



**Report of the
Comptroller and Auditor General of India
on
Economic Sector
For the year ended March 2016**



Government of West Bengal
Report No. 1 of the year 2017

**Report of the
Comptroller and Auditor General of India**

**on
Economic Sector**

For the year ended March 2016

Government of West Bengal
Report No. 1 of the year 2017

TABLE OF CONTENTS

SUBJECT	Reference to	
	Paragraph (s)	Page (s)
PREFACE		iii
Chapter 1		
OVERVIEW OF THE ECONOMIC SECTOR		
Introduction	1.1	1
Trend of expenditure	1.2	1
About this Report	1.3	2
Authority for Audit	1.4	2
Planning and conduct of Audit	1.5	2-3
Response to Audit	1.6	3-4
Significant Audit Observations	1.7	4-6
Chapter 2		
PERFORMANCE AUDIT		
FOREST DEPARTMENT		
Protection of Forests and Biodiversity through Protected Area Network	2	7-29
Chapter 3		
COMPLIANCE AUDIT		
PUBLIC WORKS (ROADS) DEPARTMENT		
Extra expenditure due to use of higher specifications than necessary	3.1	31-32
ANIMAL RESOURCES DEVELOPMENT DEPARTMENT		
Excess payment in violation of contractual rates	3.2	33-34
PASCHIMANCHAL UNNAYAN AFFAIRS DEPARTMENT		
Unfruitful expenditure due to poor contract management	3.3	34-35
PUBLIC WORKS (ROADS) DEPARTMENT		
Unfruitful expenditure on road improvement	3.4	35-37
IRRIGATION AND WATERWAYS DEPARTMENT		
Extra expenditure	3.5	37
PASCHIMANCHAL UNNAYAN AFFAIRS DEPARTMENT		
Avoidable extra expenditure by allowing higher rates	3.6	37-39
PUBLIC WORKS (ROADS) DEPARTMENT		
Non-realisation of one time license /permit fees	3.7	39-40
PUBLIC WORKS (ROADS) DEPARTMENT		
Avoidable expenditure due to use of materials of higher specification	3.8	40-41
TRANSPORT DEPARTMENT		
Loss of interest due to absence of monitoring over investment	3.9	42
ENVIRONMENT DEPARTMENT		
Implementation of Coastal Regulation Zone in West Bengal	3.10	43-65
APPENDICES		67-76
GLOSSARY		77-78

APPENDICES

Appendix	SUBJECT	Page (s)
1.1	<i>Statement of list of Departments</i>	67
1.2	<i>Statement of list of Autonomous Bodies</i>	68
1.3	<i>Statement of Department-wise break up of outstanding IRs and Paragraphs</i>	69
2.1	<i>Statement showing list of Protected Areas in West Bengal</i>	70
2.2	<i>List showing status of Management Plans of Protected Areas</i>	71
2.3	<i>Statement showing target vis-à-vis achievement of maintenance of grass land</i>	72
2.4	<i>Statement showing target vis-à-vis achievement of fodder grass plantations</i>	73
2.5	<i>Statement showing utilisation of Central Assistance</i>	74
2.6	<i>Statement showing shortage of vehicles/ arms/ RT set/ GPS set</i>	75
3.1	<i>Statement showing consumption of steel materials</i>	76

PREFACE

This Report for the year ended March 2016 has been prepared for submission to the Governor of West Bengal under Article 151 of the Constitution of India.

The Report contains significant results of the Performance Audit and Compliance Audit of 27 Departments of Government of West Bengal under the Economic Sector. However, other Departments have been excluded and covered in related reports on General and Social Sector and Revenue Sector.

The instances mentioned in this Report are those, which came to notice in the course of test audit for the period 2015-16, as well as those which had come to notice in earlier years but could not be reported in the previous Audit Reports; instances relating to the period subsequent to 2015-16 have also been included, wherever necessary.

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

Chapter 1

Introduction

Chapter 1: Overview of Economic Sector

1.1 Introduction

This Report covers matters arising out of audit of State Government Departments and Autonomous Bodies under the Economic Sector.

For the purpose of administration in West Bengal, there are 67 Departments at the Secretariat level headed by Assistant Chief Secretaries/Principal Secretaries/Secretaries who are assisted by Directors/Commissioners and subordinate officers under them. This report covers the functioning of 27 Departments of the Economic Sector listed in *Appendix-1.1*.

Of the total expenditure of ₹ 20314.18 crore incurred by these Departments, a major portion was incurred by Public Works (23.68 per cent), Power and Non-Conventional Energy Sources (16.20 per cent) and Agriculture (10.40 per cent) during 2015-16.

1.2 Trend of expenditure

The comparative position of expenditure incurred by the Departments during the period 2013-14 to 2015-16 is given in table 1.1.

Table No. 1.1: Trend of expenditure over three years

(₹ in crore)				
Sl No.	Name of the Department	2013-14	2014-15	2015-16
1.	Agriculture	892.49	1255.87	2113.56
2.	Agriculture Marketing	84.54	133.02	159.37
3.	Animal Resources Development	514.59	614.36	601.68
4.	Commerce and Industries	564.08	597.62	582.32
5.	Co-operation	190.03	215.72	399.52
6.	Fisheries, Aquaculture, Aquatic Resources and Fishing Harbours	209.66	264.51	284.15
7.	Forest	454.27	426.10	528.12
8.	Hill Affairs	647.40	796.67	618.65
9.	Information Technology & Electronics	100.90	107.03	181.69
10.	Irrigation and Waterways	1214.26	1626.24	1504.35
11.	Land and Land Reforms	856.66	844.22	822.64
12.	Micro and Small Scale Enterprises and Textiles	460.29	513.87	561.95
13.	North Bengal Development	245.75	281.52	450.91
14.	Paschimanchal Unnayan Affairs	169.62	204.52	324.46
15.	Power and Non-Conventional Energy Sources	2054.30	1660.56	3290.79
16.	Public Works	3255.93	3752.42	4809.45
17.	Sundarban Affairs	217.75	229.21	286.12
18.	Tourism	92.42	148.70	125.77
19.	Transport	1127.66	1069.20	1264.41
20.	Water Resources Investigation and Development	603.38	855.73	1036.15
21.	Seven other Departments ¹	251.82	229.47	368.12
	Total	14207.80	15826.56	20314.18

(Source: Appropriation Accounts of Government of West Bengal for the relevant years)

¹ Bio-Technology, Consumer Affairs, Environment, Food Processing Industries and Horticulture, Public Enterprises and Industrial Reconstruction, Science and Technology and Sericulture.

1.3 About this Report

This Report of the Comptroller and Auditor General of India (CAG) relates to matters arising from audit of 27 Government Departments and 19 Autonomous Bodies under the Economic Sector (**Appendix-1.2**). Compliance Audit covers examination of transactions relating to expenditure of the audited entities to ascertain whether the provisions of the Constitution of India, applicable laws, rules, regulations and various orders and instructions issued by the competent authorities are being complied with. Performance Audit examines whether the objectives of the programme/ activity/ Department are achieved economically, efficiently and effectively.

1.4 Authority for Audit

The mandate for audit by the CAG is derived from Articles 149 and 151 of the Constitution of India and the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) (DPC) Act, 1971. The CAG conducts audit of expenditure of the Departments of Government of West Bengal under Section 13² of the CAG's (DPC) Act. CAG is the sole Auditor in respect of Autonomous Bodies which are audited under Sections 19(2)³, 19(3)⁴ and 20(1)⁵ of the CAG's (DPC) Act. In addition, the CAG also conducts audit of other Autonomous Bodies, under Section 14⁶ of CAG's (DPC) Act, which are substantially funded by the Government. Principles and methodologies for various audits are prescribed in the Auditing Standards and the Regulations on Audit and Accounts, 2007, issued by the CAG.

1.5 Planning and conduct of Audit

The primary purpose of this 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 action as also to frame policies and directives that will lead to improved financial management, thus contributing to better governance.

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

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

³ Audit of accounts of Corporation (not being companies) established by or under law made by Parliament in accordance with the provisions of the respective legislations.

⁴ Audit of the accounts of Corporations (not being companies) established by or under law made by the State Legislature at the request of the Governor.

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

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

After completion of audit, 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. Important audit observations arising out of these Inspection Reports are processed further for inclusion in the Audit Reports which are submitted to the Governor of the State under Article 151 of the Constitution of India. During 2015-16, 227 units of various Departments/ Organisations under the Economic Sector were audited and 224 Inspection Reports (including 15 of previous year and excluding 18 which were issued in 2016-17) containing 782 Paragraphs were issued.

1.6 Response to audit

1.6.1 Compliance Audit Observations and Performance Audit

Ten compliance audit observations and one Performance Audit report on “Protection of Forests and Biodiversity through Protected Area Network” were forwarded (between April and August 2016) to Principal Secretaries/ Secretaries of the Departments concerned with the request to send their responses. Departmental replies in respect of six compliance audit observations and one Performance Audit issued during the year 2016-17 have been received. The replies have been incorporated in the Audit Report wherever applicable.

1.6.2 Follow-up on Audit Reports

With a view to ensuring accountability of the Executive in respect of the issues dealt with in the Audit Reports, the Public Accounts Committee (PAC) directed that the Department concerned should furnish remedial Action Taken Notes (ATNs) on the recommendations of PAC relating to the paragraphs contained in the Audit Reports within the time frame as may be prescribed by the PAC. Audit reviewed the outstanding ATNs as on 31 August 2016 on the paragraphs included in the Report of the Comptroller and Auditor General of India, Economic Sector, Government of West Bengal and found that the Departments did not submit ATNs pertaining to 23 audit paragraphs (including five for which initial ATNs were not satisfactory) discussed by the PAC.

1.6.3 Outstanding replies to Inspection Reports

The Accountant General (Economic and Revenue Sector Audit), West Bengal arranges to conduct periodical inspections of the Government Departments to test check transactions and verify maintenance of important accounts and other records as prescribed in the rules and procedures. These inspections are followed up with Inspection Reports (IRs) incorporating irregularities detected during the inspections and not settled on the spot, which are issued to the heads of the offices inspected with copies to the next higher authorities for taking prompt corrective actions. The heads of the offices/ Government are required to promptly comply with observations contained in the IRs, rectify defects and omissions and report compliance through replies. Serious financial

irregularities are reported to the heads of the Departments and the Government.

Inspection Reports issued upto 31 August 2016 were reviewed and it was found that 1731 paragraphs relating to 628 IRs remained outstanding at the end of August 2016 (*Appendix- I.3*). The large pendency of IRs, due to non-receipt of replies, was indicative of the fact that the heads of the offices and the heads of the Departments did not initiate appropriate and adequate action to rectify defects, omissions and irregularities pointed out by Audit in the IRs.

1.7 Significant Audit Observations

Performance Audit report on “Protection of Forests and Biodiversity through Protected Area Network”

Forest Department in West Bengal aims to conserve natural flora & fauna in the forests and wetlands, through creation of Protected Areas (PAs) in the State. There are 21 PAs in the State having 4692 sq km of forests under PA network which is 39.50 *per cent* of State’s total forests area and 5.28 *per cent* of total geographical area. The overall strategy involves protection of critical habitats of endangered species, improved PA management, development of infrastructure, improvement of habitat, reduction of human-animal conflict, besides capacity building and involving of local people in management of PAs.

Significant Audit findings of the Performance Audit are as follows:

- The Department did not take adequate steps for creation and expansion of PA network to achieve the target of covering 10 *per cent* of geographical area under the PA network.
- Identified elephant corridors were not notified, which resulted in obstruction of natural migratory path of elephants, causing man-animal conflicts.
- Requisite inviolate spaces were not provided, which impacted conservation/ protection of biodiversity.
- Management of PAs was found to be inefficient in preparation and implementing Management Plans for effective management of PAs.
- Steps taken to reduce biotic pressure on wildlife were found inadequate as the Department had failed to relocate forest villages from the PAs, create Eco-Sensitive Zones around PAs and regulate eco-tourism in and around PAs.

(Chapter 2)

Compliance Audit

Significant Audit observations are given below:

- The Public Works (Roads) Department unjustifiably revised the specifications of the strengthening of a road, in deviation from the IRC guidelines, in order to utilise the savings which led to extra expenditure of ₹ 2.74 crore.

(Paragraph 3.1)

- Paschim Banga Go-Sampad Bikash Sanstha had enhanced the agreed rates for supply of cattle feed arbitrarily, without approval of the Finance Department and without verifying the actual market rates of cattle feed. This led to excess payment of ₹ 96.38 lakh to the three agencies supplying cattle feed.

(Paragraph 3.2)

- Paschimanchal Unnayan Parshad failed to protect newly laid Water Bound Macadam layers of a road project with bituminous overlay course for a prolonged period and also failed to enforce terms and conditions of the contract. This led to unfruitful expenditure of ₹ 2.11 crore due to damage of the partially completed road.

(Paragraph 3.3)

- Executive Engineers of three Public Works Divisions failed to levy and collect one-time license/ permit fee from existing licensees for laying Optical Fibre Cable along the roads, resulting in loss of Government revenue to the extent of ₹ 3.42 crore.

(Paragraph 3.7)

Thematic Audit on the Implementation of Coastal Regulation Zone in West Bengal

Ministry of Environment, Forest and Climate Change, Government of India had issued Coastal Regulation Zone (CRZ) Notification in 1991 which was subsequently replaced with CRZ 2011 in 2011 with a view to ensuring the livelihood security of fishermen and other local communities living in the coastal areas, to conserving and protecting coastal stretches with their unique marine environment and also to promoting development in a sustainable manner. For implementation, regulation and monitoring of activities in the coastal areas, West Bengal State Coastal Zone Management Authority (WBSCZMA) was constituted in September 1998 and re-constituted over the years.

Audit examined implementation of the CRZ notification 2011 during the period between 2010-11 and 2015-16. Main findings of Audit are summarised as follows:

- Institutional arrangements were weak as there were deficiencies in the composition of WBSCZMA in ensuring the necessary expertise. WBSCZMA only discussed project approvals and did not take up matters related to conservation, enforcement, monitoring and violations of Coastal Regulation Zone notification and was thus reduced to being only a project approval body. District Level Committees also did not function as an effective body for reporting violations and enforcing the regulation.
- Actions taken to conserve the coastal zones were ineffective due to delays in preparation of Coastal Zone Management Plan and local level maps and identification of ecologically sensitive, economically important and highly vulnerable coastal areas.

- WBSCZMA cleared 20 projects, out of which 10 projects were not permitted under the CRZ Regulation 2011 and in seven cases approval were accorded in violation of the regulation.
- Enforcement of CRZ Regulations was weak, leading to proliferation of illegal hotels with uncontrolled tourism in Digha, Mandarmoni and Sundarban areas and discharge of untreated effluents/ management of solid wastes in the coastal areas.
- Post clearance monitoring was absent and deviations from the approved project conditions were observed in most of the projects.

(Paragraph 3.10)

Chapter 2

Performance Audit

*Performance Audit on
Protection of Forests and Biodiversity
through Protected Area Network*

Chapter 2: Performance Audit

Forest Department

Protection of Forests and Biodiversity through Protected Area Network

2.1 Introduction

Forests play an important role in environmental and economic sustainability. They provide numerous goods and services, and maintain life support systems essential for life on earth. Changes in forest composition and quality, and the resultant habitat type lead to decline in primary food species for wildlife. Intensified shifting cultivation, indiscriminate removal of timber, fuel wood, fodder and other forest produce, forest fire and encroachment contribute to forest degradation and deforestation.

The Wildlife (Protection) Act, 1972 introduced for protection of wild animals, birds and plants, provides for establishment of four types of Protected Areas (PAs) viz. National Parks (NPs), Wildlife Sanctuaries (WLS), Conservation Reserves and Community Reserves. There are 21 PAs (six NPs and 15 WLSs) in the State as stated in *Appendix 2.1*. At present West Bengal has 4692 sq km of forests under PA network which is 39.50 per cent of State's total forest area⁷ and 5.28 per cent of total geographical area⁸.

The Forest Department in West Bengal aims to conserve natural flora & fauna (biodiversity conservation) in the forests and wetlands, through creation of Protected Areas in the State. The overall strategy involves protection of critical habitats of endangered species, improved PA management, development of infrastructure, improvement of habitat, reduction of human-animal conflict, besides capacity building and involving local people in management of PAs.

2.2 Organisational set-up

The Forest Department is responsible for management of forests and wildlife in West Bengal. Principal Secretary to the Government of West Bengal is the administrative head of the Forest Department. He is assisted by four⁹ Principal Chief Conservators of Forests (PCCsF). PCCF & Head of Forest Force (HoFF), West Bengal is the administrative head of Forest Directorate. Wildlife Wing of Forest Directorate is headed by the PCCF, Wildlife & Chief Wildlife Warden (CWLW). Out of 21 PAs in the State, 17 PAs are under the control of Wildlife Divisions of the Wildlife Wing and the remaining four PAs are under the control of Forest Divisions under the Forest Directorate. Each PA is headed by a PA Manager.

For selection and management of PAs, formulation of policy for protection and conservation of wildlife and to specify plans and measures to be taken for harmonising needs of tribal/ other dwellers of forest areas, State Board for Wildlife (SBWL) was first constituted in November 2003 as per provisions of

⁷ 11879 sq km

⁸ 88752 sq km

⁹ (i) PCCF & Head of the Forest Force (HoFF) West Bengal (ii) PCCF, Wildlife & Chief Wildlife Warden, (iii) PCCF, Research, Monitoring and Development and (iv) PCCF, General.

WPA, 1972. The State has neither framed State Forest Policy to meet the objectives and targets set in National Forest Policy nor formulated the State Wildlife Action Plan for conservation of biodiversity in the state.

2.3 Scope and methodology of audit

In order to assess the Department's efforts made during 2011-16 for protection of forests and biodiversity through the PA Network, a Performance Audit was carried out between February and June 2016 on the basis of standard audit guidelines, joint site inspections with departmental officials, taking photographs and holding discussions with departmental officials, apart from the examination of records of divisions of all 21 Protected Areas (*Appendix-2.1*). Audit objectives, criteria and methodology were discussed in an Entry Conference with the PCCF & HoFF in April 2016. Exit Conference was held on 15 December 2016 but Audit findings could not be discussed as the reply was received only on 14 December 2016.

2.4 Audit objectives

The Performance Audit sought to assess whether:

- Adequate measures were undertaken for setting up, strengthening and enhancing the Protected Area networks for conservation of forests and biodiversity of the State;
- PA Network was managed in a manner to enhance conservation of wildlife and their habitats; and
- Necessary infrastructure and institutional mechanisms were provided for in an effective manner for protection of forests and biodiversity in PAs.

2.5 Audit criteria

Audit findings are based on criteria derived from:

- Indian Wildlife Protection Act (WPA), 1972 and Rules thereunder,
- National Wildlife Action Plan (NWAP), 2002-16,
- Management Plans (MPs) of Protected Areas/ Tiger conservation Plans (TCP) of Tiger Reserves formulated by the PAs in the State,
- Guidelines issued by National Tiger Conservation Authority (NTCA),
- Orders of the Hon'ble Supreme Court of India, guidelines/ orders issued by the GoI/ GoWB/ Wildlife Institute of India (WII)¹⁰, International Union for Conservation of Nature¹¹(IUCN) *etc.*

¹⁰ An Autonomous Institution of the MoEF&CC, it is an internationally acclaimed Institution, which offers training programmes, academic courses and advisories in wildlife research and management.

¹¹ Created in 1948, IUCN is now the world's largest and most diverse environmental network, harnessing knowledge, resources and reach of more than 1,300 Member organisations and some 16,000 experts. It is a leading provider of conservation data, assessments and analysis. India is also a member.

Audit Findings

2.6. Creation and expansion of PA network in the State

At present West Bengal has 4692 sq km of forests under PA network which was 39.50 per cent of the State's total forest area (11879 sq km) and 5.28 per cent of the total geographical area (88752 sq km) which was less than the national target of 10 per cent. National Wildlife Action Plan-2002-16 (NWAP) aimed to bring 10 per cent of the landmass under the PA network, of which at least 50 per cent should be inviolate. It also specified that the PA network should adequately cover all bio-geographic zones, forest types and wild species of flora and fauna, especially the endangered ones. In this regard, Audit observed the following:

2.6.1 Lack of representation of all bio-geographic zones and forest types

(a) The State has four bio-geographic zones¹². Audit observed that despite recommendations of NWAP regarding coverage of PAs in all bio-geographical zones, there was no PA in the Deccan Peninsula Chhotanagpur zone of the State which contained 38 per cent of recorded forest area of the State. Further, the State has a coastal length of 280 km in the northern part of Bay of Bengal which supports unique marine biodiversity, however, no Marine National Park/ Sanctuary had been created in this area for protection of marine biodiversity. Thus, all the bio-geographic zones in West Bengal were not represented in the PA network of the State.

Chief Wildlife Warden (CWLW) stated (December 2016) that Mayurjharna Elephant Reserve covering the districts of Purulia, Midnapore and Bankura was created which would represent Deccan Peninsula Chhotanagpur zone. Regarding Marine NP, CWLW stated that Tiger Reserve, National Park and Wildlife Sanctuary established in the Sundarban would serve the purpose of conserving the marine biodiversity. The reply was not acceptable as the Elephant Reserve has no legal status to ensure protection of biodiversity and wildlife. Further, all the PAs established in the Sundarban were terrestrial in nature, and did not address conservation of the marine ecosystem.

Good practice

Odisha had notified Gahirmatha Marine Sanctuary in the same coastal belt of Sundarban.

(b) Audit further observed that out of 10 types of forests in the State, Northern Tropical Dry Deciduous forest type (4527 sq km, 38 per cent of total forest area) was found in five districts- Bankura, Purulia, Midnapur, Birbhum and Burdwan. Despite high spread of these forests, only two¹³ small Wildlife Sanctuaries (2.17 sq km) were created in these districts.

Chief Wildlife Warden (CWLW) stated (July 2016) that forest areas in these five districts were not contiguous, but fragmented and have human habitation all around. Moreover, these forests hardly supported any wildlife/ biodiversity which require special protection. The contention of the CWLW was incorrect

¹² 2C- Central Himalayas, 6B-Deccan Penninsula-Chhotanagpur 7B-Lower Gangetic Plain and 8B-East Coast

¹³ Ballavpur WLS in Birbhum District and Ramnabagan WLS in Burdwan District

as a Report¹⁴ of the Forest Directorate had shown that an area of 250 ha of contiguous forests was available in Forest Division of Kangsabati in Purulia district. Further, this area was also rich in biodiversity as exhibited in the Report with the existence of flora and fauna which were vulnerable, like wild pig, jackal, langur, Indian wolf, spotted deer, hyena, python, porcupine, pangolin, wild boar, different kinds of birds *etc.* As such, this area warranted special protection measures to conserve these threatened/ vulnerable resources.

2.6.2 Creation of Conservation Reserves

Wildlife Protection Act 1972 stipulates that State Government may create Conservation Reserves for the purpose of protecting landscapes, seascapes, flora and fauna, their habitat areas adjacent to PAs and those areas which link one PA to another.

Audit observed that no Conservation Reserves have been formed in the State as of December 2016, despite being recommended by State Board for Wildlife (SBWL), as discussed below:

(a) As per Zoological Survey of India report on wetlands in 2013, Santragachi Jheel was one of the most important urban wetland of West Bengal. The report observed that migratory birds¹⁵ visited this lake and it was getting polluted due to dumping of waste materials and sewage inlets by local people. SBWL had observed in 2010 that the proposal for setting up the Conservation Reserve was kept pending by the Forest Department. It was further observed that the Forest Department had prepared a management plan (2007-2011) for the conservation of the lake, which was, however, not operationalised. Accepting the Audit observation, the CWLW stated (December 2016) that the proposal for declaring the area as Conservation Reserve was under examination.

(b) As per the Conservation Action Plan (2010-2020) for the Gangetic Dolphin prepared by Ministry of Environment and Forest and Climate Change (MoEF&CC) (November 2010), Chief Wildlife Wardens of each State should consult experts for preparation of Status Report of Gangetic Dolphin. Based on the status report and identification of river stretches that supported breeding populations of the Gangetic Dolphin, States were to propose Protected/ Conservation areas under the provisions of the Wildlife (Protection) Act (1972). It was observed that SBWL had approved (October 2015) creation of a dolphin community reserve, however, notification in this regard had not been issued as of December 2016. Further, it was observed that SBWL had proposed as far back as December 2003 to declare a part of the Hooghly-Bhagirathi River as protected area for conservation of Gangetic Dolphin, but no action was taken by the State Government.

¹⁴ State Report on National Programme on promoting Medicinal Plants Conservation and Traditional Knowledge for Enhancing Health and Livelihood Security for West Bengal (UNDP-CCF-II Project No 13047) Published by the Research Circle, Directorate of Forest, Government of West Bengal in 2010.

¹⁵ Saras crane from North America and Australia, Gadwall, Northern Pintail, Northern Shoveler, Garganey from North of the Himalayas and many other local migratory birds such as cotton pygmy goose, Comb duck *etc.*

In reply, the CWLW stated (December 2016) that the proposal for declaration of the area as Dolphin Conservation Reserve had been prepared and would be submitted to SBWL; however, no further details were made available.

Good practice

Vikramshila Gangetic Dolphin Sanctuary was set up in 1991 covering about 50 km of the Ganga between Sultanganj and Kahalgaon in Bihar.

2.6.3 Protection measures for conservation of endangered species

Protected Areas (PAs) are the cornerstone of efforts to conserve biodiversity and environment. PAs face many challenges to their integrity and are under pressure from internal and external threats. Regular census of wildlife species enables PA managers to undertake effective conservation measures. Census of some endangered animals like tigers, leopards, gaurs, elephants, rhinoceros and crocodiles only were conducted intermittently, whereas census was not carried out for a number of other threatened and endangered species¹⁶. In the absence of any regular census, PA managers were totally unaware of the exact status of threatened species. This would hinder them in taking timely measures for their conservation if required and would defeat the purpose of setting up the PA. Audit observed that the Department had not taken sufficient measures for protection of biodiversity by strengthening the network of PAs as discussed below:

2.6.3.1 Creation of corridors to link one PA to another

According to National Wildlife Action Plan (NWAP), States had to identify wildlife corridors between important PAs, harbouring endangered and long range species. Wildlife Institute of India was entrusted by MoEF&CC with the task of identification of elephant corridors all across India and 19 such corridors were identified in West Bengal. The Elephant Task Force set up by MoEF&CC had recommended (August 2010) that identified elephant corridors should be legally protected through any of these means: (i) creation of Community/ Conservation Reserves, (ii) declaration as ecologically sensitive area, (iii) declaring corridor land as Reserve Forest/ Protected Forest, (iv) declaration as community forests and (v) by increasing boundary of existing PA and make the corridor as part of existing PA. Audit observed that eight out of 14 identified elephant corridors in North Bengal link five PAs¹⁷ and were adjacent to each other. However, as of December 2016, all these corridors were yet to be legally protected as per the recommendation of the Task Force. Further, Audit observed that obstruction of natural migratory path of elephants resulted in many conflicts with humans as discussed in **Paragraph 2.7.6**. Thus, as a result of lack of legal protection¹⁸, the Government was unable to put in place a mechanism to regulate land use, land

¹⁶ Fishing cat, Himalayan serow, Pigmy hog, Bengal florican, Asian wild dog, different kinds of eagles, Parrot bills, Vulture etc

¹⁷ Mahananda WLS, Gorumara NP, Chapramari WLS, Jaldapara NP and Buxa Tiger Reserve

¹⁸ Legal protection can be given under various laws appropriate for the state e.g. declaring corridors land as conservation/ community reserve under Wildlife Protection Act-1972, restricting certain activities such as: land use pattern, regulation of traffic, maintenance of the ecological status of the corridors etc.

diversion, prevention of encroachment *etc.*, in these identified elephant corridors.

CWLW agreed (December 2016) that protection of these corridors was important and out of 14 identified corridors in the State, seven would be duly covered as the part of Eco-Sensitive Zones (ESZs), once the GoI notified them. The reply, however, should be seen in the light of the fact that the Department was yet to earmark the areas for declaration of ESZs, as directed by MoEF&CC.

2.6.3.2 Destruction of Jorepokhari WLS



Figure 2.1: Concrete pond of Jorepokhari WLS

Himalayan Salamander is a threatened unique tailed amphibian species found in the Darjeeling Hills. The Jorepokhari Salamander Sanctuary (4.05 ha area), the only Sanctuary for conservation of the Himalayan Salamander, was notified in March 1985 for the purpose of protecting, propagating and developing the Salamander and its environment. Audit

observed that the Conservator of Forest, Wildlife (North) had visited the Sanctuary in June 2012 and reported that there was no sign of Salamander anymore in the Sanctuary site. He attributed disappearance of Salamander to the fact that two natural ponds of the Sanctuary had been concretised by Public Health Engineering Department and concrete picnic spot, black top road & tourist lodges had been constructed within the Sanctuary by the then Darjeeling Gorkha Hill Council. However, Audit observed that the disappearance of the Salamander had been reported¹⁹ as far back as in 2007 by Zoological Survey of India (ZSI) and it had also identified 19 other sites where Salamanders were found and had suggested taking measures for its conservation in the areas. However, the Department was neither able to protect the Salamander in the Jorepokhari Sanctuary nor was able to set up other PAs for the conservation of this threatened species.

The CWLW stated (December 2016) that Salamander was available in many other parts of the Darjeeling Hills. However, the fact remains that the Department failed to act on the advice of the ZSI for conservation of the endangered species in other identified areas through the PA network.

2.6.3.3 Creation of Eco-Sensitive Zones (ESZs) around PAs

According to Wildlife Conservation Strategy 2002, land falling within 10 km of boundaries of National Parks (NPs) and Wildlife Sanctuaries (WLSs) should be identified by the State Government and notified as Eco-Sensitive Zones (ESZs)²⁰ by MoEF&CC. The basic aim of creation of ESZs was to

¹⁹ Status Survey of Himalayan Salamander *Tylototriton Verrucosus Anderson* in Darjeeling Hills 2007.

²⁰ MoEF&CC in its guidelines of February 2011 for creation of ESZ stated that the purpose of creation of Eco-Sensitive Zones around NPs and sanctuaries is to create a kind of shock absorber for the PAs. These would also serve as transition zone from areas of high protection to areas requiring lesser protection.

regulate certain activities around NPs/ WLSs like those of saw mills, hotels *etc.*, to minimise the negative impacts of such activities on the fragile ecosystem encompassing the PAs.

MoEF&CC had brought out (February 2011) guidelines²¹ for declaration of ESZs in order to facilitate the submission of site specific proposals. It had issued (December 2012) a reminder to States for sending proposals by 15 February 2013 which was extended subsequently to 15 May 2013 and 15 July 2013. Audit observed that Forest Department had forwarded (May 2013) to MoEF&CC the proposals for declaration of ESZ around all the PAs. MoEF&CC requested (September 2015) the Forest Department to send a draft notification for declaration of ESZs. Further, MoEF&CC also instructed (November 2015) the Forest Department to send clearly earmarked areas for declaration of ESZs. However, the Department had not taken any action in this regard till date of audit.

The fact remains that in absence of creation and notification of Eco-Sensitive Zones around each NP/ WLS, the activities, which were harmful to the fragile ecosystems could not be prohibited/ regulated.

2.6.3.4 Identification of inviolate areas in PAs

National Wildlife Action Plan (2002-16) aimed to bring 10 *per cent* of the landmass under the PA network, of which at least 50 *per cent* should be inviolate. This was considered necessary to retain the pristine status of such areas without any management intervention except protection and monitoring of biodiversity.

(a) Audit observed that in six PAs, inviolate habitats (wilderness zone) were less than 50 *per cent* of the total area of PAs as shown in the table 2.1.

Table No. 2.1: Details of inviolate spaces in PAs

Name of the PAs	Total Area (in sq km)	Inviolate space (in sq km)	Percentage of inviolate space
Chapramari WLS	9.60	4.35	45
Neora Valley NP	159.8917	69.52	43
Jaldapara NP	216.34	71.80	33
Mahananda WLS	158.04	65.73	42
Sajnakhali WLS	362	0	0
Raiganj WLS	1.30	0.1446	11

(Source: Respective Management Plans and Divisional records)

CWLW stated (December 2016) that it was not mandatory to keep more than 50 *per cent* of the area as inviolate. The reply does not address the audit objection as to why even the lower limit of 50 *per cent* could not be maintained.

²¹ Each state has to carry out an inventory of different land use patterns/ types and number of industries operating around each PA to be done by Range Officers along with the help of a committee. The committee should prepare a list of activities like commercial mining, felling of trees, setting of industries causing pollution (Water, Air, Soil, Noise *etc.*), establishment of hotels and resorts *etc.* Each of these activities had to be classified as prohibited, restricted with safeguards or permissible. These are then to be sent to the MoEF&CC, as and when the proposals are completed for each NP.

(b) No area within Sajnakhali WLS (362 sq km) was identified and declared as inviolate. Entire area under this WLS, which falls in the buffer area of Sundarban Tiger Reserve (STR), was included in the tourism zone to meet the objectives of promoting tourism and allied activities, provide a source of recreation to the local population *etc.* As a result, over the years, tourism activities in Sajnakhali had multiplied manifold with mushrooming of new lodges, resorts, hotels which led to problems like waste disposal, water pollution, overcrowding of tourist places *etc.* Despite the fact that this sanctuary has enormous ecological importance due to presence of tigers, estuarine crocodiles, mangroves *etc.*, tourism in this area posed a threat to these endangered species.

The CWLW stated that the entire sanctuary had been designated as tourism zone and the conservation efforts were not being hampered. The reply needs to be seen in light of the fact that according to the WPA 1972 and Hon'ble Supreme Court²² (1992), the purpose of declaring any area as PA is to protect the forest wealth and wildlife of the areas and not to encourage tourism.

2.7 Management of PA network

As per National Wildlife Action Plan (2002-16), each PA should have its own Management Plan (MP) based on sound scientific and ecological data for effective management of PAs. MPs of all PAs were to be completed by 2002. According to "Manual for Planning Wildlife Management in Protected Areas and Forests" of Wildlife Institute of India, the MP must realistically address all management issues and must maintain objectivity, quality and standards. WPA 1972 stipulated preparation of Tiger Conservation Plan (TCP) for proper management of a tiger reserve. MPs/ TCPs guided the ecologically sound management of any PA.

2.7.1 Preparation/ implementation of Management Plans/ TCPs

National Wildlife Action Plan (2002-16) stated that "preparation of scientific, ecologically sound, PA specific MPs were to be done by teams of officials, experts and local community representatives, incorporating case studies of past management successes and failures, strict conservation zones and degraded habitats were to be identified for each PA and special management measures were to be formulated for these areas for effective management of PAs". As per management plan code, MPs were to be prepared in every 10 years and approved by GoI.

In West Bengal, out of 21 PAs, four PAs²³ were to be managed by Tiger Conservation Plan of concerned tiger reserve. For remaining 17 PAs where MPs were to be prepared, 13 PAs had approved MPs and four PAs²⁴ did not have approved MPs (**Appendix 2.2**). Audit observed the following deficiencies in preparation of management plans:

²² *Tarun Bharat Sangh, Alwar v. Union of India, AIR 1992 SC 514*

²³ *Buxa WLS and Buxa NP under BTR and Sajnakhali WLS and Sundarban NP under STR.*

²⁴ *Chintamonikar Bird Sanctuary, West Sundarban WLS, Ramnabagan WLS and Jorepokhari WLS*

2.7.1.1 Institutional mechanism

According to the “Manual for Planning Wildlife Management in Protected Areas and Forests” (1995) by Wildlife Institute of India, a premier institute in Wildlife Management under the MoEF&CC, for making wildlife planning process effective, an independent planning cell was required to be established under CWLW and the process of planning needed to be institutionalised with specified steps and time frames leading to finalisation of a Management Plan (MP). The Manual also recommended that a minimum period of a year and half should be assigned for completion of a MP and the first six months should be devoted to the preparation of preliminary plan.

Audit observed that no independent planning cell had been set up for preparation of MPs, as was done for preparation of Working Plans of forest divisions. The task of preparing the MPs were entrusted on Park Managers in addition to their regular duty of protection and conservation. As a result, the work of preparation of MPs was hampered.

CWLW agreed (December 2016) and stated that in view of expansion of PA network a separate Management Planning Cell would be set up at Headquarters as an advisory body for monitoring and writing of MPs.

Lack of a planning cell contributed to deficiencies/ delay in preparation of MPs as discussed below:

2.7.1.2 Preparation of Management Plans

Management Plans were required to be prepared by the concerned Park Managers of the Protected Areas after consideration of available information, past management practices, consultation with stakeholders, field surveys *etc.* The draft MPs were to be submitted to Chief Wildlife Warden (CWLW) for approval of the same. Audit observed following lapses in the preparation of Management Plans.

(a) The Forest Directorate had not set any timelines for preparation of MPs. There was significant gap between expiry of a MP and approval of a new MP of five PAs²⁵ (gap period ranged from two years to seven years). As a result, management of these PAs were done on ad-hoc basis during these interim periods.

(b) Management Plan (MP) of Ramnabagan WLS had expired on 31 March 2012. After a lapse of two years, the concerned DFO submitted (April 2014) the draft MP of the WLS for the period from 2013-14 to 2022-23 to CWLW which was yet to be approved (December 2016).

(c) West Sundarban WLS was created in September 2013. Audit observed that despite lapse of almost three years (September 2013 to July 2016), MP for the new WLS had not been prepared by the Division. It was also seen that MP of another PA (Chintamonikar WLS) which had lapsed in March 2015 was also not prepared. The Division stated (June 2016) that an experienced person having sufficient knowledge of Sundarban was required for preparation of the MPs. The Division further stated that works such as ‘Habitat improvement for

²⁵ Mahananda WLS, Neora Valley WLS, Senchal WLS, Bethuadahari WLS and Singhalila NP

wildlife' and 'Infrastructure development activities' had suffered due to non-availability of funds under Central Sector Schemes in absence of MPs.

CWLW stated (December 2016) that necessary action was being taken to complete these MPs.

2.7.1.3 Mid-term review/ appraisal of the MP

The manual of WII, 1995 had also emphasised mid-term-review of MPs. MPs themselves also contained provisions for periodical review. Audit observed that the MPs of Jaldapara, Gorumara, Neora Valley NP and Chapramari WLS were not reviewed in accordance with the changing needs as discussed below:

(a) The present MP of Jaldapara NP (2007-08 to 2016-17) was approved (September 2010) when it was a WLS; it was subsequently declared as a NP in 2012. Audit observed that the work of revision of MP commenced in March 2013 by Assistant Wildlife Warden (AWLW), Jaldapara NP. Due to heavy work pressure, the concerned Park Manager had requested (November 2013) Chief Wildlife Warden to assign the job to an officer on special duty which was not agreed to by the Forest Directorate and the work was assigned to the posted AWLW for completion by April 2014. Audit observed that this work was not completed till May 2016. In reply, the Park Manager stated (May 2016) that due to frequent changes at the level of AWLW by way of transfer and promotion, the review of the MP could not be completed.

(b) About five sq. km of non-forest land was added to Gorumara NP on the eastern side of the park through compensatory afforestation scheme. Audit observed that despite addition of such land into the NP, the MP was not revised to include this area for conservation measures.

(c) State Board for Wildlife had approved (February 2012) inclusion of a part of forest land of Kalimpong Forest Division into the Neora Valley NP for better and holistic management of the ecosystem as this area was rich in biodiversity. Accordingly, area of Neora Valley NP was increased (January 2013) from 88 sq km to 159.17 sq km. As per Park Manager, the added area was susceptible to illegal felling and criminal activities as it was surrounded by many revenue villages. Further, non-provision of fund and manpower for added area was creating problems in protection and overall management of the protected area. Audit, however, observed that its MP had not been reviewed and modified till December 2016. This impacted the holistic management of the entire area.

In absence of dedicated manpower and prescribed timeline, completion of the review of the MPs were still pending. Non-review of MPs would result in inputs like changing situations, suggestions received from experts, new policies introduced by Government like eco-tourism *etc.*, not being incorporated into it.

CWLW accepted (December 2016) the audit observation and stated that formation of Management Planning Cell would help in addressing this issue.

2.7.1.4 Preparation of Tiger Conservation Plan (TCP)

As per Hon'ble Supreme Court of India's order (October 2012) each tiger reserve was required to submit a TCP inclusive of a tourism sub-plan by April 2013. Audit observed that though the preparation of the first draft of TCP of Buxa Tiger Reserve (BTR) commenced as early as in the year 2010-11, the final draft of the TCP of BTR was submitted to NTCA only in December 2015 and its approval was obtained in November 2016. Audit analysis showed that the main reason for delay in preparation of TCP was tardiness in incorporating suggestions of NTCA into the TCP; these included plan for mitigation of human-wildlife conflict, details of proposed corridors, provision for augmenting prey base, security plan, year-wise planned activities, tourism plan *etc.* Audit also observed that delay in preparation of the TCP was due to non-finalisation of core and buffer zones of BTR. As such, BTR had been functioning without any TCP since 2010-11 and was being run in an ad-hoc manner without taking into account the long term perspective which was essential for management of tiger reserve. This needs to be seen in light of the fact that the population of tigers in BTR had disappeared over the years and no tigers were seen in the last census (January 2015).

2.7.2 Improvement of habitat of PAs

The goal of habitat restoration was to identify disturbed habitats and restore the native flora and fauna to ensure the continued use of the land by both wildlife and humans. An integral part of MPs, habitat restoration included activities like natural and artificial regeneration of grass, plantation of fodder species, development of water holes, weed removal and regular maintenance of fire lines to control ground fire. Grassland management was also one of the major activities in the Terai and Dooars forest areas of West Bengal. All habitat improvement activities were to be carried out in line with approved MPs. Audit observed the following shortcomings in habitat improvement activities undertaken by PAs:

2.7.2.1 Improvement of degraded forest land in PAs

(a) As per divisional records, BTR had 5550 ha of blank and degraded area (February 2013). Audit observed that during 2013-16, only 426 ha of land were rejuvenated through the plantation of trees and grasslands and soil conservation for providing adequate cover to wildlife and availability of fodder. It was observed that BTR had failed to improve 5124 ha of old degraded land (March 2016).

Field Director stated (July 2016) that biotic factors like grazing, illicit removal of firewood and timber *etc.*, were the main reasons for degradation of wildlife habitat and increase in intensity of man-animal conflict in this area. He further stated that due to acute shortage of field level staff and non-availability of fund for plantation, entire blank areas could not be taken up for habitat improvement. This reply needed to be seen in light of the fact that contractual labourers from Eco-Development Committees were engaged for this activity and these activities were not carried out by departmental staff. Audit further observed that ₹ 4.26 crore (March 2016) was lying unused in the Buxa Tiger Conservation Fund which could have been utilised for this purpose.

(b) Approximately 101 ha blank area, free from encroachment, exists in Rachilla Chawk in Neora Valley NP which was once covered by forests. MP of Neora Valley prescribed plantation in five ha every year in this blank area. Audit, however, observed that during the period 2011-12 to 2015-16, against the target of 25 ha, plantation was done in only four ha. As per the MP (2011-12 to 2021-22) of Chapramari WLS, there were 200 ha degraded and blank area, free from encroachment, against which plantation was done in only 20 ha during 2011-12 to 2015-16. As such, the forested area in the WLS kept decreasing and did not afford habitat to the protected species.

2.7.2.2 Maintenance/ creation of grasslands

Jaldapara and Gorumara NPs in North Bengal are famous for one-horned rhinos. As per MP, a limiting factor for conservation of rhinos in these two NPs was inadequate grassland habitat for this species. In Gorumara NP, grassland available as forage for rhino was only 7.50 sq km which was 9.44 *per cent* of the total area. In Jaldapara NP, grassland available for foraging for rhino was 30.55 sq km (14.11 *per cent* of total area). As per MP, the two National Parks were required to expand the area under grassland as well as maintain existing grassland. In this regard, audit observed the following:

(a) Against the aggregate annual target of maintenance of grasslands²⁶ prescribed in MPs of Gorumara and Jaldapara NPs of 740 ha, achievement ranged between 110 and 200 ha during the period 2011-12 to 2015-16 (**Appendix 2.3**).

(b) During 2011-12 to 2015-16, achievement in respect of fresh fodder grass in Gorumara and Jaldapara NPs ranged between 57 and 160 ha against the annual target of 940 ha as envisaged in MPs (**Appendix-2.4**).

(c) No fodder plantation was taken up in 2012-13 and 2014-15 in these NPs.

2.7.2.3 Removal of invasive species and weeds

Audit observed that the MPs of Jaldapara and Gorumara NPs had identified weeds and climbers²⁷ as acute problems in these parks. The MP of Neora Valley NP also identified thick undergrowth of malling bamboo²⁸ restricting the movement of big mammals and leading to poor natural regeneration of oak and other trees. These invasive species and weeds invade the grasslands, particularly during rainy season, and require regular removal. Consequently, MPs of these NPs included removal of these species for proper habitat management. Targets/ achievement with regard to removal of invasive species are detailed in the table 2.2.

²⁶ Through cutback of older fodder grass and over wood removal.

²⁷ *Leea spp.*, *Cassia tora*, *Mikania spp.*, *Eupatorium spp.*, *Lantana camara* and *Clerodendron bengalensis*.

²⁸ An invasive species of bamboo.

Table No. 2.2: Target vis-à-vis achievement in removal of invasive species etc.

Activity	PAs	During the period 2011-12 to 2015-16		
		Targets (in ha)	Achievement (in ha)	Achievement in percentage
Removal of Invasive species/weed	Jaldapara	2000	275	14
	Gorumara	500	110	22
Removal of malling bamboo	Neora Valley	25	5	20

(Source: Management Plan and information furnished by the concerned divisions)

2.7.2.4 Prevention of forest fires

Forest fires adversely affected habitat quality of PAs, caused loss of biodiversity, harmed micro flora and fauna of the habitat, depleted fodder resources for herbivores etc. As per Management Plans, for restricting the spread of fire, fire lines created in the forest areas were to be cleaned twice a year, during the months of November-December and March.

Audit observed that in three²⁹ wildlife divisions containing nine PAs, 1467.89 km of fire lines were existing. The status of clearing/ maintaining these fire lines during 2011-12 to 2015-16 is depicted in the table 2.3.

Table No. 2.3: Status of clearing/ maintaining fire lines

Name of the Protected Area	Total length of fire lines (in km)	Fire lines to be cleaned yearly	Fire lines cleaned during the year (in km)				
			2011-12	2012-13	2013-14	2014-15	2015-16
Jaldapara NP	295	590	45	50	40	25	50
Neora Valley NP	60	120	40	20	20	20	40
Gorumara NP	105	210	40	65	30	65	60
Chapramari WLS	17	34	0	0	4	12	10
BTR (Buxa WLS and Buxa NP)	807	1614	0	0	50.75	152	75
Mahananda WLS	183.89	367.78	163	125	100	37	60
Singhalila NP	Not available	Not available					
Senchal WLS	Not available	Not available					
Total	1467.89	2935.78	288	260	244.75	311	295

(Source: Respective Management Plans and divisional records)

CWLW stated (December 2016) that target of MPs with regards to habitat improvement like regeneration of grass, plantation of fodder, development of water holes, weed removal and maintenance of fire lines could not be achieved due to less allocation of fund and shortage in staff. Audit, however, observed that the Department had failed to submit Utilisation Certificates of first instalment in time to GoI which resulted in short release of nearly 27 per cent of fund under Centrally Sponsored schemes. Further, all the habitat improvement works were being done through members of Eco-Development Committees and not by the departmental staff.

²⁹ Gorumara Wildlife Division, Jaldapara Wildlife Division and Darjeeling Wildlife Division

2.7.3 Removal of human and biotic pressure

PAs needed to be free from human population as well as free from grazing/illegal encroachments to reduce biotic pressure and to preserve the habitats in the best possible natural conditions. This was also essential to reduce and prevent human and wildlife conflict.

National Wildlife Action Plan 2002-16 stated that voluntary relocation and rehabilitation of villages out of PAs needed to be done and that relocation and rehabilitation of villages should be undertaken on a voluntary basis or by persuasion from high conservation value segments of PAs *e.g.* pristine/ old-growth areas or the core segments of NPs.

As per WPA 1972³⁰, core or critical tiger habitats areas of NPs/ WLSs was required to be kept inviolate for tiger conservation and be notified by the State Government in consultation with an Expert Committee constituted for the purpose, without affecting the rights of the Scheduled Tribes and other Traditional Forest Dwellers. The voluntary relocation of people was to be carried out only in the identified core/ critical tiger habitats of a tiger reserve.

Further, as per guidelines for preparation of Tiger Conservation Plan (2007) issued by National Tiger Conservation Authority, a minimum inviolate area of 800-1200 sq km was required for a viable population of tigers (20 breeding tigresses) and an ecologically sensitive zone (buffer/ co-existence area/ multiple use area) of 1000-3000 sq km was required around this inviolate space for sustenance of surplus breeding age tigers and old displaced tigers. NTCA Guidelines (March 2010) prescribed two options for relocation of forest villages-Option I: Payment of the entire package amount (₹ 10 lakh per family) to the family in case the family opts so, without involving any rehabilitation/ relocation process by the Forest Department. Option II: Carrying out relocation/ rehabilitation of village from protected area/ tiger reserve by the Forest Department. In case the cost of relocation including settlement of rights per family exceeded ₹ 10 lakh, State Government has to meet the extra cost.

(a) Audit observed that 15 forest villages³¹ existed in the core zone of BTR. Since these villages existed in the core zone, BTR was required to carry out relocation of people living in these villages. Audit further observed that a State Level Monitoring Committee was formed (April 2010) for relocation of these 15 forest villages from the core area. Audit further observed that 1833 families from nine villages (August 2010) were willing to relocate and the committee decided (September 2010) to sign a Memorandum of Understanding (MoU) with these villagers. Audit, however, observed that no MoU had been signed with villagers opting for relocation till date and no village for core area of BTR had been relocated as of December 2016. CWLW stated (December 2016) that after settlement of rights under Forest Rights Act, willingness for relocation would be obtained from villagers and appropriate package would be adopted.

³⁰ Section 38V 4(i)

³¹ Raimatang, Adma, Chunabhati, Santrabari, Lepchakhawa, Bhutiabasty, Newlands, Kumargram, Sankosh, Pampubasti, Gangutia, 28th Mile and 29th Mile

This reply needs to be seen in light of the fact that the Government had not moved forward the process of signing the MoU with people who had already opted for relocation and thus were willing to move out of the core area.

(b) Audit further observed that till March 2016 no steps have been taken to relocate forest villages from the other five PAs³² despite existence of 18 forest villages in these PAs. PA managers of Jaldapara, Gorumara, Chapramari and Neora Valley stated (May 2016) that no concrete steps had been taken to relocate the villagers in absence of any relocation schemes/ package. This reply needs to be seen in light of the fact that guidelines issued by MoEF&CC regarding identification of Critical Wildlife Habitat in each protected area envisaged that the core area should necessarily be inviolate and the State Government should have taken the prescribed steps to ensure that.

2.7.4 Eco-tourism in and around PAs

As per NWAP, regulated, low-impact tourism had the potential to be a vital conservation tool as it helped win public support for wildlife conservation. However, in recent years, increased numbers of tourists and proliferation of tourist facilities had led to overuse, disturbance and serious management problems for PA managers. NWAP envisaged preparation of Tourism Management Plan, conduct of surveys of accommodation and tourist facilities within the PAs and fixing a ceiling on the number of tourists/ tourist vehicles permitted to enter the PA.

2.7.4.1 Eco-tourism Strategy/ Plans of PAs

As per Guidelines for Eco-tourism in and around PAs (June 2011) issued by MoEF&CC, States were required to develop a State-level Eco-tourism Strategy and also prepare eco-tourism plan as part of the MP for each PA by 31 December 2011. These eco-tourism plans were to be consistent with the State-level Eco-tourism Strategy and to be approved by Local Advisory Committee (LAC) of the PA.

(a) Audit observed that PCCF Wildlife constituted (March 2015) a State-level Eco-Tourism Committee for finalisation of eco-tourism policy/ strategy for PAs by April 2015. Draft Eco-tourism Policy and Guidelines for PAs in West Bengal (2015) prepared by the Eco-Tourism Committee of the Forest Department was forwarded (July 2015) to members of Eco-tourism Advisory Board (ETAB) for their comments. However, audit observed that the eco-tourism policy/ strategy was yet to be approved by the Department.

(b) Further, as per Forest Directorate instructions (July 2015), all concerned divisions were to prepare and submit Eco-tourism Plan for each PA under their control by August 2015 for incorporation in the current MPs of the concerned PA. Audit observed that till May 2016, no separate Eco-tourism Plans had been prepared/ finalised for seven PAs³³, as such these did not form part of MPs of these PAs.

³² Two forest villages in Jaldapara NP, two in Gorumara NP, six in Senchal WLS, seven in Mahananda WLS, one in Singhalila NP

³³ Mahananda WLS/ Senchal WLS/ Singhalila NP/ Jaldapara NP/ Neora Valley NP/ Chapramari WLS/ Raiganj WLS

The CWLW confirmed (December 2016) that the eco-tourism policy for the PAs was yet to be approved by the Forest Department and was under active consideration.

2.7.4.2 Diversion of forest land for eco-tourism

Eco-tourism is a non-forestry activity under the Forest Conservation Act 1980. As such, permission for diversion of forest land for construction of eco-tourism facilities was required to be taken from MoEF&CC before undertaking construction work.

Scrutiny of records of BTR showed that the Forest Department took up the work of construction of camping facilities for eco-tourism purposes at five locations³⁴ without permission from the competent authority for diversion of forest land for construction of these facilities. Work of construction of a total nine cottages at Jayanti and Nimati was completed and the work of construction of nine cottages at Buxaduar, Silbunglow and Raimatang was under progress.

In reply, the CWLW stated (December 2016) that these activities did not fall under non-forestry activities. The reply was incorrect as MoEF&CC in 2010 had clearly stated that eco-tourism was a non-forest activity and these activities required approval under Forest Conservation Act 1980.

Good Practice

The core area of the Pench Tiger Reserve in Madhya Pradesh is inviolate and tourists' activities are permitted to a limited extent. During last 10 years efforts had been made to reduce the tourists inflow by applying strict checking and control on the movement of tourists. Many sought after locations in core zone had been deliberately closed for tourists to avoid undue pressure on habitat.

2.7.5 Introduction of species/ species translocation for effective species Management

2.7.5.1 Introduction of rhino in Gorumara and Jaldapara NPs

As per rhino Census (2015), there were 49 rhinos and 204 rhinos in Gorumara NP and Jaldapara NP respectively. The male-female ratio of rhinos was approximately 1:1 in both these NPs which was much less than the standard sex ratio of 1:3 as prescribed by MP of Gorumara. With a view to gene pool uplifting, avoiding inbreeding depression and to maintain appropriate sex ratio, MPs of Jaldapara NP and Gorumara NP prescribed the introduction of female rhinos brought from natural habitats across India and not from any zoo. Audit, however, observed that re-introduction of rhinos in these PAs was not done as of December 2016. PA Manager Jaldapara stated (July 2016) that efforts were made for re-introduction of rhinos in 1995 but were not successful as the introduced rhinos were not accepted by the native ones as the male rhino was sourced from a zoo. No further efforts had been made since then.

³⁴ Jayanti (6 cottages), Nimati (3 cottages), Buxaduar (3 cottages), Silbunglow (3 cottages) and Raimatang (3 cottages)

CWLW agreed with the audit observation and stated (December 2016) that low genetic diversity of rhino in Jaldapara and Gorumara NPs would be addressed in future while initiating the programme of translocation of gaur to BTR.

2.7.5.2 Re-introduction of Tiger in Gorumara NP

Tiger had been extinct from Gorumara NP since late 80's. Since the implementation of the 1st MP of Gorumara NP, herbivores population, especially that of gaurs, increased very rapidly. So the MP prescribed for the re-introduction of minimum three females and one sub-adult male tiger in Gorumara with a view to bringing biological control over threatening population of gaurs. Audit, however, observed that no such re-introduction project had been taken up as of December 2016.

The CWLW accepted (December 2016) that the MP would be revised in the next opportunity.

Good practice

Panna National Park in Madhya Pradesh had lost all its tigers in 2009 but regained its status in 2012 when tigers were successfully translocated. Panna Tiger Re-introduction Program had facilitated recovery and at present the number of tigers were 23.

2.7.5.3 Overpopulation of wildlife in PAs

Overpopulation of wild animals in a particular PA may result in inbreeding and other health related problems, contamination with diseases along with shortage of fodder. To reduce overpopulation of wildlife in the following PAs, proposals were made for relocation; however, no action had been taken by the Department as of December 2016 as detailed in the table 2.4.

Table No. 2.4: Plan for relocation vis-a-vis current status

Name of PA	Species overpopulated	Plan for relocation	Current status
Bibhutibhusan WLS, Bethuadahari WLS, Ballavpur WLS and Ramnabagan WLS	Deer	Technical Committee of West Bengal Zoo Authority observed (April 2014) that breed and the present stock was of very uncertain genetic/ physical health. So it recommended phasing out the existing stocks by controlled breeding and its release in forested patches of South Bengal including Mayurjharna Elephant Reserve.	Not done
Jaldapara NP	Rhino	State Board for Wildlife approved (January 2010) to translocate overpopulated Rhinos from Jaldapara to Rasomati.	Not done
Jaldapara and Gorumara NPs	Gaurs	CWLW suggested (January 2016) for even distribution of Gaurs throughout all PAs on priority basis to prevent wiping out of the entire population in case of spreading of diseases like Anthrax and FMD. Audit also noticed that Gaur population was wiped out in Mahananda Wildlife Sanctuary on account of some disease.	Not done

(Source: Departmental records)

The CWLW stated (December 2016) that a total of over 1500 spotted deer had been translocated. Audit, however, observed that no translocation of deer took place from these WLSs since January 2012. Regarding translocation of rhinos from Jaldapara and Gorumara NPs, CWLW stated that this issue would be placed before the State Board for Wildlife.

Good practice

In January 2011 and March 2012, 51 gaurs were translocated in Bandhavgarh Tiger Reserve, Madhya Pradesh and are currently doing well.

2.7.6 Man-animal conflict and compassionate payment

Conflicts usually arise out of wild animals straying into habitations. This results in killing of wild animals or death/ injury of human beings and loss of crop/ cattle/ houses.

The CWLW stated (December 2016) that it had taken many steps to reduce conflicts and check animal depredation like identification and mapping of critical elephant migration corridors and routes, electric fencing at strategic locations, driving elephants from human habitations by elephant depredation control squads, eco-development activities in the fringe villages to reduce biotic pressure inside forest areas, indirect measures to mitigate man-animal conflicts *etc.* Scrutiny of documents, however, showed that these steps were not effective as depicted below:

- During 2011-12 to 2014-15, 210 cases of wild animals³⁵ straying were reported in which 339 persons were killed and 908 persons were injured.
- Due to straying of wild animals from their natural habitats, 226 wild animals were killed in various accidents.
- In retaliatory killings by the affected people, eight leopards and 10 elephants were killed during 2011-15.
- ₹ 19.29 crore was paid during 2011-15 towards compensation for injury and loss of human life, livestock killed, hut and crop damage *etc.*, caused by wild animals.

2.8 Availability of resources/ institutional mechanism for protection of forests/ biodiversity

Protection of unique biodiversity was the ultimate aim of setting up and management of PAs. To this end, adequate funds and manpower along with institutional mechanisms needed to be made available to all the PAs for their effective management. Audit observed following deficiencies relating to funding, manpower, institutional mechanisms and availability of other resources which are discussed below:

2.8.1 Financial management

Funds for the management of PAs were allotted by GoI under different Centrally Sponsored Schemes (CSSs) like Project Tiger, Integrated

³⁵ Tigers (80 cases), Rhinos (41 cases), Leopard (21 cases) and Gaurs (68 cases)

Development of Wildlife Habitats (IDWH) etc., and by State Government for State Plan Schemes. CSS was to be released in two instalments by MoEF&CC. The first instalment was usually released at the time of approval of Annual Plan of Operations (APOs) and the second instalment after receipt of Utilisation Certificates (UCs) of the first instalment.

Audit noticed the following instances of deficiencies in financial management:

2.8.1.1 Submission of APOs

Audit observed that APOs of eight PAs³⁶ were submitted regularly to MoEF&CC during 2011-12 to 2015-16 for funding under CSS-Integrated Management of Wildlife Habitat. APOs of two PAs³⁷ were submitted to MoEF&CC in the year 2015-16 for the first time. However, APOs of six PAs³⁸ were not prepared and as a result no Central Assistance was provided by GoI for management of these Wildlife Sanctuaries during 2011-12 to 2015-16.

2.8.1.2 Utilisation of Central Assistance

In respect of the 12 PAs, there was short release of Central Assistance and State Share of ₹ 10.75 crore and ₹ 2.32 crore respectively, as detailed in **Appendix-2.5**. Audit observed that due to non-submission/ delay in submission of UCs of first instalments by the Forest Department, second instalments of Central Assistance were not released by MoEF&CC. This resulted in non-implementation of approved items of work³⁹ in the APOs. Further, there was delay ranging between 21 and 256 days in release of Central Assistance by the Forest Department to the PAs. This hampered protection and conservation work in these PAs.

CWLW accepted (December 2016) that due to non-release of the second instalment by GoI, many activities could not be executed as per APOs. However, they did not address the issue of lapses on their part in non/ delay in submission of UCs which resulted in non/ late release of central funds.

Good practice

Government of Bihar in respect of Valmiki Tiger Reserve, issued single order for release of funds received from GoI in two installments with a rider that the funds meant for second instalment could be spent after the receipt of the second instalment from GoI. This pioneer step would overcome delays in processing the second instalment at the State level in releasing funds. NTCA recommended that this procedure could be followed in other states also.

³⁶ Gorumara NP, Jaldapara NP, Neora Valley NP, Singhalila NP, Mahananda WLS, Chapramari WLS, Senchal WLS and Raiganj WLS

³⁷ Ballavpur and Bethuadhari WLS

³⁸ Lothian Island WLS, Haliday Island WLS, West Sundarban WLS, Chintamonikar WLS, Ramnabagan WLS and Bibhutibhusan WLS

³⁹ These works related to construction/ renovation of anti-poaching towers, nylon net fencing (new) at forest interface, wages to the patrolling staffs, purchase of speed boats, fodder plantation, weed removal and over wood removal, maintenance of fire lines etc.

2.8.2 Utilisation of Forest receipts for conservation of PAs

Successful implementation of wildlife conservation and management programme is dependent to a large extent on the active participation and involvement of local people through formation of Joint Forest Management Committees (JFMCs). At present there are 181 JFMCs in 15 PAs eligible for share (25 per cent) of receipts of tourist/ transport entry, photography and other such related activities in the PA.

State Board for Wildlife had approved (December 2004) to create a special corpus fund with 75 per cent of revenue generated from tourism and 100 per cent of revenue generated from forest produce of PAs. This fund was to be utilised for development of the PA and distribution of share to JFMCs. In this context, Audit observed the following deficiencies:

(a) Corpus Funds named Buxa Tiger Conservation Foundation Trust (BTCFT) and Sundarban Tiger Conservation Foundation Trust (STCFT) were formed in March 2010. No Corpus Fund was created in respect of other 17 PAs as of December 2016. Tourist receipts from PAs having no corpus fund were being deposited into Government account as revenue/ Forest Development Agency Account.

(b) In BTR, receipts from eco-tourism activities like entry fee were being deposited in BTCFT account since March 2010. The accumulated amount of tourist entry fees was ₹ 2.27 crore till 2014-15, but no share was distributed among the JFMCs till date of audit, defeating the objective of welfare of forest dwellers.

(c) As per Hon'ble Supreme Court's order (January 2006) the entire amount of receipts as royalty of boulders supplied from BTR was to be used for the welfare of forest dwellers. As of March 2016 ₹ 4.26 crore received on this account was lying in the BTCFT account; however, no fund has been utilised for the purpose of welfare of forest dwellers.

CWLW stated (December 2016) that utilisation of forest receipts for conservation of PAs other than Tiger reserves was under consideration. The fact remained that collected funds were lying unutilised for the purpose of conservation/ protection and welfare of local people.

Good practice

The money from gate fee of Tadoba Tiger Reserve in Maharashtra earlier used to be deposited with treasury but now goes to Tiger Conservation Fund. Tadoba Foundation generates over a crore of rupees every year. More than ₹1.5 crore has been distributed to Eco-Development Committees in the last three years.

2.8.3 Infrastructure for patrolling in Protected Areas

Patrolling is integral to ensure protection and conservation of wildlife in the PAs. Responsibility of securing the PAs by and large rests with forest guards and foresters as their duties include patrolling and watching, camping at chowkis to facilitate patrolling deep inside the forests etc. NWAP (2002-16) had emphasised the importance of arming forest staff with

sophisticated weapons and other equipment to enable them to combat poaching and control illicit trade effectively.

Audit observed that with shortage of trained manpower and lack of night time patrolling during 2011-12 to 2015-16, 26 wild animals were poached in the State which included eight elephants, seven rhinos, three gaurs, one leopard and seven other animals. Audit further observed that during 2011-12 to 2014-15, 1334 and 20577 cases of illicit felling of tree had occurred in three PAs of Darjeeling Wildlife Division and BTR respectively. Deficiencies in the infrastructure for patrolling were as discussed below:

2.8.3.1 Inadequate patrolling staff

Audit observed shortages in staff engaged in patrolling to combat poaching and illicit felling of trees. Sanctioned strength *vis-a-vis* men in position of the wildlife wing is detailed in table 2.5.

Table No. 2.5: Sanctioned strength *vis-a-vis* men in position as on 31.10.2016

Name of Post	Sanctioned Strength	Men in position	Vacancy	Percentage of vacancy
Forest Ranger	102	65	37	36
Dy. Forest Ranger/ Forester	238	149	89	37
Head Forest Guard	70	43	27	39
Forest Guard	690	398	292	42
Forest Watcher	21	4	17	81

(Source: Information furnished by CWLW)

Audit also noticed that due to shortage of forest guards, patrolling was done by Casual Daily Labourers (CDLs) and Package Daily Labourers (PDLs). But CDLs/ PDLs were engaged for patrolling/ anti-poaching work without giving them any formal training and, till now, there is no recruitment policy/ selection procedure/ physical criteria for their selection for patrolling purposes.

CWLW accepted (December 2016) that shortage of staff was a great limiting factor and influenced all management activities. However, no steps have been taken to address this shortage of manpower.

Good practice

Valmiki Tiger Reserve in Bihar employed 98 plot watchers, including ex-servicemen drawn from downtrodden communities and most backward communities, for patrolling during daytime and 90 trackers from dawn to dusk every day for tracking animal movement.

2.8.3.2 Arms, equipment and vehicles for patrolling

Scrutiny of records showed that there was shortage of vehicles, arms, boats, Radio Transmitter (RT) sets, elephants *etc.*, necessary for patrolling in PAs as detailed in **Appendix-2.6**.

In five PAs⁴⁰, there were shortage of vehicles and RT sets. In four PAs⁴¹, there was shortage of arms/guns. In three PAs⁴², there was only 16 GPS sets against

⁴⁰ Mahananda WLS, Senchal WLS, Gorumara NP, Neora Valley NP and Chapramari WLS

⁴¹ Mahananda WLS, Senchal WLS, Singhlila NP and Neora Valley NP

⁴² Gorumara NP, Neora Valley NP and Chapramari WLS

the requirement of 32. There was a shortage of 11 elephants and five ponies for patrolling in BTR and Singhalila NP respectively.

STR is a maze of estuaries, river channels and creeks where patrolling is done by boats. However, there was shortage of patrolling boats as detailed in the table 2.6.

Table No 2.6: Shortage in patrolling boats

Type of patrolling boats	Requirement	Operational	Non-operational	Shortage
Speed boats	22	4	10	18
Mechanised boats	4	2	2	2
Mechanised dingi	17	12	1	5
Launch	3	2	1	1
Houseboats	10	4	2	6

(Source: Records of STR)

CWLW stated that the process of procuring new vehicles, equipment, boats etc. within the ambit of government sanction, replacement of old arms and new equipment for patrolling was a continuous process and was being carried out utilising the allocated budget. However, the replacement/ procurement of equipment has failed to address the significant shortages.

2.9 Conclusions

India's conservation planning is based on the philosophy of identifying and protecting representative wild habitats across all the ecosystems through the creation and maintenance of Protected Area network. In this regard, the Department did not take adequate steps for creation and expansion of PA network to achieve the target of covering 10 per cent of geographical area under PA network. All the biogeographic zones were not represented in the PA network. Identified elephant corridors were not notified which resulted in obstruction of natural migratory path of elephants, causing man-animal conflicts. Requisite inviolate spaces were not provided, which would adversely affect the conservation/ protection of biodiversity. Management of PAs were found to be inefficient in many respects. Steps taken to reduce biotic pressure on wildlife were found to be inadequate as the Department had failed to relocate forest villages from the PAs, create Eco-Sensitive Zones around PAs and regulate eco-tourism in and around PAs. Instances were noticed of non-submission of UCs, and non-preparation of APOs which resulted in short/ non-receipt of central funds, affecting protection and conservation work in these PAs. Shortage of patrolling staff as well as equipment was constraining conservation efforts. Institutional measures to conserve biodiversity and forests were not in place which compounded the lackadaisical approach of the Department in conservation and protection of biodiversity in the Protected Areas.

2.10 Recommendations

The Department may consider the following:

- Expansion of the PA network to all bio-geographic regions, marine areas and setting up the Ganga Dolphin reserve.
- Notification of identified elephant corridors to minimise man-animal conflict.
- Demarcation of requisite inviolate spaces to minimise adverse effect on conservation/ protection of biodiversity within the PA.
- Finalisation of State Eco-tourism Strategy to regulate eco-tourism in and around PAs.
- Enhancement of patrolling activities through modern methods, keeping in view the international borders.
- Restriction of extreme ingress of eco-tourists in and around PAs by applying strict checking and control on the movement of tourists.

Chapter 3

Compliance Audit

3.1 *Extra expenditure due to use of higher specifications than necessary*

The Public Works (Roads) Department, in deviation from the IRC guidelines, laid bituminous layers of higher specification resulting in extra expenditure of ₹ 2.74 crore.

Indian Roads Congress (IRC) guidelines⁴³ include the pavement design catalogue to be used for determination of design pavement thickness for road construction. This stipulates thickness of road and specification of each layer of road pavement to be constructed on the basis of strength of soil and projected traffic volume during the design life of the road⁴⁴.

Public Works (Roads) Department (PWRD) approved (April 2012) the work of 'Widening and Strengthening of Basanti-Godhkhali Road' at an estimated cost of ₹ 11.47 crore under Backward Region Grant Fund (BRGF), a 100 per cent funded Government of India scheme. Accordingly, Superintending Engineer, State Highway Circle-I, (SE, SHC-I), PWRD awarded (June 2012) the construction work from 0.00 kmp to 10.00 kmp⁴⁵ to a contractor at the tendered cost of ₹ 8.75 crore⁴⁶ for completion by April 2013. The work was completed in June 2013 at a cost of ₹ 11.52 crore.

Scrutiny revealed that scope of the work in the tender included widening of the road up to 7.0 metres from existing width of 3.8 metres and strengthening the existing as well as the widened part with 100 mm Wet Mix Macadam (WMM) as base course, 50 mm Bituminous Macadam (BM) as binder course and 25 mm Bituminous Concrete (BC) as wearing course. Subsequently, the Department decided (October 2012) to reduce the width of the road from the proposed 7.0 metre to 5.5 metre as it felt that 5.5 metre carriageway would be sufficient to cater to the projected volume of traffic. The Department also felt that the revised scope of work would evolve less cutting of roadside trees, less earthwork and less protective work. To utilise the savings arising from reduction in width of the road and contractual rebate, it was observed that SE, SHC-I approved (August 2013) laying of bituminous layers of higher specifications on the road surface, without obtaining approval from Chief Engineer, as required. The items of work in the revised specifications adopted and their monetary effects are detailed in the table 3.1.

⁴³ IRC: 37-2001 of the guidelines issued by the Indian Roads Congress (IRC), which is the Apex Body of Highway Engineers in the country. It issues guidelines which are updated regularly.

⁴⁴ Expressed in MSA (Millions of Standard Axles)

⁴⁵ kmp : kilometre point

⁴⁶ 23.72 per cent less of the estimated cost put to tender.

Table No. 3.1: Amount paid as per revised specifications vis-a-vis original specifications

Specifications provided in the estimate as per IRC guidelines	Tendered cost (₹ in crore)	Revised specifications	Amount paid (₹ in crore)
100 mm WMM	1.27	75 mm DBM	2.67
50 mm BM	1.58	50 mm BM	1.53
25 mm BC	1.14	40 mm BC	1.70
Nil		Profile corrective course with BM	0.83
Total	3.99		6.73

It can be seen from the table that the Department spent ₹ 6.73 crore exceeding the tendered cost of ₹ 3.99 crore by ₹ 2.74 crore, by using higher specification than required. Audit observed that the original specifications were in accordance with the pavement design catalogue of IRC guidelines. The condition of the sub-grade soil (CBR 3.5 per cent) and projected traffic volume during the design life of the road (2.7 MSA) was determined and accordingly the specifications in the original estimates were designed to cater to the desired traffic during the designed life of the road. Audit also observed that substitution of 100 mm WMM with 75 mm DBM entailed profile correction of the existing undulation of the road before laying of the BM layers which involved an additional cost of ₹ 0.83 crore.

In reply, the Department stated (June 2016) that when decision regarding proposed width of the road was taken in October 2012, a new publication of IRC guidelines⁴⁷ had come into force and as the road width was subsequently reduced, required thickness of the road was also required to be increased due to concentration of wheel load. The Department also stated that as the road was situated at coastal area the thickness of BC was considered 40 mm in lieu of 25 mm to prevent early damage.

The reply was, however, factually incorrect as the Department did not follow the IRC: 37-2012, while considering the concentration of wheel load (1.00 instead of 0.75) for calculating the required thickness of the road. Regarding coastal area, the reply was also not tenable as thickness of the wearing course depends on MSA and CBR and not on the climate of coastal area.

Thus, the Department unjustifiably revised the specification of the strengthening course in deviation to the IRC guidelines in order to utilise the savings. This resulted in extra expenditure of ₹ 2.74 crore⁴⁸, which was avoidable.

⁴⁷ IRC : 37-2012

⁴⁸ ₹6.73 crore - ₹3.99 crore

ANIMAL RESOURCES DEVELOPMENT DEPARTMENT

3.2 Excess payment in violation of contractual rates

The Department, in violation of the West Bengal Financial Rules, procured cattle feed at an enhanced rate resulting in excess payment of ₹ 96.38 lakh.

West Bengal Financial Rules (WBFR)⁴⁹ stipulate that no payment to contractors in excess of the contract rates shall be authorised without prior approval of the Finance Department.

With a view to augmenting milk production in 18 districts of the State, Paschim Banga Go-Sampad Bikash Sanstha (PBG SBS), an autonomous body under Animal Resources Development Department (ARDD), had taken up (2010-11 onwards) “Bishesh Go-Sampad Bikash Abhijan” (Abhijan) under Rashtriya Krishi Vikas Yojana. The scheme *inter alia* included supply of balanced cattle feed to cattle owners. For procurement of cattle feed, Chief Executive Officer (CEO), PBG SBS had invited (May 2012) a limited tender among three organisations *viz.* West Bengal Dairy and Poultry Development Corporation Limited (WBDPDCL), Bhagirathi Co-operative Milk Producers’ Union Limited (BCMPUL) and Himalayan Milk Union Limited (HIMUL). Accordingly, CEO entered into (June 2012) three separate agreements with the three agencies for purchase of cattle feed at rates ranging between ₹ 11.05 and ₹ 13.05 per kg. As per the terms of the agreements, the agreed rates were valid for six months from the dates of the agreements. Further, it was also agreed upon that if the supplier failed to supply the cattle feed within 45 days, PBG SBS reserved the right to procure the same from other agencies and the difference of cost was to be borne by the supplier.

Audit scrutiny showed that during the validity of the agreements, the agencies expressed⁵⁰ their inability to supply the cattle feed at the agreed rates on the ground of escalation in the cost of ingredients of the cattle feed and requested PBG SBS to enhance the agreed rates. It was observed in audit that PBG SBS, instead of invoking the clause of non-supply, accorded (7 December 2012) approval of the enhanced rate of ₹ 16 per kg⁵¹ for all three agencies. Audit also observed that neither any market survey to verify the rates of cattle feed was conducted nor approval of the Finance Department was taken by PBG SBS while fixing the escalated price of cattle feed within the validity of the agreements. Scrutiny showed that PBG SBS placed supply orders of 24.59 MT of cattle feed during the validity of the agreements and paid the agencies at enhanced rates which resulted in excess payment to the tune of ₹ 96.38 lakh.

In reply, the Department stated (May 2016) that the matter was discussed (December 2012) in the State Level Monitoring Meeting and the rate of ₹ 16.00 was found to be quite reasonable. It also stated audit comments in respect of WBFR had been noted for future guidance.

⁴⁹ Rule 47(a)

⁵⁰ WBDPDCL on 02 August 2012, BCMPUL on 04 September 2012, HIMUL on 01 October 2012.

⁵¹ For Coochbehar district the rate was fixed at ₹ 16.50 per kg.

However, the fact remains that instead of enforcing the contract clause regarding non-supply, the Department/ PBGSBS had enhanced the agreed rates for supply of cattle feed arbitrarily without approval of the Finance Department and without verifying the actual market rates of cattle feed. This led to excess payment of ₹ 96.38 lakh to the three agencies supplying cattle feed.

PASCHIMANCHAL UNNAYAN AFFAIRS DEPARTMENT

3.3 Unfruitful expenditure due to poor contract management

Failure of Paschimanchal Unnayan Parshad to protect newly laid WBM layers with bituminous overlay course for a prolonged period as well as failure to enforce terms and conditions of contract led to unfruitful expenditure of ₹ 2.11 crore due to damage of the partially completed road.

Indian Roads Congress (IRC) specifications provide that for construction of road on the granular sub-base course like Water Bound Macadam (WBM), the next Bituminous Macadam (BM) layers or wearing courses like Pre-mix Carpet (PC) and Seal Coat (SC) shall be laid after the WBM becomes dry and before allowing any traffic on it.

In January 2013 Chief Executive Officer (CEO) of Paschimanchal Unnayan Parshad (PUP) had awarded work relating to repair of a road⁵² to an agency at the tendered cost of ₹ 1.94 crore, to be completed by April 2013. The specifications of the work of repair of the road *inter alia* included two non-bituminous base courses of 75 mm Water Bound Macadam (WBM) and a bituminous wearing course of 20 mm Premix Carpet (PC) and six mm Seal Coat (SC). Subsequently, the tendered cost was revised (March 2015) to ₹ 3.12 crore due to allowing of longer road carriage of stone aggregates. As per terms of the contract, in the event of unsatisfactory progress of work, PUP had the right to terminate the contract and get the balance work done at the risk and cost of the agency.

The progress of work was very poor since the beginning and the agency had delayed taking up the bituminous work after laying of the WBM. The contract was finally terminated in May 2015 on the grounds of delay in completion of work. The agency was paid (June 2015) ₹ 2.11 crore for the WBM work. It was observed that the WBM layers were damaged as the agency had not taken up the bituminous work in time. It was also observed that Paschimanchal Unnayan Affairs Department (PUAD) had awarded (February 2016) a fresh work of strengthening of the same road with higher specifications⁵³ at the tendered cost of ₹ 5.05 crore to another agency. As of June 2016, the work was in progress and the agency was paid ₹ 3.39 crore, which included re-doing the WBM work with Wet Mix Macadam (WMM) at a cost of ₹ 1.59 crore.

With regard to the partially completed work for which the earlier agency was paid ₹ 2.11 crore, Audit observed the following:

⁵² “Repairing of Bituminous Road from Khalseuli to Malancha (8.40 km stretch) under Jhargram Block in the District of Paschim Medinipur”

⁵³ 85 mm Bituminous Macadam and 25 mm Semi Dense Bituminous Concrete

- Progress was very poor since inception of the work and the agency had stopped the work completely in August 2014, after laying of WBM layers. The road was not covered with PC and SC in time as per the IRC guidelines. PUP observed that due to delay in laying the bituminous layers (PC and SC), the already laid WBM layers were completely damaged.
- PUP had delayed action by 25 months, after the stipulated date of completion of work, to terminate the contract despite slow progress of work by the agency. PUP had also released security deposit to the agency without taking any penal action as specified in terms of the contract.

In reply, the Department stated (June 2016) that delay in execution was not totally the agency's fault as local people had demanded strengthening the road with higher specification and PUAD took long time to take a decision in this regard; meanwhile the road so far executed became damaged. The reply was not tenable as contract was terminated due to delay in the execution of work and not because of change in specifications; however, the fact remains that PUAD took 25 months' time in taking action for termination of contract and re-tendering of the work.

Thus, due to failure of PUP to protect newly laid WBM layers with bituminous overlay course for a prolonged period, expenditure of ₹ 2.11 crore incurred on the WBM layers became unfruitful.

PUBLIC WORKS DEPARTMENT

3.4 *Unfruitful expenditure on road improvement*

Executive Engineer, Nadia Division (PWD) did not ensure requisite quality of construction as per the IRC guidelines, which resulted in unfruitful expenditure of ₹ 1.81 crore incurred on strengthening and improvement of a road.

Specifications for Roads and Bridges (Fourth revision) of Indian Roads Congress (IRC)⁵⁴ stipulates that the contractor is to set up a field laboratory at approved locations equipped with adequate equipment and personnel in order to carry out all required tests and quality control work as per specifications and as per directions of the Engineer-in-Charge. For ensuring requisite quality of construction, material and works are to be subjected to quality control tests.

Superintending Engineer, Central Circle (SE, CC), Public Works Department (PWD) had awarded (December 2012) the work of "Strengthening and Improvement of riding quality of Krishnanagar - Majdia road from 10 kmp to 17 kmp" to an agency at a cost of ₹ 1.96 crore for completion by June 2013. The specifications with regard to road strengthening were as per IRC specification (IRC 2001) which *inter alia* included overlaying of 50 mm Bituminous Macadam (BM) as strengthening course and 20 mm Open Graded Premix Carpet (OGPC) along with Seal Coat (SC) as wearing course on the

⁵⁴ Section 900

existing road surface. The road strengthening work was completed in June 2014 at a cost of ₹ 1.97 crore.

Audit observed that the Division did not ensure that the required tests were conducted during the work of strengthening the road to ensure that the prescribed specifications were complied with by the contractor. From the Inspection Report (April 2013) of the concerned Executive Engineer, it was seen that there were no arrangements at the field laboratory for testing of binder (bitumen) content and grading of stone aggregates used in the work. It was further observed that during execution of the road work, Executive Engineer, Nadia Division, PWD had engaged (June 2013) Road and Building Research Institute (RBRI), PWRD to conduct tests on bituminous items from samples from the completed portion (10.00 to 14.00 kmp) of the road stretch. Test reports submitted by RBRI in July 2013 revealed that average bitumen content of BM was 2.61 per cent, which was less than the required percentage of 3.4 per cent as per IRC guidelines. Further, the report also stated that grading of aggregates used in all the bituminous works did not qualify and compaction of the mix was also poor.

Audit further observed that, subsequently, on the request of the contractor in August 2013, the concerned Assistant Engineer again got the binder content test conducted by the Department of Construction Engineering, Jadavpur University (JU). This test report showed that binder content of the bituminous work was satisfactory. Audit observed that the Division accepted the test results of JU, even though this was carried out on the request of the contractor after the quality of its work was found unsatisfactory by RBRI. The test results of JU were accepted even though JU did not consider testing of other parameters including grading and compaction of the bituminous mix, the basis on which RBRI had disqualified the samples. In this context, Audit observed that the road had become damaged with the formation of potholes and depressions within one year of completion of the work and the contractor was asked to rectify the damages as the road was under defect liability period of three years from the date of completion. The contractor, however, refused to undertake any rectifications except for some patch repairs and the condition of the road further deteriorated as of February 2016.

Thus, due to non-observance of required quality control measures as per IRC guidelines, quality of the road construction could not be ensured and the road became damaged even before completion of defect liability period, this resulted in unfruitful expenditure of ₹ 1.81 crore⁵⁵.

In reply, the Department stated (July 2016) that the test report of the RBRI varied greatly from those conducted during the execution of the work at site, which were found satisfactory, and hence the report of the RBRI raised doubt. It further stated that only two culverts suffered depression between 10.3 kmp to 10.8 kmp with the consequent formation of few potholes.

The reply was, however, unfounded as the concerned Executive Engineer, being dissatisfied with the quality control measures adopted during execution of the work, got the tests conducted by RBRI, a premier Institute under the aegis of the same Department. Further, reports of the concerned Assistant

⁵⁵ Expenditure on 50 mm Bituminous Macadam, Open graded Premix Carpet and Seal Coat (₹1.18 + ₹0.47 + ₹0.16) crore

Engineer and Executive Engineer revealed that the entire road stretch was damaged and required rectification.

IRRIGATION AND WATERWAYS DEPARTMENT

3.5 *Extra expenditure*

Irrigation and Waterways Department failed to avail benefit of exemption of Central Excise Duty which resulted in extra expenditure of ₹ 99 lakh in eight construction works.

As per Notifications No. 03/2005 and 12/2012 issued by Central Excise Department, Ministry of Finance dated 24 February 2005 and 17 March 2012 respectively, “All goods fabricated at site of work for use in construction work at such site” are exempted from payment of Central Excise Duty (CED).

It was observed that Executive Engineers (EEs), Kakdwip Irrigation and Joynagar Irrigation Divisions had executed eight construction works⁵⁶ between February 2010 and May 2015 at a total cost of ₹ 79.40 crore. Scope of executed works *inter alia* included procurement of different types of steel materials of 1771.65 MT to be fabricated at the site of the works for use in construction work. Scrutiny of records showed that cost of steel procured for the works included CED at the rate of 12 *per cent* on the basic price ranging from ₹ 38,420 to ₹ 57,000 per MT. This was despite exemption from excise duty, granted by the Government of India on goods fabricated at site for use in construction work.

Thus, due to failure of the Department to avail of benefit of exemption offered under the above mentioned notifications, extra expenditure of ₹ 99 lakh was incurred (*Appendix-3.1*) which also increased the project cost by that amount.

The Department accepted the audit observations and stated (June 2016) that steps had been taken to recover the amount from the steel companies. It further stated that the Schedule of Rates (SOR) was being rectified considering exemptions of CED. However, the fact remains that the steel companies had not refunded any amount and SOR was not revised as of November 2016.

PASCHIMANCHAL UNNAYAN AFFAIRS DEPARTMENT

3.6 *Avoidable extra expenditure by allowing higher rates*

Paschimanchal Unnayan Affairs Department allowed higher rate of stone metals due to consideration of longer road carriage, resulting in extra expenditure of ₹ 1.26 crore.

Schedule of Rates (SOR) of Public Works (Roads) Department (PWRD), Government of West Bengal (GoWB), stipulates different rates for stone

⁵⁶ *Semi-permanent steel jetty, Construction of vent regulator cum bridge, Construction of one Pontoon and Construction of Pump House.*

metals⁵⁷ of different sizes and varieties available at different quarry sites⁵⁸ all over the State.

Paschimanchal Unnayan Parshad (PUP) under the administrative control of Paschimanchal Unnayan Affairs Department (PUAD) is responsible for overall development of backward areas situated within Purulia, Birbhum, Paschim Medinipur, Bankura and Burdwan districts. PUP follows the SOR of PWRD in preparation of the estimates of road works. Audit observed that in four road works PUAD had allowed higher rate for stone metals as discussed below:

a) The Chief Executive Officer (CEO) of PUP had awarded (March 2014) a road work⁵⁹ for completion by August 2014 to a contractor through open competitive bidding at a tendered cost of ₹ 3.59 crore. The work was completed in May 2015 *i.e.*, after a delay of 10 months, at the cost of ₹ 3.50 crore. Scrutiny showed that PUAD had initially sanctioned (May 2013) only ₹ 1.57 crore for the road work on the basis of SOR of PWRD (2008-09), which had considered the use of stone metals of local varieties available at different local quarries (Hura, Puncha, Malti). These quarries were within a distance of 90 km from the work site. Subsequently, PUAD revised (January 2014) the estimates with the provision for use of Panchami variety of stone metal for WBM, for which road carriage of 330 km was allowed. Though no reasons were found on record for this change, the cost of work increased to ₹ 3.59 crore due to this decision and increase in the scope of work⁶⁰.

Department intimated (December 2015) that local varieties of stone metals (Hura, Puncha, Malti) were used for the WBM item. However, Audit observed that the payment was made considering the rate of Panchami variety of stone metals, which were actually not used in the work. This resulted in extra payment of ₹ 0.51 crore to the contractor, which was not in order.

b) PUP had awarded (January 2013) three⁶¹ road works for completion by May 2013 to three different contractors through open competitive bids at a total tendered cost of ₹ 5.01 crore. The works were completed during December 2013 to September 2014 at a cost of ₹ 5.97 crore. Scrutiny showed that in the estimates of the works, rates of stone metal-consuming items were arrived at considering the cost of Pakur variety stone metal from Jhargram Railway stack yard, which was 20 km away from the work sites. Subsequently, the contractors had requested (August 2013) PUP for allowance of road carriage (250 Km) from Panchami quarry (at Rampurhat) for supply of

⁵⁷ Stone chips, stone aggregates, boulders and river bed materials.

⁵⁸ SOR of PWRD of GoWB stipulates 10 number of quarry sites viz. Pakur, Chandil, Baharagorah (Orissa), Nilgiri (Orissa), Chandanpur, Rampurhat/ Panchami/ Nalhati, Dhadka, Saltora, Hura/Puncha/Malti and River bed materials (for North Bengal districts -Darjeeling, Jalpaiguri and Coochbehar).

⁵⁹ 'Improvement of road from Sirkabad Hospital More to Ayodhya Hill Top (14 km) within Bagmundi Panchayat Samity in Purulia District.'

⁶⁰ Flexible pavement along with the rigid pavement, protective works, surface drain etc.

⁶¹ 'Widening of road from Binpur to Harda (Part-A) under Binpur-I Block in the district of Paschim Medinipur', 'Widening of road from Hardato to Nadighsat & Boxi (Part-B) under Binpur-I Block in the district of Paschim Medinipur' and 'Widening of road from Murgimore to Boxi (Part-C) under Binpur-I Block in the district of Paschim Medinipur'.

stone metals on the ground that Pakur variety of stone metals was not available at Jhargram Railway stack-yard. PUAD accepted the plea of the contractors and sanctioned (September 2013) the revised estimates for these three works at a total cost of ₹ 6.05 crore.

Audit observed (December 2015) that SOR-specified rates of Pakur variety stone metal were available at 50 railway stack-yards in different zones of the State. Further, stone metals of Pakur variety were available at Jhargram Railway stack yard at the time of execution of these works as the records of the Midnapore Highway Division-II under PWRD showed that the Division had made payment for Pakur variety of stone from Jhargram Railway stack-yard for use in a road work⁶² (August 2013) executed during the same period. Despite the availability of Pakur variety of stone material, PUP allowed higher rate for stone materials by considering longer road carriage from Panchami quarry, which resulted in extra expenditure of ₹ 0.75 crore.

Thus, allowing higher rate of stone metals due to consideration of longer road carriage resulted in an avoidable extra expenditure of ₹ 1.26 crore (₹ 0.51 crore + ₹ 0.75 crore).

The matter was reported (May 2016) to the Department; reply is awaited till date (December 2016).

PUBLIC WORKS (ROADS) DEPARTMENT

3.7 Non-realisation of one-time license/ permit fee

Executive Engineers (EE) of three Public Works Divisions failed to levy and collect one-time license/ permit fee from the existing licensees for laying Optical Fibre Cable (OFC) along the roads resulting in loss of Government revenue of ₹ 3.42 crore.

To promote Information Technology industry in the State, Government of West Bengal allowed⁶³ private/ Government sector entities to have the Right of Way (RoW) for laying of cables/ pipelines/ utilities along the roads without levying any charge. However, due to changes in economic scenario over the years and considerable increases in cost of construction and maintenance of roads, Government of West Bengal had decided (August 2013) to levy a one-time license/ permit fee for granting RoW for laying cables/ pipelines/ utilities along the roads under the jurisdiction of Public Works and Public Works (Roads) Department. The circular issued (August 2013) by Public Works Department (Integrated Finance Branch) stipulated the applicable rate⁶⁴ for one-time license/ permit fee from new as well as existing users of roads, based on the classification of areas (rural/ municipal/ corporation/ Kolkata) in which cables/ pipelines/ utilities would be laid. For the new licensees, one-time fee was to be levied and collected at the time of granting license/ permit for RoW. For existing license/ permit holders, one-time fee was to be levied and

⁶² 'Surfacing work of Link Road between Jhargram-Jamboni Road and Parihati-Jamboni-Fekoghat Road from 0.00 kmp to 3.20 kmp'.

⁶³ By means of a Government order in April 2002.

⁶⁴ ₹ 300, ₹ 575, ₹ 1150 and ₹ 2300 per square metre for rural, municipal, corporation area and Kolkata respectively.

collected prospectively within six months from the date of issue of the order (*i.e.* within February 2014).

Scrutiny of records of three⁶⁵ Public Works Divisions of Public Works (Roads) Department showed that RoW for laying of 3,80,212 metre of OFC was granted to four⁶⁶ companies during 2007-13 along the roads under the jurisdiction of these Divisions. However, in violation of the above mentioned circular, the concerned EEs did not levy the one-time license/ permit fee and, consequently, failed to collect the fees from these existing license holders till date (April 2016).

On this being pointed out by Audit, one Division (Malda Highway Division) stated (April 2016) that the agreements with the existing license holders were executed during 2008-09 which were valid for 15 years; hence one-time license fee could not be imposed on the existing license holders. The remaining two Divisions did not offer any comments.

The reply of the division was not consistent with the circular which *inter alia* stipulated that existing license holders were required to deposit the requisite fee and sign a new license/ permit deed within six months from the date of issue of the circular and included all existing license holders.

Thus, failure of the Divisions in levying the one-time license/ permit fees and collecting the same from the existing license/ permit holders resulted in loss of Government revenue of ₹ 3.42 crore⁶⁷.

The matter was reported (May 2016) to the Department but no reply was received till date (December 2016).

PUBLIC WORKS (ROADS) DEPARTMENT

3.8 Avoidable expenditure due to use of materials of higher specification

Injudicious decision of the Executive Engineer, Barasat Highway Division-I, to strengthen a road stretch with higher specification on the basis of traffic data during abnormal traffic conditions in disregard of the IRC specifications resulted in avoidable expenditure of ₹ 4.59 crore.

As per Indian Roads Congress specifications (IRC:37-2012) the design of a road is required to be determined on the basis of two parameters *i.e.*, projected traffic and the nature of the subgrade soil. Assessment of projected traffic in non-urban roads is guided by the procedure envisaged in IRC: 9-1972 which stipulates that traffic census should not generally encompass abnormal conditions like a fair or exhibition and in such cases, the count in the area should be postponed by a few days till normalcy returns.

Superintending Engineer, State Highway Circle-I, awarded (February 2014) three road works⁶⁸ of Taki-Murarisha-Bhebia-Chaital road to three contractors

⁶⁵ Malda Highway, Howrah Highway and Dakshin Dinajpur Highway Divisions.

⁶⁶ Vodafone Essar South Limited, Reliance Communications Infrastructure Limited, Bharti Airtel Limited and Reliance Jio Limited.

⁶⁷ 380212 m (length) X 0.3 m (width) X ₹ 300.

⁶⁸ Improvement (0-12.00 kmp) and widening and strengthening (12.00-16.00 and 16.00-20.80 kmp) of the "Taki-Murarisha-Bhebia-Chaital" road.

at a total tendered cost of ₹ 28.24 crore for completion by December 2014. The works were completed (between May 2014 and December 2014) at a total cost of ₹ 28.40 crore. Scope of the works were as follows:

- **Road stretch 0 to 12.00 kmp:** Strengthening of the road by laying 75 mm Bituminous Macadam (BM) and 25 mm Semi Dense Bituminous Concrete (SDBC).
- **Road stretch from 12.00 to 16.00 kmp and 16.00 to 20.80 kmp:** Widening of the road surface from 5.50 metre to 7.00 metre as well as strengthening with two layers of 50 mm Dense Bituminous Macadam (DBM) and one layer of 40 mm Bituminous Concrete (BC).

In respect of these works, audit scrutiny revealed that:

- Specifications for the road between 0 and 12.00 kmp were determined on the basis of projected traffic (299 commercial vehicles per day) derived through a traffic census conducted during 11 March to 18 March 2013 at 11th kmp of the road.
- However, higher specifications for the stretches from 12.00 kmp to 16.00 kmp and 16.00 kmp to 20.80 kmp were determined by taking into account the projected traffic volume (826 commercial vehicles per day) at 19th kmp derived through a traffic census conducted between 11 October and 18 October 2013 at 19th kmp of the road.

Audit, however, observed that the traffic census at 19th kmp was conducted during Durga puja (11 October to 18 October 2013) celebrations, which is the main festival in West Bengal when traffic volume increases manifold. The Division, however, instead of waiting till return of normalcy of traffic situation, considered the traffic data of abnormal traffic conditions, in violation of IRC specifications. Accordingly, higher specifications of the road stretch (12.00 kmp to 16.00 kmp and 16.00 kmp to 20.80 kmp) were determined, keeping in mind the traffic projections. Audit also observed that only one bituminous road (Bashirhat-Nazat) intersects this road at 9th kmp and traffic volume of this road had already been considered in the traffic census conducted at 11th kmp. As such, the huge increase in traffic volume (176 per cent⁶⁹) within eight kilometre (between 11 kmp and 19 kmp) stretch of the same road and after a time gap of only six months (March 2013 - October 2013) could not be justified as IRC: 37-2012 envisaged average annual growth rate of five per cent.

Thus, the decision of the Division to strengthen the road stretch between 12 kmp and 20.80 kmp with higher specifications considering the traffic data during abnormal traffic conditions was injudicious and violated the provisions of IRC specifications. Audit observed that if the Division had provided the same specifications between the road stretch as that of the road stretch between 0 and 12.00 kmp, considering the traffic census at 11 kmp, it could have saved an expenditure of ₹ 4.59 crore.

The matter was reported (June 2016) to the Department but no reply was received till date (December 2016).

⁶⁹ Increased from 299 to 826.

TRANSPORT DEPARTMENT

3.9 Loss of interest due to absence of monitoring over investment

Hooghly River Bridge Commissioners (HRBC) failed to avail of the opportunity to earn additional interest of ₹ 0.79 crore due to lack of monitoring over investment of its surplus funds.

Guidelines issued (January 2013) by the Finance Department, Government of West Bengal for opening and maintenance of bank accounts with Government Funds stipulated that verification and reconciliation of the balances of bank accounts including fixed deposit, if any, should be done at the earliest and once in a month through personal visit to the bank by a responsible officer.

The main source of revenue of Hooghly River Bridge Commissioners (HRBC) is toll from vehicles plying over the Vidyasagar Setu. A part of this revenue, along with receipts from various Departments for Deposit Works which were not required for immediate use, were invested in term deposits of nationalised banks.

Audit observed (September-October 2015) that HRBC suffered losses due to lack of monitoring over its surplus funds, as discussed below:

- From the surplus funds in its current account with State Bank of India, HRBC had invested ₹ 73 crore during February 2013 to July 2013 in special term deposits of one year in the same bank. However, the funds remained invested with the bank beyond the date of maturity of the term deposited, as shown in table 3.2.

Table No. 3.2: Details of special term deposits and loss of interest

Amount of investment (₹ in crore)	Date of investment	Date of maturity	Date of encashment	Period for which interest not earned	Interest receivable	Interest actually received	Amount of loss
					(₹ in crore)		
14.00	15.02.13	14.02.14	13.02.15	12 months	2.65	1.23	1.42
7.00	23.05.13	23.05.14	27.02.15	9 months	1.10	0.63	0.47
52.00	29.07.13	28.07.14	06.09.14	1 month 8 days	5.17	4.70	0.47
Total					8.92	6.56	2.36

(Source: Bank account statements)

Audit observed that as HRBC failed to instruct the bank in time for renewal of the deposits, no interest was paid by the bank for the above mentioned period. As a result, HRBC could not avail of the opportunity to earn interest of ₹ 2.36 crore. On this being pointed (September-October 2015) out by Audit, HRBC took up the matter (October 2015) with the concerned bank and only ₹ 1.57 crore could be realised (December 2015). However, the balance interest amount of ₹ 0.79 crore (₹ 2.36 crore - ₹ 1.57 crore) could not be realised from the bank, which resulted in loss of ₹ 0.79 crore due to non-renewal of term deposits in time.

Thus, lack of monitoring over investment of its surplus funds by HRBC resulted in loss of ₹ 0.79 crore as interest.

The matter was reported (June 2016) to the Department; no reply was received till date (December 2016).

ENVIRONMENT DEPARTMENT

3.10 Implementation of Coastal Regulation Zone in West Bengal

3.10.1 Introduction

The length of the coastline in West Bengal is 280 km with a coastal zone⁷⁰ which is sub-divided into two different coastal environments (i) Hooghly estuarine plain⁷¹ having huge mangrove diversity⁷² and species diversity⁷³ and (ii) Digha-Sankarpur-Junput coastal plain⁷⁴ which contain mangroves and salt marshes and are rich in fish diversity. This zone supports an approximate population of seven million. According to a study by Space Applications Center,

Bangalore in 2012, almost 39 per cent of this coastal zone is used for agriculture, 21 per cent is occupied by human habitations and three per cent is used for aquaculture.

Infrastructure like railways,

roads, ports *etc.*, and industrial activity including mining, brick kilns *etc.*, exist in these areas, all of which place tremendous stress on the coastal ecology. Over the years, as a result of human interventions, mangroves have receded and many floral and faunal species are also facing extinction.

Ministry of Environment, Forest and Climate Change (MoEF&CC) had issued (1991) Coastal Regulation Zone (CRZ) Notification which was subsequently replaced (January 2011) with CRZ 2011. The notification was issued with a view to ensuring the livelihood security of fishermen and other local communities living in the coastal areas, to conserving and protecting coastal stretches, its unique marine environment and also to promoting development in a sustainable manner. The Notification restricted setting up or expansion of any industry, operations, processes or manufacture/ handling/ storage/ disposal



Figure 3.1: Coastal areas of West Bengal

⁷⁰ Stretching from LTL to 500 m (as CRZ) inland and upto the landward extension of the successive series of older sand dune stretching up to Orissa Coast Canal in the western part; and LTL to Dampier-Hodges line, which serves as the boundary of the Sundarban Biosphere Reserve.

⁷¹ It is characterised by a network of creeks encompassing small islands with mangrove vegetation and off-shore linear tidal shoals from Sagar Island to the border of Bangladesh to the east.

⁷² More than 30 species.

⁷³ Like Royal Bengal Tiger, over 270 bird species, over 45 reptile species, at least 11 amphibian species, over 120 fish species and more than 330 plant species.

⁷⁴ This lies to the west of Hooghly estuary with rows of sandy dunes separated by clayey tidal flats from Sagar Island to Orissa border to the west.

of hazardous substances in coastal areas. For implementation, regulation and monitoring of activities in the coastal areas, West Bengal State Coastal Zone Management Authority (WBSCZMA) was constituted in September 1998 and re-constituted over the years. Further, with a view to developing capacity and institutions to effectively implement CRZ Notification, to control pollution of coastal waters and to expand livelihood options for coastal communities, GoI had approved (June 2010) the Integrated Coastal Zone Management (ICZM) project with the aid of World Bank, in three coastal states including West Bengal.

3.10.2 Audit Scope and objectives

An Audit was carried out between February and June 2016 covering the period between 2010-11 and 2015-16 to assess whether the coastal areas were being conserved by:

- Necessary institutional mechanism for implementation of CRZ Notification 2011 including zoning and classification of coastal areas;
- Effective enforcement of CRZ notification of 2011; and
- Project implementation, including ICZM projects in line with CRZ Notification of 2011.

The criteria for audit was derived from the CRZ Notifications, Environment Protection Act, 1986, Environment Impact Assessment (EIA), 2006 and relevant orders, guidelines and manuals issued by Department of Environment (DoE), MoEF&CC, WBSCZMA and West Bengal Pollution Control Board (WBPCB).

Audit Findings

3.10.3 Institutional arrangements and its functioning

WBSCZMA is primarily responsible for protecting and improving the quality of coastal environment as well as preventing, abating and controlling environmental pollution in coastal areas of West Bengal. It was constituted twice, in June 2012 and September 2015, during the period of audit.

Role of WBSCZMA as envisaged in CRZ Notification 2011 is as follows:

- Examination of proposals for changes in classification of CRZ areas and Coastal Zone Management Plan (CZMP) received from State Government and making specific recommendations to the National Coastal Zone Management Authority (NCZMA) on this issue;
- Inquiry into cases of alleged violations of the provisions of CRZ regulations;
- Filing complaints and taking actions for non-compliance of its directions;
- Identification of ecologically sensitive areas in CRZ and formulation of area-specific management plans for such identified areas;
- Identification of coastal areas highly vulnerable to erosion/ degradation and formulate area-specific management plans for such identified areas;

- Identification of economically important stretches in the Coastal Regulation Zone and preparation of Integrated Coastal Zone Management Plans for the same;
- Submission of such plans to the NCZMA for examination and approval.

Audit observations with regard to constitution of WBSCZMA and its functioning are discussed below:

3.10.3.1 Deficiencies in composition of WBSCZMA

MoEF&CC had prescribed norms (February 2005) for the composition of State Coastal Zone Management Authorities (SCZMAs) according to which SCZMAs should comprise of experts, ex-officio members of various concerned Departments and local bodies. In West Bengal, between January 2011 and March 2016, WBSCZMA was constituted twice, once in June 2012 and then in September 2015. It was observed that composition of WBSCZMA suffered from infirmities as discussed below:

(a) Non-representation of WBPCB, Commerce & Industries and Tourism Departments

Audit observed that West Bengal Pollution Control Board (WBPCB), Commerce & Industries and Tourism Departments were not included in the WBSCZMA of 2012 and 2015 in deviation of the recommendation of MoEF&CC. WBPCB was the primary regulatory body for control/ monitoring of pollution and issues consent to projects/ industries to operate and its inclusion was necessary from the conservation and pollution control perspectives. Inclusion of Tourism Department was important to gauge the increasing pressure of tourist flow in coastal tourist destinations *vis-a-vis* carrying capacity, while scrutinising proposals for construction of tourist infrastructure in the coastal areas. It was observed that WBSCZMA did not include any representative from Tourism Department even though six tourist projects involving ₹ 97.07 crore were discussed (during 2012-15) for approval in meetings of WBSCZMA. Commerce and Industries (C&I) Department was also not included in WBSCZMA, despite the fact that it had recommended nine industrial projects involving aggregate investment of ₹ 12311.77 crore in West Bengal during 2011-16. It was also observed that in violation of MoEF&CC guidelines, no representations from local bodies, fishing community and NGOs were ensured by the Authority. Lack of participation from important stakeholders thus deprived the WBSCZMA of getting a complete perspective, besides their involvement and oversight over tourism/ industrial activities in Digha, Mandarmoni and Sundarban areas which had wide ramifications for sustainability of coastal areas as further observed in **Paragraph 3.10.6.2.**

WBSCZMA stated (December 2016) that WBPCB was kept as an invitee member and non-official members were not incorporated due to fund constraint. The reply was not tenable as WBPCB had attended only two out of 17 meetings held during the period under audit and WBSCZMA had not proposed to MoEF&CC inclusion of local bodies, representatives of fishing community or NGOs. Further, it was also observed that bank account of

WBSCZMA was not opened to utilise funds received from (April 2002) MoEF&CC.

(b) Matters discussed in meetings

The main function of WBSCZMA was to take measures for protecting and improving the quality of the coastal environment and preventing, abating and controlling environment pollution in the coastal areas of the State. It was observed that between January 2011 and December 2015, WBSCZMA had convened 17 meetings. It was further observed that in none of these 17 meetings, issues like violations of CRZ notification, preparing Coastal Zone Management Plan (CZMP), generating awareness and training about CRZ, enforcement etc., were discussed. Examination of minutes of meetings of WBSCZMA showed that in 15 out of 17 meetings, only project proposals were discussed and recommended. It was also observed that WBSCZMA approved all 20 projects submitted to it, even though 10 of these projects were not permissible under CRZ 2011, as discussed in detail in **Paragraph 3.10.5**.

Thus, WBSCZMA was reduced to only a project approval body. This was contrary to the objective of setting up of WBSCZMA as envisaged in the notifications.

3.10.3.2 District Level Committees

According to CRZ regulations, District Level Committees (DLCs) under Chairmanship of the concerned District Magistrates were to be constituted to assist WBSCZMA. As per GoWB resolution (January 2012), DLCs were responsible for protecting and improving coastal environment, identification of violations, compliance of CRZ Notification, taking action on violation as per Environment Protection Act, 1986 etc. Further, as per this resolution, DLCs can forfeit and confiscate materials and assets from the site of violations and the assistance of district police in this regard can be taken. The District Magistrate was to nominate a minimum of three representatives of traditional coastal communities/ fishermen and two eminent experts in coastal issues as members of DLC. DLC was also entrusted with taking measures for protecting and improving the coastal environment, identification of violations and conservation of the coasts and was to meet at least once in two months. In West Bengal, DLCs were set up (January 2012) in all three coastal districts⁷⁵. Audit observed the following deficiencies in this regard:

(a) In 50 months (January 2012 to March 2016) since its formation, each of the three DLCs should have convened 25 meetings. It was seen that two DLCs did not meet even once and DLC, Purba Medinipur had convened only two⁷⁶ meetings.

(b) Representatives of traditional coastal communities or fishermen or eminent experts were not nominated in any of the three DLCs.

(c) DLC, Purba Medinipur had recommended (April 2013) the construction of concrete shops complex for rehabilitation of vendors, beautification and landscaping of beaches, construction of concrete toilet blocks and concrete watch towers at Digha. DLC had recommended the

⁷⁵ North 24 Parganas, South 24 Parganas and Purba Medinipur

⁷⁶ April 2013 and August 2015

works on the ground of employment of local population, improving aesthetic value and tourist safety even though all these activities were prohibited under CRZ Notification 2011. These activities were subsequently approved by WBSCZMA and were undertaken.

(d) Chief Environmental Officer, DoE had observed in (August 2008) that hotels and resorts in Mandarmoni in Purba Medinipur District were using the beach as a pathway for plying their vehicles. The Department identified risks to environment as a result of this activity which included compacting the top layer of the beach sand which is the habitat of numerous creatures like red crabs and similar organisms, vulnerabilities to climate change as a result of destruction of beach *etc.* The DLC was required to identify violations for initiation of action under Environment (Protection) Act, 1986. Although the DLC, Purba Medinipur discussed (April 2013) this matter but did not restrict the plying of vehicles on Mandarmoni beach and Audit noticed these activities continued to pose a threat to coastal ecosystem there.



Figure 3.2: Plying of vehicles on Mandarmoni Beach

As such, the DLCs did not effectively perform the functions assigned to them in CRZ Notification. Being situated at the local level, it could have functioned as an effective mechanism for spotting and reporting CRZ violations, which it did not do and WBSCZMA was left with lack of an effective violation-reporting mechanism.

3.10.4 Zoning and classification of coastal areas

CRZ Notification 2011 had classified the entire coastal area into four categories, CRZ I, II, III and IV for the purpose of conserving and protecting the coastal areas, with CRZ I being the most ecologically sensitive as detailed in the table 3.3.

Table No. 3.3: Classification of CRZ areas

CRZ I	CRZ II	CRZ III	CRZ IV	Critically Vulnerable Coastal Areas
Mangroves, Corals- reefs and associated biodiversity, sand dunes, mudflats which are biologically active, national parks, marine parks, turtle nesting grounds, horse shoe crabs habitats etc.	Areas that have been developed up to or close to the shoreline.	Areas that are relatively undisturbed and those do not belong to either CRZ I or II.	The water area from the Low Tide Line to 12 nautical miles on the seaward side.	Areas requiring special consideration such as Sundarban region of West Bengal.

Schematic diagram of classification of CRZ Areas

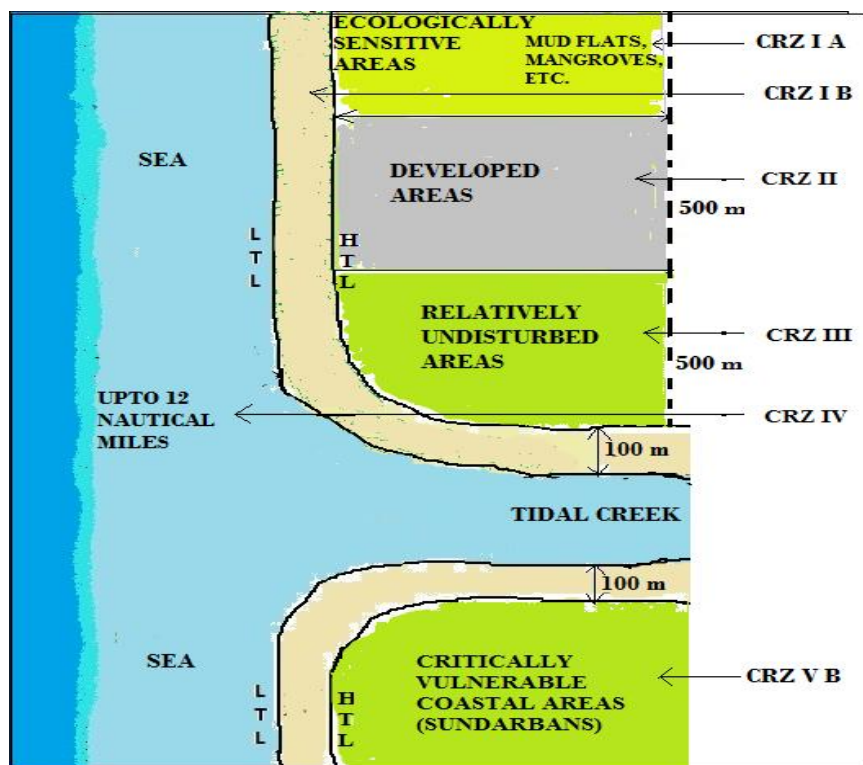


Figure 3.3: CRZ areas classification

Audit observed that mapping and zoning of the coastal areas in West Bengal, as specified in CRZ Notification 2011 had not been finalised as discussed in subsequent paragraphs:

3.10.4.1 Delay in preparation of CZMP

Coastal Zone Management Plan (CZMP) is a land use map of the coastal areas⁷⁷. All developmental activities listed in CRZ Notification 2011 were to be regulated by State Government/ WBSCZMA within the framework of such approved CZMPs. As such, preparation of CZMP was the first step in preserving the coastal areas. It was observed that GoWB was required to prepare its CZMP by January 2013 and submit the same to MoEF&CC for approval. CRZ 2011 had also stipulated that till the new CZMP was approved, the old CZMP would be valid. MoEF&CC extended this validity in various spells till January 2017, in respect of all coastal states, who could not prepare new CZMP till then.

In West Bengal, the new CZMP was yet to be prepared as of June 2016 due to lack of trained manpower in the agency⁷⁸ entrusted with the job, hence old CZMP was to be followed as per MoEF&CC prescriptions. The old CZMP for the State was approved in September 1996, subject to several general and special conditions through which MoEF&CC had classified some of the

⁷⁷ Consists of demarcation of high and low tide line along the coast on a scale of 1:25,000 to clearly delineate geo-morphological features of the coast and classification of the coast into four zones, depending on their geomorphology.

⁷⁸ Institute of Environmental Studies and Wetland Management- an autonomous body under DoE, GoWB which is accredited by GoI for CRZ maps.

coastal areas in different zones⁷⁹. It was observed that GoWB had modified the old CZMP incorporating only the general conditions and re-submitted (February 1997) it to MoEF&CC. For the special conditions, GoWB had proposed (October 2002) for re-classification of five sectors of Digha Sankarpur Development Authority (DSDA) as CRZ III (to prevent new construction) instead of CRZ II. MoEF&CC dismissed the proposal in September 2003. As such, the old CZMP remained unapproved by MoEF&CC and all project approvals were given on the basis of that unapproved CZMP which was a violation of CRZ 2011.

Thus, not only did WBSCZMA fail to prepare the new CZMP, but also could not get the old CZMP approved by incorporating the special conditions, which led to violation of CRZ Notification and threatened the coastal ecology. Audit conducted joint site visits (June 2016) to assess the present status of the five disputed sectors in the old CZMP and it was found that 'no-construction zone' was violated and coastal ecology was threatened as two sectors were populated with hotels and holiday homes, one sector was allotted to Railways and another was developed as bus terminus.

WBSCZMA stated (December 2016) that CZMP could not be prepared due to non-finalisation of the CRZ maps. It further stated that National Centre for Sustainable Coastal Management (NCSCM), Chennai was subsequently handed over the charge for preparation of maps. The reply was not tenable as WBSCZMA initiated the process only after a lapse of 23 months and after NCSCM took the charge of mapping in September 2014, WBSCZMA failed to produce the detailed cadastral⁸⁰ map which was required by NCSCM.

3.10.4.2 Local level maps for use of local bodies not prepared

One of the primary objectives of CRZ 2011 was the livelihood security of fishermen and other local communities living in the coastal areas. In order to safeguard their interests, State Government was to prepare local level coastal management maps for use of local bodies for determining the CRZ and to enable the local bodies and other agencies to facilitate implementation of the CZMP. However, these were not prepared as of June 2016. As a result, approvals to projects were not based on different zones as identified by local level maps. In this context, Audit observed that Ramnagar-I Panchayat Samity had approved (between January 2011 and February 2016) 181 building plans in five⁸¹ coastal mouzas, despite absence of local level maps and without assessing whether those buildings fell in CRZ areas, and required clearance from WBSCZMA. As per information furnished by concerned BDO, a phenomenal increase in number of commercial establishments in these mouzas was recorded as discussed in **Paragraph 3.10.6.2**.

⁷⁹ (i) For Digha Development area sectors A-1, B-5, F-1, F-2, H-1 and N as CRZ III, (ii) Haldia Port Complex Area was categorised as CRZ-II. (iii) A CRZ of 500m throughout will be applicable for Hooghly river, (iv) In case of river Hooghly, CRZ was up to Southern Municipal limit of Diamond Harbour. (v) The Dunes/ Runnels, Gangasagar and Fraserganj were classified as CRZ I etc.

⁸⁰ The map indicating the boundaries, use and ownership of land.

⁸¹ Economic Hotel Sector, Gobindabasan, Paschim Gadhaharpur, N-2 sector, Mini Holiday Sector, Khadalgobra.

3.10.4.3 Identification and mapping of ecologically sensitive, economically important and highly vulnerable areas not done

CRZ 2011 classified CRZ I as being the most ecologically sensitive coastal area containing geo-morphological features⁸² which played a role in maintaining the integrity of the coast. To preserve this habitat, SCZMAs were entrusted with the identification and preparation of management plans of ecologically sensitive areas, including coastal areas highly vulnerable to



Figure 3.4: Beach at Tajpur-littered with waste

erosion/ degradation in economically important stretches. In pursuance of this, MoEF&CC had convened (September 2014) a meeting to review the status of mapping of ecologically sensitive areas. It asked State Governments to make available the existing data for Ecologically Sensitive Areas (ESAs) to National Centre for Sustainable Coastal Management (NCSCM) by October 2014.

Scrutiny showed that due to delay in handing over the required inputs to NCSCM, mapping of ESA in West Bengal could not be done as of June 2016. Further, no identification and mapping of coastal areas highly vulnerable to erosion/ degradation in economically important stretches was also done by WBSCZMA. As a result, the ecologically sensitive habitats in CRZ I remained vulnerable. A note of Chief Environment Officer, DoE stated in 2008 that dune formation was getting affected due to creation of man-made infrastructure, which had impact on coastal stability. Creation of hotels was also impacting beaches which were the habitat of numerous creatures like red crabs. This degradation is further illustrated by the fact that joint site verification to CRZ I revealed that areas like beaches in Tajpur and Digha Mohana which are the habitats of Horse Shoe shaped Red crabs, were found littered with waste.

3.10.4.4 Lack of identification of Critically Vulnerable Coastal Areas in Sundarban

Sundarban region (9630 sq km) of West Bengal has the largest (4200 sq km) mangrove forest in India and the only marshy mangrove tiger habitat in the world. The Sundarban Biosphere Reserve (SBR) supports 84 diverse flora and 1692 species of fauna. MoEF&CC had declared the entire Sundarban region as a Biosphere Reserve in 1989 to protect the unique habitat that was increasingly being encroached and fragmented. Considering its sensitive ecological status, CRZ 2011 had provided that Sundarban be declared as Critically Vulnerable Coastal Area (CVCA) to be managed with the

⁸² (a) Mangroves, in case area is more than 1000 sq m, a buffer of 50 m along the mangroves shall be provided; (b) Corals and coral reefs and associated biodiversity; (c) Sand Dunes; (d) Mudflats which are biologically active; (e) National parks, marine parks, sanctuaries, reserve forests, wildlife habitats and other protected areas under the provisions of Wildlife (Protection) Act, 1972, the Forest (Conservation) Act, 1980 or Environment (Protection) Act, 1986; including Biosphere Reserves; (f) Salt Marshes; (g) Turtle nesting grounds; (h) Horse shoe crabs habitats; (i) Sea grass beds; (j) Nesting grounds of birds; and (k) Areas or structures of archaeological importance and heritage sites.

involvement of the local coastal communities including fisher folks and Integrated Management Plans (IMPs) be prepared. Pending approval of IMPs, for satisfying the needs of the traditional inhabitants, limited activities were permitted on a case to case basis by WBSCZMA.

It was seen that GoWB had requested GoI (February 2011, May 2015 and June 2016) to exclude Sundarban Biosphere Reserve from Critically Vulnerable Coastal Area (CVCA) as clearance would be required under CRZ 2011 for any activity connected with the lives of people. This would adversely affect developmental aspirations of the local people. However, MoEF&CC did not respond (June 2016) to this request. Further, it was seen that WBSCZMA had not prepared IMPs for conservation and management of Sundarban till date of audit. In the absence of IMPs, this unique habitat was slowly disappearing as shown by receding mangroves. Regional Remote Sensing Centre, Kolkata⁸³ had conducted (January 2015) a study of satellite based analysis on loss of mangrove forest during last decade in Indian Sundarban. Satellite imagery done as part of this study showed that between 2003 and 2014, 9900 hectares of land had been eroded, out of which 1607 hectares of green cover was lost. Thus, focused approach towards conservation of Sundarban was missing, which was one of the objectives of CRZ 2011.

WBSCZMA stated (December 2016) that erosion and accretion happened in dynamic tidal waves, cyclones *etc.* However, the fact remained that WBSCZMA did not initiate any action for conservation of mangroves in Sundarban.

3.10.5 Project appraisals and approvals

According to CRZ 2011, the entire coastal area of a State was categorised under CRZ I, II, III and IV. Certain activities like setting up of new industries, manufacture or handling of oil, storage or disposal of hazardous substances, setting up and expansion of fish processing units, discharge of untreated wastes and effluents from industries, cities or towns and other human settlements, land reclamation, bunding or disturbing the natural course of sea water *etc.*, was totally prohibited in all zones of CRZ. Further, depending on this classification, certain limited activities were regulated in these four zones, as depicted in the table 3.4.

Table No. 3.4: Regulated activities allowed in CRZ

CRZ I	CRZ II	CRZ III	CRZ IV
No new construction except some infrastructure projects.	Buildings only on landward side, storage for petroleum/ natural gas, desalination plants, green energy projects <i>etc.</i>	No construction in No Development Zone (NDZ) except for repair/reconstruction of existing authorised structure not exceeding existing Floor Space Index, certain activities outside NDZ permitted like tourist lodges in designated areas, desalination plants, public rain shelters, toilets <i>etc.</i>	Only traditional activities allowed, no waste dumping.

⁸³ A unit of Indian Space Research Organisation

According to CRZ 2011, project proponents (parties interested to undertake any activities in CRZ) were to apply and submit documents⁸⁴ to WBSCZMA for prior clearance of permitted activities for projects in designated CRZ areas. WBSCZMA was to examine the documents for compliance with CRZ Notification and make recommendations within a period of 60 days from the date of receipt of application. WBSCZMA was to forward recommendations to MoEF&CC or State Environmental Impact Assessment Authority (SEIAA) for projects attracting provisions of Environment Impact Assessment 2006. MoEF&CC/ SEIAA was to then consider such projects for clearance, based on the recommendations of WBSCZMA.

It was seen that between January 2011 and December 2015, WBSCZMA had given CRZ clearances⁸⁵ to all the 20 project proposals submitted to it by the project proponents. Audit observed that out of these 20 projects cleared by WBSCZMA, activities to be taken up under 10 projects were prohibited under CRZ 2011. Audit also observed that in seven out of 20 projects approved by WBSCZMA, requisite detailed CRZ maps were not available with WBSCZMA to determine whether activities⁸⁶ proposed were permissible in the designated CRZ areas. Despite this gap, all these projects were approved. Further, all these 20 projects were required to obtain 'No objection certificate' from West Bengal Pollution Control Board (WBPCB), however, only one project proponent had applied to WBPCB till June 2016. Discrepancies in project appraisal by WBSCZMA are discussed below:

3.10.5.1 Eco-tourism project at Sagar Island under ICZM

Department of Sundarban Affairs had applied (January 2014) to WBSCZMA for CRZ clearance for an Eco-tourism project to construct visitor interpretation center, *dala* arcade (cluster of *Prasad* stalls), *Nat Mandir* (Prayer space opposite the temple) cum rain shelter and community facility center in the Gangasagar Island under ICZM project. This was to provide facilities to pilgrims who congregated in this area during the Gangasagar mela. It was observed that WBSCZMA had accorded (February 2014) the clearance⁸⁷ despite the fact that MoEF&CC had classified in the approval to CZMP

⁸⁴ 1.Rapid EIA Report (marine and terrestrial component) except Housing schemes and construction projects in CRZ;
2.Comprehensive EIA with cumulative studies for projects in the stretches classified as low and medium eroding by MoEF&CC based on scientific studies and in consultation with the State Governments and Union territory Administration;
3.Disaster Management Report, Risk Assessment Report and Management Plan;
4.CRZ map indicating HTL and LTL demarcated by one of the authorised agency in 1:4000 scale;
5.Project layout superimposed on the map;
6.The CRZ map normally covering seven km radius around the project site;
7. The CRZ map indicating the CRZ I, II, III and IV areas including other notified ecologically sensitive areas;
8. No Objection Certificate from the concerned State Pollution Control Board or Union Territory Pollution Control Committees for the projects involving discharge of effluents, solid wastes, sewage etc.

⁸⁵ Nine projects of State Government, seven of private parties and four of Central Government Undertakings

⁸⁶ Building of hotels, waste management plant, oil pipelines etc.

⁸⁷ Provided that it would be cyclone proof to ensure public safety

(September 1996), Gangasagar Island as CRZ I where any new construction was to be regulated.

WBSCZMA stated that these structures were actually multipurpose rain and cyclone shelters. The reply of WBSCZMA needs to be seen in the light of the fact that the approval was given for an eco-tourism project which involved larger scope of construction activities including re-construction of *Nat Mandir*, building of stalls for vendors *etc.*, and not just construction of rain/ cyclone shelters.

3.10.5.2 Vendor rehabilitation, beach amenities, landscaping and allied works under ICZM

Digha Sankarpur Development Authority (DSDA) had applied (March 2014) to WBSCZMA seeking clearance for a project of vendor rehabilitation, beach amenities, landscaping and allied works in Digha which fell under CRZ II and III areas. Audit observed from the CRZ map submitted by DSDA, that the site was within 200 m from High Tide Line⁸⁸ which was 'No Development Zone' and where no new construction was to be allowed. Despite this, WBSCZMA had approved the proposal (September 2014) which was in violation of CRZ Notification 2011.

WBSCZMA stated that these structures were not permanent ones and sand dunes were not disturbed. However, the fact remained that these structures were permanent ones which were not permitted in CRZ I area and any construction in CRZ I area would have a deleterious impact on sand dunes.

3.10.5.3 Coastal Police Stations

WBSCZMA had approved (October 2012) the construction of four Coastal Police Stations (CPSs)⁸⁹ of Home (Police) Department, GoWB on the grounds that these were not located in CRZ area. Audit observed from records that one CPS was within 200 m from the sea and, thus, part of CRZ. However, WBSCZMA had granted permission, without verifying the location through CRZ maps. Such clearance was irregular and in violation of CRZ 2011. Further, two other CPSs were located in CVCA areas wherein constructions were not exempted and were to be regulated in line with CZMP.

WBSCZMA stated that construction of coastal police stations was a permissible activity under CRZ. However, this was incorrect as construction of these structures could only be allowed if they were not within CRZ I and CVCA areas and as such approval for construction depended on their location.

3.10.5.4 ICZM projects in Digha

According to CRZ 2011, reclamation of land for commercial purpose such as shopping, housing complex, hotels and commercial activities were prohibited. DSDA had applied (March 2013) to WBSCZMA for CRZ clearance for three

⁸⁸ *The High Tide Line means the line on the land upto which the highest water line reaches during the spring tide.*

⁸⁹ *In Gobardhanpur, Gangasagar and Diamond Harbour in South 24 Parganas district and Junput in Purba Medinipur district*

ICZM projects⁹⁰ in old Digha. Even though DLC noted (April 2013) that sites were within 200 m from HTL and hence construction of any concrete structure was not permissible, yet it recommended (April 2013) these projects to WBSCZMA on the grounds that hawkers from fishermen community would be accommodated and would address the unhygienic condition of the coast, improve drainage facilities and aesthetic value of the coastal area and would ensure tourist safety. WBSCZMA accorded (May 2013) clearance to the projects in violation to CRZ 2011 and also without obtaining the prescribed documents.

WBSCZMA stated (December 2016) that the structures were not permanent ones and was allowed for the benefit of the coast. The reply was factually incorrect as Audit observed that the structures were permanent in nature.

3.10.5.5 Platform for commissioning interceptor missile in Junput by DRDO

Defence Research and Development Organisation (DRDO) had applied (April 2014) for permission to construct platform for commissioning of interceptor missile at Junput, East Midnapur, but submitted only Form-1 and CRZ maps. WBSCZMA had requested (December 2014) DRDO for submission of EIA report, Risk Assessment, Disaster Management plan and permission for ground water tapping. These documents were not submitted by DRDO. Audit observed that according to CRZ 2011, the area proposed for construction of platform, which was having ecosystems like mudflats, sand dunes with vegetation and casuarina plantations, was classified as CRZ I. However, without examining impact of the project on the diverse coastal ecosystems and terrestrial and aquatic ecology, WBSCZMA had recommended (January 2016) this project to MoEF&CC for CRZ clearance despite the fact that no new construction was allowed in CRZ I area as per CRZ 2011.

3.10.5.6 Shrimp farming

As per CRZ 2011, salt marshes are categorised as CRZ I where any construction activity including shrimp farming is prohibited. It was observed that an agency had applied (July 2013) to WBSCZMA for clearance of a shrimp hatchery project in the Tajpur coastal area in Purba Medinipur district. As per the Ecological Status Report of the proposed project prepared by Zoological Survey of India, submitted by the applicant, this area was categorised as coastal salt marsh with a number of saltwater wetland habitats including stunted mangroves and swamp forests. However, WBSCZMA had approved the project (January 2014) despite the hatchery being in CRZ I area, without considering the impact of the hatchery upon the ecology of the flora or fauna of the area.

⁹⁰ (i) Vendor rehabilitation center integrated with landscaping and Children's Park at old Digha; (ii) construction of Toilet block, landscaping and beautification of Jagannathghat at Old Digha; and (iii) Vendor Rehabilitation Center integrated with landscaping at New Digha.

3.10.5.7 *Setting up of cryogenic facility*

An Oil and Gas importing company had applied (April 2015) for clearance of setting up an import, storage and distribution facility for natural gas in Haldia dock complex. It was seen that it submitted CRZ maps and a Risk Assessment report but did not furnish EIA report and Disaster Management Plan. However, WBSCZMA had recommended (June 2015) the project to MoEF&CC for clearance with the conditions to be complied with by the applicant that the pipeline should not violate the buffer zone of the mangroves, adequate measures would be taken to prevent accidental leakages and that the project proponent would prepare an emergency disaster plan. The CRZ map⁹¹ submitted by project proponent showed that mangroves covering more than 1000 sq m were present along the banks of Hooghly and the pipelines were passing through the buffer zone of the mangroves. Besides, ecosystems like tidal flats were also present on the route of the pipeline. In the absence of requisite documents like EIA report and disaster management plan, which was required under CRZ 2011, WBSCZMA would not be able to check compliance to the conditions, despite that the project was recommended for approval by WBSCZMA.

3.10.6 **Enforcement and compliance of CRZ regulations**

As per CRZ 2011, development or construction activities in different categories of CRZ were to be regulated by the concerned CZMA in accordance with features, regulations or norms as on February 1991⁹² and development/ re-development in CRZ areas without clearance of WBSCZMA was to be treated as violations. WBSCZMA was to inquire into cases of alleged violations, issue specific directions, file complaints, review cases, and refer such cases with comments to NCZMA. WBSCZMA could also take up cases *suo-motu* or on the basis of complaints made by individual/ representative body/ organisation/ DLCs, and take action to verify the facts concerning the issues. Violations by different agencies observed in CRZ area and failure of WBSCZMA in this regard are discussed in the succeeding paragraphs.

3.10.6.1 *Lack of action on violations by Haldia Development Authority*

MoEF&CC had intimated (May 2015) DoE, GoWB about various construction activities like pavements, parks and beautification, jetties and buildings which had taken place in CRZ area along the banks of Haldi river, both on the landward side and riverside of the existing roads/ embankment undertaken by Haldia Development Authority (HDA). In response, WBSCZMA had directed (July 2015) HDA to stop construction in the CRZ area and submit an action taken report. HDA had stated (October 2015) that constructions were to beautify the ghat/ embankment of the river intended for visitors. It was seen that WBSCZMA did not issue any further directions or initiate any action against the agency for violation of CRZ Notification.

⁹¹ A map prepared by National Centre for Earth Science Studies, Thiruvananthapuram, a Government of India authorized agency for CRZ mapping.

⁹² As defined in CRZ Notification 1991 and applicable subsequently.

3.10.6.2 Proliferation of hotels in CRZ areas

(a) Violations in Digha and Mandarmoni area

As per the records of Tourism Department, tourist inflow into Digha and Mandarmoni was 40.73 lakh (11,159 daily) during 2011 which rose by 82.38 per cent to 74.29 lakh (20,354 daily) in 2015. According to a report⁹³ (April 2012) of GoWB, daily load of Digha beach in 2010 was 8250 persons against a daily carrying capacity of 3000 persons. The huge influx of tourists had contributed to the surge of building construction without the requisite approval of WBSCZMA as discussed below:

- Between February 2009 and 2016, Ramnagar-I Panchayat Samity had approved 523 building plans in five⁹⁴ coastal mouzas of Digha Sankarpur Development Authority which included 425 cases related to construction of two to four storey hotels/ resorts. Audit observed that all these buildings were constructed, even though none of these were approved by WBSCZMA.
- Mandarmoni is a seaside village east of Digha which falls under CRZ I zone. Audit observed that WBPCB had issued (February 2007) demolition order to six hotels situated in the inter-tidal zone in CRZ area which were operating without permission from WBPCB/ WBSCZMA. Hon'ble High Court had also directed (August 2008) that no further construction would be permitted by any authority within the CRZ area. Meanwhile, in response to demolition order, the hoteliers had moved (2007) the High Court which ordered (April 2013) the District Level Coastal Zone Management Committee to re-examine whether these hotels were within parameters of the revised guidelines of CRZ 2011 and report back in three months. The Committee had stated (April 2013) that in absence of maps and other relevant information, it was difficult to inspect and examine these violations and comply with the order of High Court. This response was factually incorrect as Audit observed that a Government mapping agency had submitted (April 2012) to DoE, GoWB a report on physical demarcation of CRZ line along Mandarmoni, which showed that the entire area, where these hotels were constructed, was out of bounds for construction as it fell within CRZ I. In the meantime, the number of illegal hotels increased to 75 as of June 2016, causing severe stress to the coastal ecology. In reply WBSCZMA stated (December 2016) that it did not have power or infrastructure to demolish hotels but action was initiated by WBSCZMA through FIRs and directions to District Level Committees. However, the fact remained that as per section 5 of Environment (Protection) Act, 1986, WBSCZMA could issue directions to WBPCB/ DM/ DLCs for taking concrete action for closure, prohibition, regulation of any industry, operation or process.

⁹³ A Government of West Bengal Report-Identification of Tourism Circuits across India submitted to MoEF&CC in April 2012.

⁹⁴ Economic Hotel Sector, Gobindabasan, Paschim Gadharpur, N-2 sector, Mini Holiday Sector, Khadalgobra.

(b) Lack of action on violations of CRZ Norms in Sundarban

Scrutiny of records showed that in a joint inspection (October 2010) with MoEF&CC and WBPCB, WBSCZMA had identified 18 hotels/ resorts and one Government guest house constructed in the CRZ areas of three⁹⁵ islands of Sundarban. Subsequently, WBSCZMA had entrusted (January 2011) Institute of Environmental Studies and Wetland Management (IESWM) to map coastal infrastructure in Sundarban in order to identify the illegal construction of hotels in CRZ areas. IESWM had submitted (September 2011) a report to WBSCZMA wherein it had identified 98 cases of illegal construction in South 24 Parganas and 17 cases of illegal construction in North 24 Parganas districts. However, WBSCZMA did not take any action against these violations, like issuing directions for closure, prohibition, operation and stoppage or regulation of the supply of electricity or water or any other service.

Meanwhile, as of December 2015, as per the status report sent by the DM (South 24 Parganas) to NGT, the number of hotels in Sundarban had increased to 163⁹⁶, but none of them had approval of WBSCZMA and thus violated the CRZ 2011 Notification. Audit observed that WBSCZMA had not initiated any action to curb these violations in the light of CRZ 2011 Notification which resulted in following adverse effects on the environment as documented by the National Green Tribunal, Eastern Zone bench, as of January 2015:

- Discharging of hotel effluent into the nearby river course resulting in pollution.
- Hotels operated DG sets without permission of WBPCB, causing air and noise pollution.
- Unplanned drawing of ground water by the hotels resulted in depletion of ground water and the consequent intrusion of saline water.

3.10.6.3 Illegal fishing activities in Sundarban

As per the Hon'ble Supreme Court judgment in December 1996, shrimp culture industry/ shrimp ponds are covered by the prohibition contained in para 2(1) of the CRZ Notification 1991 and no shrimp culture pond can be constructed or set up within the coastal regulation zones as defined in the CRZ Notification. It also directed that all aquaculture industries/ shrimp culture industries/ shrimp culture ponds operating/ set up in the coastal regulation zone as defined under the CRZ Notification was to be demolished and removed from the said area before March 1997.

Audit observed that in response to the order of National Green Tribunal regarding violation of CRZ norms in Sundarban, Fisheries Department had furnished (February 2015) a report that 2098 brackish water farms were registered with Coastal Aquaculture Authority, out of which only 1068 farms were under active registration. As such, without registration, the remaining farms were operating unregulated. WBSCZMA had not taken any action to

⁹⁵ Pakhirala, Dayapur and Sajnakhali

⁹⁶ Basanti-9, Canning I-5, Gosaba-49, Patherpratima-5, Namkhana-41, Sagar-44 and Kakdwip-10.

curb these unauthorised farms, despite availability of information about these unauthorised shrimp farms.

3.10.6.4 Illegal brick kilns

Records showed that in response to the order of National Green Tribunal regarding violation of CRZ norms in Sundarban, District Magistrate, South 24 Parganas had reported (February 2015) to DoE, GoWB that in Sundarban area there were 88 unauthorised illegal brick kilns which were operational without consent of WBSCZMA resulting in violation of CRZ. WBSCZMA, however, did not initiate any action to curb this illegal activity affecting the coastal ecosystem.

WBSCZMA stated (December 2016) that the matter was subjudice at National Green Tribunal. However, the fact remains that National Green Tribunal had directed in September 2014 that WBPCB should take action to stop all brick kilns operating in Sundarban.

3.10.6.5 Lack of enforcement over tourism

Scrutiny of the records of the Tourism Department showed that the number of tourists in Sundarban had increased from 12.20 lakh in 2011 to 28.60 lakh in 2015. Audit observed that during December 2015- February 2016, on an average, 68 boats entered Sundarban daily in excess of the carrying capacity⁹⁷ of Sundarban. The boats, which plied both within the Tiger reserve and other river channels of Sundarban, were powered by old engines which created noise. Besides, water used to cool the engines was discharged in the river and contained oil and grease⁹⁸. Some of these boats also used adulterated diesel. According to information furnished by Sundarban Tiger Reserve (STR), during the peak season of December, January and February, average daily number of tourists visiting, ranged from 946 persons to 1369 persons against the tourist carrying capacity of 650 persons per day. This resulted in environmental stress in the form of pollution of water, noise and air introduced into the ecology of the Sundarban. WBSCZMA, however, had not discussed this issue in any of their meetings despite the fact that one of the mandates of WBSCZMA was to plan for the conservation of coastal areas. WBSCZMA stated (December 2016) that entry of water crafts carrying tourists was regulated by the Sundarban Tiger Reserve Authority. However, the fact remained that WBSCZMA did not take any action like issuing directives to STR to restrict tourists to the estimated carrying capacity of STR.

3.10.6.6 Violations in construction of shoreline protection works

Test check of records of Irrigation & Waterways and Fisheries Departments showed that they had undertaken major protection works⁹⁹ during 2012-13 to

⁹⁷ Carrying Capacity is the maximum number of visitors that can physically fit into a defined space over a particular time. Carrying capacity (2015-17) was determined in the Tiger Conservation Plan by Department of Forest, GoWB, to be 10 launches or maximum 32 small boats.

⁹⁸ Report of Tiger Conservation Plan of Sundarban Tiger Reserve

⁹⁹ Total 11185 m at a cost of ₹87.54 crore by I&WD, ₹2.69 crore on construction of Groyne in Digha Mohona by Fisheries Department.

2015-16 using granite boulders, cement concrete, brickwork, reinforced cement concrete, sheet pile, geo-pipes and wooden structures *etc.*, in adjacent but separate coastal stretches in Purba Medinipur like Digha, Shankarpur and Champa River in the Mohana area. Audit scrutiny showed that these works were taken up without the knowledge of WBSCZMA, in violation of CRZ Notification 2011. Further, no study was conducted to assess the impact of these works on environment or aquatic and coastal ecosystem as stipulated in CRZ Notification 2011. Joint site visit by Audit and Departmental officers in June 2016 showed that the beach was concretised and, as a result, the coastal ecosystem like sand dunes, mangroves and sandy shores were modified, which was strictly prohibited under CRZ 2011.

3.10.6.7 Discharge of untreated effluents/ management of solid wastes in the coastal areas

As per CRZ Notification 2011, no untreated sewage, effluent, ballast water, ship washes, fly ash or solid waste from any activity including from aquaculture operations was to be let off or dumped near the sea. Pollution from oil and gas exploration and drilling, mining, boat house and shipping were also to be regulated. Accordingly, WBSCZMA had directed (October 2011) the Kolkata Port Trust (KoPT), Haldia Municipality and Digha Shankarpur Development Authority (DSDA) to formulate a comprehensive plan within one year and to stop discharging untreated effluents/ solid wastes in the coastal and marine areas. It had also directed WBPCB to monitor the compliance. Results of Audit in respect of solid waste management and discharge of effluents in the coastal towns of Digha and Haldia are discussed below:

(a) Solid Waste Management in Digha

Digha is the most popular sea resort and tourist destination in West Bengal attracting a footfall of 74.29 lakh¹⁰⁰ in 2015, as per the data of Tourism Department, GoWB. According to records of DSDA, on an average, solid wastes of 15 tons per day (TPD) were generated, of which around 3.36 TPD were collected and dumped at a place very near the sea coast. The possible environmental impacts due to open dumping, as assessed by the DSDA, included ground/ surface water contamination, bad odour, pests, rodents causing epidemics *etc.* To address these, a project of Solid Waste Management at an estimated cost of ₹ 9.23 crore was included (May 2010) in ICZMP. The project was, however, not taken up by DSDA as it failed to finalise the policy of funding of operations and maintenance cost. In its absence, waste dumping on the coast continued unabated which was totally prohibited under CRZ 2011.

(b) Waste water treatment in Digha

Presently, there is no sewerage system in the Digha area. Raw sewage from residential or commercial buildings was being disposed directly into the sea through surface drains at three discharge points. For treatment of sanitary sewage generated from the hotels and the town and to stabilise the

¹⁰⁰ As per records of Tourism Department

decomposable organic matters present in the sewage so as to produce an effluent which could be disposed of in the environment without causing health hazards, an integrated sewerage system project under ICZM project was taken up at an estimated cost of ₹ 28.88 crore in May 2010. The project was, however, not completed even after expiry of six years and expenditure of ₹ 24.01 crore. Scrutiny showed that connecting the sewer lines to different households, hotels and institutions to be done by DSDA, was not taken up as of June 2016. As a result, the created infrastructure of sewer line could not be



Figure 3.5: Waste flowing into the sea (Digha)

put to use. Scrutiny further showed that out of three discharge points, WBPCB had monitored the water at one point from two locations. Audit compared monitoring results of January – December 2011 with the results of the period from January 2014 - May 2016. It was observed that BOD¹⁰¹ of sea water was higher than the permissible limit (3 mg/ litre or less), the highest recorded being 7.4 (December 2011) and 6.2 (January 2016). The average count of TC¹⁰² and FC¹⁰³ during the period January 2014 to May 2016 was 41538 and 15931 against the maximum permissible limits (<500 and <2500 MPN / 100 ml respectively). The pH¹⁰⁴ of the nearby sea water was lower in 2014-16 (7.46 to 7.53) compared to the 2011 (7.72 to 7.92) which indicated that the water quality had become more acidic during recent times due to discharge of pollutants. As such, dumping of waste, which was totally prohibited under CRZ 2011, continued to have its deleterious effects on the fragile coastal ecology.

(c) **Burning Ghat on Beach**

During joint site inspection of the Digha beach, Audit observed that a stretch of the beach and embankment¹⁰⁵ was being used as a cremation *Ghat*, leading to air and water pollution. Scrutiny of records showed that WBSCZMA had not taken up the matter with DSDA to initiate any action to address the problem. Thus, pollution through burning on the sea coast in violation of CRZ Notification continued unabated.

(d) **Effluent discharge in Haldia**

In Haldia Municipality, domestic municipal sewage generated amounted to two million gallons per day (MGD)¹⁰⁶. However, there was no sewerage collection and treatment system in Haldia Municipality and drains carried

¹⁰¹ Biological Oxygen Demand amount of oxygen which determines the strength of sewage and effluents in polluted water.

¹⁰² Total Coliform includes bacteria that are found in soil or water that are influenced by human and animal waste.

¹⁰³ Fecal Coliform bacteria are the most common microbiological contaminants of natural waters.

¹⁰⁴ Numeric scale used to specify the acidity or basicity of an aqueous solution.

¹⁰⁵ From Jagannath Ghat – Maity Ghat – Rail Station Ghat and the beach near Jatra Nala.

¹⁰⁶ Report (2011) of WBPCB

effluents to the river Hooghly. With a view to managing the sewage rationally and control pollution, HDA had prepared (June 2009) a Sewerage Master Plan; however, the project was not implemented till date (June 2016). As such, the flow of effluents continued unabated into the river Hooghly, violating the requirements under CRZ 2011. Haldia Industrial Cluster, an industrial area on the southern side of the confluence of the rivers Hooghly and Rupnarayan, housed 124 industries¹⁰⁷. According to WBPCB, 22 MGD industrial effluents generated by various industries were being discharged into the Green Belt Canal which fell into river Hooghly. Scrutiny of water quality monitoring report of WBPCB at eleven sampling stations along the canal during January 2014 to May 2016 showed that parameters like TSS¹⁰⁸, COD¹⁰⁹, BOD *etc.*, far exceeded the permissible limits in each of the sampling stations. The parameters for emission of oil and grease, Iron, Sulphide, Fluoride, Cyanide and Lead regularly exceeded permissible limits as per WBPCB reports. WBSCZMA and WBPCB have taken no action in this regard even though such discharge was prohibited as per CRZ 2011 Notification.

(e) ***Bilge¹¹⁰ and Ballast¹¹¹ water management, ship breaking and oil spills***

Records of Kolkata Port Trust (KoPT) showed that between 2010 and 2015, 9936 ships had docked in Haldia Port of KoPT. Audit observed that KoPT did not have any bilge or ballast management facility in that port for collection of effluents like used and waste oil.

Audit also observed that WBSCZMA had not taken cognizance of these polluting activities which were prohibited under CRZ Notification 2011. MoEF&CC had requested (September 2011) the Chief Secretary, GoWB to undertake shoreline clean-up and beach protection measures in order to minimise environmental damage from oil spills. DoE, GoWB had also constituted (December 2011) a committee to review the oil spill contingency plan and to suggest modifications thereon. However, even after passage of six years, they were unable to finalise any such Plan.

Scrutiny further showed that a ship carrying more than 260 tons of oil had sunk near the Sagar Island in October 2013. Records showed that the debris and oil were not cleared, causing damage to the coastal region. As such, effluents from ship continued to pollute the coastal areas which was totally prohibited under CRZ 2011.

¹⁰⁷ Nine grossly polluting, 25 Red categories and 90 Green and Orange category

¹⁰⁸ Total Suspended Solids are solids in water which includes a wide variety of material, such as silt, decaying plant and animal matter, industrial wastes and sewage. High concentrations TSS may cause many problems for stream health and aquatic life.

¹⁰⁹ The standard method for indirect measurement of the amount of pollution (that cannot be oxidized biologically) in a sample of water.

¹¹⁰ Bilge water is a combination of rain water, sea water, waste matter and seeped oil from below deck and is usually discharged at the port in a controlled manner.

¹¹¹ Ballast refers to a heavy weight, often sea water, taken on board of an empty ship, for stability and improves handling, when the ship is not carrying cargo. The ballast is then discharged and exchanged for cargo at the port of destination while the sediments settled at the bottom of the tanks is physically shoveled over the side of the ship directly into the ocean. Ballast contains a gamut of organisms and their propagules.

3.10.6.8 Action taken on the basis of Complaints

As per CRZ Notification 2011, WBSCZMA was empowered to take up cases of violation *suo-motu* or on the basis of complaints received from individuals/organisations. In the following cases, Audit observed inaction on the part of WBSCZMA against complaints received regarding violations of CRZ:

- Bakkhali-Frazerganj Hoteliers Welfare Association had filed (December 2015) a complaint along with photographs showing that a few constructions were undertaken within 200-250 m of the coast in South 24 Parganas District despite the fact that the area was classified as CRZ I by the MoEF&CC while approving the CZMP of 1996.
- Residents of Radhakrishnapur village of Sagar in South 24 Parganas District had lodged (December 2015) a complaint along with photographs and satellite image showing that permanent structures were constructed within 100 m of a tidal creek in violation of the CRZ Notification 2011.

WBSCZMA had forwarded (December 2015) the complaints to DLC, South 24 Parganas and directed it to look into the matter and submit a detailed action taken report. However, no further action was found to have been taken in this case.

3.10.6.9 Post clearance monitoring

According to CRZ Notification 2011, it is mandatory for the project proponent to submit half-yearly compliance to WBSCZMA on 1 June and 31 December every year and host the report on its website. Audit observed that none of the project proponents had submitted half-yearly compliance reports to WBSCZMA.

WBSCZMA had given CRZ clearance to 20 projects after the issue of CRZ 2011 Notification (as discussed in **Paragraph 3.10.5**), of which Audit conducted (June 2016) joint physical verification of 12 projects¹¹² and one project¹¹³ which was given CRZ clearance prior to CRZ 2011. Audit observed that in six out of 13 projects physically verified, there were deviations from the conditions of CRZ clearance which were not being monitored, as detailed below:

(a) Spillage of fly ash in Haldi River

The proponent was engaged in export of fly ash to Bangladesh through barges. The fly ash was transported to the jetty by browsers and then filled into barges on the Haldi River using pipes. CRZ clearance was issued in September 2009 with the condition that the project proponent would install a system to ensure no spillage of fly



Figure 3.6: Mixing of fly ash with river water

¹¹² Four ICZM projects of Vendor Rehabilitation and Beautification at Digha, Eco-tourism at Sagar Island under ICZM, Shrimp farming, H Energy East Coast Ltd., Dock facilities at Haldia Dock Complex, AEGIS Logistics, Bharat Petroleum Corporation Ltd., Indian Coast Guard and Sagar Kutir.

¹¹³ Exports of Fly Ash by a private company (September 2009).

ash into the river. Joint site inspection (24 June 2016) showed that fly ash was spilling into the river-water during loading of fly ash in barges. Further, NOC of WBPCB (March 2014) had stipulated the condition of annual export up to 1.2 lakh MT. Audit, however, observed that between 2014 and 2015, the proponent had exported 5.97 lakh MT of fly ash, thus violated the conditions of WBPCB. In addition, the process of loading of fly ash¹¹⁴ was also violating the conditions of the clearance which were stipulated to restrict water pollution.

(b) Shrimp farming

As already discussed in *Paragraph 3.10.5.6*, WBSCZMA had approved the project in CRZ I area on the condition of leaving 100 m buffer from the adjacent creek. During joint physical verification (June 2016) of the project site it was observed that the project was in construction phase and was implemented along the tidal creek without leaving buffer of 100 m or width of the creek. This was in violation of the conditions stipulated in the project approval as well as the provisions of CRZ III A *i.e.* 'No Development Zone'.



Figure 3.7: Shrimp hatchery project adjacent to creek on the left

(c) Eco-tourism project in Sagar Island under ICZM



Figure 3.8: Littering by waste on Sagar beach

Sundarban Infrastructure Development Corporation Limited had, without clearance of the WBSCZMA, undertaken construction of bus terminus including food court and toilet in Sagar Island which was under CRZ I area. Joint physical verification of the site by Audit showed that the project was undertaken on a marshy wetland surrounded by tidal creeks. Besides, a tidal creek was cut off to build a road to the site. It was further seen that leach based toilet blocks constructed at a cost ₹ 21.19 lakh in 2015 had become dilapidated and the component of solid waste management was scrapped from the project. Audit observed that the whole area including the sea beach was littered with waste, indicating lapses in monitoring by WBSCZMA/ WBPCB.

¹¹⁴ Loading of fly ash in the barge emptying ballast water.

(d) **Three ICZM projects at Digha**

Joint site visits of the ICZM projects undertaken by DSDA in Digha showed the following irregularities in post clearance monitoring by WBSCZMA:

- At Old Digha, DSDA had constructed toilets and watch towers using concrete materials on the beach. Besides, the children's park and the nearby area along the shores had been landscaped with paver blocks and artificial grass. The landscaping had transformed the sandy beaches of Old Digha into a green top and concrete area which was in violation of CRZ Notification.



Figure 3.9: Beach beautification in Old Digha

- At New Digha, DSDA had additionally constructed an open theatre in the area for which it had not applied for clearance of WBSCZMA.
- Mangroves present at the site of Landscaping near Jagannath Ghat had turned brown indicating the dying condition of the mangroves




Figure 3.10: Beach beautification in New Digha

3.10.7 Conclusions

West Bengal State Coastal Zone Management Authority (WBSCZMA) is responsible for protecting and improving the quality of coastal environment as well as preventing, abating and controlling environmental pollution in coastal areas of West Bengal. Institutional arrangements were weak as there were deficiencies in the composition of WBSCZMA due to non-inclusion of essential members like experts, representatives of various departments and Non-Government Organisations. WBSCZMA only discussed project approvals and did not take up matters related to conservation, enforcement, monitoring and violations of Coastal Regulation Zone Notification and was thus reduced to being only a project approval body. District Level Committees also did not function as an effective body for reporting violations and enforcing the regulations. Actions taken to conserve the coastal zones were ineffective due to delays in preparation of Coastal Zone Management Plan and local level maps, lack of identification of ecologically sensitive, economically important and highly vulnerable coastal areas. WBSCZMA cleared various projects which were not permitted under the Regulation 2011 and in many cases project approvals were given in violation of the regulation as clearance/recommendation to Ministry of Environment, Forest and Climate Change was

given for the projects without requisite detailed level CRZ maps. Enforcement of CRZ regulations was weak; the weak enforcement was leading to proliferation of illegal hotels with uncontrolled tourism in Digha, Mandarmoni and Sundarban areas as well as uncontrolled discharge of untreated effluents/solid wastes spoiling the environment of coastal areas. No post clearance monitoring was being exercised and deviations from the approved project conditions were observed in most of the projects. As such, WBSCZMA had failed to achieve the objectives for which it was set up, which was to conserve and protect coastal stretches, its unique environment and its marine areas and to promote development in a sustainable manner.

Kolkata
The 17 February 2017


(NAMEETA PRASAD)
Accountant General
(Economic and Revenue Sector Audit)
West Bengal

Countersigned

New Delhi
The 22 February 2017


(SHASHI KANT SHARMA)
Comptroller and Auditor General of India

Appendices

Appendix – 1.1
(Refer paragraph 1.1, page-1)
Statement of list of Departments

Sl. No.	Name of the Department
1.	Agriculture
2.	Agriculture Marketing
3.	Animal Resources Development
4.	Bio-Technology
5.	Commerce and Industries
6.	Consumer Affairs
7.	Co-operation
8.	Environment
9.	Fisheries, Aqua-culture, Aquatic Resources and Fishing Harbours
10.	Food Processing Industries and Horticulture
11.	Forest
12.	Hill affairs
13.	Information Technology & Electronics
14.	Irrigation and Waterways
15.	Land and Land Reforms
16.	Micro and Small Scale Enterprises and Textiles
17.	North Bengal Development
18.	Paschimanchal Unnayan Affairs
19.	Power and Non-Conventional Energy Sources
20.	Public Enterprises and Industrial Reconstruction
21.	Public Works
22.	Science and Technology
23.	Sericulture
24.	Sundarban Affairs
25.	Tourism
26.	Transport
27.	Water Resources Investigation and Development

Appendix – 1.2
(Refer paragraph 1.3, page-2)
Statement of list of Autonomous Bodies

Sl No.	Name of the Department	Name of the Autonomous Bodies
1.	Agriculture Marketing	West Bengal State Marketing Board
2.	Animal Resources Development	West Bengal University of Animal and Fishery Science
		West Bengal Veterinary Council
		Paschim Banga Go-Sampad Bikash Sanstha
3.	Environment	East Kolkata Wetland Management Authority
		Institute of Environmental Studies and Wetland Management
		West Bengal Pollution Control Board
		West Bengal Bio-Diversity Board
4.	Forest	Compensatory Afforestation Fund Management and Planning Authority
		West Bengal State Forest Development Agency
5.	Hill Affairs	Gorkhaland Territorial Administration including Nurses Training School
6.	Micro and Small Scale Enterprises and Textiles	Food Craft Institute
		West Bengal Khadi and Village Industries Board
		West Bengal State Export Promotion Society
		Modern Mini Tool Room and Training Centre
7.	Power and Non-Conventional Energy Sources	West Bengal Renewable Energy Development Agency
8.	Public Works	Commissioners for the Rabindra Setu
9.	Science and Technology	West Bengal State Council of Science and Technology
10.	Transport	Hooghly River Bridge Commissioners

Appendix – 1.3

(Refer paragraph 1.6.3, page-4)

Statement of Department-wise break up of outstanding IRs and Paragraphs

Name of the Department	Number of IRs/ Paragraphs pending as of 31 August 2016	
	IRs	Paragraphs
Agriculture	167	538
Agriculture Marketing	29	53
Animal Resources Development	35	109
Bio-Technology	01	07
Commerce and Industries	05	12
Consumer Affairs	17	32
Co-operation	28	80
Fisheries, Aqua-culture, Aquatic Resources and Fishing Harbours	14	31
Food Processing Industries and Horticulture	04	08
Forest	08	24
Irrigation and Waterways	83	207
Land and Land Reforms	15	45
Micro and Small Scale Enterprises and Textiles	24	66
North Bengal Development	01	16
Paschimanchal Unnayan Affairs	02	15
Public Enterprises & Industrial Reconstruction	01	02
Public Works	90	227
Public Works (Social Sector)	14	31
Public Works (Roads)	23	71
Science and Technology	01	02
Sundarban Affairs	03	05
Water Resources Investigation and Development	63	150
Total	628	1731

Appendix-2.1

(Refer paragraphs 2.1 and 2.3, page-7 and 8)

Statement showing list of Protected Areas in West Bengal

Sl No.	Protected Area covered	Area (in sq. km)	Unit Covered
1	Sundarban NP	2584.89	Field Director, Sundarban Tiger Reserve
2	Sajnakhali WLS		
3	Buxa Tiger NP	760.87	Field Director, Buxa Tiger Reserve
4	Buxa WLS		
5	Gorumara NP	79.45	Divisional Forest Officer, Gorumara Wildlife Division
6	Neora Valley NP	159.89	
7	Chapramari WLS	9.60	
8	Singhalila NP	78.60	Divisional Forest Officer, Darjeeling Wildlife Division
9	Senchal WLS	38.88	
10	Mahananda WLS	158.04	
11	Jorepokhari WLS	0.04	
12	Jaldapara NP	216.34	Divisional Forest Officer, Jaldapara Wildlife Division
13	Bibhutibhushan WLS	0.64	Divisional Forest Officer, 24 Parganas (North) Division
14	West Sundarban WLS	556.45	Divisional Forest Officer, 24 Parganas (South) Division
15	Lothian Island WLS	38.00	
16	Haliday Island WLS	5.95	
17	Chintamonikar Bird Sanctuary	0.07	
18	Raiganj WLS	1.30	Divisional Forest Officer, Raiganj Division
19	Ballavpur WLS	2.02	Divisional Forest Officer, Birbhum Division
20	Ramnabagan WLS	0.15	Divisional Forest Officer, Burdwan Division
21	Bethuadahari WLS	0.67	Divisional Forest Officer, Nadia-Murshidabad Division
Total		4691.85	

(Source: Departmental records)

Appendix-2.2

(Refer paragraph 2.7.1, page-14)

Statement showing status of Management Plans of Protected Areas

Sl. No.	National Park/ Wildlife Sanctuary	Area (in sq- km)	Date of notification	Period of last Management Plan	Period of current approved Plan	Delay in preparation/ revision of Management Plan as of 31 March 2016	Date of approval by PCCF
1	Gorumara NP	79.45	01.01.1998	1997-98 to 2006-07	2007-08 to 2017-18	nil	20.09.2011
2	Jaldapara NP	216.51	27.08.1998	1997-98 to 2006-07	2007-08 to 2016-17	nil	14.09.2010
3	Mahananda WLS	158.04	19.08.1998	1997-98 to 2006-07	2011-12 to 2021-22	4 years	07.05.2012
4	Neora Valley NP	88.00	02.12.1992	1998-99 to 2007-08	2011-12 to 2021-22	3 years	07.02.2012
5	Senchal WLS	38.88	19.08.1998	1999-00 to 2009-10	2012-13 to 2021- 22	2 years	25.06.12
6	Bethuadahari WLS	0.6686	19.08.1998	2000-01 to 2005-06	2013-14 to 2022-23	7 years	03.06.2014
7	Singhalila NP	78.60	02.12.1992	2000-01 to 2009-10	2013-14 to 2022-23	4 years	03.06.2014
8	Bibhutibhusan WLS	0.64	19.08.1998	2001-02 to 2010-11	2011-12 to 2020-21	Nil	25.04.2012
9	Chapramari WLS	9.60	19.08.1998	2001-02 to 2010-11	2011-12 to 2021-22	Nil	02.02.2012
10	Ramnabagan WLS	0.14	30.09.1981	2001-02 to 2011-12	2012-13 to 2022-23	3 years	Not yet approved
11	Chintamonikar WLS	0.10	14.04.1982	2010-11 to 2014-15	Yet to be prepared	1 year	Not yet approved
12	Ballavpur WLS	2.021	11.07.1977	Not prepared earlier	2009-10 to 2019-20	7 years	05.05.2011
13	Raiganj WLS	1.30	11.04.1985	Not prepared earlier	2011-12 to 2020-21	9 years	19.12.2011
14	Lothian WLS	38.00	19.08.1998	Not prepared earlier	2008-09 to 2017-18	6 years	17.02.2011
15	Haliday WLS	5.95	24.06.1976	Not prepared earlier	2008-09 to 2017-18	6 years	06.07.2011
16	West Sundarban WLS	556.45	11.09.2013	Not prepared earlier	Yet to be prepared	3 years	under preparation
17	Jorepokhari Salamander WLS	0.04	11.03.1985	Not prepared earlier	Yet to be prepared	10 years	Not yet prepared

(Source: Compiled from departmental records)

(Note: In case of new MP delay is calculated from April 2002 and in case of revision of MP delay is calculated from date of expiration of last Management Plan)

Appendix-2.3

(Refer paragraph 2.7.2.2, page-18)

**Statement showing target *vis-à-vis* achievement of
maintenance of grass land**

Item of work of maintenance of grassland	Name of the PA	Annual target as per MP	Actual Achievement				
			2011-12	2012-13	2013-14	2014-15	2015-16
			In ha				
Cut back of older (more than 3 years old) fodder grass plantation followed by control burning of grassland to promote new shoot	Gorumara NP	160	60	25	40	0	30
	Jaldapara NP	200	30	50	50	50	50
	Total	360	90	75	90	50	80
Over wood removal from grass land	Gorumara NP	80	0	10	50	50	30
	Jaldapara NP	300	20	50	50	50	50
	Total	380	20	60	110	100	80
	Grand Total	740	110	135	200	150	160

(Source: Compiled from Management Plans and Replies furnished by concerned Divisions)

Appendix-2.4

(Refer paragraph 2.7.2.2, page-18)

Statement showing target *vis-à-vis* achievement of fodder grass plantation

Name of the PA	Item of work	Annual target as per MP	Actual achievement				
			2011-12	2012-13	2013-14	2014-15	2015-16
			In ha				
Gorumara NP	Plantation of fodder grass after over wood removal	80	20	0	20	0	0
	plantation of fodder grass in natural blank/thatch	40	15	0	10	53	20
	Plantation of fodder grass in degraded fodder plantation (5 years old)	60	30	0	10	70	60
	Total of fodder plantation	180	65	0	40	123	80
Jaldapara NP	plantation of fodder grass after over wood removal area	300	15	45	25	0	25
	plantation of fodder grass in blank/degraded area	60	60	12	50	0	10
	plantation of fodder grass after weed eradication	400	20	0	0	0	0
	Total of fodder plantation	760	95	57	75	0	35
Grand Total		940	160	57	115	123	115

(Source: Compiled from Management Plans and Replies furnished by concerned Divisions)

Appendix-2.5

(Refer paragraph 2.8.1.2, page-25)

Statement showing utilisation of Central Assistance

(₹ in lakh)

Sl. No.	Name of PA	Amount of sanctioned APO	Central share			State share		
			Sanctioned amount	Released amount	Short released	Sanctioned amount	Released amount	Short released
1	Jaldapara NP	267.39	250.34	178.09	72.25	17.05	13.64	3.41
2	Gorumara NP	218.56	194.70	145.03	49.67	23.87	19.09	4.78
3	Neora Valley NP	174.67	150.44	119.91	30.53	24.23	19.38	4.85
4	Singhalila NP	128.33	117.28	93.40	23.88	11.05	8.84	2.21
5	Chapramari WLS	105.65	66.59	46.79	19.80	39.06	20.68	18.38
6	Raiganj WLS	16.82	9.09	6.38	2.71	7.74	1.70	6.04
7	Mahananda WLS	166.38	151.69	113.90	37.79	14.69	11.75	2.94
8	Senchal WLS	119.72	107.37	84.26	23.11	12.35	9.88	2.47
9	Bethuadahari WLS	12.75	8.75	4.00	4.75	4.00	4.00	0
10	Ballavpur WLS	18.00	13.70	4.73	8.97	4.30	4.30	0
11	STR	2350.16	1649.93	1118.01	531.92	702.23	601.07	99.16
12	BTR	1422.52	1033.87	763.77	270.10	388.66	301.35	87.31
Total		5000.95	3753.75	2678.27	1075.48	1247.23	1015.68	231.55

(Source: Compiled from departmental records)

Appendix-2.6

(Refer paragraph 2.8.3.2, page-27)

Statement showing shortage of vehicles/ arms/ RT set/ GPS set

Name of the PA	Item	Total requirement	Present position	Short fall
		(No)	(No)	(No)
Mahananda	Vehicles	12	8	4
Senchal	Vehicles	6	2	4
Gorumara	Vehicles	2	1	1
Neora valley	Vehicles	2	1	1
Chapramari	Vehicles	1	0	1
	Total	23	12	11
Mahananda	RT network	15	5	10
Singhalila	RT network	10	5	5
Senchal	RT sets	15	5	10
Gorumara	RT sets	45	34	11
Neora valley	RT sets	48	18	30
Chapramari	RT sets	10	5	5
	Total	143	72	71
Mahananda	Rifle and Gun	20	5	15
Singhalila	Rifle and Gun	8	Nil	8
Senchal	Rifle and Gun	26	3	23
Neora valley	Fire arms	28	13	15
	Total	82	21	61
Singhalila	Pony	5	Nil	5
BTR	Elephant (Patrolling)	18	7	11
	Total	23	7	16
STR	Mechanised boat	4	2	2
STR	Mechaniseddingi	17	12	5
STR	Speed boat	22	4	18
STR	Launch	3	2	1
STR	House boat	10	4	6
	Total	56	24	32
Gorumara	GPS set	18	11	7
Neora valley	GPS set	12	4	8
Chapramari	GPS set	2	1	1
	Total	32	16	16

(Source: Compiled from departmental records)

Appendix -3.1

(Refer paragraph 3.5, page-37)

Statement showing consumption of steel materials

Sl. No.	Type of steel	Quantity (MT)	Value (₹)	Excise Duty (₹)
Kakdwip Irrigation Division				
Departmental supply				
1	60 kg rail	98.00	4076800.00	489216.00
2	Angle & channel	135.00	7513000.00	901560.00
3	60 kg rail	200.00	8460000.00	1015200.00
4	Angle, plate, channel	12.20	601932.00	72231.84
5	MS angle	25.86	1280070.00	153608.4
6	60 kg rail	43.97	1689327.40	202719.29
7	60 kg rail	46.68	1793445.60	215213.47
8	60 kg rail	3.77	144843.40	17381.21
Contractor supply				
1	TMT Bar	306.43	16096122.60	1931534.64
2	TMT Bar	165.79	8193927.00	983271.24
3	60 kg rail	66.59	2770144.00	332417.28
4	Beam, channel, angle, plate	85.22	4133170.00	495980.40
5	60 kg rail	286.59	11010903.06	1321308.37
Jaynagar Irrigation Division				
Departmental supply				
1	Bars	295.55	14533499.03	1744019.88
Total		1771.65	82297184.09	9875662.02
				=0.99 crore

Glossary

Glossary

Abbreviation	Full Form
APOs	Annual Plan of Operations
ARDD	Animal Resources Development Department
ATNs	Action Taken Notes
AWLW	Assistant Wildlife Warden
BC	Bituminous Concrete
BCMPUL	Bhagirathi Co-operative Milk Producers' Union Limited
BM	Bituminous Macadam
BOD	Biological Oxygen Demand
BRGF	Backward Region Grant Fund
BTCFT	Buxa Tiger Conservation Foundation Trust
BTR	Buxa Tiger Reserve
CAG	Comptroller and Auditor General
CBR	California Bearing Ratio
CDL	Casual Daily Labourer
CED	Central Excise Duty
CEO	Chief Executive Officer
CPS	Coastal Police Station
CRZ	Coastal Regulation Zone
CSS	Centrally Sponsored Scheme
CVCA	Critically Vulnerable Coastal Area
CWLW	Chief Wildlife Warden
CZMP	Coastal Zone Management Plan
DBM	Dense Bituminous Macadam
DLC	District Level Committee
DoE	Department of Environment
DPC	Duties, Powers and Conditions of Service
DRDO	Defence Research and Development Organisation
DSDA	Digha Sankarpur Development Authority
EE	Executive Engineer
ESA	Ecologically Sensitive Area
ESZ	Eco-Sensitive Zone
ETAB	Eco-tourism Advisory Board
GoI	Government of India
GoWB	Government of West Bengal
GPS	Global Positioning System
HDA	Haldia Development Authority
HIMUL	Himalayan Milk Union Limited
HoFF	Head of Forest Force
HRBC	Hooghly River Bridge Commissioners
ICZM	Integrated Coastal Zone Management
IDWH	Integrated Development of Wildlife Habitats
IESWM	Institute of Environmental Studies and Wetland Management
IMPs	Integrated Management Plans
IR	Inspection Report
IRC	Indian Roads Congress
IUCN	International Union for Conservation of Nature

Abbreviation	Full Form
JFMC	Joint Forest Management Committee
KoPT	Kolkata Port Trust
LAC	Local Advisory Committee
MGD	Million Gallons Per Day
MoEF&CC	Ministry of Environment, Forest and Climate Change
MoU	Memorandum of Understanding
MP	Management Plan
MSA	Millions of Standard Axles
NCSCM	National Centre for Sustainable Coastal Management
NCZMA	National Coastal Zone Management Authority
NOC	No Objection Certificate
NP	National Park
NTCA	National Tiger Conservation Authority
NWAP	National Wildlife Action Plan
OFC	Optical Fibre Cable
OGPC	Open Graded Premix Carpet
PA	Protected Area
PAC	Public Accounts Committee
PBGSBS	Paschim Banga Go-Sampad Bikash Sanstha
PC	Pre-mix Carpet
PCCF	Principal Chief Conservators of Forests
PDL	Package Daily Labourer
PUAD	Paschimanchal Unnayan Affairs Department
PWD	Public Works Department
RBRI	Road and Building Research Institute
RoW	Right of Way
SBR	Sundarban Biosphere Reserve
SBWL	State Board for Wildlife
SC	Seal Coat
SDBC	Semi Dense Bituminous Concrete
SECC	Superintending Engineer, Central Circle
SEIAA	State Environmental Impact Assessment Authority
SOR	Schedule of Rates
STCFT	Sundarban Tiger Conservation Foundation Trust
STR	Sundarban Tiger Reserve
TC	Total Coliform
TCP	Tiger Conservation Plan
TPD	Tons Per Day
TSS	Total Suspended Solids
WBFR	West Bengal Financial Rules
WBDPDCL	West Bengal Dairy & Poultry Development Corporation Limited
WBM	Water Bound Macadam
WBPCB	West Bengal Pollution Control Board
WBSCZMA	West Bengal State Coastal Zone Management Authority
WMM	Wet Mix Macadam
WLS	Wildlife Sanctuary