of national importance as per the report of the Gujarat State Biodiversity Board, Gandhinagar.

The performance audit (PA) covers the period from April 2009 to March 2015 and includes examination of records of eight wetlands of national importance, four out of 19 other Wetlands and one wetland of Porbandar Bird Sanctuary. In the light of facts which emerged out of this performance audit, there are certain areas of concern suggesting that some scope for improvement in conservation activities for wetlands and implementation and monitoring of issues relating to wetlands remains, as indicated below.

The Department has not formed “State Wetland Conservation Authority” as envisaged in NWCP Guidelines. There was no policy framed by the Department for wetlands other than those identified as having national importance. Further, 19 other wetlands were identified having deserved to be declared as of national importance and two wetlands having high ecological value deserved to be important wetlands, were not declared as important wetlands by the Department or conserved accordingly.

State Government did not provide adequate funds in the budget estimate for conservation activities. The Government mainly relied upon funds released by the GoI and short release of fund was not met from the State fund. Though some activities were carried out under other State schemes, conservation

activities of wetlands of national importance in the State remained inadequate. The Management Action Plans (MAPs) were either prepared with break in period or not prepared fully.

The other deficiencies noticed were:

- The baseline data of migratory birds which are essential to determine the causes of changes of population sizes *etc.*, have not been maintained in the eight wetlands of national importance.
- The Birds Rescue Centre (BRC) was not set up at wetlands of LRK, GRK and Pariej. BRCs set up at Nal Sarovar and Thol wetlands do not have required facilities.
- The water retention work at Khijadiya and removal of weeds at Nal Sarovar was inadequate.
- Conservation of the two important wetlands LRK and GRK was not done.
- Proper water level required for wetland was not maintained at Wadhvana Lake due to release of water by the Irrigation Department for irrigation.
- The poaching at Nal Sarovar and Wadhvana Lake was also not controlled.

Inadequate monitoring over the conservation of wetlands both at the Department level as well as Steering Committee level was observed. Out of 10 half yearly meetings as envisaged, Steering Committee met only six times during 2010-15 for review of activities of conservation of wetlands.

Our recommendations are as under:

- Government needs to establish State Wetland Conservation Authority in a time bound manner and prioritise the framing of policy/ guidelines for conservation of wetlands other than those having been identified as of national importance.
- Government needs urgent attention for declaration of 19 wetlands identified by the Gujarat Biodiversity Board, Gandhinagar as important wetlands and taking up of conservation activities of these important wetlands.
- Government may ensure timely preparation of action plan for conservation of wetlands by preparing MAPs and Annual Plan of Operation.
- Government may make adequate budget provision for conservation of wetlands.
- For Nal Sarovar, Thol Lake, Khijadiya, Wadhvana and Pariej Lake, Government may consider maintaining baseline data of migratory birds and adopt a conservation strategy for conservation of migratory birds.
- Government may strengthen surveillance for curbing poaching by using modern surveillance technology at Nal Sarovar and Thol wetlands.
- Government needs to assess the requirement of removal of weeds at wetlands for conservation and provide nesting, feeding and roosting site to the birds.

- Government needs to assess the requirement of conservation work at Khijadiya wetland to ensure retention of water at wetlands so as to enable migratory birds to meet their survival requirements.
- Government needs to give urgent attention for effective pursuance and co-ordination with WR Department for maintaining required water level at Wadhvana wetland by executing work as suggested by the WR Department.
- Government should identify pockets having high ecological value at GRK and LRK wetlands and consider taking up conservation activities of these pockets.
- The Steering Committee may ensure close monitoring of conservation activities of wetlands of national importance and expedite identification of other important wetlands.

1.6.2 Compliance Audit

Principal Accountant General (E&RSA) conducted compliance audit of 10 Departments of the Economic Sector of the State Government and their field offices and audit findings were reported to the respective Heads of the Departments through inspection reports. Chapter III of this report contains Department wise audit findings containing two theme based audit paragraphs of “Construction of High Level Canals” by Water Resources Department and “Functioning of Common Effluent Treatment Plants” under Gujarat Pollution Control Board of Forests and Environment Department and nine other individual paragraphs having significant audit findings relating to loss, excess payment, extra expenditure, and loss of interest aggregating to ₹ 31.07 crore as narrated below.

Narmada, Water Resources, Water Supply and Kalpsar Department

Construction of High Level Canals

For providing irrigation to the hilly/ uneven terrain and its surrounding areas located above the existing canal bed level, the Water Resources Department (the Department) decided (between August 1997 and April 2008) to construct High Level Canals (HLC) *i.e.*, Kadana Left Bank High Level Canal (KLBHLC), Panam High Level Canal (PHLC), Ukai Left Bank High Level Canal (ULBHLC) and Karajan Left Bank High Level Canal (Karjan LBHLC) at a cost of ₹ 238.14 crore. Aim of the projects is to provide irrigation facilities in 34,100 hectare (ha) in 195 villages of Santrampur, Kadana and Lunawada talukas (KLBHLC), Shahera, Godhra, Lunawada talukas (PHLC), Vyara & Sonagadh Talukas (ULBHLC) and Nandod (Karjan LBHLC). The projects were decided to be completed between December 2005 and March 2015. We conducted audit in four divisions in March 2015 and April 2015. We selected 18 works awarded during 2011-12 to 2014-15 and spill over 14 works initiated prior to 2011-12 (Total 32 works costing ₹ 158.32 crore) for detailed scrutiny.

The three HLC projects aimed to provide irrigation facilities to the tribal people in hilly command areas of 32,900 ha between March 2008 and January 2009. The Department started projects works between October 2003 and May 2005. However, failure of the Department in conducting proper geological/ soil survey and investigation before preparation of the estimates, lack of monitoring, inadequate efforts in expediting the execution of works, non-completion of HLC and distributaries in full length due to lack of co-ordination and effective pursuance with Revenue Authority in acquisition of land, non-taking up of distributaries and minors canals works led to incurring of expenditure without intended return. As a result, against the target of providing irrigation facilities to 32,900 ha, the CCA of 11,476 ha only has been created and, out of this, only 3,361 ha CCA has actually been utilised. The Department needs to complete these projects at the earliest by addressing the bottlenecks and impeding issues.

(Paragraph 3.1)

Inefficient use of electrical energy in operation of Jalundra and Fatepur Pumping Stations led to avoidable expenditure of ₹ 7.37 crore on contract demand charges.

(Paragraph 3.2)

Delay in completion of works due to delay in obtaining permission from Railway and Forests Department resulted in infructuous expenditure of ₹ 5.38 crore on payment of electricity bills.

(Paragraph 3.3)

Non-inclusion of condition for levy of interest/ penalty for non-payment of water charges in advance by 10th of each month led to loss of interest of ₹ 1.19 crore.

(Paragraph 3.4)

Award of work for hiring of vehicles for various Government Departments/ offices to the service provider not registered with Service Tax Department led to undue benefit amounting to ₹ 23.93 lakh on account of payment of service tax to the service provider.

(Paragraph 3.5)

Roads and Buildings Department

Non-compliance/ non-inclusion of the tender condition regarding recovery in case of less consumption of cement from contractors led to loss of ₹ 3.58 crore between October 2013 and February 2015.

(Paragraph 3.6)

The opportunity to award a work at competitive price was lost due to non-invitation of fresh tender for the work at a changed site and also resulted in extra expenditure of ₹ 4.45 crore.

(Paragraph 3.7)

Non-adherence to the tender conditions relating to the payment of service tax led to double payment of service tax amounting to ₹ 6 lakh.

(Paragraph 3.8)

Industries & Mines and Finance Department

Non-adherence to the tender conditions relating to the payment of service tax led to double payment of service tax amounting to ₹ 0.22 crore.

(Paragraph 3.9)

Forests and Environment Department

Functioning of Common Effluent Treatment Plants

In Gujarat, the Gujarat Pollution Control Board (GPCB) is responsible for monitoring the functioning of Common Effluent Treatment Plants (CETPs). The GPCB grants Consolidated Consent and Authorisation (CC&A) for operation of CETPs in which outlet norms have to be complied during their functioning on regular basis. GPCB monitors this and other environmental laws through its 26 Regional Offices (ROs) in the State. The officials of RO visit the CETP every month and take samples which are being analysed in laboratory of GPCB.

There are 37 CETPs in the State, of which 33 CETPs are operational and four were either proposed or at commissioning/ construction stage (May 2015). Out of 33 completed CETPs, region wise 12 CETPs based on their capacity were selected for detailed scrutiny. We examined (January 2015 to April 2015) records of Gujarat Pollution Control Board (GPCB), Gandhinagar and the selected CETPs along with concerned seven ROs for the period from April 2012 to March 2015.

The CETPs play vital role to treat the effluent before being let into water bodies or for reuse. The monitoring of the functioning of CETPs regarding their adherence to the norms becomes a challenge to every Government to protect the environment. Thus, the role of GPCB assumes importance. We observed that the selected CETPs has not adhered to outlet norms in discharging effluents, non-disposal of hazardous waste timely leading to the pollution of natural water bodies into which these effluents were discharged and polluting the ground water as well as soil of surrounding area. The monitoring mechanism of GPCB/ ROs was ineffective in pursuance of CC&A conditions with CETPs in relation to the conducting of Bio-assay test and development of green belt in premises of CETPs.

(Paragraph 3.10)

Forests & Environment and Industries & Mines Departments

Lack of planning and monitoring of the project led to non-fulfillment of the envisaged goals after lapse of 33 years from the discovery of the dinosaur site in 1981 despite incurring an expenditure of ₹ 8.58 crore.

(Paragraph 3.11)

1.7 Response of the Government to Audit

1.7.1 Inspection Reports

The Hand Book of Instructions for prompt Settlement of Audit Objections/ Inspection Report issued by the Finance Department, GoG in 1992 provides for prompt response by the Executive to the Inspection Reports (IRs) issued by the Accountant General (AG) to ensure rectifying action in compliance with the prescribed rules and procedures and fix accountability for the deficiencies, omissions *etc.*, noticed during the inspections. The Heads of Offices and next higher authorities are required to comply with the observations contained in the IRs, rectify the defects and omissions promptly and report their compliance to the AG within four weeks of receipt of the IRs. Periodical reminders are issued to the Heads of the Departments requesting them to furnish the replies expeditiously on the outstanding paragraphs in the IRs.

Eight Audit Committee meetings were held during the year 2014-15 in respect of paragraphs contained in IRs pertaining to Economic Sector Departments. As of 30 September 2015, 831 IRs (3,212 paragraphs) were outstanding against 10 Departments under the Economic Sector. Year-wise details of IRs and paragraphs outstanding are given in **Appendix I**.

1.7.2 Performance Audit and Draft Paragraphs

One Performance Audit, two theme based audit Paragraphs and nine other Draft Paragraphs were forwarded to the Principal Secretaries/ Secretaries of the concerned Departments between April and June 2015 with a request to send their responses within six weeks. The F&E Department has replied (September 2015) to the Performance Audit of “Conservation of Wetland”. Exit conference was also held with the concerned Department in June 2015 on the audit findings included in the Performance Audit. Except R&B Department (three paragraphs), three Departments have replied to eight Draft Paragraphs (October 2015). The replies of the Departments and the views expressed by them have been duly considered while finalising this Report.

1.7.3 Follow up of Audit Reports

Rule 7 of Public Accounts Committee (PAC) (Rules of Procedure) 1990 provides for furnishing Detailed Explanation (DE) by all the Departments of Government to the observations which featured in Audit Reports within 90 days of their being laid on the Table of the Legislative Assembly. These DEs are required to be furnished to the PAC after showing the same to the concerned Accountant General.

The Audit Reports for the year 2011-12, 2012-13 and 2013-14 were placed in Gujarat Legislative Assembly in April 2013, July 2014 and March 2015 respectively which included 30 paragraphs pertaining to five Departments as detailed in **Table 2** below:

Table 2: Details of paragraphs included in Audit Reports

Sl. No.	Name of the Department	2011-12	2012-13	2013-14	Total	DEs received
1	Agriculture & Co-operation	1	0	1	2	0
2	Narmada, Water Resources, Water Supply & Kalpsar (Water Resources)	3	6*	3*	12	10
3	Ports & Transport	0	1	0	1	1
4	Roads & Buildings	5	4	5	14	8
5	Forests & Environment	0	0	1	1	0
Total		9	11	10	30	19

* One paragraphs pertains to two Departments i.e. R&B and Water Resources Departments hence considered separate paragraphs in each Department.

Out of 30 paragraphs for the year 2011-12 to 2013-14, DEs for 19 paragraphs have been received up to September 2015 and DEs for 11 paragraphs for the year 2011-12 (Two paragraphs) and 2013-14 (9 Paragraphs) have not been received as of September 2015.

CHAPTER-II

PERFORMANCE AUDIT

CHAPTER II

PERFORMANCE AUDIT

FORESTS AND ENVIRONMENT DEPARTMENT

Conservation of Wetlands

Executive summary

Wetland is an area where water is the primary factor controlling the environment and associated plant and animal life. It includes areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, areas of marine water the depth of which at low tide does not exceed six meters. Wetlands are habitat to aquatic flora and fauna, support all forms of life, mitigate floods, recharge ground water and provide buffer shorelines against erosion.

Ministry of Forests and Environment (MoEF) launched (1985-86) National Wetland Conservation Programme (NWCP). Gujarat State has eight Wetlands of national importance viz., Nal Sarovar, Thol Lake, Khijadiya Lake, Wadhvana Lake, Great Rann of Kachchh (GRK), Little Rann of Kachchh (LRK), Pariej Lake and Nani Kakrad under NWCP. Nal Sarovar is a Ramsar Site. There are also 19 other wetlands not identified but deserved to be wetlands of national importance as per the report of the Gujarat State Biodiversity Board, Gandhinagar.

The performance audit (PA) covers the period from April 2010 to March 2015 and includes examination of records of eight wetlands of national importance, four out of 19 other Wetlands and one wetland of Porbandar Bird Sanctuary. In the light of facts which emerged out of this performance audit, there are certain areas of concern suggesting that some scope for improvement in conservation activities for wetlands and implementation and monitoring of issues relating to wetlands remains, as indicated below.

The Department has not formed “State Wetland Conservation Authority” as envisaged in NWCP Guidelines. There was no policy framed by the Department for wetlands other than those identified as having national importance. Further, 19 other wetlands were identified having deserved to be declared as of national importance and two wetlands having high ecological value deserved to be important wetlands, were not declared as important wetlands by the Department or conserved accordingly.

State Government did not provide adequate funds in the budget estimate for conservation activities. The Government mainly relied upon funds released by the GoI and short release of fund could not be met from the State fund. Though some activities were carried out under other state

schemes, conservation activities of wetlands of national importance in the State remained inadequate. The Management Action Plans were either prepared with break in period or not prepared fully.

The other deficiencies noticed were:

- The baseline data of migratory birds which are essential to determine the causes of changes of population sizes *etc.*, have not been maintained in the eight wetlands of national importance.
- The Birds Rescue Centre (BRC) was not set up at wetlands of LRK, GRK and Pariej. BRCs set up at Nal Sarovar and Thol wetlands do not have required facilities.
- The water retention work at Khijadiya and removal of weeds at Nal Sarovar was inadequate.
- Conservation of the two important wetlands LRK and GRK was not done.
- Proper Water level required for wetland was not maintained at Wadhwana Lake due to release of water by the Irrigation Department for irrigation.
- The poaching at Nal Sarovar and Wadhwana Lake was also not controlled.

Inadequate monitoring over the conservation of wetlands both at the Department level as well as Steering Committee level was observed. Out of 10 half yearly meetings as envisaged, Steering Committee met only six times during 2010-15 for review of activities of conservation of wetlands.

2.1 Introduction

A wetland is an area where water is the primary factor controlling the environment and the associated plant and animal life. It represents land transitional between terrestrial and aquatic eco-systems where the water table is usually at or near the surface or the land is covered by shallow water. It includes areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, areas of marine water the depth of which at low tide does not exceed six meters.¹

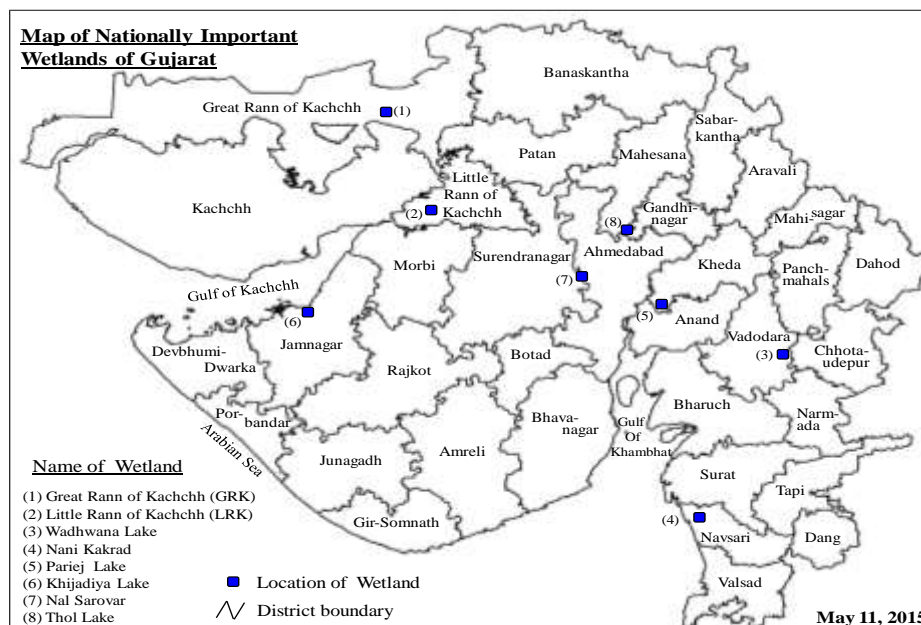
Wetlands are among the most productive eco systems. They directly or indirectly support millions of people. They are habitat to aquatic flora and fauna and support all forms of life. They filter sediments and nutrients from surface water, purify water and mitigate floods. They maintain stream flow, recharge ground water and provide drinking water. They control rate of runoff in urban area, provide buffer shorelines against erosion. They stabilise local

¹ As defined in Ramsar Convention of Wetlands, 1971. Ramsar is an international treaty providing framework for national action and international cooperation for the conservation and wise use of wetlands and connected biodiversity. 150 countries including India are signatories to it.

climate and an important centre for tourism and recreation. As these are being one of the crucial natural resources, their fast depletion is a cause of concern among scientists, planners, economists, policy makers *etc.*, all over the world. Thus, a holistic view and proper conservation of wetlands is necessary in terms of its causal linkages with other natural entities, human needs and its own attributes.

As per the National Wetland Inventory² prepared (May 2010) by the Space Application Centre, Ahmedabad, there are 23,891 wetlands in Gujarat. Total wetland area in the state was 34.75 lakh Hectares (ha). The Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India (GoI) launched (1985-86) a Centrally Sponsored Scheme (CSS) called National Wetland Conservation Programme (NWCP). There are eight wetlands (**Figure 1**) in Gujarat which have been identified as wetlands of national importance³ under NWCP, of which one *viz.*, Nal Sarovar is a Ramsar Site. There are 19 other important wetlands in Gujarat as indicated in the **Appendix II** which deserve to be declared as wetlands of national importance.

Figure 1: Map of Wetlands of National Importance in Gujarat



2.2 Organisational Set up

Conservation of wetlands in Gujarat is carried out by the Forests and Environment Department (F&ED) headed by Additional Chief Secretary (ACS). ACS is assisted by Principal Chief Conservator of Forests (PCCF) & Head of Forests Force (HoFF), PCCF (Wild Life), Chief Conservator of Forests and Conservator of Forests. Deputy Conservator of Forests (DCFs)

² Ministry of Forests and Environment launched National Wetland Inventory and Assessment (NWIA) in May 2010 in collaboration with Space Application Centre, Ahmedabad and Bhaskaracharya Institute for Space Applications and Geo-informatics, Gandhinagar.

³ As per criteria laid down in NWCP guidelines for identification of wetlands a site should contain representative, rare and unique wetland type or support minimum prescribed water birds, fish or should be an important source of food and water.

and Range Forest Officers at district level are responsible for execution of conservation works at the wetlands.

Government of Gujarat (GoG) constituted (June 2005) a Steering Committee for monitoring conservation works at wetlands of national importance. ACS, F&ED was to act as the Chairman and PCCF (Wild Life) as Member Secretary. There were 15 Members from different State Departments as well as Central Government, individual experts, NGOs. A proposal for constitution of a State Wetland Conservation Authority (SWCA) for conservation of wetlands was submitted (May 2014) by the PCCF (Wild life) to F&ED. However, the SWCA has not been constituted (September 2015).

2.3 Audit Objectives

Audit undertook this performance audit to get assurance that:

- Adequate policy and institutional framework was in place for conservation of important wetlands in the State;
- Planning including preparation of Management Action Plans (MAPs), was made for conservation of all important wetlands;
- Adequate funds were provided for conservation of wetlands;
- Adequate efforts were made for retention of water at wetlands, maintenance of proper water level, removal of weeds, maintenance of eco friendly environment, generation of baseline data regarding migratory birds, medical facilities for injured at wetlands;
- There was an effective control mechanism for preventing poaching of birds; and
- Supervision and monitoring of programme implementation was effective.

2.4 Audit scope and Methodology

The performance audit (PA) covers the period from April 2009 to March 2015. Audit conducted test check of records maintained by the office of ACS, Forests and Environment Department, PCCF (Wild Life) and DCFs, having jurisdiction over Vadodara, Kachchh, Jamnagar, Rajkot, Nadiad, Nal Sarovar (Sanand), Navsari and Porbandar. Audit sample covered eight wetlands of national importance and four⁴ out of 19 other wetlands and one wetland Porbandar Bird Sanctuary⁵.

An Entry conference was held on 18 June 2014 with Principal Chief Conservator of Forests (Wild Life) in which the scope, methodology and audit objectives were explained. Exit Conference was held with ACS on 4 June 2015 wherein audit findings were discussed. The Government

⁴ The four other wetlands are selected as it falls under the selected eight forest divisions viz., (1) Aji dam in Rajkot, (2) Bhaskarpura dam in Surendranagar District, (3) Muli in Surendranagar District and (4) Ajwa dam in Vadodara district.

⁵ It was declared as bird sanctuary in November 1988 by Government of Gujarat. The sanctuary has features of wetland, i.e., unique water dwellings surrounded by trees and plants.

furnished (September 2015) replies to audit findings. The views expressed by them have been considered while finalising this report.

2.5 Audit Criteria

The activities relating to conservation of wetlands were evaluated with reference to the provisions made under the following Acts/ Regulations:

- Indian Forest Act, 1927;
- Forest (Conservation) Act, 1980;
- Wild Life (Protection) Act, 1972;
- Wetlands (Conservation and Management) Rules, 2010; and
- Guidelines issued by MoEF&CC for National Wetlands Conservation Programme.

2.6 Audit Findings

The audit findings are discussed in the succeeding paragraphs. These findings have been grouped under the following heads:

- Policy and Institutional framework;
- Planning and Fund Management;
- Conservation of wetlands, and
- Monitoring and Supervision

2.7 Policy and Institutional framework

Under Rule 6(2) of the Wetlands (Conservation and Management) Rules, 2010 the State Government shall prepare within a period of one year from the commencement of these Rules, “Brief Documents” identifying and classifying the wetlands within their respective territories in accordance with the specified criteria and submit the same to the Central Wetlands Regulatory Authority for regulation of the wetlands under the Rules. The Government as the custodian of wetlands in the State is responsible for framing State specific policies/ guidelines/ goals for conservation, management and development of wetlands. The instances noticed during PA relating to non-framing of policies/ guidelines are as under:

2.7.1 Policy for unidentified Wetlands

The MoEF&CC had identified (2004) eight wetlands in Gujarat of national importance as shown in **Table 1** below:

Table 1: Wetlands of National Importance in Gujarat

Sl. No.	Name of the wetland	Area (Sq. km)	Status
1	Great Rann of Kachchh (GRK), District Kachchh	7,000.00	Sanctuary
2	Little Rann of Kachchh (LRK), District Kachchh	4,953.00	Wild Ass Sanctuary
3	Nal Sarovar, Sanand	120.82	Bird Sanctuary
4	Khijadiya Lake, Jamnagar	15.60	Bird sanctuary
5	Nani Kakrad, District Navsari	15.00	Fresh Water pond
6	Pariej Lake, District Nadiad	7.54	Irrigation reservoir
7	Thol Lake, District Mehsana	7.00	Bird Sanctuary
8	Wadhvana Lake, District Vadodara	5.79	Irrigation reservoir
Total		12,124.7	

(Source: Information collected from the F&E Department and National Wetland Inventory)

We observed that the State Government had not framed policy or guidelines for wetlands other than those identified as having national importance. The Department had not taken action for carrying out survey, research as deserving or conservation of wetlands other than those identified as having national importance as was envisaged in Wetlands (Conservation and Management) Rules, 2010. Thus, conservation was restricted to wetlands of national importance only.

Government stated (September 2015) that policy for identified wetlands was already available. For other wetlands which are used for drinking water supply or irrigation, they are maintained by the concerned State Departments. It was further stated that the proposal for State Wetlands Conservation Authority was under process and once the Authority was formed, policy regarding survey, conservation, research on unidentified wetlands would be taken up with a legal support. Moreover, due care for protection of birds and conservation of unidentified wetlands was taken by the Department and also by the concerned Departments *like* Irrigation Department, Water Resources Department, Municipal Corporation, Nagarpalikas, Gram Panchayats *etc.*

Fact remains that Government had not offered comments on lack of policy for unidentified wetlands. Further, the Department did not take action for identification and conservation of other important wetlands. We also observed that due to non-coordination among other Departments important wetland could not be conserved as discussed in paragraph 2.9.3.1.

2.7.2 Identification of national wetlands

Gujarat Biodiversity Board, Gandhinagar is established in June 2006 under Section 22 of the Gujarat Biodiversity Act, 2002. The Board is working for conservation of biodiversity in the State. The Board had undertaken survey on wetlands and as per study report (August 2012) 19 other wetlands were deserved for wetlands of national conservation significance as indicated in the **Appendix II** in Gujarat. These wetlands deserve to be declared of national importance as per their study report but have not been done so till date (July 2015) by the Department.

2.7.3 Identification of important wetlands

In addition to 19 wetlands as mentioned above, there are two other wetlands *namely* Gosabara near Porbandar Birds Sanctuary and Bhaskarpura Lake, an adjoining area to Nal Sarovar Lake falling in Surendranagar District having high ecological value. These two wetlands are important wetlands but were not taken up for conservation by the Department as discussed below:

- There is a satellite wetland Gosabara near Porbandar Birds Sanctuary. The Gujarat Biodiversity Board had conducted a study (January 2014) on wetland and recorded 1,92,053 birds at wetland. We observed that a study was also made (March 2015) by an Organization GIZ, Germany⁶ on Gosabara wetland. Considering the importance of the wetland, a Memorandum of Understanding (MoU) was entered (July 2015) between F&ED and GIZ, Germany for development of management plan, documentation for Ramsar site, information sheet and capacity building and the process of declaring it as Ramsar Site was in progress (September 2015). However, this wetland was not declared as important wetland by the Department or conserved (September 2015).
- Bhaskarpura Lake (Bhaskar Marshland) is an adjoining area to Nal Sarovar Lake falling in Surendranagar District. It is an important habitat of birds and deserved for wetland of national conservation significance as per a study report on wetland prepared (August 2012) by Gujarat Biodiversity Board (GBB). However, this part has not been identified as wetland (September 2015).

Government stated (September 2015) that survey of important wetlands was carried out by the Gujarat Ecological Education and Research (GEER) Foundation (in association with GBB) and the Department was aware of importance of both wetlands. It was further stated that the Department is already working on important wetlands identified as wetlands of national importance and also working on other wetlands of importance like Gosabara. The survey of the other important unidentified wetlands in the State is being carried out by GEER Foundation.

Conclusion and recommendations

The Department had not constituted “State Wetland Conservation Authority” as envisaged in NWCP Guidelines. Also, there was no policy framed for unidentified wetlands by the Department. Further, 19 other wetlands were identified having deserved to be declared as of national importance and two wetlands having high ecological value deserved to be important wetlands, were not declared as important wetlands by the Department or conserved accordingly.

- **Government needs to establish State Wetland Conservation Authority in a time bound manner and prioritise the framing of policy/**

⁶ Gesellschaft Fur Internationale Zu sammenarbat (GIZ) is an international organization owned by German Federal Government and working across more than 130 countries including India for last 50 years towards climate change mitigation and adaptation, sustainable infrastructure, forest development *etc.*

guidelines for conservation of wetlands other than those having been identified of national importance.

- **Government needs to take urgent steps for declaration of 19 wetlands identified by the Gujarat Biodiversity Board, Gandhinagar as important wetlands and taking up of conservation activities of these important wetlands.**

2.8 Planning and Fund Management

2.8.1 Planning

For effective conservation of Wetland, a long term planning is essential. We observed deficiencies in conservation of Wetlands due to inadequacy in preparation of Management Action Plan (MAP) and Annual Plan of Operation (APO), inadequate conservation activities and co-ordination with other Departments. The observations are discussed in detail in the succeeding paragraphs.

2.8.1.1 Management Action Plan (MAP)

After identification of Wetlands under the programme, the State/ Union Territories (UT) are required to submit MAP in a prescribed format for period covering 3-5 years to be co-terminus with the plan period. The works proposed in APO should be in accordance with MAP. The approved MAP and APO form the basis for release of funds by GoI.

We observed that the MAPs for three out of eight wetlands of national importance were prepared and had the approval of MoEF&CC during 2010-15 but these plans were prepared with breaks in periods and MAPs in five wetlands of national importance were not prepared as shown in **Table 2** below:

Table 2: Position of preparation of MAP for wetlands

Name of wetland	Status of MAP
GRK	Not prepared for any year during 2010-15
LRK	Not prepared for any year during 2010-15
Nani Kakrad	Not prepared for any year during 2010-15
Pariej Lake	Not prepared for any year during 2010-15
Wadhvana Lake	Not prepared for any year during 2010-15
Nal Sarovar	Prepared with broken period 2012-13 and 2013-14
Khijadiya Lake	Prepared with broken period 2011-12, 2012-13 and 2013-14
Thol Lake	Prepared with broken period 2012-13 and 2013-14

(Source: Information collected from the Forests and Environment Department)

Similarly, during the year 2010-15, in three wetlands *i.e.*, LRK, GRK and Nani Kakrad out of eight wetlands of national importance APOs were not prepared. In case of remaining five wetlands, APOs were prepared as per the details shown in the **Table 3** below:

Table 3: Position of preparation of APO for wetlands

Name of wetland	Status of APO
GRK	Not prepared for all the years during 2010-15
LRK	Not prepared for all the years during 2010-15
Nani Kakrad	Not prepared for all the years during 2010-15
Pariej Lake	Prepared for all the years during 2010-15
Wadhvana Lake	Prepared for all the years during 2010-15
Khijadiya Lake	Prepared for all the years during 2010-15
Nal Sarovar	Prepared for all the years during 2010-15
Thol Lake	Prepared for all the years during 2010-15

(Source: Information collected from the Forests and Environment Department)

The mandates under NWCP guidelines are (i) the manner in which the interventions proposed in the MAP would improve the socio-economic status, (ii) the interface with research institutes and the extent to which research findings were made use of, (iii) management activities proposed with physical and financial targets, (iv) the system involved in the decision making process while finalising the MAPs, (v) the monitoring mechanism at local and State level and (vi) summary of the outcome of the State's Steering Committee and the manner in which the outcomes were adopted to resolve critical issues.

We observed that the MAPs prepared in respect of wetlands shown in **Table 2** above did not factor in above aspects though it was mandatory under NWCP guidelines.

Government stated (September 2015) that preparation of MAP of Wadhvana Lake was under progress. MAP for Nani Kakrad was not prepared due to local issues related to land. For LRK and GRK, sanctuaries are managed as per the Management Plan (under Integrated Development of Wild Life Habitat (IDWH)). However, the Government did not offer any comments regarding MAP not prepared for broken period for Nal Sarovar, Thol and Khijadiya.

Reply of Government is not convincing as preparation of MAP includes planning which would help the Department to carry out better conservation of wetland. Wadhvana wetland is going to be nominated as Ramsar site and thus, the Department should have a long term planning for its conservation. Further, wetland conservation requires special efforts towards improvement in water regime and conservation of water fowls whereas sanctuary management is aimed at wild life conservation within sanctuary. Thus, activities to be undertaken under both programmes should be clearly worked out and planning should have been done accordingly.

Recommendation

- **Government may ensure timely preparation of plan of action for conservation of wetlands by preparing MAPs and APOs.**

2.8.2 Fund Management

The GoG being the custodian of the land is responsible for conservation and management of wetlands. NWCP was launched by MoEF&CC with an objective of laying down policy guidelines for conservation and management

of wetlands, undertaking intensive conservation measures in priority wetlands, monitoring implementation of the programme and preparation of inventory of wetlands in the country.

2.8.2.1 Fund management for identified wetlands

MoEF&CC provided 100 per cent financial assistance to the States under the NWCP up to 2012-13. Under NWCP, the State was entitled to get funds for conservation of wetland and related research works. After identification of wetlands, the state was required to submit long-term comprehensive Management Action Plans (MAPs) for a period of three to five years for approval of MoEF&CC. After approval of MAPs, the funds were released annually to the State as per Annual Plan of Operation (APOs). NWCP was merged with another programme and renamed as National Plan for Conservation of Aquatic Eco-Systems (NPCA) launched in January 2013 for implementation in XII plan with funding pattern 70:30 cost sharing effective from 2013-14. Funds released by Government of India (GoI) for conservation of Wetlands during 2009-14 are shown in **Table 4** below:

Table 4: Funds sanctioned and released by GoI

(₹ in lakh)

Year	Funds proposed	Funds sanctioned	Funds released	Short release	Funds utilised
2009-10	488.43	100.86	74.87	25.99	74.73
2010-11	335.53	45.81	34.98	10.83	34.66
2011-12	402.56	119.90	100.00	19.90	96.10
2012-13	601.38	111.56	111.56	Nil	111.56
2013-14	438.35	Nil	Nil	Nil	Nil
2014-15	468.20	Nil	Nil	Nil	Nil
Total		378.13	321.41	56.72	317.02

(Source: Information collected from the F&E Department)

Wetland wise fund released by GoI under NWCP is shown in **Appendix III**. During 2009-10 to 2014-15 an expenditure of ₹ 9.46 crore was incurred from State schemes on Divisional office, communication and building, wild life and preservation, management and development of Sanctuary on four wetlands- Nal Sarovar (₹ 7.90 crore), Thol (₹ 0.86 crore), Khijadiya (₹ 0.59 crore) and Pariej (₹ 0.11 crore). Further, expenditure of ₹ 11.19 crore was incurred from funds released under Integrated Development of Wild Life Habitat (IDWH) for conservation of wild life in sanctuaries viz., Nal Sarovar, Thol, Khijadiya, LRK and GRK.

During 2009-14, there was shortfall in release of funds by GoI as indicated in **Table 4** above. We observed that:

- There was shortfall in sanction as well as release of funds by GoI. Thus, the GoG could have provided adequate funds from State schemes to ensure that conservation activities as proposed were taken up.
- From 2013-14, under the new scheme NPCA (January 2013), the GoI share was reduced to 70 per cent and release was subjected to conditions that State has to make provision for its share of 30 per cent in the budget

and communicate to MoEF&CC for its commitment to make budget provision for State share. However, for the year 2013-14, the State Government did not make any provision for 30 *per cent* State share in budget but provided for ₹ 1.50 crore considering 100 *per cent* CSS funding. The PCCF submitted (October 2013) to the MoEF&CC the action plan for the year 2013-14 for ₹ 440.33 lakh for five wetlands⁷ (Central share: ₹ 386.61 lakh and State share: ₹ 54.72 lakh). As a result, GoI did not release funds under the scheme during 2013-14. It was also observed that though the Department had made provision of ₹ 260 lakh (central share 70 *per cent*: ₹ 200 lakh and State share 30 *per cent*: ₹ 60 lakh) for the year 2014-15 under NPCA, neither GoI nor State Government released any fund.

Government stated (September 2015) that for 2013-14, the policy of change in share ratio was received late after the completion of the third quarter by the Government, hence budget provision could not be made. It was further stated that the preservation and conservation activities in wetlands were carried out from other schemes like IDWH.

However, we observed that Department had incurred expenditure on divisional office, communication and building, wild life and preservation, management and development of Sanctuaries and not on preservation and conservation of wetlands.

2.8.2.2 Fund management for other important wetlands

MoEF&CC released the funds for wetlands of national importance only. For other important wetlands, there was no provision made in the State budget. Thus, the conservation was restricted to wetlands of national importance only and other important wetlands surveyed by Gujarat Biodiversity Board remained un-conserved and left to the risk of deterioration, degradation and loss of character.

Government stated (September 2015) that once State Wetlands Management Authority was formed, conservation of other important wetlands would be taken up. The Government added that identification and survey of other important unidentified wetlands in the State is being carried out by GEER foundation.

The fact remains that though as per Rule 6(2) of the Wetlands (Conservation and Management) Rules 2010, the Department was required to prepare “Brief Documents” identifying and classifying the wetland within one year from commencement of the Rules and submit the same to the Central Wetlands Regulatory Authority, this was not done as of March 2015. The work relating to identification of other wetlands was still in progress (September 2015).

⁷ 1. Khijadiya, 2. Pariej, 3. Nal Sarovar, 4. Thol and 5. Wadhvana.

Conclusion and recommendation

Government is the owner of the wetlands in the State, however, adequate State funds were not provided in the budget estimate for conservation activities. The Government mainly relied upon funds released by the GoI and short release of fund could not be met from the State fund, though some activities were carried out under other state schemes. Thereby, conservation activities of wetlands of national importance in the State remained inadequate. Further, for unidentified wetlands, State Government did not provide any funds.

- **Government may make adequate budget provision for conservation of wetlands.**

2.9 Wetland Specific Findings

There are eight wetlands of national importance in Gujarat. Conservation of wetlands was to be carried out as per approved APO. The conservation activities were carried out as per approved APO at wetlands of Nal Sarovar, Thol, Khijadiya, Pariej, Wadhvana and Nani Kakrad. The conservation activities carried out at these wetlands by the Government during 2010-15 are stated below:

- Hydrological measures and watershed managements: Catchment area treatment, gully plugging, water harvesting structure, desilting operations, improvement of satellite water bodies;
- Restoration, habitat improvement measures and Bio diversity conservation: removal of excessive weeds, conversion of weeds into compost, raising of suitable tree species on shore land and island, maintenance of birds rescue centre, saras conservation, enriching fish varieties and quantity, birds census, promotion of medicinal plants *etc.*;
- Protection and Monitoring, Surveillance Measures: Maintenance of old cairns, maintenance of watch tower, patrolling of boats;
- Supplementary and Alternative Livelihoods, Awareness creation: Organisation of cattle camps training for animal husbandry & promotion of stall feeding and warmiculture, development of community fish ponds and farmers shibir for minimization of the impact of agricultural runoff/ insecticides/ fungicides in the wetlands area, *etc.*;
- Monitoring Evaluation & Research: Distribution of kits of improved variety of seeds and bio fertilizers and horticultural sapling, impact assessment through concurrent and terminal evaluation, assessment of current resources utilisation and its impact; and
- Ecotourism works, Public awareness and Socio economic Development: Nature education camps, preparation of publicity materials, maintenance of nature trail, training of nature tourist guide from the local people, repairing of peripheral roads.

Further, audit findings relating to conservation activities of wetlands are discussed in the succeeding paragraphs.

2.9.1 Nal Sarovar and Thol Lake

Nal Sarovar is important Bird sanctuary wetland spread over in 120.82 sq km area. Nal Sarovar was declared as Ramsar site in September 2012. Thol Lake is situated in Mehsana district at Thol village and spread over in Seven sq km. DCF, Nal Sarovar Bird Sanctuary, Sanand has jurisdiction over Nal Sarovar and Thol Wetlands for conservation. These wetlands attracted different species of birds from all over the world ranging from 1,05,156 to 1,85,149 and 13,055 to 51,225 birds respectively during 2010-15 as shown in **Table 5** below.

Table 5: Birds visiting Nal Sarovar and Thol during 2010-15

Year	2010-11		2012-13		2014-15	
	Nal Sarovar	Thol	Nal Sarovar	Thol	Nal Sarovar	Thol
Total Birds visited the wetland	1,31,306	31,380	1,85,149	51,255	1,05,156	13,055
No. of birds falling under endangered category	7,726	3,756	3,087	596	3,402	5,843
No. of birds falling under nearly threatened category	8,691	15,485	17,599	20,751	NA	NA

(Source: Information collected from the F&E Department)

The birds census for the year 2011-12 and 2013-14 was not conducted by the Department. The visitors inflow to watch the birds at Nal Sarovar and Thol Lake ranged from 40,890 to 82,316 and 30,188 to 81,035 respectively during 2010-15.

Both wetlands are wild life sanctuaries and there is another Centrally Sponsored Scheme (CSS) *namely* Integrated Development of Wild Life Habitat (IDWH) for conservation of wild life in the sanctuary area. However, the deficiencies relating to conservation activities noticed during the period of PA are discussed in the succeeding paragraphs:

2.9.1.1 Baseline data of migratory birds

Migratory birds cross political boundaries during their flights and therefore co-ordinated efforts for their conservation by various countries are indispensable. Thus, birds ringing project for migratory birds is essential to generate data on their migratory pattern and flyways, seasonal movements, biometrics, moult, longevity, weight changes *etc.*, and frame a strategy for conservation of these birds.

Approximately over 10 million water birds come to India during winter. Of these, 75 *per cent* frequent the coastal wetlands of India specifically Gujarat, Tamilnadu and Andhra Pradesh. The movements of migratory birds through East Coast have been well documented by regular ringing studies at Chilika Lake, Gulf of Mannar, Point Calimere, Kalivellie and Kanyakumari. In West coast, the movement of migratory birds has not been monitored intensively except monitoring of birds at Bharatpur, Harike Lake and Pong Dam and short term birds ringing was done only at Khijadiya Lake, Chhari-Dhund and Gulf of Kachchh.

Nal Sarovar and Thol are the temporary shelter of migratory birds coming from Siberia, Central Asia, Europe, Canada and USA. Every year birds including birds declared as “Endangered” and “Nearly Threatened” category (Under Wild Life Protection Act, 1972) visit these wetlands as shown in **Table 5** above.

We observed (May-August 2014) that the Department did not maintain baseline data of birds related to the bird life and movements, population parameters *such as* their breeding zone, migratory pattern and flyways, seasonal movement *etc.* This data was essential to determine the causes of changes of population sizes. A birds ringing project titled “Population and Movement of Migratory Water birds and Passerines through Nal Sarovar (Ramsar Site) and Thol Bird Sanctuary” was proposed (September 2013) by DCF, Nal Sarovar Birds Sanctuary to the Department. The project was proposed to be carried out through Bombay Natural History Society (BNHS), a premier Wild Life research and conservation organisation. However, the Government did not take any action even after a lapse of 18 months to approve the proposal. Thus, vital baseline data on migratory birds could not be generated.

Government stated (September 2015) that the bird census/ estimation including migratory birds was done regularly and the data were available. It was also stated that very high level of infrastructure and technical skills are required for such a study and only professional agencies *like* BNHS had such infrastructure. The matter was already in communication with BNHS.

2.9.1.2 Medical facilities for birds

Protection of flora and fauna is the main function of the Forest Department. Thus, at wetlands which are the temporary/ permanent shelter of the thousands of migratory/ local birds, quick medical facilities needed to be made available for proper care of the injured/ physically disabled or sick birds/ animals.

We observed that Birds Rescue Centre (BRC) was set up at Nal Sarovar and Thol wetlands without facilities of Veterinary Doctors, equipments and medicines. Therefore, injured birds at these wetlands were treated by taking injured birds to Government Veterinary Doctors in nearest Taluka centre. Further, the Department has not maintained the records and details of injured birds found at these wetlands, type of treatment provided and final outcome of the treatment.

As both wetlands were sanctuaries, the conservation of wild animals was carried out under IDWH. However, there was no planning to co-ordinate or cover the activities under both the CSS *i.e.*, NWCP and IDWH and take up conservation (including providing medical treatment) of wild animals with that of birds. This indicated inadequate efforts of the Department for protection of injured/ disabled/ sick birds.

While DCFs accepted (May 2014 and September 2015) the requirement of veterinary doctors, the Government stated (September 2015) that there was no need for creating permanent financial liability for Government as Non-

Government Organisations (NGOs) and Government Veterinary Hospitals were taking care of each and every injured bird at Taluka places.

2.9.1.3 Poaching at wetland

Protection and preservation of wildlife is the prime responsibility of the Forest Department. For an effective surveillance, night patrolling staff should have been adequately equipped with modern surveillance technology tools such as Night Vision Binoculars *etc.*

We observed (May 2014) that division was not adequately equipped for curbing poaching at Nal Sarovar as discussed below:

- The poachers install trapping nets in the night for catching birds. Night Patrolling team of DCF, Nal Sarovar caught 6,559 nets installed by poachers during the period 2010-15. This showed that poaching could not be adequately controlled.
- There were 18 cases of poaching, trapping or killing of birds and animals reported at Nal Sarovar during 2010-15 in which 39 nets, 180 birds (dead and live) were caught by the Department.
- There was no use of night vision binoculars and other modern technology surveillance equipments. MoEF&CC sanctioned (December 2013) the proposal of DCF for purchase of two Night Vision binoculars (estimated cost ₹ two lakh each) in APO 2013-14. For procurement of binoculars, the dealer demanded the permission of the Ministry of Defence. Instead of taking up the matter with the Defence Authorities, DCF, Nal Sarovar purchased ordinary Binoculars, High Range Telescope and Sporting scope at the cost of ₹ 1.40 lakh. Thus, instead of a night vision binocular, a prime requirement for patrolling during night, purchase of ordinary binoculars has led to inadequate surveillance.

The Government stated (September 2015) that the staff was doing their best to curb poaching of birds. In their efforts, they have recovered a large number of nets installed for poaching of birds. It was further stated that there was no end of modern technology which would go on changing. The best method would be to involve the local people.

However, audit is of the view that Nal Sarovar is spread over a vast area of 120.82 sq km and resources in terms of manpower and finance were limited. Therefore, surveillance through manual efforts may not be adequate and the Department may explore/ study the use of modern technology to curb the poaching at wetlands.

2.9.1.4 Removal of weeds in wetland

Excessive weeds are detrimental to wetlands as micro organisms are deprived of air, sunlight *etc.*, and life cycle of birds is disturbed. Also, it reduces the water surface areas for free movement of large birds/ animals. Thus, removal of weeds should be an invariable part of regular maintenance of a wetland and needs to be undertaken periodically before it becomes unmanageable.

We observed that large area of Nal Sarovar was covered with accumulated weeds. As against the area of 120.82 sq km, removal of weeds in 0.14 sq km to 0.02 sq km only was done during 2009-10 to 2012-13. The activity of removal of weeds was not done in the year 2013-14 and 2014-15. It indicated that the Department did not give adequate attention to the work of removal of weeds.

DCF accepted (May 2014) the existence of large scale weeds at Nal Sarovar. It was further stated that every year removal of weeds was proposed (in APO) and is carried out. During 2013-14, APO was not got approved. On the other hand, Government stated (September 2015) that weeds were important for wetlands as weeds provided shelter and roosting sites to the birds. Further, removal of unwanted weeds was carried out as and when required in the quantity necessary for the management of area as per the provisions of APO and MAP. However, need for removal of weeds was not felt necessary hence, it was not done in the year 2013-14.

The replies of DCF and Government were contradictory to each other.

2.9.1.5 Development of eco friendly environment at wetlands

A wetland, being distinguished geographical assets of the state, requires a careful and balanced intervention of the Department for maintaining eco-friendly environment and providing comfortable birds viewing opportunity to the visitors without disturbing eco-sensitivity. This required arrangement of comfortable boats, adequate number of watchtowers at important viewing points, aerial and safe viewing of birds and restriction of movement of tourists in sensitive areas of wetlands *etc.*

Nal Sarovar and Thol Lake are important Wetlands attracting different species of birds from all over the world. As per the last five census conducted between 2010 and 2015, 1,05,156 to 1,85,149 and 13,055 to 21,255 birds visited the Nal Sarovar and Thol Lake respectively. During the period 2010-15, 40,890 to 82,316 and 30,188 to 81,035 respectively visitors visited the wetlands.

We observed that Nal Sarovar spread over a large area of 120.82 sq. km was declared as Ramsar Site in September 2012. However, the birds viewing facilities were not upgraded and there were no arrangements for aesthetical and safe boating for birds viewing at Nal Sarovar. The viewers were left at the mercy of private boat owners who used old, shabby and uncovered boats (**Figure 2**). Interpretation Centre constructed in February 2009 at Nal Sarovar for providing information about visiting birds was not functioning (September 2015).

Figure 2: Boating arrangement at International site of Nal Sarovar (Photo taken on 8 April 2015)



Government stated (September 2015) that that the Department has a comprehensive vision plan for eco friendly environment and all the wetlands were well maintained. Regarding shabby boats, Government feared that boats with shed might disturb the birds. For interpretation centre, Government assured to strengthen the monitoring and supervision over Eco Friendly committee.

Facts remained that there were inadequate facilities as discussed above and Government did not furnish a copy of the comprehensive vision plan in support of their reply.

Conclusion and recommendations

Large numbers of migratory birds visit Nal Sarovar and Thol Lake every year. However, baseline data were not prepared and a common conservation strategy could not be framed. BRC was functioning without veterinary doctors, equipments and medicines. The Department did not make adequate surveillance for controlling poaching at Nal Sarovar. Further, efforts for weeds removal and development of eco-friendly environment were inadequate.

- **Government may consider maintaining baseline data of migratory birds and adopt strategy for conservation of migratory birds.**
- **Government may also strengthen surveillance for curbing poaching by using modern technology.**
- **Government needs to assess the requirement of removal of weeds at wetlands for conservation and provide nesting, feeding and roosting site to the birds.**

2.9.2 Khijadiya wetland

Khijadiya wetland in Jamnagar District has a unique geographical peculiarity and is a combination of a sweet water lake and coastal saline water marshland.

It is a bird sanctuary of international fame and known as safe haven for birds. Both the parts are very high value biodiversity area. Around 300 species of birds visit this wetland every year. The wetland hosted eight bird species⁸ falling under “Globally Threatened/ Nearly Threatened” as per criteria of International Union for Conservation of Nature (IUCN)⁹/ Bird Life International. The birds visiting the wetland during 2010-15 are shown in **Table 6** below.

Table 6: Birds visiting Khijadiya Lake during 2010-15

Particulars	2010-11	2011-12	2012-13	2013-14	2014-15
Total birds visited the wetland	87,770	1,50,852	11,601	1,36,179	10,144
No. of birds falling under endangered category	1,646	3,203	2,847	6,783	688
No. of birds falling under nearly threatened category	1,152	1,504	635	3,183	2,948

(Source: Information collected from the F&E Department)

The Wetland is under control of DCF, Marine National Park, Jamnagar for conservation. The audit findings relating to conservation of wetland are discussed in the succeeding paragraphs.

2.9.2.1 Baseline data of migratory birds

Due to peculiar geography of the wetland, Khijadiya wetland attracted 10,144 to 1,50,852 birds every year including “Critically Endangered” (688 to 6,783 birds) and “Nearly threatened” (635 to 3,182 birds) categories during 2010-15. We observed that baseline data of migratory birds was not maintained by the Department relating to bird life and movements, population parameters *etc.*

2.9.2.2 Maintenance of eco friendly environment

We observed that Khijadiya wetland has an average inflow of 75 daily visitors. The Department had provided five watch towers for viewing the birds to the visitors.

2.9.2.3 Water retention work

Water is the key to the livelihood of the entire biodiversity. Thus, retention of water at wetlands is therefore of paramount importance as drying up of water drastically affects feeding, nesting and other activities of the birds.

We observed that the wetland was completely dependent on rainfall and there was no artificial source of water for feeding it. The joint site visit by Audit with the departmental officers in late monsoon season (September 2014)

⁸ Dalmatian Pelican, Darter, Painted stork, Black headed Ibis, Black Necked Stork, Lesser Flamingo, Palla’s Fish eagle and Indian Skimmer.

⁹ IUCN is an international organization working for finding pragmatic solutions to environment and development changes. It is having more than 1,000 Government agencies and NGOs as its members and over 11,000 volunteer scientists in 160 countries. Based on its assessment of conservation status of species, it publishes Red List of Species. Several countries frame their strategies/ policies on wild life conservation based on Red List of IUCN.

revealed that in spite of annual average rainfall of 516 mm, the wetland gets dried up soon after monsoon even before onset of winter when migratory birds visit the wetland (**Figure 3**). Activities *like* deepening of pond, construction of check dam and earthen bund, creation of small ponds in small areas only were carried out by DCF.

Figure 3: Khijadiya Lake, Jamnagar dried up in late monsoon (photo taken on 19 September 2014)



During the year 2012 and 2014, rainfall was very low and number of birds reduced to 11,601 and 10,044 respectively. Drying up of the wetland immediately after monsoon invariably had drastic effect on the biodiversity and there was an abnormal drop during 2009-14 in the number of visiting birds at wetland as shown in the **Table 7** below:

Table 7: No. of Birds visiting Khijadiya Lake as per Census

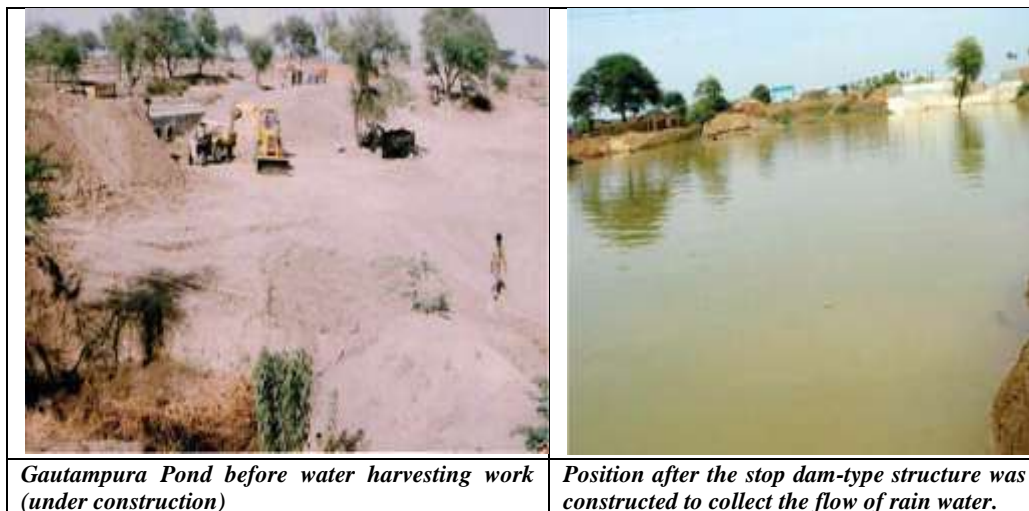
Year	No. of birds visited
2009	6,92,078
2010	87,770
2011	1,50,852
2012	11,601 (Due to failure of monsoon)
2013	1,36,179
2014	10,144 (Due to failure of monsoon)

(Source: Information collected from the F&E Department)

We also observed that there were no efforts made to find out the reasons for its drying up. The Department had not carried out geological investigation, sub surface investigation and rim survey of reservoir. The best engineering practice for water conservation (**Figure 4**) *such as* stoppage of rainy brooks or water retention works *viz.*, gully plugging, covering of porous layers in soil with impervious material *like* clay, bentonite *etc.*, lining of at the bottom, laying of plastic cover, works for reduction of evaporation rate by sprinkling of chemicals were not followed. We further observed that these measures were not even envisaged in the APO of the wetland though there were conducive factors for water conservation works *like* (i) Jamnagar District was having a

consistently good/ medium annual average rainfall of 516 mm (except during 2012 and 2014), (ii) the wetland being very near to coast, land is always full of moisture and weather is always humid. Thus, ecological balance of the wetland could not be maintained and water birds visiting wetlands dwindled sharply whenever the rainfall was less.

Figure 4: Photographs showing good practice of Water Conservation adopted at Gautampura Nagar Panchayat Pond, Near Indore, Madhya Pradesh, winner of National Urban Water Award for technological innovations, 2010.



(Source: National Urban Water Award working under Ministry of Urban Development)

Government stated (September 2015) that concern of audit is well appreciated but water conservation works suggested may affect the basic nature of wetland and also birds livelihood and biodiversity of the area on which birds survive. Khijadiya being a sanctuary, such works could not be encouraged beyond a limit. Further, there were a large number of factors which govern the number of birds visiting the area. Simply improving water retention and water level cannot improve the number of birds visiting the area and any interference in the area would be harmful hence it is not advisable. Government further stated that if the wetland is dried up, the birds move to other adjoining wetlands.

While we appreciate the concern to minimise interference, it was evident from the reduction in number of visiting birds that biodiversity was allowed to deteriorate and birds were forced to migrate to other places for want of water as they were not getting their basic survival requirements at the wetland. The Khijadiya wetland is situated in ideal position for water retention works. Water is the prime and fundamental requirement for all type of flora and fauna, for attracting the birds and their stay at the wetland.

Conclusion and recommendations

DCF has not prepared baseline data of migratory birds that visited wetland. There were inadequate water conservation activities to store the water which allowed the wetland to get dried soon after the monsoon and also affected the biodiversity of the wetland forcing the birds to migrate to other wetlands.

- Government may ensure strict time line for preparation of baseline data of migratory birds.
- Government needs to assess the requirement of conservation work to ensure retention of water at wetland so as to enable migratory birds to meet their survival requirements.

2.9.3 Wadhwana wetland

Wadhwana wetland is situated near Vadodara city. It has an irrigation tank under the control of the Narmada, Water Resources, Water Supply & Kalpsar (NWRWS&K) Department. The conservation of wetland is being carried out every year by the DCF (Wildlife), Vadodara under the F&E Department. It was declared as the wetland of national importance in the year 2004-05 being a shelter for migratory birds as well as local migratory birds. A proposal for nominating this wetland as a Ramsar site was submitted (April 2011) by DCF to the Department. During the period 2010-15, 36,578 to 88,381 birds of 100 to 140 species from different parts of the world visited the wetland as shown in **Table 8** below.

Table 8: Birds visiting Wadhwana Wetland during 2010-15

Year	2010-11	2011-12	2012-13	2013-14	2014-15
Total Birds visited the wetland	88,381	44,001	53,095	36,578	55,571
No. of birds falling under endangered category	59	31	24	29	NA
No. of birds falling under nearly threatened category	4,425	1,828	2,123	2,019	NA

(Source: Information collected from the F&E Department)

DCF carried out conservation activities during 2010-15 like formation of Eco development committee, maintenance and repairing of watch towers, excavation works to improve water regime, watch and ward, procurement and maintenance of field instruments, weeds removal, tree plantation for perching, roosting and nesting sites, Socio-Economic development, Eco-development, Eco-tourism works, Public awareness, education and training works, nature education camps *etc.*

We observed that:

- Baseline data of migratory birds was not prepared and maintained by the Department; and
- Department had reported 14 cases of wild life crimes including poaching and trapping of birds during 2010-15. This indicates that surveillance is required to be strengthened by the Department to avoid poaching and trapping cases at wetland.

2.9.3.1 Co-ordination with WR Department for adequate conservation

Shallowness allows the growth and sustenance of plants/ plankton and other connected fauna. Non maintenance of shallowness at wetlands has adverse impact on resting, feeding, roosting sites of birds.

The wetland is an irrigation tank under the control of Executive Engineer, Irrigation Division, Vadodara of Water Resources (WR) Department to provide irrigation to 3,300 ha of land during November to March (including winter season). The water is released from the Jojwa reservoir in Wadhvana Lake and irrigation is being done from Wadhvana Lake through five outlets. During 2006-12, the Irrigation Division maintained the water level up to 6 to 7 feet. This allowed shallowness in the Lake and the site remained conducive for the birds. Considering the local condition of the wetland, DCF, Wild Life, Vadodara observed (January 2014) that the water depth in the wetland should not exceed 6 to 7 feet as the depth beyond 7 feet may not be conducive for the birds to get food, nesting and breeding.

We observed that in 2012-13 and 2013-14, the Irrigation Division increased water level beyond 7 feet during winter *i.e.*, November to February. This led to submergence of feeding, breeding and nesting sites of the birds, affecting their feeding, breeding and nesting activities. Consequently the number of birds visiting Wadhvana Lake declined from 88,381 in 2010-11 to 36,578 in 2013-14 (overall decline was 58 *per cent*). An illustrative decline of seven groups of birds is shown in **Table 9** below:

Table 9: Decline in the number of birds at Wadhvana Wetland

Sl. No.	Group of birds	Year of census			
		2010-11	2011-12	2012-13	2013-14
1	Grebes	493	447	337	215
2	Cormorants & Darters	2,932	623	1,929	545
3	Heron & Egrets	7,022	1,055	1,756	2,480
4	Storks	261	115	80	87
5	Ibises & Spoonbills	8,884	6,027	2,915	2,321
6	Rails, Crakes, Gallinules & Coots	13,028	2,974	4,067	6,934
7	Waders	29,011	10,324	13,958	6,079
Total		61,631	21,565	25,042	18,661

(Source: Information collected from the Forests and Environment Department)

The plantations by Forests Department around wetland for feeding, roosting and shelter of birds were also uprooted (July 2012) by the Irrigation Division. Further, the check posts constructed by DCF for managing and regulating the inflow of visitors were also dismantled by the Irrigation Division. Thus, due to lack of proper co-ordination between the WR Department and the Forests Department, adequate conservation of wetland could not be carried out. The DCF apprised (January 2014) WR Department and PCCF about the negative impact of excess release of water. The DCF also took up (January 2014 to October 2014) the matter with the Collector, District Development Office and NGOs. However, matter could not be resolved (September 2015).

When the matter was taken up by Audit with EE, Irrigation Division, it was stated (January 2015) that raising of water was essential for meeting irrigation needs of the farmers. It was further stated that during a joint site visit (November 2014) of the Wadhvana Lake with DCF, they suggested an alternative way of excavation of area in the upstream side of the lake which would reduce height of the water level to six feet thereby not affecting the irrigation facility.

Government stated (September 2015) that the issue had been taken up with the District Authorities, Irrigation Department and was being resolved.

Conclusion and recommendation

The baseline data of migratory birds was not maintained by the DCF. There was lack of co-ordination with WR Department to maintain water level. This resulted in degradation of biodiversity. Further, plantation done at wetland and check posts constructed were uprooted/ dismantled by WR Department which may affect feeding, roosting and shelter of birds and surveillance of the wetland.

- **Government needs to give urgent attention for effective pursuance and co-ordination with WR Department for maintaining required water level by executing work as suggested by the WR Department.**

2.9.4 Little Rann of Kachchh and Great Rann of Kachchh

Little Rann of Kachchh (LRK) is a unique wetland comprising saline mudflat and marshes. In monsoon, LRK gets transformed into a very large seasonal wetland proving a haven for the migrant avifaunal¹⁰ and invertebrate¹¹ diversity. During the monsoon, the seasonal wetland charged by freshwater inflow and ingress of seawater teems with plant and animal life. It lies in the migratory route of a large number of bird species and draws a host of waterfowl and demoiselle¹² and common cranes. The Great Rann of Kachchh (GRK) is one of the largest seasonal saline wetland having an average water depth between 0.5 to 1.5 metres. The LRK is under control of DCF, Wild Ass Sanctuary, Dhrangadhra and GRK is under control of DCF, Kachchh (West) Division, Bhuj.

Both the wetlands are seasonal wetlands spread over a vast area (LRK 4,953 sq km and GRK 7,000 sq km). There are the most significant pocket areas and rare birds sites therein. LRK is the only nesting colony of Lesser Flamingo in the country. Lesser Flamingo has been declared as “Nearly Threatened” under the “International Union for Conservation of Nature Red List 2013”. In GRK there are exceptionally good birds sites *like* Bhujdo dungar, Kala dungar and Hunj Beyt, the nesting and breeding colony of Greater Flamingo known internationally as “Flamingo City” where lakhs of flamingos congregate for nesting and breeding regularly. Both wetlands are wild life sanctuaries. Our findings relating to conservation activities are discussed in the succeeding paragraphs.

2.9.4.1 Conservation activities

We observed that there are significant pocket areas and rare birds sites at wetlands of LRK and GRK. However, no conservation activity was carried out by the Department. Further, the bird counting was also not carried out. Even

¹⁰ Avifaunal: relating to the birds, or all the kinds of birds, inhabiting a region.

¹¹ Invertebrate: animals without back bone.

¹² Demoiselle: a small crane with a black head and breast and white ear tufts breeding in South East Europe and Central Asia.

pocket areas for which both the wetlands are having international fame were not identified for taking up conservation. Moreover, even survey and land demarcation were also not done at these wetlands.

Government stated (September 2015) that the Government is well concerned with conservation of GRK and LRK. Both wetlands are notified as sanctuaries and thus they were conserved under various schemes of State Government. It was also stated that non-demanding and non-availability of funds from Central Government should not be construed as there were no conservation activities in LRK and GRK.

The reply of the Government is not convincing as both at GRK and LRK, even the base level work of birds counting was not done to start with and in the absence of bird counting, the effectiveness of State Government efforts towards conservation could not be gauged.

2.9.4.2 Poaching at wetland

We observed that the Department had reported (December 2012) one major incidence of poaching case near Velasar village in Maliya-Miyana Taluka during the review period, wherein a large heap of body parts of 33 slaughtered flamingos was found. The case was reported by a wild life conservationist. This indicates that surveillance may not be adequate and possibility of more such cases of poaching going unnoticed can not be ruled out.

2.9.4.3 Baseline data of migratory birds

LRK and GRK are the wetlands of national importance and nesting colony of Lesser Flamingo and nesting and breeding colonies for Greater Flamingos respectively. The bird counting was not done. We observed that the baseline data of migratory birds was not prepared and maintained by the Department.

2.9.4.4 Medical facilities for birds

We observed that in spite of visits of lakhs of Flamingos in LRK and GRK, Bird Rescue Centre (BRC) for providing immediate treatment to the injured birds was not set up at either of wetlands.

Conclusion and recommendations

The MAP for LRK and GRK wetlands were not prepared. Pocket areas having high ecological value were not identified. No conservation activities were done by the Department. Baseline data of migratory birds was also not maintained which affect the conservation activities at wetland. There were no medical facilities for the birds.

- **Government should identify pockets having high ecological value and consider taking up conservation activities of these pockets.**
- **Government needs to strengthen surveillance to avoid poaching and provide sufficient medical facilities to the injured birds by setting up of BRC at the wetlands.**

2.9.5 Pariej wetland

Pariej is an irrigation reservoir constructed by the WR Department in Nadiad District. Conservation of this wetland is carried out by the DCF (Social Forestry), Nadiad under F&E Department. Conservation activities carried out during 2010-15 were protection measures like formation of village wetland committee, watch and ward through contractual staff, Socio-Economic development activities *like* entry point activities, development and maintenance of tourist facilities, development and maintenance of interpretation centre, education and public awareness etc. Audit findings noticed related to conservation activities are discussed in the succeeding paragraphs.

2.9.5.1 Baseline data of migratory birds

We observed that bird counting was not carried out and baseline data was not maintained by the Department. The population estimates for migratory birds and scientific research was under planning (June 2015).

2.9.5.2 Medical facilities for birds

We observed that there was no Birds Rescue Centre. The injured birds are sent to animal care centre at Ahmedabad or Veterinary College, Anand.

Conclusion and recommendation

There was no bird census or the baseline data available with the Department. Further, BCR was not set up. This indicates inadequate efforts of the Department in conservation of wetland.

- **The Government may carry out birds census at regular interval and ensure maintenance of baseline data of migratory birds.**

2.10 Monitoring and Supervision

Monitoring and supervision of conservation activities aid and enable the Department to identify weak areas which require remedial action and to initiate appropriate policy measures.

We observed that inadequate monitoring and supervision system existed in the Department as:

- There was no policy for conservation of wetlands other than those declared as wetlands of national importance. Further, for effective execution of the scheme, a proposal under NWCP guidelines for constitution of a State Wetland Conservation Authority (SWCA) was submitted (May 2014) by the PCCF (Wild life) to F&ED. However, the SWCA has not been constituted (September 2015).
- The Department did not prepare MAPs for five wetlands.

- No provision was made in the budget for conservation of other identified wetlands.
- There was little co-ordination with other Departments for conservation of wetlands.
- As per the order of constitution of Steering Committee, it was required to meet twice in a year. Against 10, only six meetings were held between 2010 and 2015. This indicates deficient monitoring by Committee of conservation of wetlands.

Conclusion and recommendation

The Steering Committee did not meet regularly twice in a year and core conservation issues relating to wetlands were not discussed.

- **The Steering Committee may ensure close monitoring of conservation activities of wetlands of national importance and expedite identification of other important wetlands.**

2.11 Conclusion

The Performance Audit of “Conservation of wetlands” revealed that conservation activities at six wetlands were carried out by the Department as per the APOs. The PA also revealed that there was a lack of focussed approach to conservation in the absence of adequate MAPs and APOs and activities were restricted to the GoI funds only. Certain areas of concern with regard to conservation of wetlands are highlighted below:

- Government did not frame policy or guidelines for wetlands other than those identified as having national importance. As a result, important wetlands remained out of conservation scope.
- The MAPs were either prepared with break in period or not prepared fully. Further, Government mainly relied upon fund released by GoI and shortfall was not met from State fund by the Department.
- Baseline data of migratory birds was not maintained by the Department. The water retention work at Khijadiya and removal of weeds at Nal Sarovar was inadequate. Conservation of the two important wetlands LRK and GRK was not done.
- Proper water level required for wetland was not maintained at Wadhvana Lake due to release of water by the Irrigation Department for irrigation. Poaching at Nal Sarovar and Wadhvana Lake was uncontrolled.
- Inadequate monitoring over the conservation of wetlands both at the Department level as well as Steering Committee level was observed. Out of 10 half yearly meetings as envisaged, Steering Committee met only six times during 2010-15 for review of activities of conservation of wetlands.

CHAPTER-III
COMPLIANCE AUDIT

CHAPTER III

COMPLIANCE AUDIT

Important audit findings that emerged from the test check of transactions of the Departments of the Government of Gujarat are included in this Chapter.

NARMADA, WATER RESOURCES, WATER SUPPLY AND KALPSAR DEPARTMENT

3.1 Construction of High Level Canals

3.1.1 Introduction

The irrigation projects are normally designed as gravity bed scheme in which contours in the terrain are used to deliver the water to the envisaged command areas through gravity. However, for providing irrigation to the hilly/ uneven terrain and its surrounding areas located above the existing canal bed level (CBL) of any of the gravity bed scheme, a high level canal (HLC) is required to be constructed on such terrain. The water is fed into the HLC either from an off take point originating at a higher altitude of the dam/ canal or is pumped from the already existing canal constructed under the gravity bed scheme.

For providing irrigation to 34,100 hectare (ha) in 195 villages located in the hilly/ uneven terrain and its surrounding areas located above the existing CBL, the Water Resources Department (the Department) decided (between August 1997 and April 2008) to construct HLCs *i.e.*, Kadana Left Bank High Level Canal (KLBHLC), Panam High Level Canal (PHLC), Ukai Left Bank High Level Canal (ULBHLC) and Karjan Left Bank High Level Canal (Karjan LBHLC) at a cost of ₹ 238.14 crore (**Appendix IV**). The projects were decided to be completed between December 2005 and March 2015. The total cost of the PHLC and ULBHLC projects stands revised from original ₹ 185.86 crore to ₹ 400.13 crore. The project cost for all projects now stands at ₹ 452.41 crore (March 2015).

Due to delay in commencement, non-preparation of detailed project report (DPR)/ incomplete DPR, defective survey, slow progress of works *etc.*, all projects remain incomplete after incurring an expenditure of ₹ 402.52 crore as of March 2015. The project wise details are shown in **Appendix IV**.

3.1.2 Scope and coverage of audit

These four projects were implemented under the administrative control of two Chief Engineers¹ and execution of works was carried out through

¹ CE & Additional Secretary (South Gujarat) and CE & Additional Secretary (Central Gujarat).

five Divisions² under the supervision and monitoring control of four Superintending Engineers (SE).

We examined the records of three out of four projects viz., KLBHLC, PHLC and ULBHLC selected considering the investment made for the projects totaling to ₹ 399.26 crore with a view to see the efficacy with which Government orders, provisions of the Gujarat Public Works Manual and other general conditions of the contract were being implemented by the Department. We conducted audit in four Divisions³ between March 2015 and April 2015 covering detailed scrutiny of 32 works involving tendered cost of ₹ 158.32 crore awarded by the Divisions as shown in **Table 1** below:

Table 1: Population and Selection of work

Name of project	Total works awarded/spillover during 2011-12 to 2014-15		Works selected for detailed scrutiny			
			Works awarded during 2011-12 to 2014-15		Works Spillover prior to 2011-12	
	No. of works	Tendered cost	No. of works	Tendered cost (₹ in crore)	No. of works	Tendered cost (₹ in crore)
KLBHLC	8	27.46	0	0	4	27.12
PHLC	27	88.87	9	22.17	5	70.42
ULBHLC	35	54.06	9	11.03	5	27.58
Total	70	170.39	18	33.20	14	125.12

Of the selected 32 works, 18 works were completed between August 2009 and November 2014 at a cost of ₹ 129 crore. The remaining 14 works were incomplete after incurring an expenditure of ₹ 40.87 crore (April 2015).

3.1.3 Audit findings

The details of HLC projects are given in **Table 2** below:

Table 2: Project wise expenditure and CCA utilised

Sl. No.	HLC Project	Year of project	Project cost (₹ in crore)	Expenditure up to March 2015 (₹ in crore)	CCA planned (in Ha)	CCA created (in Ha)	CCA utilised (in Ha)
1	KLBHLC	2004	47.79	54.74	5,000	3,706	1,261
2	PHLC	1999	240.52	219.69	18,000	4,070	1,700
3	ULBHLC	1997	159.61	124.83	9,900	3,700	400
4.	Karjan	2008	4.49	3.26	1,200	0	0
Total			452.41	402.52	34,100	11,476	3,361

The general as well as project wise audit observations have been discussed in the succeeding paragraphs.

3.1.4 Planning

A Detailed Project Report (DPR) showing the project components with milestone and timeframe for proper implementation of the project works is

² Executive Engineer (EE), Ukai Division-1, Ukai, EE, VER-II Project Division, Vyara, EE, Irrigation Project Division No. IV, Rajipla, EE, Kadana Division-I, Diwada Colony and EE, Panam Project Division, Godhra.

³ Executive Engineer (EE), Kadana Division-I, Diwada Colony, EE, Panam Project Division, Godhra. EE, Ukai Division-1, Ukai and EE, VER-II Project Division, Vyara.

required to be prepared. Further, the DPR facilitates effective monitoring and controlling of the project activities to achieve the envisaged objectives within the targeted timeframe.

We observed that:

- The DPR for KLBHLC project was prepared (October 2004) by the Department stipulating project completion by December 2005.
- The DPR for PHLC was approved (April 1999) by the Department. However, it did not show envisaged period of completion of the project. But for availing the loan from National Bank for Agriculture and Rural Development (NABARD), the Department proposed to complete the project by March 2008 which was also subsequently revised to March 2011.
- The DPRs for ULBHLC and Karjan HLC were not prepared by the Department.

Thus, non-preparation/ deficiencies in preparation of the DPRs led to ineffective monitoring of project activities. Consequently, the projects were not completed in time bound manner.

3.1.5 Financial management

The details of budget estimate (BE), grant released and expenditure incurred during the period from 2011-12 to 2014-15 in four projects are given in Table 3.

Table 3: Details of budget provision, grant released and expenditure incurred

(₹ in crore)

Year	KLBHLC			PHLC			ULBHLC			Karjan HLC		
	BE	Grant released	Expenditure	BE	Grant released	Expenditure	BE	Grant released	Expenditure	BE	Grant released	Expenditure
Up to 2010-11	--	--	47.78	--	--	147.98	--	--	75.64	--	--	--
2011-12	5.00	3.00	2.94	34.00	15.00	14.69	13.00	15.50	15.50	8.50	0.41	0.40
2012-13	2.00	1.30	1.29	27.00	23.00	23.01	14.00	17.00	16.57	4.00	1.37	0.45
2013-14	3.00	2.31	2.31	17.00	23.00	22.82	7.71	10.87	10.51	2.50	3.15	0.86
2014-15	1.85	0.42	0.42	12.00	12.00	11.19	7.11	7.11	6.61	5.25	1.55	1.55
Total			54.74			219.69			124.83			3.26

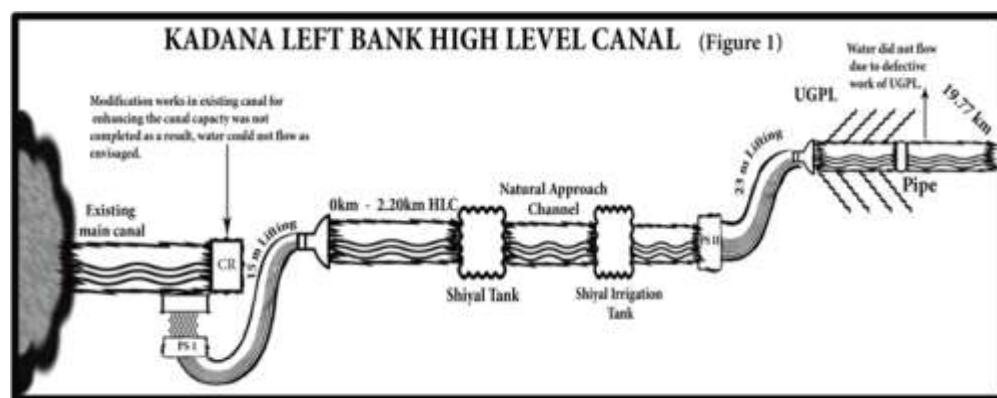
The cost of KLBHLC and ULBHLC was met from budget. In case of PHLC in addition to the Budgeted Grant, 90 per cent of the project cost was met from NABARD loan⁴. We observed that though sufficient funds were allotted in all projects, due to slow progress of main canals and distributaries works, funds could not be utilised. A loan of ₹ 215.53 crore for PHLC project was sanctioned in different tranches (October 2005 and September 2011) by NABARD in Phase I (₹ 118.15 crore) and Phase II (₹ 97.38 crore).

⁴ Loan under Rural Infrastructure Development Fund.

3.1.6 Kadana Left Bank High Level Canal (KLBHLC)

The Canal Bed Level (CBL) of the existing main canal of Kadana Water Reservoir Project (WRP) was 110.07 m and therefore, water could not be supplied to hilly areas. The State Government planned (May 2004) to construct KLBHLC with CBL at 137.65 m and decided to lift water from existing main canal up to a height of 27.58 m by constructing pumping stations to flow water into the HLC for providing irrigation facilities to 5,000 ha of land in hilly area. The project envisaged construction of 19.77 km long main HLC to flow water by 150 cubic feet per second (cusecs) capacity. The project was approved in May 2004 and was to complete by December 2005. The Executive Engineer, Kadana Division-I, Diwada Colony was in charge of execution of the project.

The components of the KLBHLC are shown in **Figure 1** below.



Component of the project

The project had three main components:

- Modification of existing main canal as discussed in **Paragraph 3.1.6.1**.
- HLC of 19.77 km with pumping stations which was completed in December 2009.
- Distribution network of 21 minors as discussed in **Paragraph 3.1.6.2**.

The work wise details of the project are shown in **Table 4** below:

Table 4: Work wise details of the KLBHLC project as on 31 July 2015

Components of the project	Length		Awarded cost (₹ in crore)	Completion cost (₹ in crore)	Period of		
	Tendered	Actually completed			Award of works	Stipulated completion	Completion of works
Modification of existing main canal	12.50 km	10 km	4.02	2.77	April 2005	August 2005	Not completed
Structures of existing main canal	12 nos.	6 nos.	0.80	0.45	April 2005	August 2005	In progress
LBHLC	19.77 km	19.77 km	6.21	5.69	April 2005 to June 2005	March 2006 to May 2006	June 2006 to December 2009
Pumping Stations	2 nos.	2 nos.	15.74	15.66	May 2007	May 2008	December 2010
14 Minors by UGPL-Phase-I	30.80 km	30.80 km	6.63	7.96	February 2009	February 2010	April 2010
7 minors in Phase-II	34.25 km			Not started			

3.1.6.1 Modification of existing main canal and structures

The water was to be lifted from the existing main canal into the HLC. For this purpose, the existing capacity of 390 cusecs of the main canal was required to be enhanced to 540 cusecs to cater to the 150 cusecs requirement of HLC. Unless this is done, the HLC would not get sufficient quantity of water required to irrigate 5,000 ha. Accordingly, the work of excavation, earth work and lining of existing main canal was awarded (April 2005) with stipulated completion by August 2005. The contractor could not complete the work within the stipulated time limit due to wet condition of canal, rainy seasons, scarcity of labour and materials and release of water in canal for Kharif crops. Therefore, Department had granted (July 2006) extension of time up to July 2007. After executing work valued ₹ 2.77 crore, the contractor stopped (January 2007) the work leaving unexecuted work in scattered length of 2.5 km without assigning any reasons. Finally, the contract was terminated (October 2013) by the Division.

We observed that though the work was abandoned by the contractor in January 2007, the Division did not take an early action to terminate the contract and invite fresh tenders to complete the work. Instead, the Division issued notices between March 2006 and October 2010. Thereafter, as evident from the records of the Division, no action was taken by the Division during three years. The contract was finally terminated in October 2013. It was also observed that even after two years from termination of the contract (September 2015), Division did not take any action to complete the remaining work.

Similarly, the work of construction of 12 structures⁵ was awarded (April 2005) with stipulated completion by August 2005. As the progress of work was very slow, the Division issued six notices to the contractor between December 2006 and May 2008. The contractor did not mobilise required machinery and manpower for work. After completion of five⁶ out of 12 structures the contractor requested (May 2008) to relieve him from the work on the plea that the Division had not supplied drawings, scarcity of cement and resistance by the farmers. The Division did not relieve the contractor or terminate the contract (July 2015) for which no reasons were found on records. Meanwhile, one structure⁷ was awarded (July 2008) to another contractor and got completed in November 2010. The work of remaining six structures has not been taken up (June 2015).

Thus, due to lack of proper monitoring and deficient action by the Division in completion of modification and structures works in existing main canal, it was

⁵ (1) Village Road Bridge (VRB) at chainage 1,179 m, (2) VRB at chainage 3,750 m, (3) VRB at chainage 5,600 m, (4) Canal Syphon at chainage 7,159 m, (5) Super passage at chainage 8,012.50 m, (6) Canal escape & CR (cross regulator) gate/ VRB at chainage 10,025 m, (7) Canal Syphon at chainage 10,055 m, (8) VRB at chainage 11,080 m, (9) CR cum VRB at chainage 11,770 m, (10) Canal Syphon at chainage 12,292 m, (11) Masonry of toe wall on I.P. side at chainage 12,400 m and (12) CR cum VRB at chainage 12,500 m.

⁶ (1) Canal Syphon at chainage 7,159 m, (2) Canal Syphon at chainage 10,055 m, (3) VRB at chainage 11,080 m, (4) Canal Syphon at chainage 12,292 m and (5) Masonry of toe wall on I.P. side at chainage 12,400 m.

⁷ CR cum VRB at 12.50 km.

not possible to provide sufficient water in constructed HLC. Only 40 cusecs water was provided from the existing canal as against envisaged 150 cusecs.

The Government stated (August 2015) that due to continuous flow of water in the canal, quantity of remaining work of excavation, earth work and lining of existing main canal could not be measured, however, the same shall be carried out subject to availability of working period. It was further stated that for remaining structures, agency has been fixed and work would be started shortly.

The reply is silent regarding delay in initiating the termination process and delay in completion of works. Facts remain that due to non-completion of modification work of canal, water could not flow as per envisaged capacity.

3.1.6.2 Incomplete distribution network

The work of laying Under Ground Pipe Line (UGPL) in phase I having a length of 30.80 km was awarded (February 2009) to a contractor with stipulated completion by February 2010. The work was completed in April 2010 and ₹ 7.96 crore was paid to the contractor, withholding an amount of ₹ 0.15 crore towards hydraulic testing *etc.* The tender condition provided to conduct hydraulic test of laid UGPL. The Division intimated the contractor (November 2010) to conduct hydraulic testing of laid pipeline. The contractor carried out testing of 10 minors between November 2010 and November 2011 out of 14 minors constructed in Phase-I. Leakages were noticed during testing and the Division instructed (between December 2010 and June 2012) the contractor to rectify the leakages and complete the testing of remaining four minors. Despite repeated instructions of the Division, contractor did not comply with it.

We observed that the Division initiated termination procedure only in September 2013 and terminated the contract in July 2014. Further, no action to rectify the defect was taken (April 2015) by the Division as a result water could not flow in entire completed UGPL leading to utilisation of only 20 ha to 55 ha CCA out of the CCA created in 2,500 ha during 2011-12 to 2014-15.

Moreover, estimates for phase II work along with feasibility study report for construction of seven more minors/ sub-minors were submitted to the Government in October 2012. The SE referred (October 2012) the matter to Central Design Organisation (CDO) to check the technical feasibility for Phase-II. The matter remained under correspondence between CDO and the Division to finalise the technical feasibility (June 2015). Therefore, despite lapse of more than two years, Government did not approve (June 2015) the estimates and feasibility study report. Thus, work of phase II could not be taken up and irrigation facilities in 1,294 ha could not be provided.

As against the total project CCA of 5,000 ha, the Division had created CCA in 3,706 ha and due to non-completion of modification work in existing main canal and leakages in laid UGPL, utilisation of created CCA remains only in 1,261 ha by lift from HLC in 1,206 ha and through minor canals in 55 ha (March 2015).

The Government stated (August 2015) that an enquiry through Quality Control Division was set up to find out whether the work of laying UGPL in phase I had been carried out as per required tender condition so as to fix the responsibility for the lapse, if any, in the execution of work. Regarding non taking up of the work of Phase II, it was replied that the work was to be implemented as an extension of Phase I based on the experience and actual working of Phase I. As such, in view of the present status of Phase I work, the Phase II work was not taken up so far.

The reply itself indicates that the Phase I work was not properly monitored by the Department during the execution of work by the contractor. Further, it does not give the reasons for late initiation of action against the contractor and also for not getting the rectification work done through any other agency.

Conclusion and recommendations

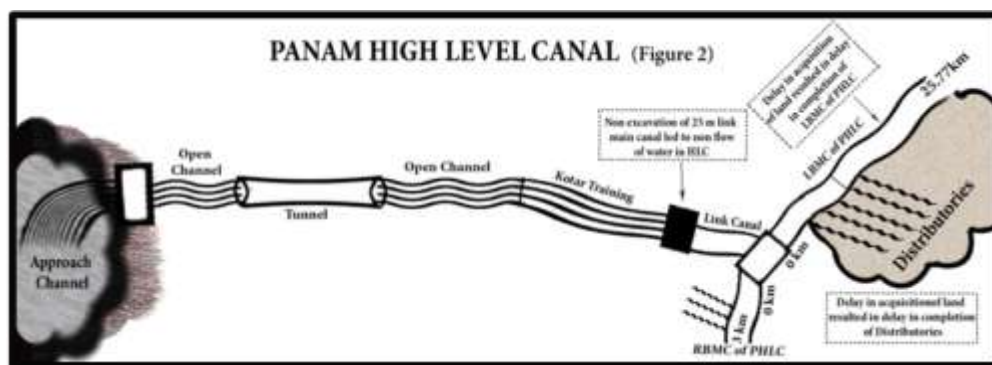
After incurring an expenditure of ₹ 54.74 crore (inclusive of small works, establishment/ other charges), the Division created CCA of 3,706 ha against targeted CCA of 5,000 ha and utilisation remained only 1,261 ha land (which was about 25 per cent of targeted CCA). Thus, due to slackness on part of Division/ Department in taking action for completion of works, project remained incomplete. This also defeated the intended objective after incurring expenditure of ₹ 54.74 crore and having time over run of more than nine years.

- **The Department should fix the responsibility for non initiation of timely action against the contractors for non completion of works within the stipulated time or for the abandonment of work by them. Further, Department should initiate early action to rectify the leakages in UGPL to facilitate irrigation benefits to the farmers.**
- **The Department may prepare plan of action to complete the modification of existing canal work to achieve capacity of 150 cusecs water requirement of HLC and achieve the actual utilisation as per CCA target of 5,000 ha.**

3.1.7 Panam High Level Canal (PHLC)

The Government accorded (April 1999) administrative approval for construction of PHLC with discharge capacity of 800 cusecs off taking from Panam reservoir (revalidated in June 2004) for ₹ 130.71 crore. The project envisaged to provide irrigation to high altitude command area of 18,000 ha of 75 villages of three talukas viz., Shahera, Godhra and Lunawada of Panchmahal District. The Government planned to commence the project in May 2005 and complete it by March 2008 which was extended up to March 2011.

The components of the PHLC are shown in **Figure 2** below:



Components of the project

The project had the following main components.

- Link main canal as discussed in **Paragraph 3.1.7.1**.
- Right Bank Main Canal (RBMC) and Left Bank Main Canal (LBMC) of HLC as discussed in **Paragraph 3.1.7.2**.
- Distribution network of 13 distributaries as discussed in **Paragraph 3.1.7.3**.

The work wise details of the project are shown in **Table 5** below:

Table 5: Work wise details of the PHLC project as on 31 July 2015

Components of the project	Length		Awarded cost (₹ in crore)	Completion cost (₹ in crore)	Period of		
	Tendered	Actually completed			Award of works	Stipulated completion	Completion of works
Approach channel	1.71 km	1.71 km	0.57	0.48	July 2005	January 2006	June 2006
Head regulator (HR)	1 nos.	1 nos.	2.05	2.18	March 2008	February 2009	August 2009
Open channel with tunnel	5.25 km	5.25 km	63.01	70.49	September 2005 & March 2008	September 2007 & June 2009	June 2009 & August 2009
Kotar training ⁸	3.70 km	3.70 km	1.93	1.37	May 2005 & March 2008	February 2006 & March 2008	June 2006 & June 2011
Link main canal	1.69 km	1.66 km	1.36	1.31	April 2008	December 2008	May 2015
LBMK of PHLC	25.83 km	16.95 km	35.37	37.17	December 2007 & September 2013	March 2009 & August 2014	In progress
RBMC of PHLC	3.00 km	3.00 km	9.98	12.10	May 2008	April 2010	August 2012
Distributaries	80.31 km	1.73 km	29.58	19.89	March 2011 & April 2013	February 2012 & April 2014	In progress
Structures	242 nos.	176 nos.	29.25	30.96	February 2008 & March 2013	January 2009 & February 2014	In progress

Audit observations in respect of link main canal, LBMK and distribution network of HLC are discussed in the succeeding paragraphs.

3.1.7.1 Construction of link main canal

The water was to off take from the link main canal (1.69 km) into LBMK and RBMC of HLC. The link main canal starts after approach channel, HR, open

⁸ Kotar training means natural valley.

channel with tunnel and kotar training. The work of construction of 1,690 m link main canal was awarded (April 2008) to a contractor with stipulated completion by December 2008. The work was completed except in 100 m (60 m to 160 m) due to land acquisition problem. The remaining work in 60 m to 135 m was completed (June 2013) by another contractor and work in 135 m to 160 m completed (May 2015) through Mechanical wing of the Department. Thus, due to delay in completion of work, water could not flow into the HLC until April 2015.

We observed that the Division submitted land acquisition proposal in September 2006. However, Division took three years (between February 2007 and March 2010) for obtaining 7/12 extract (showing the details of land and its ownership) from Mamaltadar, Shahera. Thereafter, matter remained under pursuance (between September 2011 and February 2013) with Dy. Collector, Land Acquisition and Rehabilitation, Godhra for acquisition of land. Finally, the notifications under Section 4, 6 and 9 of Land Acquisition Act, 1894 (Act) were issued between March 2013 and August 2013. Final award under Section 11 of the Act was declared in September 2013 and award payment was made in December 2013. Thus, due to this delay, land possession could not be taken by the Division and land owners were not ready to give their land and also obstructed the work.

Even after land award payment to the farmers, they continued their protest. The Division requested (between June 2013 and Mach 2015) Collector, Godhra to provide police protection for completion of work. Meanwhile, the Division took the matter with the Government in May 2014. The Government also instructed (November 2014) to obtain police protection for completion of the work. Finally, remaining portion of 25 m was executed (May 2015) under police protection.

3.1.7.2 Construction of LBMC of PHLC

The RBMC has been completed in August 2012 and LBMC from chainage 0 to 16.95 km has been completed in June 2012. The construction of LBMC from chainage 16.95 to 25.83 km was awarded in November 2009 with stipulated completion by October 2010. After executing work valued at ₹ 5.59 crore, work was withdrawn (October 2012) due to non-acquisition of private and forest land. The remaining work was awarded (September 2013) in three parts with stipulated completion by August 2014. The works are in progress (March 2015).

We observed that 19.38 ha land was required for the work (0.98 ha forest land, Government land 2.49 ha and private land 15.91 ha). For acquisition of 15.91 ha private land as per Land Acquisition Act, 1894, Joint Measurement Survey (JMS) was done between February 2010 and December 2011 with the Revenue Authority and final award was issued (December 2013) for 0.2306 ha only. Meanwhile, during execution, possession of 15.33 ha private land was obtained through consent from farmers. However, possession of 0.347 ha of private land could not be received by the Division. Further, permission for diversion of forest land of 0.98 ha was received only in November 2012. Thus, out of 19.38 ha land required, 19.03 ha land (0.98 ha forest land, 2.49 ha

Government land and 15.56 ha private land) has been acquired so far (August 2015).

We also observed that process of land acquisition for private land and forest land was started by the Division after award of the work. Consequently, this delayed the completion of the LBMC.

3.1.7.3 Construction of Distribution network

As envisaged, three distributaries under RBMC and ten distributaries under LBMC were to be constructed. Of which, works of three distributaries of RBMC (28.67 km) and seven distributaries of LBMC (51.64 km) were awarded between March 2011 and April 2013 with stipulated completion between February 2012 and April 2014. The remaining work of three distributaries of LBMC (34.16 km) had been planned to be taken up after completion of awarded works. Of the awarded works, one distributary of LBMC (5/R involving land of 1.86 ha land) was completed in January 2014.

For the remaining 12 distributaries of RBMC and LBMC of PHLC, 200.88 ha land (3.66 ha Government, 1.90 ha forest and 195.32 ha private land) was required to be acquired. At the time of issue of work orders (between March 2011 and April 2013), written consent from farmers was obtained for 83.65 ha land. The Division acquired only 30.30 ha land (15 *per cent*) as per Land Acquisition Act, 1894 and permission for diversion of forest land has been received by March 2015.

We observed for three distributaries of RBMC that the delay was mainly due to non-availability of surveyor after request (May 2009) to carry out JMS (one year), more than one year in submission of JMS (August 2012) by private agency after completion of JMS (March 2011) and delay of one year in demanding (September 2013) JMS checking fee by Land Record Office. After checking of JMS (January 2014), proposal for acquisition of land was submitted (April 2014) by the Division to the Collector. But the same was returned (April 2014) stating that proposal as per new Act *namely* "Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013" may be prepared and resubmitted. However, even after one year, proposal was not resubmitted by the Division on the plea that detailed guidelines for submission of revised proposal as per new Act were awaited from the Department (March 2015).

We also observed that against the required land of 154.49 ha for nine distributaries of LBMC, JMS for 14.59 ha were carried out between September 2012 and March 2013, but proposals for acquisition of land were not submitted by the Division to Dy. Collector, Land Acquisition & Rehabilitation (March 2015). The Dy. Collector had declared notification under Section 4 for 64.64 ha land between February 2011 and November 2013 but final awards were issued (between September 2011 and January 2015) only for 28.44 ha. No action for acquisition of private land of 75.26 ha (38 *per cent*) for three distributaries (6/R, 7/R and Eastern) has been initiated (March 2015). Thus, out of 202.74 ha land required for distribution network,

only 30.30 ha private land (15 per cent) and 1.90 ha forest land has been acquired so far (August 2015).

We also observed that farmers affected due to ongoing construction of distributaries of LBMC (i.e. distributaries 8/R and 9/R) filed (July 2009) the case in Lower Court. The court announced (February 2013) judgment stating that Department has no right to dig canal without adopting and completing the procedure laid down under the LAQ Act and restrained the Department from digging of land or to damage the field in any manner up to acquisition.

In response to the above observations, the Government stated (August 2015) that execution of works were started with consents of farmers along with the process of land acquisition. Department had submitted the proposals well within time and taken sufficient involvement for carrying out the JMS by deploying private surveyors. However, the Revenue Authority could not certify the JMS done through private surveyor timely. Consequently, land acquisition proceedings were delayed due to non-availability of surveyor with them. This led to delay in issue of final awards for land acquisition. Now the awards have been declared in June 2015 and works are targeted to be completed by December 2016.

Conclusion and recommendation

Initiation of land acquisition procedures after award of work and lack of co-ordination, effective pursuance and follow up with the Revenue Authority led to abnormal delay in execution of works. Out of 19.38 ha and 200.88 ha land required for LBMC (chainage 16.95 km to 25.83 km) and 12 distributaries of RBMC and LMBC of PHLC, 19.03 ha and 30.30 ha land respectively were acquired. 0.35 ha and 170.59 ha land of LBMC and distributaries are yet to be acquired. Consequently, 4,070 ha CCA only could be created and actual utilisation was only in 1,700 ha against the targeted CCA of 18,000 ha even after lapse of more than seven years and investment of ₹ 219.69 crore (June 2015). Thus, irrigation facilities could not be provided to the farmers in the area of 16,300 ha (envisaged 18,000 ha – 1,700 ha by filling 22 check dams).

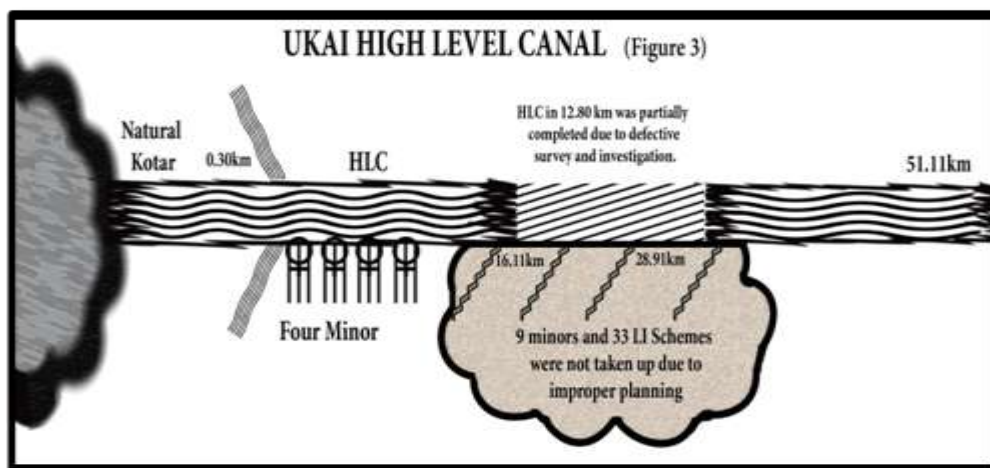
The Department should develop a system to submit land acquisition proposals on time to the Revenue Authority and ensure proper co-ordination and effective pursuance with Revenue Authority to acquire land in time.

3.1.8 Ukai Left Bank High Level Canal (ULBHLC)

The ULBHLC project envisaged to provide irrigation facilities in 9,900 ha (by lifting 3,400 ha and by gravity flow 6,500 ha) of villages of Vyara and Songadh Talukas. The project works were executed through two Divisions viz., EE, Ukai Division-1, Ukai (0 to 28.94 km) and EE, VER-II Project Division, Vyara (28.94 to 51.11 km). The Government accorded (August 1997) administrative approval (AA) for construction of ULBHLC project for ₹ 55.15 crore. Neither DPR was prepared nor any stipulated date of completion of the project determined. The work was initiated in October 2003.

The AA was further revised (January 2010) to ₹ 159.61 crore mainly due to inflation and increase in estimated length and depth of canal.

The components of the ULBHLC are shown in **Figure 3** below:



Components of the project

The project had three main components:

- Head regulator (HR): the construction of which was completed in October 2005.
- Left Bank HLC of 51.11 km as discussed in **Paragraph 3.1.8.1**.
- Distribution network of 13 minors and 37 Lift Irrigation works as discussed in **Paragraph 3.1.8.2**.

The work wise details of the project are shown in **Table 6** below.

Table 6: Work wise details of the ULBHLC project as on 31 July 2015

Components of the project	Length		Awarded cost (₹ in crore)	Completion cost (₹ in crore)	Period of		
	Tendered	Actually completed			Award of works	Stipulated completion	Completion of works
Head regulator	1	1	2.60	2.93	October 2003	October 2004	October 2005
LBHLC	51.11 km	38.28 km	61.86	59.13	October 2005 & May 2013	September 2007 & November 2013	In progress
Construction of Structures	156	146	41.62	45.67	February 2006 & October 2013	January 2007 & September 2014	In progress
Minors	13 nos.	4 nos.	0.99	0.99	March 2008	February 2009	February 2009
Lift Irrigation	4 nos.	4 nos.			Being implemented by GWRDC		

Audit observations in respect of main canal and distribution network are discussed in the succeeding paragraphs.

3.1.8.1 Delay in completion of Left Bank HLC

The works of construction of HLC between chainage 30 to 16,110 m (work 1) and 16,110 to 27,195 m (work 2) were awarded (October 2005 and February 2007) at a total cost of ₹ 21.42 crore with stipulated completion between July 2007 and November 2008. Due to huge variation in quantities required against the tender quantity, the contractor of work 1 was relieved

(August 2009) after executing work valued at ₹ 10.66 crore out of ₹ 11.65 crore. The remaining work was actually completed (June 2012) by another contractor at a cost of ₹ 4.75 crore.

Similarly, in work 2 also due to huge variation in quantities, after executing work valued at ₹ 6.14 crore out of ₹ 9.77 crore, the work was stopped (February 2009) by the contractor. The remaining work was being executed by other contractors and it was in progress and the expenditure incurred was ₹ 23.16 crore (March 2015).

We observed that for work 1 and 2, initial surveys (April 1996 and January 1997) and final surveys (January 1998 and December 1998) were carried out by the Division. However, during execution of works, huge variations in the tender quantities *vis-à-vis* actual quantities of excavation (hard rock) were noticed. The Division conducted revised survey (April 2006 and January 2008) and re-awarded the works. As against the total tender quantities of 22,22,775 cum in the originally awarded works, actual execution after re-award was 39,85,468 cum as of March 2015. The excess execution was 79 per cent more than the original tendered quantities. Thus, due to defective survey, works which were planned to be completed in July 2007 and November 2008 remained incomplete after delay of 77 months (November 2008 to March 2015) and after incurring an expenditure of ₹ 44.71 crore.

The Government stated (August 2015) that there was an error in initial survey leading to huge variation in the tendered quantity than estimated quantity. The Government had initiated departmental enquiry against the concerned staff related with original survey.

The reply of Government is indicative of improper survey conducted by the Division leading to time overrun for more than six years in completion of the work.

3.1.8.2 Delay in completion of the distribution network

In the scheme, 13 minors and 37 Lift Irrigation (LI) works were planned for the distribution network. Out of these, four minors and four LI schemes were completed up to July 2014. The planning of other nine minors⁹ and 33 LI schemes was not taken up simultaneously with the execution of HLC works. Even, the survey for nine minors was conducted only during November 2011 to January 2014. Therefore, as against 9,900 CCA, only 3,700 ha was created and of which only 400 ha was utilised up to March 2015.

We observed that underutilisation of created CCA was mainly due to non-completion of main canal and non-taking up the works of minors and lift irrigation schemes in time bound manner.

The Government stated (August 2015) that if the main canal works were delayed for any reason, then the expenditure incurred on distribution system

⁹ (i) Vyara (ii) Kanpura (iii) Jetwadi (iv) Chirma (v) Dhat (vi) Bamanwal (vii) Jesinghpura (viii) Umarvav najik and (ix) Gadat.

would be unfruitful for initial period. Hence, the work of distribution system was planned to be taken up after completion of main canal work. It was further stated that now, it was planned to be completed within three years.

The reply is not convincing as in the case of KLBHLC and PHLC, the Department had taken up distributaries works along with the execution of main canal works. Further, in this HLC also, works of four minors and four LI have already been completed by the Department. Thus, non completion of minors and LI schemes due to improper planning in taking up works led to under creation of CCA and under utilisation of created CCA.

Conclusion and recommendation

Due to defective survey and investigation and non-taking up of minors and LI schemes for distribution of water into farms, after incurring an expenditure of ₹ 124.83 crore, utilisation of created CCA remained about 4 *per cent* of total envisaged as of March 2015. The project also involved time overrun of more than six years.

- **The Department may ensure that the Divisions prepare estimates after conducting proper and detailed survey and investigation.**

3.1.9 Conclusion

The three HLC projects aimed to provide irrigation facilities to the tribal people in hilly command areas for 32,900 ha between March 2008 and January 2009. The Department started projects works between October 2003 and May 2005. However, failure of the Department in conducting proper geological/ soil survey and investigation before preparation of the estimates, lack of monitoring, inadequate efforts in expediting the execution of works, non-completion of HLC and distributaries in full length due to lack of co-ordination and effective pursuance with the Revenue Authority in acquisition of land, non-taking up of distributaries and minors canals works led to incurring of expenditure without meeting the objective fully. As a result, against the target of providing irrigation facilities to 32,900 ha, the CCA of 11,476 ha only has been created and, out of this, only 3,361 ha CCA has actually been utilised. The Department needs to complete these projects at earliest by addressing the bottlenecks and pending issues.

3.2 Avoidable payment of electricity charges

Inefficient use of electrical energy in operation of Jalundra and Fatepur Pumping Stations led to avoidable expenditure of ₹ 7.37 crore on contract demand charges.

Government of Gujarat (GoG) had taken up a project (November 2001) for irrigation in North Gujarat by lifting water from Narmada Main Canal (NMC) at Jalundra to fill Hathmati and Guhai Dams for irrigation and drinking water purpose. For this project, pipelines were to be laid from NMC to Hathmati and

Guhai Dams through four¹⁰ major ponds with each pond having a pumping station. The Administrative Approval (AA) to the project was granted by the Government in November 2001 for ₹ 138 crore (Revised to ₹ 333.37 crore in October 2004). The project works were taken up between February and December 2005 at a cost of ₹ 287.15 crore (estimated cost ₹ 300.87 crore) with stipulated date of completion of February 2006 and September 2006. The works were completed between March 2007 and February 2010.

Up to 2013-14, the Executive Engineer (EE), Water Resources Investigation Division (WRI), Himmatnagar (the Division) and from 2014-15, the EE, Drainage Division, Gandhinagar were in charge of operation and maintenance of the pumping stations.

The Division entered into an agreement with Uttar Gujarat Vij Company Limited (UGVCL) in November 2006 for supply of 8,250 Kilo Volt Ampere (KVA) power to Jalundra Pumping Station (JPS) and 4,800 KVA power for Fatepur Pumping Station (FPS). As per provision in the tariff schedule of UGVCL, monthly billing demand (MBD) charges are recoverable on the highest of (a) actual maximum demand established during the month or (b) 85 per cent of the Contract Demand (CD).

The power supply for JPS and FPS commenced in June 2008. The actual maximum demand for JPS remained between 2,604 to 4,549 KVA which was 19 to 55 per cent of CD from April 2011 to March 2015. Therefore, MBD was raised for 7,013 KVA (85 per cent of 8,250 KVA) and the Division made payment of demand charges of ₹ 8.58 crore from April 2011 to March 2015. Similarly, the actual maximum demand for FPS remained between 924 to 2,037 KVA which were 19 to 42 per cent of CD from April 2011 to March 2015. Therefore, MBD was raised for 4,080 KVA (85 per cent of 4,800 KVA) and the Division made payment of demand charges of ₹ 5.25 crore from April 2011 to March 2015.

From the review of electricity bills, we observed (January 2011/ May 2014) that though the actual demand in the JPS and FPS continuously remained below 85 per cent of the CD, the Department had not assessed the actual requirement of power. In fact, considering the actual power demand registered by JPS and FPS during the period April 2011 to March 2015, the maximum CD of 4,500 KVA and 2,100 KVA respectively was sufficient to serve requirement of the Division, which could have saved ₹ 7.37 crore as MBD charges¹¹ as shown in **Appendix V**. Further, UGVCL agreed (January and February 2013) to reduce the CD from 8,250 KVA to 7,000 KVA for JPS subject to compliance of certain terms and conditions¹². However, it has not been reduced due to non-compliance of terms and conditions (April 2015).

¹⁰ Jalundra, Labhor, Fatepur and Khed.

¹¹ Reasonable contract demand considered based on the maximum actual utilisation of CD during the period April 2011 to March 2015.

¹² Procurement of 66 KV CT Ratio 75/1 Amp from approved vendor of GETCO, replacement of tariff metering 66 KV CTs as per CEA regulation of March 2006, submission of test report of Government approved electrical contractor.

The Government stated (April 2015) that use of pipeline was less during last four years due to good monsoon and no demand for filling water in Hathmati and Guhai reservoirs was received by the concerned authority. But in case of water scarce years, the available infrastructure could be utilised to full capacity. Therefore, considering this situation, the contract demand could not be reduced drastically. Further, for reduction of CD up to 7,000 KVA at JPS, it was stated that the matter is under process for compliance of terms and conditions set by UGVCL. The EE requested (July 2015) to UGVCL for reduction of CD up to 7,000 KVA and 4,000 KVA for JPS and FPS respectively. Thus, non-detection of inefficient use of electrical energy in operation of JPS and FPS led to avoidable payment of ₹ 7.37 crore on demand charges.

The Government may consider directing the Divisions to review the electricity bills for determining the required contract demand.

3.3 Infructuous expenditure

<p>Delay in completion of works due to delay in obtaining permission from Railway and Forests Department resulted in infructuous expenditure of ₹ 5.38 crore on payment of electricity bills.</p>
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North Gujarat region is prone to water scarcity arising due to scanty rainfall. Consequently, the storage capacity of the reservoirs is not fully utilised which has a cascading effect on the irrigation of the command area of 45,823 hectare (ha). The Government decided (August 2001) to fill up the reservoirs, including Dantiwada by diverting the surplus water from Narmada Main Canal (NMC) with the objective of addressing the recurrent water scarcity problem. Accordingly, it launched a project Dantiwada Sipu Lift Pipeline Project (DSLPP) which envisaged diversion of one million acre feet water by lifting from NMC to Dantiwada at chainage 375.10 km through mild steel (MS) pipeline. Thereafter, the water from the Dantiwada reservoir was to be utilised for irrigation of the command area, providing drinking water and filling up the 22 ponds enroute the existing network of canals of the reservoir.

The Government awarded (May 2008) consultancy work of planning and techno economic work at a cost of ₹ 38 lakh to M/s. Harmony Associates, Vadodara (consultant) to be completed within 120 days. However, before completion of consultancy work, the Executive Engineer, Drainage Division, Gandhinagar (the Division) invited (September 2008) expression of interest (EOI), in anticipation of obtaining administrative approval (AA), to short list the technically qualified contractors for submission of price bid. Subsequently the Superintending Engineer, Sujlam Suflam Circle-1, Gandhinagar approved (December 2008) the 79 km long alignment (including three pumping stations) from NMC to Rampura-Khimana-Bhadath Dantiwada-Sipu as identified by the consultant at a cost of ₹ 482 crore. The Government also accorded (April 2010) AA to the plan and estimates of ₹ 482.05 crore and published (August 2010) notification for Right of Use (ROU) for laying the pipeline.

The Engineering, Procurement and Commissioning (EPC) contracts for laying of pipeline from NMC to Dantiwada Reservoir Main Canal including

construction of pumping stations was segregated into three Sections¹³ and awarded (December 2010) to a contractor M/s. MEIL-SMC-WPIL (JV) at a cost of ₹ 366.43 crore to be completed by December 2012. Contractor completed Section I in November 2012. However, Section II could be completed only in June 2014 after a delay of 18 months and Section III was completed in March 2015 after a delay of 27 months due to issues relating to permission/ diversion of land from Railway and Forest Authorities.

We observed (December 2014) that though the scope of work for Section II awarded in December 2010 included the laying of pipeline under the Bhiladi railway line, prior approval of the Railway Authority for crossing the railway line was not obtained in time by the Division. Division submitted (March 2012) the proposal for laying of pipeline across the railway line after a delay of 15 months. The Railway Authority gave permission in June 2013 to carry out the proposed work after payment of requisite deposit and appointment of approved consultant for supervision. This resulted in completion (June 2014) of the pipeline work after a delay of 18 months.

It was further observed that in respect of Section III, the Division published the notification for ROU in August 2010 which did not include survey numbers of land falling under reserve forest land. The fact of alignment passing through 3.72 ha of reserve forest land came to notice only after the Forests and Environment (F&E) Department stopped (December 2011) the work. Pursuant to this, the Division finally submitted (April 2013) proposal to F&E Department for diversion of forest land after rectifying the shortcomings pointed out by F&E Department in their earlier proposal (February 2012). The in-principle approval for diversion of forest land was granted by Ministry of Environment, Forests and Climate Change, Government of India only in November 2014. The work was completed in March 2015 after a delay 27 months from stipulated date of completion.

In the meantime, the Division entered into an agreement with Uttar Gujarat Vij Company Limited (UGVCL) in July 2011 and September 2011 for supply of HT electricity power for Section II and Section III respectively. However, due to delay/ non-completion of works of Section II and III, Division paid minimum energy charges of ₹ 5.38 crore (₹ 3.47 crore: Section II from March 2013 to June 2014 and ₹ 1.91 crore: Section III from May 2013 to November 2014) as per the terms and conditions though electricity was not utilised.

Award of contract without complete/ detailed survey and investigations coupled with delay in obtaining required permissions led to avoidable delay in execution of the works and achieving the desired results as envisaged. Thus, the benefit of the Project did not reach the region and also caused infructuous expenditure of ₹ 5.38 crore towards minimum energy charges without actual utilisation of electricity.

¹³ (i) Section-I: NMC chainage 375.10 km to Rampura including construction of pumping station at Changa (Cost: ₹ 140.93 crore), (ii) Section-II: From Rampura (near SSSC) to Bhadath including construction of pumping station at Rampura (Cost ₹ 146.46 crore) and (iii) Section-III: From Bhadath to Dantiwada Reservoir main canal and construction of pumping station at Bhadath (Cost ₹ 79.04 crore).

The Government stated (August 2015) that route alignment survey was carried out by the consultant and ROU was published (August 2010) for laying of pipeline. During this process, forest demarcation was not observed at site but it came to notice only in December 2011 when F&E Department asked to stop the work. It was further stated that as per the terms and condition of the tender, EPC contractor was to get the approval of crossing of railway line from the competent authority and accordingly, they approached Railway Authority with proposal in October 2011. Hence, the delay was not attributable to the Department.

The reply itself substantiates that thorough and complete survey was not done and the survey report was deficient as the survey numbers falling under forest area were not covered in notification for ROU issued in August 2010. Further, although the tender put responsibility of getting approval of Railway Authorities on the contractor, all the procedural formalities for getting the requisite approval/ permission was completed by the Department. Thus, the contractor was only the agent of the Department and the primary responsibility lies with the Department to keep a watch on the progress of work and clearance of bottlenecks in speedy completion of the project.

3.4 Loss of interest

Non-inclusion of condition for levy of interest/ penalty for non-payment of water charges in advance by 10th of each month led to loss of interest of ₹ 1.19 crore.

The Narmada, Water Resources, Water Supply and Kalpsar Department (Water Resources) issued (February 2007) Government Resolution (GR) for bringing uniformity in rates and conditions for supply of water for agricultural and non-agricultural purpose from ponds, canals, notified rivers, check dams etc. As per condition 10 of GR *ibid*, all licensees who are availing water for non-agricultural purpose shall pay their estimated water charges in advance by 10th day of each month based on monthly water requirement. Further, condition 11 of GR stipulates levy of interest at the rate of 12 *per cent per annum* in case of non-payment of water bill within 60 days from the date of issue of monthly bill.

We observed that though the condition of advance payment before 10th of every month included in the circular but levy of penal interest/ penalty was not provided for non-making of advance payment. The licensee did not make any advance payment by 10th day of each month. The Division also could not levy any interest/ penalty on non-payment of the advance amount, from 10th of each month until the date of payment as there was no specific provision for charging interest in the GR. The impact of non-inclusion of condition for levy of interest/ penalty for non-payment of user charges in advance by 10th of each month is illustrated below.

We scrutinised the records of Executive Engineer, Ukai Left Bank Canal Investigation Division No. 2, Valod (the Division) who was providing water for industrial purpose to its only consumer, M/s. J. K. Paper Mill (licensee) since March 1995. The agreement was extended (February 2013) for a period

of five years effective from July 2011 and was valid up to June 2016 to draw six million gallon water *per* day (MGD).

We noticed (August 2013) that during the period 2010-11 to 2014-15, the Division raised the monthly bills regularly for drawal of water. The licensee paid water charges of every month within the grace period of 60 days from date of issue of the bills. However, licensee did not make any advance payment by 10th day of each month. Monthly advance of ₹ 14.20 lakh to ₹ 104.55 lakh was due for payment considering the three months average of water charges paid by the licensee preceding the month for which advance payment was due. The Government suffered interest loss of ₹ 1.19 crore due to the non-payment of advance amount by the licensee as shown in **Appendix VI**. Had the provision for interest on account of non-payment of advance amount been specified in the GR, the Division could have recovered interest for non-payment of advance amount by the licensee.

The Government stated (June 2015) that Department have security deposit in advance on 1st April of each year equivalent to three months water charges and grace period of 60 days is given for payment of water bill, hence, there is no provision for taking interest on advance payment.

The reply is not convincing as the Division is collecting amount equivalent to three months water charges as security deposit for reserving contracted water quantity in pursuance to condition 20 of the GR *ibid*. The reply is silent in respect of the monthly advance payment as stipulated in condition 10 of the GR *ibid*. The GR does not have any disincentive for non-payment of advance as stipulated. The Government needs to consider amending the GR to incorporate interest clause for non-payment/ late payment of advance amount as specified under condition 10 of the GR.

NARMADA, WATER RESOURCES, WATER SUPPLY & KALPSAR AND FINANCE DEPARTMENTS

3.5 Excess payment

Award of work for hiring of vehicles for various Government Departments/ offices to the service provider not registered with Service Tax Department led to undue benefit amounting to ₹ 23.93 lakh on account of payment of service tax to the service provider.

Service tax is a tax levied by the Central Government on service providers on certain service transactions, but is actually borne by the customers. Every person liable for paying service tax shall make an application to the concerned Superintendent of Central Excise for registration within a period of 30 days from the date on which the service tax under Section 66 of the Finance Act, 1994 (32 of 1994) is levied. Further, every person providing taxable service is required to issue an invoice, a bill or challan signed by him or a person authorised by him. Such invoice, bill or challan should be serially numbered and should contain information such as (i) name, address and registration number of such person, (ii) name and address of the person receiving services,

(iii) description, classification and value of taxable service provided and (iv) service tax¹⁴ payable thereon.

Water Resources Department of GoG, *vide* resolution of May 2012, allotted work of fixing of agencies for services of hiring of vehicles for offices located at Gandhinagar and Ahmedabad to Executive Engineer, Irrigation Mechanical Division No. 4, Ahmedabad. The EE invited the tender (August 2012) for the work with condition to submit the copy of service tax registration along with other documents in Annexure-3 of the tender documents. M/s. Pramukh Travels, Gandhinagar who was the lowest bidder had submitted copy of service tax registration bearing No. AMDPP8697DST001.

The Department accepted (January 2013) lowest bid of service provider for rates ranging between ₹ 22,825 and ₹ 36,250 *per* month which were **inclusive of service tax** as per conditions of the tender for various types of seven vehicles. The work order for supply of vehicles on hiring was issued (February 2013) for a period of one year *i.e.*, up to February 2014. The period of service was extended (February 2015) up to May 2015. During the period February 2013 to March 2015, total 30 offices had availed the services and ₹ 2.17 crore was paid to the service provider by the offices which was inclusive of service tax amount of ₹ 23.93 lakh (inclusive of cess).

During post audit of vouchers passed by the Pay and Accounts Officer (PAO) at Resident Audit Office, Gandhinagar, we observed that the M/s. Pramukh Travels had submitted their bills to the offices without indicating service tax registration number and amount of service tax involved in the bills. We had verified the status of service tax registration bearing number AMDPP8697DST001 provided by M/s. Pramukh Travels through Government website and received message that “No records available for given Assessee Code”. The Superintendent of Service Tax, Gandhinagar also confirmed (March 2015) that M/s. Pramukh Travels, Gandhinagar obtained service tax registration bearing number AMDPP8697DSD001 on 28 January 2015.

Thus, it was clear that M/s. Pramukh Travels was not a registered service provider. The authenticity of the registration number provided by M/s. Pramukh Travels was not free from the doubt or they might have obtained earlier service tax registration only to get the contract and thereafter cancelled the registration. Further, the Division has not provided condition in the tender for verifying the service tax challan of the service provider. As a result, none of the offices insisted for obtaining service tax paid challan from M/s. Pramukh Travels. During the period February 2013 to March 2015, M/s. Pramukh Travels had collected service tax of ₹ 23.93 lakh from the offices but not remitted to the Government. Thus, due to award of work to the unregistered service provider and non-inclusion of condition in tender for verification of service tax payment led to unjust enrichment of the service provider.

¹⁴ From 24 February 2009 to 1 March 2012 and from 1 April 2012, the service tax was payable at 10 *per cent* and 12 *per cent* of the gross amount plus two *per cent* Education Cess on service tax plus one *per cent* Secondary & Higher Education Cess on service tax *i.e.*, totaling to 10.30 *per cent* and 12.36 *per cent* respectively.

The Government while accepting the audit observation stated (October 2015) that they had taken up the matter with Assistant Commissioner of Central Excise, Gandhinagar in September 2015 for the recovery of service tax dues from M/s. Pramukh Travels.

The Government should introduce the system of verification of service tax registration of the service provider by using Government website or through Service Tax Department to avoid award of work to unregistered service provider.

ROADS AND BUILDINGS DEPARTMENT

3.6 Loss due to non-recovery of cost of cement saved in mix design

Non-compliance/ non-inclusion of the tender condition regarding recovery in case of less consumption of cement from contractors led to loss of ₹ 3.58 crore between October 2013 and February 2015.

The contracts awarded by Roads and Buildings (R&B) Department provide for execution of works with ‘controlled cement concrete (CCC)’ (mix-design¹⁵) of the strength of M-15¹⁶, M-20, M-25, M-30, M-35 and M-40. The Government issued instructions (December 1986) for making provisions of 320 kilogram per cubic metre (kg/ cum), 400 kg/ cum, 450 kg/ cum, 475 kg/ cum, 500 kg/ cum and 525 kg/ cum cement for the above grades respectively in the preparation of estimates.

The Divisions of the Department considered cement level as per instructions of December 1986 for the estimation purpose. There is possibility of variation in the cement levels as per approved mix design when tested by the Government laboratory. Therefore, it is desirable to include suitable condition in the standard tender form for recovery/ payment for variation in cement levels during the execution. Some Divisions had included ‘special condition’ in the tender agreement for recovery of less consumption of cement as per mix design. However, insertion of such condition in the tenders was not made uniformly by the Divisions.

Four Divisions of R&B Department awarded contracts for six construction works for ₹ 300.21 crore between June 2011 and September 2013. Three works were completed between December 2012 and June 2014. The other three works were in progress (February 2015) as shown in **Appendix VII**.

We observed the instances of loss to the Government due to non-inclusion of suitable condition for less consumption of cement and failure to implement the condition for recovery of less consumption of cement as per test results of mix design as detailed in the **Table 7** below:

¹⁵ It is the process of selecting suitable ingredients of concrete and determining their relative amounts with the objective of producing a concrete of the required strength, durability and workability as economically as possible, termed the concrete mix design.

¹⁶ In the designation of concrete mix, M refers to the mix and number to the specified compressive strength of 150 mm size cube at 28 days.

Table 7: Details of loss due to deficient tender terms

Sl. No.	Name of the Division	Particulars	Loss to the Government (₹ in crore)
1	Capital Project (CP) Division No. 3, Gandhinagar	No recovery condition was provided for less consumption of cement in two works.	0.92
2	Capital Project (CP) Division No. 1, Gandhinagar	The Divisions did not provide condition for recovery of cost in the tender for use of controlled cement concrete (CCC) by Ready Mix concrete (RMC).	0.74 ¹⁷
3	R&B Division (City), Ahmedabad		0.86
4	R&B Division (City), Vadodara	Condition was provided for recovery in the tender. However, recovery was not made.	1.06
Total			3.58

Our observations are discussed below:

(A) Recovery condition included in the tender:

The EE, R&B Division (City), Vadodara incorporated condition for recovery of less consumption of cement for CCC by RMC. As per test result of mix designs, there were savings of 1,763.12 MT cement. However, EE did not recover the cost of cement saved in the items of work at ₹ 6,000 *per* MT which resulted in loss of ₹ 1.06 crore (1,763 MT × ₹ 6,000). The Division stated (June 2014) that recovery for difference in cement level would be made from the further payment of work done.

(B) Recovery condition not included in the tender:

The Executive Engineer (EE), CP Division No. 3, Gandhinagar did not incorporate suitable recovery condition for less consumption of cement in the tenders of two works. There were savings of 1,538.66 MT cement in the works. However, due to non-inclusion of the recovery condition in the tenders, Division could not recover the cost of cement saved in the works and suffered loss of ₹ 0.92 crore (1,538.66 MT x ₹ 6,000 *per* MT). The Division accepted (February 2015) that the provision was not made in the tender and recovery would be made.

Similarly, the EE, CP Division No. 1, Gandhinagar and R&B Division (City), Ahmedabad did not include recovery condition for less consumption of cement for CCC items by using RMC in three works. As a result, though there were savings of 3,464.33 MT cement in the works, Divisions could not recover the amount of cost of cement saved in the works. The Ahmedabad Division recovered ₹ 0.17 crore from the contractors for cement utilised in

¹⁷ It includes five items of CCC without RMC which were covered under special condition for recovery but ₹ 0.07 crore was not recovered.

RCC items only. This led to loss of ₹ 1.60 crore¹⁸. The EE, CP Division No. 1, Gandhinagar and R&B Division, Ahmedabad stated (April 2014 and October 2014) that recovery clause was applicable except to the CCC items by RMC and therefore question of recovery of less consumption of cement did not arise.

The replies of EE, CP Division No.1, Gandhinagar and R&B Division (City) Ahmedabad are not convincing as Divisions had not safeguarded financial interest of the Government by incorporating suitable recovery condition for less consumption of cement in CCC items executed by RMC. We also noticed that in another case, R&B (City) Division of Ahmedabad¹⁹ and Vadodara had provided 'special condition' for recovery towards less consumption of the cement due to mix design in CCC items by RMC. Since, the recovery condition was already provided in the other cases, the CP Division-1, Gandhinagar and Ahmedabad (City) Division should have incorporated the suitable recovery condition in these works also.

Thus, due to non-inclusion of the condition regarding recovery, in case of less consumption of cement, from contractors as well as non-compliance of the said condition where it had been incorporated, there was a loss of ₹ 3.58 crore to the Government.

The matter was reported to the Department in March 2015; their reply was awaited (October 2015).

3.7 Avoidable expenditure

The opportunity to award a work at competitive price was lost due to non-invitation of fresh tender for the work at a changed site and also resulted in extra expenditure of ₹ 4.45 crore.

The Collector, Junagadh allotted (December 2006) 4.19 hectare (Ha) land at Khamdhrol to the Education Department for Government Polytechnic. The Executive Engineer (EE), Roads & Buildings (R&B) Division, Junagadh was in-charge for execution of the construction work. As the site at Khamdhrol was in low lying area, the site was not considered fit for polytechnic by the Education Department which intimated (February 2010) EE that they had initiated action for changing the site for the polytechnic from Khamdhrol to Khadiya²⁰ village of Junagadh.

Although aware of the action being taken for changing the site to Khadiya, R&B Department, without recording any justification, went ahead with

¹⁸ **CP Division No.1, Gandhinagar:** Total saving in cement was 1,362.03 MT and input rate of cement was 5,400 per MT. Thus, recovery would be ₹ 0.74 crore. **R&B Division (City), Ahmedabad:** Total saving of cement was 167.93 MT and 1,934.37 MT and input rates were ₹ 5,800 and ₹ 4,840 per MT respectively. Thus, total recovery would be ₹ 1.03 crore and amount recovered was ₹ 0.17 crore. Therefore, net recovery works out to ₹ 0.86 crore.

¹⁹ Construction of New Court Building at Ahmedabad was awarded in February 2014.

²⁰ 10 Ha. of land at Khadiya, Junagadh was earlier allotted (September 2008) to Education Department for construction of Engineering College. The Revenue Department was requested (February 2010) to earmark 6 out of 10 Ha. of land for construction of the Polytechnic at Khadiya instead of at Khamdhrol.

invitation (September 2010) of tender for construction of the Polytechnic at Khamdhrol with the estimated cost of ₹ 15.35 crore. The R&B Department accepted (January 2011) the tender of a contractor M/s. Backbone Enterprise Limited for ₹ 15.94 crore. EE issued work order (February 2011) to the contractor for construction of the Polytechnic with stipulated time of completion by May 2012. In the meantime, EE had also carried out (December 2010 to January 2011) the soil bearing capacity (SBC) test through an agency at Khadiya.

In May 2011, the new site at Khadiya was made available to the Education Department for construction of the Polytechnic. However, before issue of work order, EE did not consider revision of the cost due to shifting of site at Khadiya and EE allowed the contractor to start the work at Khadiya from May 2011. The soil condition at Khadiya warranted revision in the construction design of the Polytechnic (*i.e.* increase in the columns by 340 numbers and the plinth area by 2,475 sq mt against the original design) leading to increase in the cost of work from ₹ 15.94 crore to ₹ 36.14 crore²¹. As the work was awarded based on the estimated cost of ₹ 15.35 crore, the subsequent increase in quantum of work due to soil condition was awarded (March 2012 and December 2013) to the contractor by way of nine extra items valued at ₹ 3.58 crore and 74 excess items valued at ₹ 19.19 crore. The payment of ₹ 34 crore was made to the contractor (March 2015). The work was completed in May 2015 and final bill payment was awaited (August 2015).

Of the 74 excess items, 34 items involved execution of quantity beyond 130 *per cent*²². Out of the 34 items, 31 items were executed at applicable current schedule of rate (SoR) which was higher by ₹ 16 to ₹ 2,052 against its tendered rates. The remaining three items were executed at applicable current SoR which was lesser by ₹ 8 to ₹ 41 against its tendered rates. This led to net extra expenditure of ₹ 4.45 crore²³ on the excess items of work executed up to March 2015.

We observed that no justification was on record for the action of R&B Department to invite (September 2010) tender and award (January 2011) the work even after knowing in February 2010 that Education Department was taking action for changing the proposed site at Khamdhrol to Khadiya. Further, EE had also carried out (December 2010 to January 2011) the soil bearing capacity (SBC) test through an agency at Khadiya. Instead of analysing the SBC test report of new site and assessing the possible changes in design and the likely increase in the tendered cost of the building, EE issued (February 2011) the work order and allowed the contractor to start the work in the changed site at Khadiya.

²¹ Tendered cost ₹ 15.94 crore + Excess items ₹ 19.19 crore + Extra items ₹ 3.58 crore (-) savings ₹ 2.46 crore (-) diff. in estimates ₹ 0.11 crore = ₹ 36.14 crore.

²² As per tender condition, for the quantities executed in excess of 30 *per cent* of the tendered quantities of work, payments shall be made as per the rates entered in the Schedule of Rates (SoR) of the year during which the excess quantities were first executed, irrespective of the tendered rates.

²³ On the 31 items avoidable payment of ₹ 4.55 crore *less* on 3 items savings of ₹ 0.10 crore.

If the R&B Department had invited fresh tender after the allotment of land at Khadiya and after duly considering the SBC test report, it could have got the opportunity of awarding the work at competitive price and could have also avoided incurring of any extra expenditure by way of awarding excess/ extra items of work.

The matter was reported to the Department in January 2015; their reply was awaited (September 2015).

3.8 Excess payment

Non-adherence to the tender conditions relating to the payment of service tax led to double payment of service tax amounting to ₹ 6 lakh.

The Executive Engineer, Roads and Buildings (R&B) Division, Kheda (Nadiad) of R&B Department invited tender for fixing of unit rates and agencies for conducting various types of engineering tests. The Division invited tenders by calling rates **inclusive of all taxes**. The R&B Department approved (October 2012) the unit rates of various engineering tests through 38 private laboratories.

We conducted test check of illustrative bills of selected months relating to payment of testing charges to the laboratories in the four R&B Divisions²⁴ for which work orders were issued to the laboratories for conducting tests. We observed that work order condition stipulated that rates approved are inclusive of all taxes *such as* service tax *etc.* However, laboratories submitted the bills claiming the service tax over and above approved rates and the Divisions also paid bills. This indicates that service tax payment was made twice to the laboratories leading to extra expenditure to the Government to the extent of ₹ 6 lakh as detailed in **Table 8** below:

Table 8: Details showing excess payment of service tax

(₹ in lakh)

Name of the Division	No. of laboratories	No. of bills	Amount of bills	Service tax charged separately
EE, R&B Division (District), Ahmedabad	7	126	24.88	2.71
EE, R&B Division, Godhra	2	47	13.31	1.45
EE, R&B Division, Mehsana	2	11	5.64	0.62
EE, R&B Division (District), Vadodara	1	63	10.50	1.22
Total			54.33	6.00

The EEs accepted the facts and stated that recovery of excess payment of service tax would be made from the laboratories. Recovery particulars if any, from the EEs are awaited (September 2015).

²⁴ EEs, R&B Divisions (District) Ahmedabad, Godhra, Mehsana and (District) Vadodara.

Government may consider inviting rates exclusive of taxes for providing service to avoid double payment of service tax.

INDUSTRIES & MINES AND FINANCE DEPARTMENTS

3.9 Excess payment

Non-adherence to the tender conditions relating to the payment of service tax led to double payment of service tax amounting to ₹ 22.15 lakh.

The Commissioner of Geology and Mining (under Industries and Mines Department) invited tenders for hiring of vehicles (April 2011) with condition that the rate quoted for price bid should in no case be the conditional offer and **the offer must include** all charges like diesel cost, driver, maintenance, road passing, RTO, insurance and **other charges/ taxes/ duties associated with running of vehicle**. Further, during the period of contract, if any new tax is imposed by the Government, same shall be reimbursed by Chief General Manager (CGM). The lowest offer was received from M/s. Tourist Travels, Gandhinagar and he agreed (May 2011) with the conditions mentioned in the price bid. Thus, price accepted by the Commissioner was **inclusive of all taxes**. The Commissioner awarded (May 2011) work to M/s. Tourist Travels, Gandhinagar for a period of two years effective from 1 June 2011. The period of service was extended (May 2013) up to July 2014. During the period from June 2011 to July 2014, the Department paid service tax of ₹ 22.15 lakh.

During post audit of vouchers passed by the Pay and Accounts Officer (PAO) at Resident Audit Office, Gandhinagar, we observed that the contractor submitted bills by charging monthly minimum accepted rates for 2,500 or 3,000 km *per* vehicle, rate difference and charges for excess usage km as per accepted *per* km rate plus service tax on all above charges. Though the rates of M/s. Tourist Travels accepted by the Department were **inclusive of all taxes such as service tax**, they had charged service tax again on gross amount of the bills. This led to excess payment of service tax amounting to ₹ 22.15 lakh to the contractor.

The CGM stated (August 2015) that Department has misinterpreted the condition of the tender and made excess payment of service tax to the contractor. Therefore, it was decided to recover the said amount from the contractor and progress report would be submitted later on.

Government may consider inviting rates exclusive of taxes for providing service to avoid double payment of service tax.

FORESTS AND ENVIRONMENT DEPARTMENT

3.10 Functioning of Common Effluent Treatment Plants

3.10.1 Introduction

According to Water (Prevention and Control of Pollution) Act, 1974, every industry has to provide adequate treatment of its effluents before disposal, irrespective of whether it is in stream, land, sewerage system or sea. Small-scale industries (SSIs) have a very important role in overall industrial development in India and growth of SSI units has been actively promoted by Government of India to induce balanced economic growth and to distribute the benefits of industrial development in an equitable manner.

Often the small scale industries (SSIs), due to their limited size and scale of operations, do not find it economically viable to install elaborate pollution control equipments. It is difficult for each industrial unit to provide and operate individual wastewater treatment plant because of the scale of operations or lack of space or technical manpower. However, the quantum of pollutants emitted by SSIs clusters may be more than an equivalent large scale industry, since the specific rate of generation of pollutants is generally higher because of the less efficient production technologies adopted by SSIs.

Keeping in view the key role played by SSI units and the constraints in complying with pollution control norms individually by these units, the Ministry of Environment and Forests (MoEF) initiated (1991) an innovative technical and financial support scheme along with State Government contribution *viz.*, Common Effluent Treatment Plant (CETP) scheme to ensure the growth of SSI units in an environmentally compatible manner. The scheme promoted common facilities for treatment of effluents generated from SSI units located in clusters through liberal financial assistance.

Under the Scheme, GoI assistance is restricted to 50 *per cent* of the project cost subject to ceiling limit of ₹ 20 crore for project without Zero Liquid Discharge (ZLD)²⁵ and ₹ 40 crore for project with provision of ZLD. The GoI funding is also restricted to ₹ 1.50 crore *per* Million Litre *per* Day (MLD) for CETP project without ZLD. The State Government share shall be 25 *per cent* of the total project cost and the project proponent's contribution shall be 25 *per cent*. The financial assistance under the scheme was further extended (June 2009) for up gradation/ modernisation of CETPs.

The concept of CETP was adopted as a way to achieve 'end-of-pipe treatment' of combined waste water at lower unit cost than that could be achieved by individual industry. It would facilitate discharge, monitoring and enforcement by Environment Regulatory Agencies. The investment of substantial Government finance in the CETP schemes was justified on the basis of potential benefits in terms of pollution reduction and environment improvement.

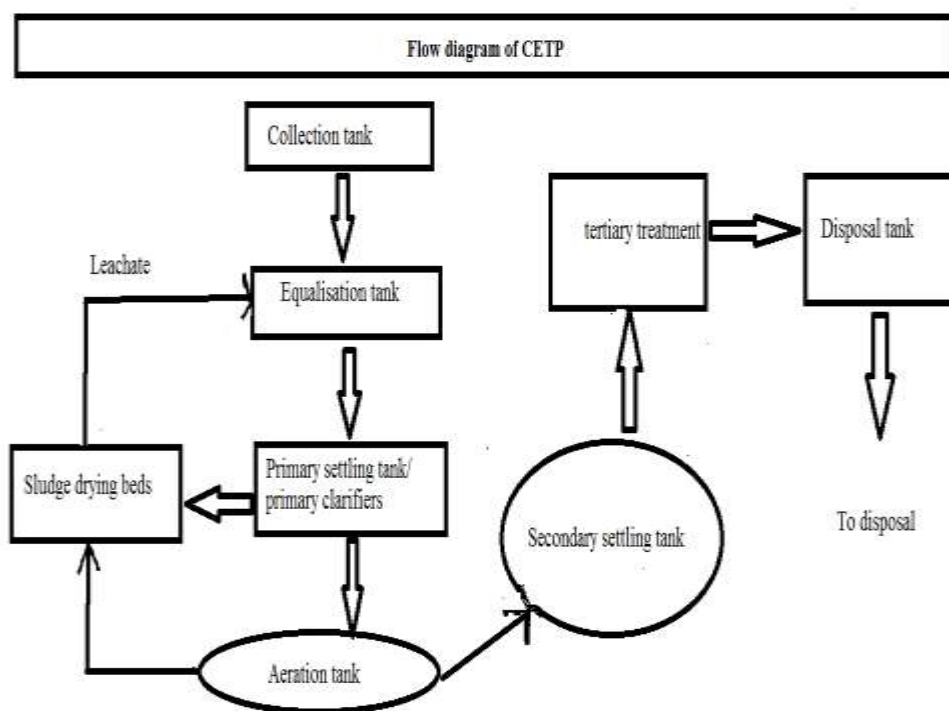
²⁵ ZLD systems employ the most advanced wastewater treatment technologies to purify and recycle virtually all of the wastewater for its reuse.

In Gujarat, the Gujarat Pollution Control Board (GPCB) is responsible for monitoring the functioning of CETPs. The GPCB grants Consolidated Consent and Authorisation (CC&A) for operation of CETP in which outlet norms have to be complied during their functioning on regular basis. GPCB monitors this and other environmental law through its 26 Regional Offices (ROs) in the State. The officials of RO visit the CETP every month and take samples which are being analysed in laboratory of GPCB.

3.10.2 Process details of CETP

The diagram showing the process of CETP is given in **Figure 4** below:

Figure 4: Flow diagram showing process of CETP



The conventional CETP consists of physical, chemical and biological treatment plant. The process of industrial waste water/ effluent received from the various industries of the area through underground pipeline or close/ open channel or through tanker undergoes primary, secondary and tertiary treatment before the final disposal of effluent in the stream as shown in the diagram above. The treatment results in maximum removal of Chemical Oxygen Demand (COD) and Biological Oxygen Demand (BOD) load of effluent.

3.10.3 Conditions of Consolidated Consent and Authorisation

The GPCB grants consent to CETP in the form of Consolidated Consent and Authorisation (CC&A) which *inter alia* include the following conditions for functioning of CETP:

- Outlet norms for treated effluent;
- Conduct the Bio-assay test²⁶ for ascertaining the survival rate of fish;
- Construction of Storage tank/ Guard Pond²⁷;
- Development of Green belt;
- Implementation of community welfare schemes in the area adjoining the CETP; and
- Disposal of hazardous waste to Treatment Storage and Disposal Facility (TSDF) site.

3.10.4 Financial Assistance to CETPs

The GoI sanctioned subsidy of ₹ 70.59 crore during the year 2012-13 to 2014-15 for establishment of two CETPs *namely* Bhatgam Washing Ghat Suddhikaran Yojna Private Limited, Junagadh and New Palsana Industrial Co-operative Society, Surat and for upgradation of four CETPs *namely* (i) Palsana Enviro Protection Limited, Surat, (ii) The Green Environment Services Co-operative Society Limited, Vatva, (iii) Vapi Waste & Effluent Management Company Limited, Vapi and (iv) Narmada Clean Tech Limited, Ankleshwar.

Similarly, State Government also sanctioned subsidy of ₹ 141.72 crore²⁸ during the year 2012-13 to 2014-15 to the eight CETPs for the establishment and up-gradation of CETPs.

3.10.5 Audit Coverage

There are 37 CETPs in the State as given in **Appendix VIII**, of which 33 CETPs are operational and four were either proposed or at commissioning/ construction stage (May 2015). Out of 33 completed CETPs, region wise 12 CETPs²⁹ based on their capacity were selected for detailed scrutiny. We examined (January 2015 to April 2015) records of Gujarat Pollution Control Board (GPCB), Gandhinagar, and the selected CETPs along with concerned seven³⁰ ROs for the period from April 2012 to March 2015.

²⁶ Bio assay test is conducted to ascertain the survival rate of fish.

²⁷ In case of maintenance of CETP or process disturbances, CETP as well as member units should provide impervious acid proof bricks lining tanks/ HDPE tanks/ impervious guard ponds to hold effluent for at least 48 hours.

²⁸ It also includes the State assistance to CETPs under other schemes, Environment protection measures and infrastructure scheme.

²⁹ (i) Nandesari Industrial Association (NIA), Vadodara, (ii) Veraval Industrial Association (VIA), Veraval, (iii) Final ETP of Narmada Clean Tech Limited (NCTL), Ankleshwar, (iv) Enviro Technology Limited (ETL), Ankleshwar, (v) Panoli Enviro Technology Limited (PETL), Panoli, (vi) Green Environment Services Co-operative Society Limited (GESCSL), Ahmedabad, (vii) Odhav Enviro Project Limited (OEPL), Ahmedabad, (viii) Naroda Enviro Project Limited (NEPL), Ahmedabad, (ix) Jetpur Dying & Printing Association (JDPA), Jetpur, (x) Vapi Waste & Effluent Management Company Limited (VWEMCL), (xi) Pandesara Infrastructure Limited (PIL), Surat and (xii) Sachin Infra Environment Limited (SIEL), Surat.

³⁰ Surat, Vapi, Ankleshwar, Ahmedabad (East), Jetpur, Junagadh and Vadodara.

3.10.6 Functioning of CETPs

3.10.6.1 Achievement of outlet norms for treated effluent

The treated effluent of CETP should meet the outlet norms stipulated in CC&A. The compliances of norms by CETPs are being regularly monitored by GPCB. The officials of ROs visit the CETP every month and take samples which are analysed in laboratory of GPCB.

During April 2012 to March 2015, GPCB carried out laboratory analysis of the samples ranging from 30 to 114 taken from the 12 CETPs test-checked in Audit to determine the compliances made by the CETPs to the outlet norms specified for the treated effluent. The details of standard outlet norms of GPCB to CETPs for discharging the treated effluent are given in **Appendix IX** and the number of samples outside the norms with range and the percentage of samples outside the norms are given in the **Appendix X**.

We observed (between January and May 2015) from the data of analysis report that except outlet norms fixed for pH, in case of the remaining important outlet norms viz., Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD), Total Suspended Solid (TSS), Total Dissolve Solid (TDS), Chlorides and Ammonical Nitrogen (NH₃-N) etc., none of the CETP test-checked in Audit discharged their treated effluent as per the norms of GPCB as shown in the **Table 9** below:

Table 9: Statement showing the non-compliance to the prescribed norms

Name of CETP	Total no. of months in which sample taken	Total no. of Sample	No. of samples failed/ not met as per norms					
			COD	BOD	TSS	NH ₃ -N	TDS	Chloride
NIA	35	43	30	25	30	2	41	41
VIA	25	31	19	17	21	19	NA	NA
NCTL	31	50	49	21	10	39	NA	NA
ETL	29	43	43	37	9	1	43	43
PETL	34	50	50	50	24	22	50	50
GESCSL	29	44	44	44	42	28	44	NA
OEPL	29	30	24	30	7	4	30	29
NEPL	28	40	40	40	34	28	40	40
JDPA	34	43	12	11	25	0	43	42
VWEMCL	34	114	106	87	93	25	95	81
SIEL	32	41	39	39	25	0	41	41
PIL	28	33	32	33	21	0	33	33

NA: No outlet norms for TDS and Chloride were fixed in VIA, Veraval and NCTL, Ankleshwar. In case of GESCSL, Ahmedabad no outlet norms were fixed for Chloride.

The extent of compliance of each outlet norms by the test-checked CETPs is discussed below by way of samples falling outside the outlet norms specified during the period under audit.

- **COD:** All selected CETPs were not meeting the norms which ranged from 28 per cent to 100 per cent. The failure rate was over 75 per cent in nine CETPs.

- **BOD:** CETPs were not meeting the norms which ranged from 26 *per cent* to 100 *per cent*. The failure rate was over 75 *per cent* in eight CETPs.
- **TSS:** CETPs were not meeting the norms which ranged from 20 *per cent* to 95 *per cent*. The failure rate was under 25 *per cent* in three CETPs whereas it was over 75 *per cent* in three CETPs.
- **NH₃-N:** Out of 12, nine CETPs were not meeting the norms which ranged from two *per cent* to 78 *per cent*. The failure rate was under 25 *per cent* in four CETPs whereas it was over 75 *per cent* in one CETP.
- **TDS:** 10 CETPs were not meeting the norms which ranged between 83 *per cent* and 100 *per cent*. The failure rate was over 75 *per cent* in all 10 CETPs.
- **Chloride:** Nine CETPs were not meeting the norms which ranged from 71 *per cent* to 100 *per cent*. The failure rate was over 75 *per cent* in eight CETPs.

As discussed above, none of the CETPs discharged their effluents as per the prescribed norms by the GPCB and wide variations were also noticed in the performance of CETPs. Though the ROs regularly reported to the CETPs about their non-compliances to the norms, the follow up mechanism with the GPCB is not effective to ensure prompt compliances by CETPs.

The Government stated (August 2015) that non-attainment of the outlet norms can be attributed to mainly two reasons. First at the entry point, the inlet effluents to CETPs discharged by the members of CETPs were not treated at source as per designed norms. Second, the technology limitation of the CETPs to achieve the outlet norms. For the control of the inlet norms, the members of CETPs were being persuaded to segregate the concentrated stream at source. Further, to overcome technology limitation, GPCB had been pursuing the CETPs to upgrade their treatment system. GPCB also instructed (August 2015) the operator of all CETPs to submit time bound action plan for reduction of COD up to 250 mg/l as specified in the CC&A.

The fact, however, remains that ineffective treatment at CETPs and ineffective pursuance by GPCB resulted in pollution of natural water bodies into which these effluents were discharged.

3.10.6.2 Conduct of Bio-assay test

Condition of CC&A in seven CETPs provides that Bio-assay test is to be conducted on regular basis. Bio-assay test is to be conducted from treated effluent sample drawn from final disposal tank of CETP before disposal of effluent, to ascertain the survival rate of fish. This is to ascertain whether there is 90 *per cent* survival of fish after its dipping in final disposal tank for 96 hours.

We observed (between January and May 2015) that five CETPs *viz.*, NCTL, PETL, NEPL, GESCOSL and NIA have not conducted the required Bio-assay test. The ROs have not furnished information for ETL and VWEMCL. Thus, condition of CC&A was not complied with by the CETPs. As a result, it could

not be ascertained whether treated waste water discharged into water bodies was harmful to aquatic biota or not (April 2015).

We also observed (March 2015) that Bio-assay test conducted in the year 2013 through National Environmental Engineering Research Institution (NEERI)³¹ at CETP of NCTL stated that due to non-fulfilment of outlet norms, all fish died within 72 hours at 40 *per cent* concentration and above. However, no corrective action was taken by GPCB after NEERI report. After we pointed out in audit, Government stated (August 2015) that GPCB issued instructions to the CETPs to provide in house facility to conduct Bio-assay test on regular basis.

3.10.6.3 Construction of storage tank/ guard pond and capacity enhancement

As per GPCB Technical Manual Volume II and the specific condition contained in CC&A of CETP, when a CETP was under maintenance or there were process disturbances, CETP as well as member units should provide impervious acid proof bricks lining tanks/ HDPE tanks/ impervious guard ponds to hold effluent for at least 48 hours but shall never discharge any untreated effluent into the Environment.

We observed that Seven CETPs³² had not constructed the storage tank/ guard pond (April 2015). Further in CETP of NIA, Vadodara established in 1984, no such condition for construction of storage tank/ guard pond was stipulated as effluent was received through tanker. Thus, these CETPs had not taken care of the basic needs to hold the effluent when CETP was under maintenance or process disturbances. In case of emergency, ROs intimated (April/ May 2015) that all the member units were informed through group SMS and phone to stop production activities immediately.

The Government stated (August 2015) that CETPs were instructed either to make provision for storage of effluent at CETPs or with their member unit or to develop mechanism to stop discharging by their member units in case of any emergency/ maintenance taken by CETPs.

Further, it is pertinent to mention that a complaint was lodged (February 2015) by Sarpanch of village Piraman that around five million litre brown colour effluent was discharged by CETP of NCTL in natural creak, Amlakhadi due to excessive flow of inlet effluent. After this, GPCB issued (February 2015) closure notice to NCTL. The GPCB revoked (March 2015) the notice with condition that NCTL would construct guard pond of additional 20 MLD Capacity.

³¹ The National Environmental Engineering Research Institute (NEERI) is a research institute created and funded by Government of India and falls under the Ministry of Science and Technology (India) of Central Government. NEERI is a pioneer laboratory in the field of environmental science and engineering and part of Council of Scientific and Industrial Research (CSIR).

³² (i) VWEMCL, Vapi (ii) GESCSL, Ahmedabad, (iii) OEPL, Ahmedabad, (iv) NEPL, Ahmedabad, (v) VIA, Veraval, (vi) SIEL, Surat and (vii) PIL, Surat.

Thus, in view of such incident, the CETPs are required to take the norms regarding the construction of storage tank/ guard pond and capacity enhancement seriously and initiate prompt action without waiting for exigency to occur.

3.10.6.4 Development/ partial development of green belt

For the abatement of noise and air pollution, plantation activity is included in general condition of Consent to Establish *i.e.*, NOC of Technical Manual Volume II of GPCB. According to this, the CEPT unit should develop green belt within premises, a spacing of at least 4 metre (m) × 4 m should be kept *i.e.*, 250 plants *per acre* should be planted. Further, as per the NOC condition, adequate plantation should also be carried out all along the periphery of the industry premises/ complex in such a way that density of plantation is at least 1,000 trees *per acre* of land and green belt of 10/ 20/ 30 m width developed. Plantation should be started along with construction activity.

If adequate land is not available within premises, unit should tie up with local agencies like Gram Panchayat, school, social forestry office *etc.*, for plantation at suitable open land in nearby locality. In such cases of open land, a spacing of 2 m × 2 m will be kept *i.e.*, 1,000 plants *per acre* and for this the CETP should submit an action plan of plantation for next three years to GPCB.

We observed during the site visit (3 March 2015 to 6 April 2015) of test checked CETPs that NCTL, Ankleshwar and JDPA, Jetpur had carried out sufficient plantation and created good green belt. However, in the remaining 10 CETPs, the plantation to develop green belts was done in five CETPs but was not in 10 m width along the periphery of CETPs as per prescribed norms and in other five CETP³³, very few trees were planted within the premises which were not as per norms.

The Government stated (August 2015) that all CETPs were instructed to develop green belt in surrounding areas like school or other public place or road side of the estate. NEPL had developed green belt naming it as “Paryavaran Mandir” and due to constraint of land within CETPs, many CETPs have developed green belt elsewhere within their estates.

Even though the plantation activity should start with construction of CETP, GPCB did not properly monitor the plantation carried out by CETPs.

3.10.6.5 Implementation of Community welfare scheme

According to the condition of CC&A, a Community Welfare Scheme (CWS) for improving the socio economic environment of the surrounding area should be worked out and report is to be submitted to GPCB/ Government for review.

We observed (between January 2015 and April 2015) that none of the CETPs had introduced a CWS for improving the socio economic environment of surrounding area. However, at the instance of audit, ROs collected the details

³³ (i) OEPL, Ahmedabad, (ii) NEPL, Ahmedabad, (iii) VIA, Veraval, (iv) NIA, Vadodara and (v) PETL, Ankleshwar.

regarding the welfare activities carried out by CETPs during April 2012 to March 2015 as shown in **Table 10** below:

Table 10: Details showing the welfare activities carried out by CETPs

Sl. No.	Name of CETP	Welfare activities carried out
1	JDPA, Jetpur	Supply of drinking water to farmers, supply of ambulance and firefighting equipments to Jetpur Nagarpalika and Installed Electric Crematorium.
2	SIEL, Surat	Donated fund to various trusts, organised seminar on some topics.
3	PIL, Surat	Donated fund for street/ road light.
4	NCTL, Ankleshwar	Donated fund to trust, advertisement of waste water management, CC approach road, Solar light, high mast to Nagarpalika.
5	ETL, Ankleshwar	Donated fund for sports complex development, seva rural scheme, Education mobile van, UPL Rotary library, sponsorship for tribal student for technical education.

As may be seen from the above, though no concrete CWS was worked out by the CETPs as stipulated in the CC&A, individual CETPs had occasionally taken up welfare activities in an unplanned manner. Further, there was no time limit prescribed for submission of report regarding CWS in CC&A and no monitoring mechanism exists with GPCB for compilation of data and review of CWS activities carried out by the CETPs.

The Government stated (August 2015) that most of the CETPs carried out community welfare activities. However they were not submitting the details of the scheme being implemented by them to the GPCB. However, all CETPs are instructed to submit details of community scheme to be taken for each financial year to GPCB so that progress on the implementation of the scheme could be monitored.

3.10.6.6 Disposal of Hazardous waste

According to condition of CC&A read with Rule 7 of the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules 2008, the occupiers, recyclers, re-processors, re-users and operator of facilities may store the hazardous waste³⁴ for a period not exceeding 90 days and shall maintain a record of sale, transfer, storage, *etc* of such waste and make these records available for inspection. However, the State Pollution Control Board may extend the said period in certain cases as stipulated in the said Rules.

We observed (between January and April 2015) from the Environment Audit Reports of CETPs and also during site visit of CETPs that Seven out of 12 CETPs were not disposing the sludge lying at site by sending to Treatment, Storage and Disposal Facility (TSDF) site as shown in the **Table 11** below:

³⁴ Any substance or preparation which, by reason of its chemical or physical-chemical properties or handling, is liable to cause harm to human beings, other living creatures, plant, mirco-organism, property or the environment.

Table 11: Details showing the quantity of sludge lying on CETP site

Name of the CETP	Date of Environment Audit Report	Quantity of sludge lying on CETP site for disposal (in MT)	Period during which sludge got accumulated
VIA, Veraval	24.01.2015	3.98	July to December 2014
PETL, Ankleshwar	28.01.2015	744	April 2012 to April 2015
GESCSL, Ahmedabad	26.02.2015	8,834.21	July to December 2014
OEPL, Ahmedabad	23.01.2015	331.71	July to December 2014
NEPL, Ahmedabad	2.02.2015	590	July to December 2014
VWEMCL, Vapi	5.02.2015	55,471.42	July to December 2014
SIEL, Surat	28.01.2015	1,050.95	January to December 2014

(Source: Environment Audit Reports and reply furnished by RO, Ankleshwar)

We further observed that GPCB issued (August 2014) a legal notice to the VWEMCL, Vapi for non-disposal of sludge. However, no action had been taken by the CETP (February 2015). The GPCB also issued a closure notice (December 2014) to the CETP under Section 33A of Water (Prevention and Control of Pollution) Act, 1974. The closure notice was revoked twice in January 2015 and July 2015 by GPCB for three months and six months respectively. As informed (August 2015) by GPCB, 65,000 MT (approximate) sludge was lying at CETP site as of June 2015.

The sludge lying at the CETP site during audit visit on 09 February 2015 is shown in the photograph given below:

Figure 5: Photograph showing the sludge lying at CETP site of VWEMCL, Vapi

The Government stated (August 2015) that seven common TSDF sites were developed for disposal of hazardous waste generated by industries as well as CETPs. The land sites of Vatva and Naroda at Ahmedabad were exhausted and Vapi TSDF site closed down due to accident in July 2012 which led to accumulation of hazardous waste at CETP sites. To cope with the situation, GPCB persuaded with the concerned industries associations for development of new TSDF sites. The new TSDF sites are in advance stage for Vapi, Ahmedabad area, Dahej and Vadodara. Once these sites become functional, issue of disposal of hazardous waste would be resolved.

The reply of the Government is to be seen in the light that GPCB inspects TSDF sites regularly and they should take immediate step prior to exhaust of landfill site to avoid accumulation of sludge at CETP sites. This indicates that GPCB has not coordinated with the Industries/ TSDF organiser to develop TSDF site to dispose the sludge. The non-disposal of sludge to designated engineering landfill site leads to polluting the ground water as well as soil of surrounding area.

3.10.7 Other findings

3.10.7.1 Adherence of CC&A conditions

(a) As per specific condition No. 7.3 of CC&A, the CETP *i.e.*, JDPA, Jetpur is responsible for collection of effluent from their member unit and transportation of effluent by tankers/ through underground drainage system to CETP.

We observed (April 2015) during site visit that effluent from the member units along with the sewage of the municipality was collected in a sump constructed in the river bed through open drainage network system parallel to river. Then it was pumped to CETP for treatment. Due to leakage/ overflow of drainage systems, untreated effluent flowed into the river contaminating the river water. The GPCB stated (May 2015) that notice was issued under Section 33A of Water (Prevention and Control of Pollution) Act 1974, to the Nagarpalika, Jetpur for keeping the conveyance system clean.

The Government stated (August 2015) that the laying of separate sewage pipeline for Nagarpalika, Jetpur was being carried out and would be completed in three years. Further, JDPA has also committed to lay down separate conveyance of industrial effluent towards sump at pumping station after completion of sewage pipeline network of Nagarpalika, Jetpur.

Audit recommends that works of pipe line system for conveyance of effluent to CETP and municipal sewage may be expedited so as to avoid pollution of the river.

(b) As per the specific condition No. 47 of CC&A, CETP of JDPA shall have to submit study report from recognised University regarding the effect of waste water on the irrigation land. Environment Auditor (appointed by the CETP from the approved panel of auditors by the GPCB) in his report (July 2014 to December 2014) mentioned that treated effluent of CETP of JDPA was being used for irrigating 1,500 acres of agricultural land. Despite this, the study on impact of waste water on irrigation land was not carried out through recognised University by the CETP (April 2015).

The Government after accepting the fact stated (August 2015) that JDPA has entrusted study to Junagadh Agriculture University on 13 August 2015.

3.10.8 Conclusion and Recommendations

In the present era of rapid industrialisation and urbanisation, the CETPs play vital role to treat the effluent before being let into water bodies or for reuse. The monitoring of the functioning of CETPs regarding their adherence to the norms becomes a challenge to every Government to protect the environment. Thus, the role of GPCB assumes importance. The selected CETPs did not adhere to outlet norms in discharging effluents. There was non-disposal of hazardous waste timely leading to the pollution of natural water bodies into which these effluents were discharged and polluting the ground water as well as soil of surrounding area. The monitoring mechanism of GPCB/ ROs was ineffective in pursuance of CC&A conditions with CETPs in relation to the conducting of Bio-assay test and development of green belt in premises of CETPs *etc.*

- **GPCB/ RO need to revamp the existing monitoring and follow-up system and initiate effective pursuance and compliance in functioning of the CETPs to adhere the outlet norms.**
- **GPCB/ RO may regularly review proper adherence to CC&A conditions by all CETPs relating to conduct of bio-assay tests, development of green belt and disposal of hazardous waste.**

FORESTS & ENVIRONMENT AND INDUSTRIES & MINES DEPARTMENTS

3.11 Development of Balasinor Dinosaur Park

Lack of planning and monitoring of the project led to non-fulfillment of the envisaged goals after investment of ₹ 8.58 crore and after lapse of 33 years from the discovery of the site in 1981.

The Geological Survey of India (GSI) discovered a rich collection of Dinosaur bones and egg hatcheries with around 100 eggs and other remains at Village Raiyoli, Taluka Balasinor, District Kheda in the year 1981-82 in the declared (February 1975) reserved forest land. The site was declared as the third best Dinosaur site and the world's largest eggs hatchery site with home to seven different types of dinosaurs. Considering the importance of the site, GSI had proposed (1988) for the preservation of area as Dinosaur Fossil park. It recommended for protection and development of the site by undertaking fencing, preservation of the fossils, research on Dinosaurs, development of a Museum, on site lab, model park *etc.*

A meeting was held (October 1998) under chairmanship of Commissioner of Geology and Mining (CGM) in the Industries and Mines Department to discuss the protection of the area and it was decided that as the area fell in reserved forest land, Forests and Environment (F&E) Department would be the implementing agency to protect and develop the area. The CGM was to take up the proposal with Government for funds relating to project implementation. The Industries and Mines Department constituted (June 2000) a committee to develop the Park. For development of tourism, the F&E Department was to carry out development activities from the plan

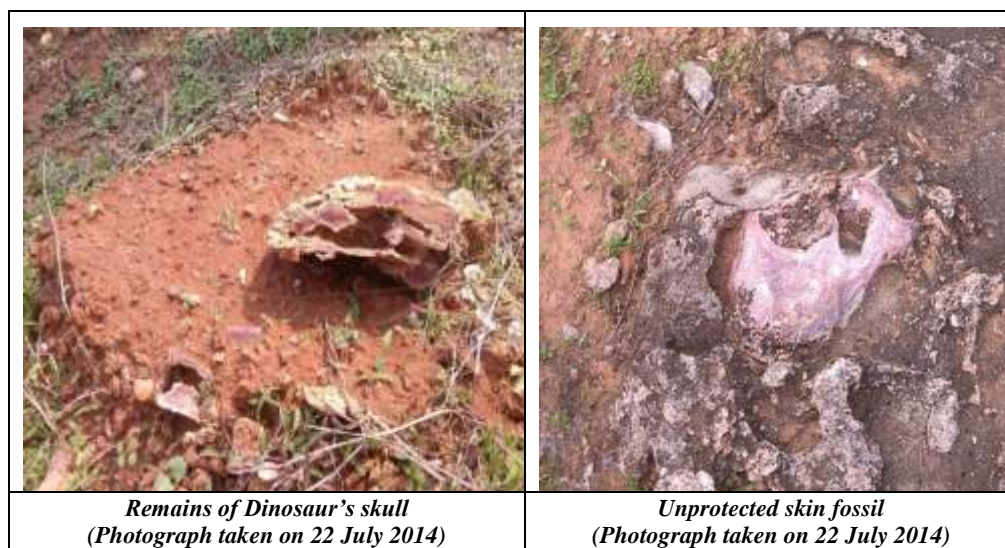
prepared by the Architect, who was deployed by the Tourism Corporation of Gujarat Limited (TCGL). Government of India sanctioned ₹ 3.55 crore to the tourism Department for development of the park (May 2005). State Government had also provided ₹ 5.11 crore to TCGL for the purpose. Out of this, an expenditure of ₹ 2.33 crore was incurred by the F&E Department (April 2014) and TCGL incurred expenditure of ₹ 6.25 crore (August 2014). Expenditure of TCGL includes construction of museum on land outside reserved forest land at a cost of ₹ 5.77 crore, consultancy (₹ 0.30 crore) and others (₹ 0.18 crore).

The observations noticed (July 2014) during scrutiny of records of Deputy Conservator of Forests (DCF), Nadiad, TCGL, site visit of the fossil park and Museum are discussed in two parts *i.e.*, development and conservation of fossil park by DCF, Nadiad and development of tourism by TCGL:

Development and conservation of the fossil park by F&E Department

- The GSI recommended (1997) excavation of the sites and its survey to collect more fossils as it has a great potential because many fossils in partly exposed position were also found. However, excavation was not carried out by the Forests Department. Even survey of the site for collecting scattered parts, its proper removal and conservation was not done (June 2015). Thus, the prized heritage was left to possible damage due to human vandalism and theft.

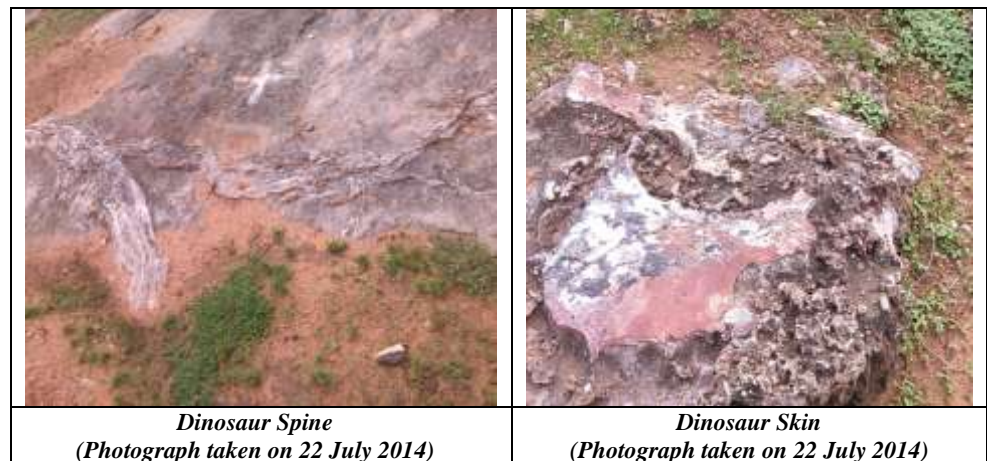
Figure 6: Photograph showing Remains of Dinosaur's skull and skin fossil lying uncovered and unprotected at the site



- A large number of fossils available at the site may provide vital information to the scientists and help in revealing many unknown facts about dinosaurs. These fossils need to be excavated scientifically from the earth and studied in laboratories. However, there was no research on fossils. Further, some samples were sent by GSI (period not available on record) to Jaipur laboratory for analysis but report was not available on record (June 2014).

- The entire site comprises of two parts viz., bones samples site and eggs hatcheries site. The fencing work has been completed (March 2014) at a cost of ₹ 1.59 crore by the DCF for bones sample site but eggs hatcheries site remain unfenced (March 2015). The F&E Department was not having inventory of various fossils (buried/ half exposed/ loose) lying at the site and no photo documentation of fossils was prepared since their discovery. Hence, nothing could be known about the parts of fossils taken away by researchers for study and/ or theft by common people etc.
- F&E Department has not framed guidelines for protection of these fossils at the time of opening of the site for public viewing. The visitors were allowed to go all over the site without any restriction and could even touch the fossils. For educating the visitors of the unique heritage, description boards/ displays should have been erected for awareness of visitors. But no such arrangement is available. There were only two guards posted at entry and no guard was provided inside the site. Thus, the F&E Department did not take enough measures to prevent possible vandalism of fossils by visitors.
- Guides should be deployed for benefit of visitors, however, no such arrangement is available. The proposal for posting of guides was submitted (July 2011) by the DCF to the Principal Chief Conservator of Forests (PCCF) which has not been approved till date (June 2015), for which no reasons were available on record.

Figure 7: Photograph of Dinosaur fossils for which no display or guides provided



Development of tourism facilities by TCGL

The Dinosaur Fossil site has potential to attract tourism from all over the world. It will have a tremendous impact on the socio economic condition of the people of surrounding villages as well as whole region.

- Therefore, to develop the site, the work of construction of museum building was awarded (July 2006) by the TCGL at a cost of ₹ 4.50 crore with stipulated completion by April 2007. The work was completed in November 2011 at a cost of ₹ 5.77 crore. Dinosaur Fossil Park Development Society was also constituted (May 2013) to make the museum operational. However, the museum building was not put to use (March 2015) since various activities like audio visual, sound and light show and interactive display including orientation programme etc., were not arranged by TCGL. TCGL also incurred an expenditure of ₹ 0.48 crore on consultancy for developing tourist site, security and electric bill up to March 2014. Thus, due to non-providing of facilities in the constructed museum, development in tourism area could not be achieved.

Figure 8: Museum not open



- In order to mark the importance of Dinosaur Park, the Department of Posts (DoP) released special cover stamp depicting Balasinor as World's largest dinosaur egg hatchery (December 2009). Further, Declaration of a site by UNESCO as Geopark³⁵ or World Heritage Site³⁶ attracts visitors all over the world, gives boost to tourism and helps local economy to prosper. It also helps Government to generate funds for development and systematic maintenance of the site. The GSI for the purpose of recommending the site for Geopark, requested TCGL and GEER to provide certain details for which response was awaited. Also, no action was taken by the State Government to propose this site for World Heritage Site.

Figure 9: Stamp released by DoP



The Government stated (October 2014) that as fossils were over 6.5 crore years old, now there was least possibility for more damages to it. The complete fencing of the site could not be done for want of funds. However, the F&E Department had outsourced security agency and six guards were posted to provide security to park.

The Government reply is not convincing as fencing of the entire site was required for safeguarding the fossils against theft, vandalism etc. There was no preservation of the fossils, no research on Dinosaurs and little generation of tourism and spreading of knowledge as only 2,284 visitors visited the site during the period 2009-10 to 2013-14. Further, the Government did not prepare any reports on excavation and research on the site, guidelines for

³⁵ An area where outstanding and rare geological landforms are preserved in an undisturbed state. It helps to pursue scientific research, educational activities, low-impact recreation along with preservation of the rare geological features.

³⁶ UNESCO declares a site which has extraordinary universal values as the UNESCO World Heritage Site from countries all over the world. On receipt of nomination of a site, after long screening and thorough examination of the site, UNESCO, if found fit, declares such site as World Heritage Site.

visitors, list of inventory and sending proposal for World Heritage/ UNESCO Geopark. Thus, after incurring an expenditure of ₹ 8.58 crore, none of the goals envisaged in the recommendation of GSI could be fulfilled even after 33 years of discovery of the site. Further, the opportunity to develop tourism at the site and thereby enhance the socio economic condition of people of the surrounding area was missed.



(Y. N. THAKARE)

Ahmedabad
The 10 FEBRUARY 2016 **Principal Accountant General**
(Economic & Revenue Sector Audit) Gujarat

Countersigned



New Delhi
The 11 FEBRUARY 2016 **(SHASHI KANT SHARMA)**
Comptroller and Auditor General of India

APPENDICES

APPENDIX I

(Reference: Paragraph 1.7.1; Page 9)

Year-wise breakup of outstanding Inspection Reports as on 30 September 2015

Sl. No.	Department	Upto 2010-11		2011-12		2012-13		2013-14		2014-15		Total	
		No. of IRs	No. of Paras	No. of IRs	No. of Paras	No. of IRs	No. of Paras	No. of IRs	No. of Paras	No. of IRs	No. of Paras	No. of IRs	No. of Paras
1	Agriculture & Co-operation	53	195	59	281	13	77	23	116	26	119	174	788
2	Energy & Petrochemicals	1	5	1	2	0	0	1	4	1	6	4	17
3	Finance	3	5	0	0	1	4	2	3	2	4	8	16
4	Forests & Environment	2	2	16	46	4	8	31	116	17	92	70	264
5	Industries & Mines	18	62	29	112	4	7	18	57	8	22	77	260
6	Narmada, Water Resources, Water Supply & Kalpsar (except Water Supply)	28	77	75	207	86	292	39	129	55	197	283	902
7	Ports & Transport	5	7	4	8	0	0	0	0	2	7	11	22
8	Roads & Buildings	23	60	50	253	49	216	41	178	33	196	196	903
9	Science & Technology	1	5	1	5	1	4	1	5	2	10	6	29
10	Climate Change	0	0	1	8	0	0	1	3	0	0	2	11
Total		134	418	236	922	158	608	157	611	146	653	831	3,212

APPENDIX II

(Reference: Paragraph No. 2.1 and 2.7.2: Page 12 and 16)

Statement showing important wetlands identified by the Gujarat Biodiversity Board

Sl. No.	Name of wetland
1	Amipur Dam, Porbandar
2	Dardasagar Dam, Porbandar
3	Kaj wetland, near Kodinar, Junagadh
4	Nava Talav, Sadwa Lake in Surendranagar
5	Bhaskar Marshland in Surendranagar (Bhaskarpura Lake)
6	Charkhala Salt Pan near Dwarka in Jamnagar
7	Kumbharwada Salt Pan in Bhavnagar
8	Aji Dam in Rajkot
9	Fulzar in Rajkot
10	Muli in Surendranagar
11	Sukhbhadar in Bhavnagar district
12	Bhimasar in Kachchh
13	Dewisar in Kachchh
14	Ninghal in Kachchh
15	Ajwa Dam in Vadodara
16	Sarvodhan in Banni, Kachchh
17	Lunadhan in Banni, Kachchh
18	Pragsar, Kachchh
19	A large water body between Nadabet in Great Rann

APPENDIX III

(Reference: Paragraph No. 2.8.2.1: Page 20)

Details showing funds released and utilised for conservation of wetlands under NWCP

(₹ in lakh)

Year	Funds release & utilisation	Wetlands						
		Nal Sarovar	Parij	Thol	Wadhvana	Khijadiya	Nani Kakrad	Total
2009-10	Release	17.03*	17.85	15.00	13.31*	5.14*	6.535*	74.865
	Utilisation	19.34	17.85	12.69	13.31	5.00	6.535	74.725
2010-11	Release	8.31	13.50	Nil	Nil	11.06	2.11*	34.98
	Utilisation	8.00	13.50	Nil	Nil	11.05	2.11	34.66
2011-12	Release	38.27*	18.00	Nil	22.60	21.13*	Nil	100.00
	Utilisation	38.26	18.00	Nil	22.60	17.24	Nil	96.10
2012-13	Release	15.28*	19.85*	24.20*	23.85	28.38*	Nil	111.56
	Utilisation	15.30	19.86	24.20	23.84	28.38	Nil	111.58
2013-14	Release	NIL						
	Utilisation	NIL						
2014-15	Release	NIL						
	Utilisation	NIL						

(Source: Information collected from the Forests and Environment Department)

*Including unspent grant of earlier years.

Note: In two wetlands viz., GRK and LRK, APOs and MAPs were not prepared and the funds not demanded. As such, no funds were released by GoI for conservation activities during 2009-10 to 2013-14. Nani Kakrad, MAP was not prepared for any year during 2009-14 due to land ownership issue and no conservation was being done.

APPENDIX IV

(Reference: Paragraph No. 3.1.1; Page 37)

Statement showing the project wise details of HLC project

Name of Project	Month & Year of AA	Month & Year of Revise AA	Expenditure incurred up to March 2015 (₹ in crore)	Targeted CCA (in Ha)	Benefitted villages
	Project cost (₹ in crore)	Revised project cost (₹ in crore)			
Kadana Left Bank High Level Canal	May 2004	Not applicable	54.74	5000	44 villages of Santrampur, Kadana and Lunawada talukas.
	47.79				
Panam High Level Canal	April 1999	November 2012	219.69	18000	75 villages of Shahera, Godhra and Lunawada talukas.
	130.71	240.52			
Ukai Left Bank High Level Canal	August 1997	January 2010	124.83	9900	64 villages of Songadh and Vyara talukas.
	55.15	159.61			
Karjan Left Bank High Level Canal	April 2008	Not applicable	3.26	1200	12 villages of Nandod taluka.
	4.49				
Total	238.14	400.13	402.52	34,100	195 villages

APPENDIX V

(Reference: Paragraph No. 3.2; Page 50)

Statement showing the details of avoidable expenditure on contract demand

Jalundra Pumping Station									Fatepura Pumping Station								
Month of Billing	CD fixed	85 per cent of CD	Actual CD	Total payment made	If fixed to 4500 KVA	CD to 4500 KVA	85 per cent of CD	Total CD Payable	Avoidable payment of CD	CD fixed	85 per cent of CD	Actual CD	Total payment made	If CD fixed to 2100 KVA	85 per cent of CD	Total CD payable	Avoidable payment of CD
Apr-11	8250	7013	2859	1518120	4500	3825	753000	765120	4800	4080	1099	814200	2100	1785	284850	529350	
May-11	8250	7013	2992	1518120	4500	3825	753000	765120	4800	4080	1073	814200	2100	1785	284850	529350	
Jun-11	8250	7013	2892	1518120	4500	3825	753000	765120	4800	4080	999	814200	2100	1785	284850	529350	
Jul-11	8250	7013	4549	1518120	4500	3825	933130	584990	4800	4080	2012	814200	2100	1785	332520	481680	
Aug-11	8250	7013	4479	1518120	4500	3825	909960	608160	4800	4080	1970	814200	2100	1785	323700	490500	
Sep-11	8250	7013	4122	1773510	4500	3825	992940	780570	4800	4080	2005	981600	2100	1785	421350	560250	
Oct-11	8250	7013	2604	1773510	4500	3825	912750	860760	4800	4080	924	981600	2100	1785	361950	619650	
Nov-11	8250	7013	4163	1773510	4500	3825	1004010	769500	4800	4080	1852	981600	2100	1785	380040	601560	
Dec-11	8250	7013	2988	1773510	4500	3825	912750	860760	4800	4080	1050	981600	2100	1785	361950	619650	
Jan-12	8250	7013	3141	1773510	4500	3825	912750	860760	4800	4080	1849	981600	2100	1785	379230	602370	
Feb-12	8250	7013	3044	1773510	4500	3825	912750	860760	4800	4080	2037	981600	2100	1785	429990	551610	
Mar-12	8250	7013	3044	1773510	4500	3825	912750	860760	4800	4080	2008	981600	2100	1785	422160	559440	
Apr-12	8250	7013	4158	1773510	4500	3825	1002660	770850	4800	4080	1896	981600	2100	1785	391920	589680	
May-12	8250	7013	4207	1773510	4500	3825	1015890	757620	4800	4080	1940	981600	2100	1785	403800	577800	
Jun-12	8250	7013	4111	1773510	4500	3825	989970	783540	4800	4080	1873	981600	2100	1785	385710	595890	
Jul-12	8250	7013	2946	1773510	4500	3825	912750	860760	4800	4080	979	981600	2100	1785	361950	619650	
Aug-12	8250	7013	3173	1773510	4500	3825	912750	860760	4800	4080	1862	981600	2100	1785	382740	598860	
Sep-12	8250	7013	3187	1773510	4500	3825	912750	860760	4800	4080	1902	981600	2100	1785	393540	588060	
Oct-12	8250	7013	2934	1773510	4500	3825	912750	860760	4800	4080	1101	981600	2100	1785	361950	619650	
Nov-12	8250	7013	3162	1773510	4500	3825	912750	860760	4800	4080	1882	981600	2100	1785	388140	593460	
Dec-12	8250	7013	3017	1773510	4500	3825	912750	860760	4800	4080	2030	981600	2100	1785	428100	553500	
Jan-13	8250	7013	3042	1773510	4500	3825	912750	860760	4800	4080	1061	981600	2100	1785	361950	619650	

Month of Billing	CD fixed	85 per cent of CD	Actual CD	Total payment made	If CD fixed to 4500 KVA	85 per cent of CD	Total CD Payable	Avoidable payment of CD	CD fixed	85 per cent of CD	Actual CD	Total payment made	If CD fixed to 2100 KVA	85 per cent of CD	Total CD payable	Avoidable payment of CD
Feb-13	8250	7013	3043	1773510	4500	3825	912750	860760	4800	4080	970	981600	2100	1785	361950	619650
Mar-13	8250	7013	4249	1773510	4500	3825	1027230	746280	4800	4080	1273	981600	2100	1785	361950	619650
Apr-13	8250	7013	3003	1773510	4500	3825	912750	860760	4800	4080	1062	981600	2100	1785	361950	619650
May-13	8250	7013	2942	2279550	4500	3825	1163750	1115800	4800	4080	1022	1253000	2100	1785	449750	803250
Jun-13	8250	7013	2913	2279550	4500	3825	1163750	1115800	4800	4080	1107	1253000	2100	1785	449750	803250
Jul-13	8250	7013	3071	2279550	4500	3825	1163750	1115800	4800	4080	1039	1253000	2100	1785	449750	803250
Aug-13	8250	7013	3055	2279550	4500	3825	1163750	1115800	4800	4080	1111	1253000	2100	1785	449750	803250
Sep-13	8250	7013	3010	2279550	4500	3825	1163750	1115800	4800	4080	1039	1253000	2100	1785	449750	803250
Oct-13	8250	7013	3042	1843640	4500	3825	951000	892640	4800	4080	1066	1253000	2100	1785	434750	818250
Nov-13	8250	7013	3061	1843640	4500	3825	951000	892640	4800	4080	1037	1253000	2100	1785	434750	818250
Dec-13	8250	7013	3071	1843640	4500	3825	951000	892640	4800	4080	1908	1253000	2100	1785	477800	775200
Jan-14	8250	7013	3193	1843640	4500	3825	951000	892640	4800	4080	1054	1253000	2100	1785	434750	818250
Feb-14	8250	7013	3086	1843640	4500	3825	951000	892640	4800	4080	1079	1253000	2100	1785	434750	818250
Mar-14	8250	7013	3046	1843640	4500	3825	951000	892640	4800	4080	1999	1253000	2100	1785	509650	743350
Apr-14	8250	7013	NA	NA	NA	NA	0	0	4800	4080	962	1253000	2100	1785	449750	803250
May-14	8250	7013	2605	1843640	4500	3825	951000	892640	4800	4080	1009	1253000	2100	1785	449750	803250
Jun-14	8250	7013	2982	1843640	4500	3825	951000	892640	4800	4080	978	1253000	2100	1785	449750	803250
Jul-14	8250	7013	3085	1843640	4500	3825	951000	892640	4800	4080	1035	1253000	2100	1785	449750	803250
Aug-14	8250	7013	2593	1843640	4500	3825	951000	892640	4800	4080	999	1253000	2100	1785	449750	803250
Sep-14	8250	7013	1544	1843640	4500	3825	951000	892640	4800	4080	984	1253000	2100	1785	449750	803250
Oct-14	8250	7013	2644	1843640	4500	3825	951000	892640	4800	4080	1018	1253000	2100	1785	449750	803250
Nov-14	8250	7013	2649	1843640	4500	3825	951000	892640	4800	4080	957	1253000	2100	1785	449750	803250
Dec-14	8250	7013	2634	1843640	4500	3825	951000	892640	4800	4080	1027	1253000	2100	1785	449750	803250
Jan-15	8250	7013	2667	1843640	4500	3825	951000	892640	4800	4080	963	1253000	2100	1785	449750	803250
Feb-15	8250	7013	3066	1843640	4500	3825	951000	892640	4800	4080	974	1253000	2100	1785	449750	803250
Mar-15	8250	7013	4046	1843640	4500	3825	1012880	830760	4800	4080	955	1253000	2100	1785	449750	803250
Total								4,08,39,510								3,29,36,710

APPENDIX VI

(Reference: Paragraph No. 3.4; Page 54)

Statement showing the loss of interest due to non-payment of advance payment

Month	Advance Bill to be paid	Date of Issue of Bill	Date of Payment	Bill amount	Average of three months charges	Delay in days*	Loss of interest ¹
Apr-10	10-04-2010	07-05-2010	29-05-2010	1405064	1891039	49	30464
May-10	10-05-2010	10-06-2010	24-06-2010	1468154	1712128	45	25330
Jun-10	10-06-2010	09-07-2010	23-07-2010	1415857	1599666	43	22614
Jul-10	10-07-2010	07-08-2010	21-08-2010	1479358	1429692	42	19741
Aug-10	10-08-2010	08-09-2010	29-09-2010	1483061	1454456	50	23909
Sep-10	10-09-2010	08-10-2010	26-10-2010	1433693	1459425	46	22071
Oct-10	10-10-2010	03-11-2010	22-11-2010	1439440	1465371	43	20716
Nov-10	10-11-2010	08-12-2010	24-12-2010	1392976	1452065	44	21005
Dec-10	10-12-2010	06-01-2011	25-01-2011	1426505	1422036	46	21506
Jan-11	10-01-2011	10-02-2011	05-03-2011	1513819	1419640	54	25203
Feb-11	10-02-2011	07-03-2011	23-03-2011	1345593	1444433	41	19470
Mar-11	10-03-2011	13-04-2011	30-04-2011	1528073	1428639	51	23954
Total							275985
Apr-11	10-04-2011	07-05-2011	05-07-2011	1637343	1462495	86	41351
May-11	10-05-2011	08-06-2011	05-07-2011	1698928	1503670	56	27684
Jun-11	10-06-2011	14-07-2011	14-09-2011	1569941	1621448	96	51176
Jul-11	10-07-2011	08-08-2011	14-09-2011	9151237	1635404	66	35486
Aug-11	10-08-2011	09-09-2011	25-10-2011	8714749	4140035	76	103444
Sep-11	10-09-2011	14-10-2011	05-12-2011	8195633	6478642	86	183177
Oct-11	10-10-2011	11-11-2011	04-01-2012	8718050	8687206	86	245622
Nov-11	10-11-2011	08-12-2011	02-02-2012	8076375	8542811	84	235922
Dec-11	10-12-2011	05-01-2012	05-03-2012	8559435	8330019	86	235523
Jan-12	10-01-2012	06-02-2012	01-04-2012	8272831	8451287	82	227837
Feb-12	10-02-2012	07-03-2012	05-05-2012	7617020	8302880	85	232026
Mar-12	10-03-2012	09-04-2012	04-06-2012	8543835	8149762	86	230426
Total							1849673
Apr-12	10-04-2012	11-05-2012	07-07-2012	9357668	8144562	88	235634
May-12	10-05-2012	07-06-2012	04-08-2012	9743022	8506174	86	240503
Jun-12	10-06-2012	10-07-2012	04-09-2012	9553493	9214842	86	260540
Jul-12	10-07-2012	08-08-2012	06-10-2012	9404019	9551394	88	276336
Aug-12	10-08-2012	07-09-2012	05-11-2012	9202733	9566845	87	273638
Sep-12	10-09-2012	06-10-2012	05-12-2012	9188664	9386748	86	265401
Oct-12	10-10-2012	06-11-2012	08-01-2013	9705676	9265139	90	274147
Nov-12	10-11-2012	05-12-2012	01-02-2013	9361768	9365691	83	255568
Dec-12	10-12-2012	07-01-2013	06-03-2013	9588614	9418703	86	266304

¹ Interest is calculated at the rate of 12 per cent per annum from due date of advance payment till date of actual payment of monthly bill raised by the Division.

Month	Advance Bill to be paid	Date of Issue of Bill	Date of Payment	Bill amount	Average of three months charges	Delay in days*	Loss of interest ¹	
Jan-13	10-01-2013	06-02-2013	02-04-2013	9838285	9552019	82	257512	
Feb-13	10-02-2013	07-03-2013	03-05-2013	8653426	9596222	82	258704	
Mar-13	10-03-2013	09-04-2013	05-06-2013	9701884	9360108	87	267725	
Total								3132012
Apr-13	10-04-2013	08-05-2013	04-07-2013	9831426	9397865	85	262625	
May-13	10-05-2013	07-06-2013	03-08-2013	10562674	9395579	85	262561	
Jun-13	10-06-2013	06-07-2013	04-09-2013	9938460	10031995	86	283644	
Jul-13	10-07-2013	07-08-2013	04-10-2013	10243424	10110853	86	285874	
Aug-13	10-08-2013	06-09-2013	02-11-2013	9713860	10248186	84	283018	
Sep-13	10-09-2013	10-10-2013	05-12-2013	9877519	9965248	86	281757	
Oct-13	10-10-2013	11-11-2013	03-01-2014	9744572	9944934	85	277913	
Nov-13	10-11-2013	09-12-2013	05-02-2014	9778569	9778650	87	279696	
Dec-13	10-12-2013	07-01-2014	05-03-2014	10306781	9800220	85	273869	
Jan-14	10-01-2014	07-02-2014	04-04-2014	9974020	9943307	84	274599	
Feb-14	10-02-2014	10-03-2014	05-05-2014	8962883	10019790	84	276711	
Mar-14	10-03-2014	10-04-2014	06-06-2014	9422981	9747895	88	282021	
Total								3324290
Apr-14	10-04-2014	06-05-2014	05-07-2014	10340204	9453295	86	267282	
May-14	10-05-2014	09-06-2014	05-08-2014	10827452	9575356	87	273881	
Jun-14	10-06-2014	07-07-2014	05-09-2014	9934612	10196879	87	291659	
Jul-14	10-07-2014	13-08-2014	04-10-2014	10370346	10367423	86	293128	
Aug-14	10-08-2014	08-09-2014	05-11-2014	10884988	10377470	87	296824	
Sep-14	10-09-2014	08-10-2014	04-12-2014	10109614	10396649	85	290536	
Oct-14	10-10-2014	07-11-2014	06-01-2015	10362975	10454983	88	302478	
Nov-14	10-11-2014	06-12-2014	05-02-2015	9924706	10452526	87	298971	
Dec-14	10-12-2014	08-01-2015	05-03-2015	10514853	10132432	85	283153	
Jan-15	10-01-2015	11-02-2015	06-04-2015	10884918	10267511	86	290303	
Feb-15	10-02-2015	07-03-2015	28-04-2015	9510749	10441492	77	264327	
Mar-15	10-03-2015	09-04-2015	28-04-2015	10876004	10303507	49	165985	
Total								3318529
Total of 2010-11 to 2014-15								1,19,00,489

* Delay in days considered from date of advance payment to date of actual payment of bill.

APPENDIX VII

(Reference: Paragraph No. 3.6; Page 57)

Details showing the recovery to be made from the contractor due to less consumption of cement as per mix design

Sl. No.	Name of Division	Name of work	Estimated cost Tender cost Work done (₹ in crore)	Date of work order Stipulation completion date Actual completion date	Recovery to be done (₹ in crore)	Recovered, if any (₹ in crore)	Short/ Non- recovery (₹ in crore)
1	Executive Engineer, Roads and Buildings (City) Division, Vadodara.	Construction of SAMRAS Government Hostel, Vadodara	112.72 109.25 Work in progress.	03/01/2013 02/09/2014 Work in progress.	1.06	-	1.06
2	Executive Engineer, Capital Project Division No. 1, Gandhinagar.	Construction of slum Rehabilitation Building, Gandhinagar	41.47 39.68 46.49	15/01/2012 14/07/2013 25/11/2013	0.74	-	0.74
3	Executive Engineer, Roads and Buildings (City) Division, Ahmedabad	Construction of various buildings for Government MCA college at Maninagar (East), Ahmedabad	9.95 9.14 7.98	12/08/2013 11/05/2014 30/06/2014	0.09	-	0.09
		Construction of New Government Engineering College at East Ahmedabad	55.09 70.41 60.98	27/06/2011 26/04/2012 22/12/2012	0.94	0.17	0.77
4	Executive Engineer, Capital Project Division No. 3, Gandhinagar.	Construction of major bridge across river Sabarmati on proposed new route between the institute area of Raysan to Gift city.	84.48 65.74 Work in progress.	10/09/2013 09/03/2015 Work in progress.	0.82	-	0.82
		Construction of major bidge on river Khari on Dehgam-Chhala road near village Nadol	7.74 5.99 Work in progress.	02/09/2013 01/09/2014 Work in progress.	0.10	-	0.10
Total							3.58

APPENDIX VIII

(Reference: Paragraph No. 3.10.5; Page 65)

Details of operational CETPs in the State of Gujarat

Sl. No.	Name of RO	Management Name and location of CETP	Date of sanction of consent to establish	No. of Members	Capacity in MLD
CETP selected for theme based audit					
1	Vadodara	Nandesari Industries Association, Vadodara	1995	193	5.5
2	Ankleshwar	Narmada Clean Tech Limited, Ankleshwar.	April 2002	1060	60
3	Ankleshwar	Panoli Enviro Technology Limited, GIDC Panoli, Dist. Bharuch	July 2000	114	1
4	Ankleshwar	Enviro Technology Limited, Ankleshwar, Bharuch	August 2011	290	1.8
5	Surat	Pandesara Infrastructure Limited, Surat	August 2006	129	100
6	Surat	Sachin Infra Environment Limited.	Not Available	72	50
7	Vapi	Vapi Waste & Effluent Management, Vapi, Valsad	Not Available	738	55
8	Ahmedabad	Odhav Enviro Projects Limited, Ahmedabad	June 1996	58	1.2
9	Ahmedabad	Naroda Enviro Projects Limited, GIDC Naroda, Ahmedabad	October 1995	182	3
10	Ahmedabad	The Green Environment Services Co- Operative Society Limited, Vatva Ahmedabad	November 2010	652	16
11	Junagadh	Veraval Industrial Association, Veraval	July 2001	85	5
12	Jetpur	Jetpur Dyeing & Printing Association, Jetpur, District Rajkot	January 1990	1072	7
CETP other than selected for theme based audit					
13	Surat	CETP of Gujarat Eco Textile Park, Palsana, Surat	November 2006	24	60
14	Surat	Palsana Enviro Protection Limited, Surat	Not Available	119	100
15	Surat	Globe Enviro Care Limited Sachin, Surat	Not Available	57	0.5
16	Surat	New Palsana Ind. Co-operative Society Limited, Surat.	July 2009	18	45
17	Ahmedabad	Zydus Infrastructure Private Limited, Pharma SEZ, Sanand, Ahmedabad.	September 2006	11	0.75
18	Ahmedabad	Vinayak Jal Shuddhikaran Sahkari Mandali Ltd, Bavla, Ahmedabad.	June 2006	20	1.5
19	Ahmedabad	Bavla Eco Project Limited, Bavla, Ahmedabad.	June 2006	12	1
20	Ahmedabad	Tata Motors Limited Vendor Park, Sanand, Ahmedabad.	December 2010	27	1.5
21	Ahmedabad	Sanand Eco Project Limited, Sanand, Ahmedabad.	Not Available	55	0.1
22	Jetpur	Bhatgam Washing Ghat Sudhikaran Yojna Private Limited-Bhesan, Junagadh.	Not Available	200	30
23	Gandhinagar	Kalol GIDC Industrial Association, Veraval	July 2001	40	0.40
24	Bhuj	MPSEZ Utilities Private Limited. (MUPL), Mundra	Not Available	02	2.5
25	Ahmedabad	Gujarat Vepari Maha Mandal Sahkari Udhyogik Vasahat Limited, Odhav, Ahmedabad	Not Available	373	1

Sl. No.	Name of RO	Management Name and location of CETP	Date of sanction of consent to establish	No. of Members	Capacity in MLD
26	Ahmedabad	Odhav Green Enviro Project Association, GIDC Odhav, Ahmedabad	May 1997	2	1
27	Rajkot	Shri Dhareshwar GIDC Vistar Association, Rajkot	October 1995	26	0.9
28	Rajkot	Jay Kay Enviro-Technologies Private Limited, Rajkot	October 2003	135	0.025
29	Rajkot	Rajkot Electroplating Association, Rajkot	Not Available	16	0.01
30	Surat	Fairdeal Textile Parks Private Limited, Surat	July 2011	2	10
31	Sarigam	Sarigam Industrial Waste Effluent Company Limited, GIDC, Sarigam, District Valsad	Not Available	NA	12.5
32	Ahmedabad	Narol Dyestuff Enviro Society, Ahmedabad	June 1997	26	0.1
33	Vadodara	Enviro Infrastructure Company Limited, Vadodara	May 2000	92	2.25

APPENDIX IX

(Reference: Paragraph No. 3.10.6.1; Page 66)

Statement showing the prescribed standard for outlet norms of GPCB to CETPs for discharging the treated effluent

(All the parameters are in mg/l except pH.)

Name of CETPs	Capacity in MLD	Final disposal point	Prescribed Standards / parameter for outlet norms in Consolidated Consent & Authorization						
			pH	COD	BOD	TSS	NH ₃ -N	TDS	Chlorides
NIA, Vadodara	5.5	Inlet chamber of VECL	6.5-8.5	250	100	100	50	5000	600
VIA, Veraval	5	Sea	5.5-9.5	250	100	100	50	NA	NA
NCTL Ankleshwar	60	Sea	6.5-8.5	250	100	100	50	NA	NA
ETL, Ankleshwar	1.8	Inlet of FETP	5.5-8.5	100	30	100	50	2100	600
PETL, Ankleshwar	1	Inlet of FETP	5.5-8.5	100	30	100	50	2100	600
GESCSL, Ahmedabad.	16	River Sabarmati through mega pipe line	6.5-8.5	250	30	100	50	2100	NA
OEPL, Ahmedabad	1.2		6.5-8.5	250	30	100	50	2100	600
NEPL, Ahmedabad	3		6.5-8.5	250	30	100	50	2100	600
JDPA, Jetpur	7	Fatal Talav	6.5-8.5	250	100	100	50	2100	600
VWEMCL, Vapi	55	Estuary zone of Damanganga	6.5-8.5	250	30	100	50	2100	600
SIEL, Surat.	50	Unkhadi	6.5-8.5	250	30	100	50	2100	1000
PIL, Surat	100	Bhedwadkhadi	6.5-8.5	250	30	100	50	2100	1000

(Source – Consolidated Consent & Authorization issued to Concern CETP by GPCB)

APPENDIX X

(Reference: Paragraph No. 3.10.6.1; Page 66)

Details showing non-compliance of outlet norms of GPCB by CETPs

Name of CETP	Capacity of CETP in MLD	No. of Sample analysed during April 2012 to March 2015	Parameters with GPCB norms												Percentage of Sample outside the norms					
			COD (250/100 mg/l)		BOD (30/100 mg/l)		TSS(100mg/l)		NH ₃ -N (50 mg/l)		TDS 100/5000 mg/l)		Chlorides (600/1000mg/l)		COD	BOD	TSS	NH ₃ -N	TDS	Chlorides
			No. of Sample outside norms	Range	No. of Sample outside norms	Range	No. of Sample outside norms	Range	No. of Sample outside norms	Range	No. of Sample outside norms	Range	No. of Sample outside norms	Range						
NIA, Vadodara	5.5	43	30	268-2524	25	106-787	30	106-1152	2	62.75-82.88	41	5040-58392	41	1040-6400	70	58	70	5	95	95
VIA, Veraval	5	31	19	261-2795	17	102-979	21	108-724	19	59.36-383.06	NA	NA	NA	NA	61	55	68	61	NA	NA
NCTL, Ankleshwar	60	50	49	264-1153	21	110-326	10	112-184	39	51.5-272.2	NA	3914-27470	NA	1347-4520	98	42	20	78	NA	NA
ETL, Ankleshwar	1.8	43	43	440-1284	37	33 - 341	9	110-228	1	73	43	2170-35654	43	880-10000	100	86	21	2	100	100
PETL, Ankleshwar	1	50	50	344 - 1531	50	36 - 473	24	110-466	22	51.52-180	50	5958-33492	50	2800-13175	100	100	48	44	100	100
GESCSL, Ahmedabad	16	44	44	637-2529	44	76-833	42	124-2172	28	54-308	44	6376-26124	NA	850-11000	100	100	95	64	100	NA
OEPL, Ahmedabad	1.2	30	24	254-1369	30	37-433	7	122-1397	4	53.76-67.42	30	3588-12357	29	1850-6000	80	100	23	13	100	97
NEPL, Ahmedabad	3	40	40	514-8476	40	130-2533	34	110-1768	28	54-151.76	40	3278-47250	40	1000-27000	100	100	85	70	100	100
JDPA, Jetpur	7	43	12	287-327	11	102-249	25	102-454	0	0	43	2296-7852	42	740-3010	28	26	58	0	100	98
VWEMCL, Vapi	55	114	106	260-2038	87	32-402	93	102-895	25	50.4-149	95	2334-49486	81	750-20394	93	76	82	22	83	71
SIEL, Surat	50	41	39	263-964	39	59-258	25	102-232			41	3810-19016	41	1140-8500	95	95	61	0	100	100
PIL, Surat	100	33	32	260-715	33	49-154	21	102-340	0	0	33	4588-16568	33	1356-8000	97	100	64	0	100	100

(Source: Based on data of outlet norms from compiled Laboratory analysis/ Report etc., taken from Extended Green Node (XGN) software of GPCB and analysed above results)

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