



सत्यमेव जयते

Report of the  
Comptroller and Auditor General of India  
on  
**Conservation of Coastal Ecosystems**



लोकहितार्थं सत्यनिष्ठा  
Dedicated to Truth in Public Interest

Union Government  
Ministry of Environment, Forest & Climate Change  
Report No. 4 of 2022  
(Performance Audit)



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## Preface

This Report for the year ended March 2020 has been prepared for submission to the President of India under Article 151 of the Constitution of India.

This Report of the Comptroller and Auditor General of India contains the observations of Performance Audit on Conservation of Coastal Ecosystems for the period 2015-20.

The instances mentioned in this Report are those which came to notice in the course of test audit for the period 2015-20 as well as those which came to notice in earlier years but could not be reported in previous Audit Reports; matters relating to the period subsequent to 2019-20 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.





## Executive Summary

### Introduction and Background

The coastal zone is an interface between the land and the sea which comprises of coastal land, intertidal area, coastal ecosystems including rivers, estuaries, marshes, wetlands and beaches. India has a coastline of about 7516 kms of which the mainland accounts for about 5422 kms, Lakshadweep coasts extend to 132 kms and Andaman & Nicobar Islands have a coastline of about 1962 kms. The coastal zone is endowed with a very wide range of natural resources. Beside the coastal waters, the other major ecosystems found in the coastal environment are Mangroves; Coral reefs; Sea Grass; Mud Flats; Estuaries/backwaters; Lagoons; Sand Dunes etc. The coastline supports a huge human population, which is dependent on the rich coastal and marine resources. However, increasing human population, urbanisation and accelerated developmental activities has put huge pressure on the fragile coastal ecosystems of India.

Ministry of Environment, Forest and Climate Change (MoEF&CC) and Ministry of Earth Sciences (MoES) are the two nodal Ministries which deal primarily in the coastal and ocean areas. The Environment (Protection) Act, 1986 authorises the central government to protect and improve environmental quality, control and reduce pollution from all sources, and prohibit or restrict the setting and/or operation of any industrial facility on environmental grounds. The Government has issued notifications under Section 3 and 5 of Environment Protection Act 1986 to regulate the activities in coastal space so as to protect the coastal environment from various anthropogenic activities. Coastal Regulation Zone Notification (CRZ) 2019 which was superseded by its earlier versions in 1991 and 2011 implemented by MoEF&CC aims to classify the coastal area into different zones and manage the activities in an integrated manner. Pre-audit studies conducted to understand the risks in coastal zone management revealed that there were large scale CRZ violation in the coastal stretches. Incidence of illegal construction activities (reducing coastal space), effluent discharges from local bodies, industries and aquaculture farms have been recorded from various data sources. It was imperative to assess the implementation of Coastal Zone Regulation Notification 2011 by the coastal states as well as the centre in order to evaluate on the efforts of the Government of India towards protection and conservation of coastal environment.

Also, Given the significance of Sustainable Development Goals and the commitments of the country towards achieving them, we have attempted to evaluate the efforts viz. planning, implementation and delivery mechanism towards attaining the targets under SDG 14- Life Below Water.

Accordingly, we decided to take up a Performance Audit on 'Conservation of Coastal Ecosystems' with the following objectives:

1. To examine if institutional mechanism exists at Centre as well as State to regulate the activities in CRZ areas as per the provisions of CRZ notification 2019.

2. To examine if CRZ clearances granted by the Government is as per due procedure, to conserve coastal ecology
3. Whether post clearance monitoring as well as enforcement of CRZ notifications safeguarded coastal ecosystems
4. To examine if the project development objectives under Integrated Coastal Zone Management Programme (ICZMP) were successful.
5. To evaluate the measures taken up by the Government towards achieving the targets under SDG-14.

## **Key Audit Findings**

### **Chapter 2: Institutional Framework**

MoEF&CC has not notified NCZMA as a permanent body with recommended members. NCZMA is reconstituted every few years and in the absence of defined membership, it was functioning as an ad-hoc body, devoid of permanent members. Further, the composition of NCZMA has not been uniform over these years, indicating a lack of continuity of approach towards coastal conservation issues.

(Para 2.1 a)

Instances were observed where Expert Appraisal Committees (EAC) granted clearances, though domain experts were not present during the project deliberations. Also, cases were noted where the members of EAC were less than half of the total strength during the deliberations as there was no fixed quorum for EAC members.

(Para 2.1 b)

SCZMA was not reconstituted in the state of Karnataka and there was delayed reconstitution in the states of Goa, Odisha and West Bengal. SCZMAs held meetings without fulfilling the quorum requirements and lacked representation from relevant stakeholder bodies. SCZMAs in the states of Andhra Pradesh, Karnataka, Goa, Tamil Nadu, Odisha and West Bengal did not have sufficient manpower to perform their mandate.

(Para 2.1 c & d)

DLCs of Tamil Nadu lacked participation from local traditional communities. In Andhra Pradesh, DLCs were not established in all the nine coastal districts as on March 2021. In Goa, DLCs were formed in 2017 after delay of six years of promulgation of the CRZ notification. DLCs are yet to be reconstituted in two coastal districts of Karnataka as on March 2021.

(Para 2.1 e)

Absence of any active and functional website to disseminate the information related to NCZMA such as the agenda notes, minutes of the meetings was against the mandated responsibilities of the institution.

(Para 2.3)

### **Chapter 3: Project Clearances under CRZ Notifications**

Projects were approved despite inadequacies in the EIA Reports which included non-accreditation of the consultant involved with the preparation of the EIA Report, usage of outdated baseline data, non- evaluation of environmental impacts of the project, non-addressal of disasters which the project area was prone to.

(Para 3.1)

Activities forming a part of the mitigation plans like mangrove conservation/ replantation, biodiversity conservation plan, rain water harvesting plan failed to be included in the Environment Management Plan as the same was left to the project proponent (PP) to be carried out.

(Para 3.2)

Projects were approved where MoEF&CC failed to make independent efforts to verify the veracity of the information given by private consultants and merely relied on the information submitted by the Project Proponent with respect to potential ecological risks due to the project activities.

(Para 3.4)

Instances were observed where the SCZMA usurped the powers of clearance granting authorities and granted clearance to the projects. Further, there were cases of project approvals where the SCZMAs recommended the projects without the submission of mandatory documents.

(Para 3.7)

Modification of CRZ notifications for approval of specific projects defeated the efforts to conserve the coastal ecosystems.

(Para 3.8)

Cases were observed where projects were approved without undergoing the multistage process of EIA as major infrastructure projects are not comprehensively covered under the EIA Notification 2006.

(Para 3.9)

### **Chapter 4: Post clearance monitoring and enforcement of CRZ Notifications**

Instances were observed where the Project Proponent failed to comply with conditions mentioned in the Clearance and did not submit the mandatory half yearly compliance reports to the Regional Offices of MoEF&CC. There were cases where the projects commenced without obtaining any CTE or CTO from the concerned State Pollution Control Board.

(Para 4.1)

The enforcement of CRZ provisions by SCZMAs and DLCs were reviewed and instances were observed where SCZMAs failed to take action against CRZ violations and the DLCs too failed to identify violations and report the same to SCZMAs.

(Para 4.2)

## **Chapter 5: Conservation of Coastal Ecosystems**

Despite serious reduction and degradation of the live coral cover in the Gulf of Mannar Islands, no viable strategy to mitigate the propagation of the invasive species had been devised by the Department of Forest, Tamil Nadu. Issues such as absence of a monitoring system for coral reefs, and non- preparation of management plans for turtle nesting sites in Goa were observed. Instances were observed where prohibited activities like infrastructure development in areas of coastal sand dunes were observed in Goa. Gaps in the efforts to conserve mangroves in Goa and Gujarat were noticed. Instances were observed where the sewage treatment plants were either altogether absent or were functioning without any monitoring leading to discharge of harmful effluents into coastal waters.

(Para 5.1 and 5.2)

## **Chapter 6: Integrated Coastal Zone Management Project**

Although the entire work of mapping of Hazard Line was completed in August 2018, the ground demarcation of the Hazard Line was yet to be done by MoEF&CC. The Integrated Management Plans (IMPs) for Critically Vulnerable Coastal Areas (CVCAs) were yet to be prepared by the coastal states.

(Para 6.1)

In the marine field stations at Mandvi and Jamnagar in Gujarat, it was observed that out of 40 instruments installed under the project at these two places, 33 instruments were operated only for checking and calibration and were never used for the intended purpose i.e., to study the physiochemical parameters of soil and water of the intertidal area of the Gulf of Kutch.

(Para 6.2)

Insufficient capacity building measures at Odisha State Pollution Control Board (OSPCB) were noticed as Against the targets set for the collection and analysis of samples there was a huge shortfall ranging from 33% to 59%. Further, the Centre was working at 55 % of the required manpower and this resulted in non- operation of the equipment procured for the analysis of the samples.

(Para 6.3.2)

We observed that even after the incurring an expenditure of ₹ 6.23 crore, the objective of effective sea patrolling in Gahirmatha Sanctuary remained unachieved. A research laboratory at Dangmal, Kendrapara District, Odisha constructed in 2016 could not be made functional till date. We observed Idling of infrastructure created under the activity relating

Hygienic drying of fish at Gopalpur in Odisha where the solar dryers could not be made functional enough to provide livelihood support to the community, the expenditure of ₹6.72 crore on creation of facilities under the ICZMP.

(Para 6.3.3 and 6.3.4)

## **Chapter 7: Sustainable Development Goals**

Audit examined the stakeholder map and found that a few significant stakeholder organisations like the Indian Coast Guard and Ministry of Ports, Shipping and Waterways were not included in the map. We observed that the indicators do not holistically address the SGD target and do not conform to global indicators, as the indicator essentially measured only the output of the programmes developed for management of mangrove ecosystems. The list of activities planned to achieve the target should have also formed the sub-indicators and biodiversity, fisheries indices etc., should have ideally formed the output indicators for the target. We observed that the State Indicator frameworks were not prepared by the states of Maharashtra and Kerala. It was observed that with the exception of Gujarat, all other coastal states adopted the national indicators as developed by MoSPI without adapting them to the state specific environmental aspects. Also, in the states where SIFs had been formulated, further localization to District levels was done only by the State of Karnataka by notifying District Indicator Framework (DIF).

(Para 7.1, 7.2 and 7.4)

## **Recommendations**

We recommend that:

1. SCZMAs and NCZMAs may be made as permanent bodies with full time members to carry out all the mandated activities for protecting the coastal environment.
2. The DLCs may be formed and reconstituted without delay in all the relevant districts. The composition of DLCs may be inclusive in nature representing all the relevant stakeholder sectors.
3. MoEF&CC needs to ensure that the NCZMA/ SCZMAs share information regarding their discussions/minutes of meetings with the public in a uniform manner. Interactive Grievance Redressal Mechanism may be adopted by the SCZMAs.
4. The Ministry may ensure that the PP carry out in-depth ecological evaluation of the project environment before granting the clearances to the projects as well as enforce the practice of cumulative assessments already defined in the EIA Notification, 2006.
5. MoEF&CC may ensure that the PPs submit a viable EMP addressing all the risks to the environment and the EMP along with the Impact Prediction analyses are largely coherent. Also, the mitigation proposals may be clearly brought out in the EMP and costed.
6. MoEF&CC may revisit the roles and composition of different agencies to strengthen the post clearance monitoring.

7. Expert cells, which are well versed in GIS tools may be created in DLCs to effectively and efficiently monitor the changing landscape on the coastline and track irregular developments. Presence of such a surveillance mechanism would not only track irregular activities but would also serve as a deterrence tool.
8. The State Governments may make necessary efforts for mapping and preparation of Management Plans for the coral reefs, turtle nesting sites etc.
9. Efforts may be made by MoEF&CC to notify the IMPs for Ecologically Sensitive Areas at the earliest.
10. MoEF&CC should ensure deploying sufficient manpower with technical expertise at SICOM and various institutes strengthened under the project. Efforts should be made to rationalise the manpower deployment to ensure optimum utilisation.
11. MoES and MoEF&CC may review the stakeholder mapping to ensure the inclusion of all relevant institutions with respect to SDG 14 targets.
12. Localisation of the indicators should be prioritised in the stakeholder states by ensuring formulation of District Indicator Frameworks in the states.

## Chapter 1: Introduction

Coastal areas comprise some of the most dynamic natural ecosystems of our planet, where three main components—the hydrosphere, the lithosphere, and the atmosphere—meet and interact, forming interconnected systems. Coastal ecosystems including marshes, mangroves, near-shore coral reefs, seagrass beds, sandy beaches and dunes provide numerous benefits like livelihood through fisheries, protection from sea surges/cyclones. These benefits have ensured that demographic pressures on coastal resources have increased over the past several decades: 38 percent of the world’s population lives within 100 km of the coast. Recognising the significance of life under water, the United Nations included SDG 14, aims at conserving and sustainably using the oceans, seas and marine resources, to be achieved by all the member countries of UN SDG 14.

India, with a coastline of about 7516 kms, is one among the 12 mega biodiversity countries and 25 hotspots of the richest and highly endangered eco regions of the world. Coastal regions of India provide home to 13.36% of the people of the country and thus place tremendous pressure on the resources along the coast. There are nine coastal states in the country, namely, Gujarat, Maharashtra, Goa, Karnataka,

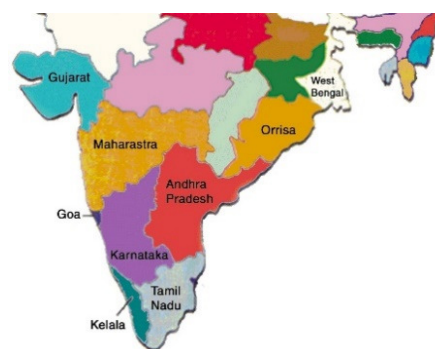


Fig. 1: Coastal states of India

Kerala, Tamil Nadu, Andhra Pradesh, Odisha, West Bengal.

The nodal institutions at the national level, Ministry of Environment, Forests and Climate Change (MoEF&CC), and Ministry of Earth Sciences along with various stakeholder ministries and other key scientific and research bodies all over India has been entrusted with the responsibility of protecting the coast and the fragile coastal resources and ensuring their sustainable use. The most significant among these is the Coastal Regulation Zone Notification in 1991, 2011 and 2019 promulgated by MoEF&CC. This is the overarching legislation for management of activities in Indian coastal space. Thus, evaluation of enforcement and implementation of this zonation mechanism is central to the assessment of Government measures to protect the coastal ecosystems.

### 1.1 Regulation of activities in coastal areas

The Central Government notified the Coastal Regulation Zone (CRZ) Notification, 1991 with a view to ensuring the livelihood security of fishermen and other local communities living in the coastal areas, to conserve and protect coastal stretches and also to promote development in a sustainable manner. The Notification also imposed restrictions on setting up and expansion of industries from operating in the CRZ areas. CRZ Notification was revised in 2011<sup>1</sup> and in 2019, based on the recommendations of a committee chaired by Sh. Shailesh Nayak. All CRZ

<sup>1</sup> Based on the recommendations of the Committee chaired by Prof. M.S. Swaminathan in 2009

notifications had demarcated the coastal areas into zones, with only permitted activity allowed in these zones. Under the CRZ notification 2011, the coastal regulated areas are categorised as CRZ I, CRZ II, CRZ III and CRZ IV:

<b>CRZ I</b>
<ul style="list-style-type: none"><li>• areas which are ecologically sensitive, form the geomorphological features which play a role in the maintaining the integrity of the coast.</li><li>• includes-mangroves and 50 m buffer area for mangroves exceeding 1000 sqm.; corals, coral reefs and associated biodiversity; sand dunes; biologically active mudflats;</li><li>• national parks, marine parks, sanctuaries, reserve forests, wildlife habitat and other protected areas notified as biosphere reserves;</li><li>• Salt marshes; turtle nesting grounds; horse shoe crab habitats; sea grass beds; nesting grounds of birds;</li><li>• areas or structures of archaeological importance/heritage sites/area lying between the Low Tide Line and High Tide Line</li></ul>
<b>CRZ II</b>
<ul style="list-style-type: none"><li>• areas within the existing municipal limits/other urban areas which are substantially built-up and drainage, approach roads and other infrastructural facilities</li></ul>
<b>CRZ III</b>
<ul style="list-style-type: none"><li>• relatively undisturbed /do not belong to either CRZ-I or II; This includes coastal zone in the rural areas, areas within the existing municipal limits or other urban areas which are not substantially built up.</li></ul>
<b>CRZ IV</b>
<ul style="list-style-type: none"><li>• designated to the water area from the Low Tide Line to twelve nautical miles on the sea ward side and inland waters influenced by tide</li></ul>

<b>Areas requiring special consideration in the CRZ</b>
<ul style="list-style-type: none"><li>• for the purpose of protecting critical coastal environment/difficulties faced by local communities; consist of -CRZ area falling within municipal limits of Greater Mumbai;</li><li>• the CRZ areas of Kerala including the backwaters and backwater islands;</li><li>• CRZ areas of Goa and Critically Vulnerable Coastal Areas like Sundarbans</li><li>• other ecologically sensitive areas identified as under Environment (Protection) Act, 1986 and managed with the involvement of coastal communities including fisherfolk.</li></ul>

All states had to prepare Coastal Zone Management Plans (CZMP), based on cadastral maps<sup>2</sup> and demarcation of high tide and low tide lines, to regulate specific activities under these zones. Further, a World Bank assisted project called Integrated Coastal Zone Management Project (ICZMP) was introduced for building national capacity for implementation of comprehensive coastal management approach in the country, starting with three coastal states of Odisha, West Bengal, and Gujarat.

<sup>2</sup> A cadastral map is a map that shows the boundaries and ownership of land parcels



## 1.2 Institutional Mechanisms involved in the conservation of coastal areas

### Institutional Mechanism for implementation of CRZ Notifications

#### MoEF&CC

- The Impact Assessment Division of the Ministry regulates developmental activities of the coastal areas falling within CRZ. The Ministry constitutes Expert Appraisal Committees with domain experts for grant of approvals to Category A project proposals along the coasts.

#### NCZMA

- National Coastal Zone Management Authority is the apex agency for coastal regulation. It advises central government on the matters for changes in the classification of coastal zone areas and CZMPs. It also provides guidance and technical assistance to SCZMAs.

#### SCZMAs

- State Coastal Zone Management Authorities evaluate the project proposals from their respective states and recommend them to MoEF&CC or SEIAA for approval.

#### SEIAA

- State Environmental Impact Assessment Authorities are state bodies responsible for granting project clearance to Category B projects on the basis of recommendations of SCZMAs. The composition of SEIAA is similar to that of Expert Appraisal Committees at the centre.

#### DLC

- DLCs are the district level authorities for monitoring and enforcement of CRZ Notification

### Institutional Mechanism for Implementation of ICZMP

#### SICOM

- Society of Integrated Coastal Management (SICOM) is a registered society under the aegis of the MoEF&CC, it is the designated National Project Management Unit for planning management, execution, monitoring and implementation of ICZMP.

### Institutional Mechanism for Implementation of selected targets of SDG-14

#### MoES

- It is the data source Ministry for SDG 14.1- Prevention and reduction of marine pollution of all kinds and SDG 14.3- Minimisation of impacts of ocean acidification. National Centre for Coastal Research, an attached office of MoES collects all the data pertaining to SDG 14.1 and 14.3 in the country.

#### MoEF&CC

- It is the data source Ministry for SDG 14.2 sustainably manage and protect marine and coastal ecosystems and 14.5-Conservation of at least 10% of coastal and marine areas.

### **1.3 Audit Objectives**

Audit framed five overarching objectives encompassing the relevant activities of the key players in the coastal environment. The audit objectives are as follows:

- (i) To examine if institutional mechanism exists at Centre as well as State to regulate the activities in CRZ areas as per the provisions of CRZ notification 2019.
- (ii) To examine if CRZ clearances granted by the Government are as per due procedure, to conserve coastal ecology
- (iii) Whether post clearance monitoring as well as enforcement of CRZ notifications safeguarded coastal ecosystems
- (iv) To examine if the project development objectives under Integrated Coastal Zone Management Programme (ICZMP) were successful.
- (v) To evaluate the measures taken up by the Government towards achieving the targets under SDG-14.

### **1.4 Audit Criteria**

The main sources of audit criteria for the performance audit were CRZ Notification, 2011/2019<sup>3</sup>; Environment Impact Assessment Notification 2006; agenda and minutes of Expert Appraisal Committees; state specific Coastal Zone Management Plans; Terms of References of Expert Appraisal Committee (EAC), Environment Impact Assessment (EIA) and Environmental Management Plans (EMP) for project clearances, conditions imposed in Environment Clearance and CRZ clearance; records at Society of Integrated Coastal Management (SICOM), National Centre for Sustainable Coastal Management (NCSCM) and National Centre for Coastal Research; General Financial Rules and SDG 14 related records at MoES.

### **1.5 Audit Scope and Sampling**

Audit covered the activities of institutions under the MoEF&CC and the MoES for the period from 2015-2020 with regard to implementation of CRZ notifications. In this regard, records at the State Coastal Zone Management Authorities (SCZMAs) of all the nine coastal states (West Bengal, Odisha, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Goa, Maharashtra and Gujarat) for the period 2015 to 2020 were examined. We also reviewed the implementation of ICZM projects in the states of Gujarat, Odisha and West Bengal. Further, given the significance of Sustainable Development Goals and the commitments of the country towards achieving them, we have also attempted to evaluate the efforts viz., planning, implementation and delivery mechanism towards attaining the targets related to coastal regulations under SDG 14- Life below water.

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<sup>3</sup> CRZ notification 2011 is the criteria for clearances as on February 2022 as the CZMPs based on CRZ 2019 are yet to be prepared by the States and approved by the MoE&FCC.

### 1.5.1 Sampling of Project clearances for examination under audit

(i) MoEF&CC accords two kinds of clearances. (a) composite clearance<sup>4</sup>, and (b) CRZ clearance<sup>5</sup>. 71 composite clearances and 139 CRZ clearances were granted by MoEF&CC during the period 2015-2019, of which 15 composite clearances and 28 CRZ clearances were sampled<sup>6</sup>.

(ii) 118 project clearances were sampled and examined by the state audit offices out of 1978 project clearances accorded by the State Bodies<sup>7</sup>.

(iii) Two districts in each of the nine coastal states were examined<sup>8</sup> to evaluate the health of coastal environment with focus on endemic vulnerable flora and fauna.

(iv) We also examined 128 CRZ violations that formed 20 percent of the total reported violations (1898 violations) in the states to assess the measures taken by the State Coastal Zone Management Authorities on the CRZ violation cases reported to them<sup>9</sup>.

(v) We examined 13 pilot projects undertaken under ICZMP in the states of Odisha, West Bengal and Gujarat.

## 1.6 Audit Methodology

Entry conference was held on 1<sup>st</sup> July 2020, with representatives from the constituent units of MoEF&CC and MoES, wherein the audit objectives/ criteria/ scope and methodology of the performance audit were discussed. Field audit included examination of records at MoEF&CC, MoES, National Centre of Coastal Research, and State Coastal Zone Management Authorities (SCZMAs) of the nine coastal states. Joint physical verifications were conducted to ascertain the status of sampled reported violations. Audit used GIS tools to map the approved CZMP for selected region with satellite images from Google Earth to observe unreported violations.

<sup>4</sup> Where the projects require Environmental Clearance (EC) as per the EIA Notification 2006 as well as CRZ clearance.

<sup>5</sup> Where the project requires only CRZ clearance, in accordance with the Coastal Regulation Zone Notification in place.

<sup>6</sup> Based on criteria a) inherent risk associated with the developmental activity b) vulnerability of marine ecosystems in and around the project site c) sufficiency of gestation period of the project (most of the selected projects, which had been granted clearance in the earlier part of the audit period).

<sup>7</sup> SEIAA, Town Planning Authority, Municipalities, Panchayats etc.

<sup>8</sup> The districts were sampled based on a number of factors such as risk from ongoing developmental activities, presence of endemic flora and fauna, reports on deterioration of coastal environment etc. The selected districts are as: Andhra Pradesh (East Godavari and Srikakulam), Goa (North Goa and South Goa), Gujarat (Bhavnagar and Gir Somnath), Karnataka (Dakshin Kannada and Udupi), Kerala (Ernakulam and Thiruvananthapuram), Maharashtra (Mumbai Sub Urban and Sindhudurg), Odisha (Kendrapara and Ganjam), Tamil Nadu (Chennai and Ramanathapuram), West Bengal (South 24 parganas and Purba Medinipur).

<sup>9</sup> The cases which were sub-judice were left out and sampling was done from the remaining cases for each state.

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Audit findings were shared with the respective ministries for their response. The exit conference was held with MoEF&CC and MoES on 16<sup>th</sup> February 2022.

The draft report on this Performance Audit was issued to both MoEF&CC and MoES on 9<sup>th</sup> December 2021. Despite repeated requests, till the time of finalization of this report, with the exception of MoES, the SICOM and Statistical Division of MoEF&CC, no responses to the draft report have been received from the MoEF&CC.

## Chapter 2: Institutional Framework

The three institutions responsible for the implementation of the CRZ notification are: i) the National Coastal Zone Management Authority (NCZMA) at the centre ii) State/Union Territory Coastal Zone Management Authorities (SCZMAs/UTCZMAs) in every coastal state and union territory<sup>10</sup> iii) District Level Committees (DLCs) in every district that has a coastal stretch and where the CRZ notification is applicable. MoEF&CC and State-level Environment Impact Assessment Authority (SEIAA)<sup>11</sup> approve projects located in CRZ areas based on the recommendations of the SCZMAs. The monitoring and enforcement related to CRZ violations is carried out by concerned Pollution Control Boards (PCBs), Regional offices of MoEF&CC and DLCs.

Hon'ble Supreme Court of India in April 1996, on the basis of a writ petition filed by Indian Council For Enviro-Legal Action (1993) observed that the Pollution Control Boards are not only overworked but simultaneously have a limited role to play in so far as it relates to controlling of pollution and for the purpose of ensuring effective implementation of the notifications of 1991, the Central Government should consider setting up State Coastal Management Authorities in each State or zone and also a National Coastal Management Authority under Section 3 of the Environment Protection Act 1986.

Examination of the constitution of these bodies and their role in preparation of the coastal zone management plans revealed the following:

### 2.1 Constitution of NCZMA, SCZMA & DLC

#### a) Composition & functioning of NCZMA

Ministry of Environment Forests and Climate Change (MoEF&CC) constituted NCZMA on 26 November 1998 for a period of two years for protecting and improving the quality of the coastal environment and preventing, abating and controlling environmental pollution in coastal areas. The authority was empowered for the following:

- a) Coordination of actions of the SCZMAs and UTCZMAs under the EP Act
- b) Examination of proposal for change in classification of CRZ areas and in Coastal Zone Management Plans received from SCZMAs and UTCZMAs and make specific recommendations to the Central Government
- c) Review of cases involving violation under EP Act 1986 for coastal areas and issuing directions for compliance
- d) File complaints in case of non-compliance to the directions issued for cases involving violation.

<sup>10</sup> Nine SCZMAs in Andhra Pradesh, Goa, Gujarat, Karnataka, Kerala, Maharashtra, Odisha, Tamil Nadu and West Bengal, and four UTCZMAs in Andaman and Nicobar Islands, Daman and Diu, Lakshadweep and Puducherry.

<sup>11</sup> SEIAA can grant clearance to projects below a threshold limit in terms of EIA notification 2006.

Audit observed that the MoEF&CC has not notified NCZMA as a permanent body with recommended members. It had also not specified the desired composition of NCZMA, inclusion of non-official members and domain expertise of the members. NCZMA is reconstituted every few years and in the absence of defined membership, it was functioning as an ad-hoc body, devoid of permanent members. The members of NCZMA comprised of officials from various ministries/technical bodies who carried out the duties in ex-officio capacity. Further, the composition of NCZMA has not been uniform over these years, indicating a lack of continuity of approach towards coastal conservation issues.

Further, audit observed that in the absence of defined number of meetings to be held, it meets as and when necessitated (14 times during 2015-2020) to consider the proposals received from various SCZMAs, primarily for reclassification of CRZ areas and to update on the status of completion of CZMPs.

Despite the wide range of responsibilities entrusted to it, audit observed that NCZMA in its meetings did not deliberate on environmental issues relating to coastal regulation zone. Audit also noted that the meetings held by NCZMA are demand driven with very specific agendas, related to either reclassification of CRZ areas or matters related to CZMP. Further, scrutiny of minutes of meetings held by NCZMA showed that NCZMA did not discuss any issue related to violations under the CRZ notification after April 2015. No reasons for the same were found in the records. As such, NCZMA was effectively not involved in monitoring and discussion of action on CRZ violations, which was one of the responsibilities assigned to it.

**b) Absence of domain expertise in Expert Appraisal Committees**

The Expert Appraisal Committee (EAC), constituted for examination of projects by MoEF&CC, gives recommendations to MoEF&CC on project proposals after considering the project impact. Based on EAC's recommendation, MoEF&CC either rejects the proposal or grants clearance with conditions that would mitigate the impacts on the coastal ecology. As per the requirements of the EIA Notification 2006, the EACs shall include members with requisite expertise and experience in the concerned field or discipline. The EACs comprises of 10-15 members, including experts in wildlife and forestry, life science experts in floral and faunal management, environment quality etc.

Audit observed that one EAC is dedicated for the appraisal of projects under CRZ notification. During audit, instances were found where EACs granted clearances, even though domain experts were not present during the project deliberations. Also, cases were noted where the members of EAC were less than half of the total strength during the deliberations as there was no fixed quorum for EAC members.

**c) Composition & functioning of SCZMAs**

With regard to SCZMA, audit observed that SCZMAs were not reconstituted after the term had expired. In Karnataka, the SCZMA was not reconstituted for 11 months after the term expired in March 2020. Similarly, SCZMA was reconstituted after a delay of 5 and 8 months

respectively in Kerala and Andhra Pradesh. Instances of delayed reconstitution of SCZMAs were also noted in states of Goa, Odisha and West Bengal.

As per the orders of MoEF&CC in 2005, the SCZMAs should be composed of one NGO, four expert members and five to six ex-officio members from various stakeholder organisations such as Pollution Control Boards, fisheries, environment, urban development etc. The Chairman of the authority should be Secretary, Environment Department of the concerned state. Audit observed that many SCZMAs held meetings without fulfilling the quorum requirements. In Karnataka, 15 out of 21 meetings during 2015-20 were held without quorum. Thus, SCZMAs recommended the projects without fulfilling the mandatory quorum requirements.

One of the major responsibilities of SCZMA was to inquire into cases of violation of CRZ Notification, file complaints against violations and review these violations. Failure of SCZMA to discharge this responsibility effectively is discussed in Chapter 4 (Para 4.2).

Audit also found that the SCZMAs lacked representation from relevant stakeholder bodies. Maharashtra SCZMA did not have participation from Department of Tourism, though it is a significant stakeholder organisation responsible for sustainable management of tourism activities in coastal areas. Goa SCZMA did not have any member from the Directorate of Fisheries. Goa and West Bengal SCZMAs lacked participation from respective SPCBs. Also, it was noted that significant stakeholder institutions did not participate in the meetings of SCZMAs. The members from key departments such as Urban Development Department, Fisheries and Revenue Department did not participate in most of the meetings held by the SCZMAs of Maharashtra and West Bengal.

#### **d) Manpower in SCZMAs**

Audit observed that the SCZMAs in most of the coastal states did not have sufficient manpower to perform their mandate. In Andhra Pradesh, Karnataka, Goa, Tamil Nadu, Odisha and West Bengal, the functions of SCZMAs were carried out by the officials of the State Department of Environment or the State Pollution Control Boards. It was found that 58 posts were lying vacant against the sanctioned strength of 73 posts for SCZMA and DLCs in Goa. In Odisha, the SCZMA was functioning with one Junior Scientist and Technical Assistant without any secretarial manpower.

#### **e) Composition of DLCs**

As per section 6(C) of CRZ notification 2011, DLCs were to be established to assist SCZMAs in enforcement of the CRZ notification under the chairmanship of the District Magistrate, comprising of at least three representatives of local traditional coastal communities including from fisher folk. DLCs of Tamil Nadu lacked participation from local traditional communities. During examination, instances were found where the SCZMAs failed to constitute DLCs. It was also noted that DLCs were not reconstituted after the term had expired. In Andhra Pradesh, DLCs were not established in all the nine coastal districts as on March 2021. In Goa, DLCs were formed in 2017 after delay of six years of promulgation of the CRZ notification. DLCs of seven

coastal districts of Odisha were reconstituted after a delay of two years from the expiry of its term. In Karnataka, the term of the DLC expired in May 2018, however DLCs are yet to be reconstituted in two coastal districts as of March 2021.

Thus, the composition of these bodies and lack of manpower impeded their development into specialised bodies for coastal protection, as envisaged in the CRZ Notifications.

As such, deficiencies in the constitution and functioning of NCZMA, SCZMA and DLCs would dilute their effectiveness in addressing challenges in ensuring sustainable development of the coastal areas.

## **2.2 Role of agencies in preparation of Coastal Zone Management Plans**

The coastal states and the union territories were to prepare the Coastal Zone Management Plans (CZMPs) within a period of twenty-four months from the date of issue the CRZ Notification 2011. The State/UT Government CZMA were to submit the draft CZMPs to MoEF&CC along with its recommendations on the CZMP within a period of six months, after incorporating the suggestions and objections received from stakeholders. MoEF&CC was to consider and approve the CZMPs within a period of four months from the date of receipt of the CZMPs complete in all respects. In this regard, audit observed the following:

### **(i) Delay in demarcation of High Tide Lines and delay in preparation of CZMPs**

MoEF&CC identified National Centre for Sustainable Coastal Management (NCSCM) for demarcation of the High Tide Line<sup>12</sup> (HTL) in August 2015 and the same was completed in October 2016. The coastal states and the Union Territories were to prepare the CZMPs within a period of twenty-four months from the date of issue of the CRZ Notification 2011. The State/UT Government CZMA were to submit the draft CZMPs to MoEF&CC along with its recommendations on the CZMP within a period of six months, after incorporating the suggestions and objections received from stakeholders. The delay in demarcation of various components (Hazard line and HTL) of CZMP resulted in the delay in finalisation of CZMPs by the states as indicated below:

**Table 2.1: Delay in finalisation of CZMPs in coastal states**

S. No.	State	Approval by MoEF&CC
1	Andhra Pradesh	February 2019
2	Goa	Not yet approved
3	Gujarat	February 2020
4	Karnataka	August 2018
5	Kerala	February 2019
6	Maharashtra	February 2019
7	Odisha	August 2018
8	Tamil Nadu	October 2018
9	West Bengal	October 2018

<sup>12</sup> HTL means the line on the land up to which the highest water line reaches during the spring tide and is important as it indicated the level to which the coastal waters reach.



In the absence of the approved CZMPs as per the CRZ notification 2011, MoEF&CC kept extending the validity of CZMPs prepared in 1991 from time to time, which resulted in the grant of CRZ clearances to various projects on the basis of 1991 CZMPs, which were not reflective of ground realities.

**(ii) Lack of assessment of Accuracy levels for maps**

The MoEF&CC Manual on Demarcation of HTL, LTL<sup>13</sup> and preparation of CZMPs prescribed specific accuracy level<sup>14</sup> for HTL, LTL as well as CZMPs. The accuracy of reference line is critical to ensure the accuracy of the CZMPs. It was noticed that eight coastal states<sup>15</sup> failed to assess the accuracy of reference lines though more than a year has lapsed since CZMP were approved by MoEF&CC. Furthermore, achievement of accuracy threshold is important since CZMP as per CRZ Notification 2019 would be prepared by updating the CZMP already prepared on the basis of CRZ Notification 2011.

**(iii) Lack of digitization of Cadastral Maps**

Cadastral maps were required by the local bodies for land use planning. CRZ notification, 2011 stipulated preparation of cadastral<sup>16</sup> (village) level CZM maps for the use of local bodies and other agencies to facilitate implementation of the CZMP. MoEF&CC had issued guidelines and prescribed digitisation and integration of village cadastres to the Geographic Information System (GIS). We noticed that cadastral information in respect of any coastal state except Goa has not been digitised and brought to the GIS.

**(iv) Failure to prepare action plans for protection of Ecologically Sensitive Areas**

MoEF&CC in 2014 directed the coastal states to prepare action plan that provides a detailed road map for conservation and protection of Ecologically Sensitive Areas (ESAs), protection of life and property of local communities and infrastructure and to undertake developmental activities in a sustainable manner. The action plans were to provide adequate budgetary provisions and details of agencies involved in such implementation. We noticed that all the coastal states failed to prepare the action plans for conserving these areas till now.

Failure to prepare the CZMPs in time and lack of plans to conserve the ESAs would pose great risks to the coastal ecology.

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<sup>13</sup> Low tide Line which is the line on the land up to which the lowest water line reaches during the spring tide.

<sup>14</sup> 90% classification accuracy at 90% confidence interval for classification accuracy. Positional accuracy of 1 metre, 2 metre and 5 metre for HTL, LTL and CZMP demarcation respectively.

<sup>15</sup> Karnataka assessed the accuracy level for the reference lines.

<sup>16</sup> The cadastral maps contain survey boundaries and survey numbers of individual plots, the basic infrastructure such as roads, institutions including religious and the like, rivers/ canals/ ponds and survey stone locations.

### 2.3 Lack of public outreach

One of the primary functions of NCZMA is to hold review of cases involving violations of the provisions of the Environment Protection (EP) Act<sup>17</sup>, either *suo-moto*, or on the basis of complaint made by an individual or body, or organisation. It is also empowered to issue directions under Section 5 of the said Act. Further, the constitution order mandates NCZMA to post agenda items and minutes of the meeting on the website.

In this connection, we observed that NCZMA did not maintain its own website. We found that the matters related to NCZMA are being hosted in a small window on the website<sup>18</sup> related to project submission and approvals for CRZ clearances. The links provided on the website to access the agenda or minutes do not provide any information. Further, we noticed that in the constitution order of NCZMAs, it is required that the Authority shall place information regarding the agenda and minutes of its meetings in the public domain, including through a designated website<sup>19</sup>. The website mentioned in the order, however, leads to general website of the MoEF&CC, where information related to NCZMA is not easily accessible.

Absence of any active and functional website to disseminate the information related to NCZMA such as the agenda notes, minutes of the meetings goes against the orders of the constitution of NCZMA. There was no option to register complaint or report any violations in the coastal environment on the website in public domain. West Bengal and Tamil Nadu SCZMAs also do not have websites for public dissemination of information. In remaining states, even though websites have been created, important information such as violations, action taken, court cases, agenda minutes and minutes of meeting are not regularly posted.

In absence of such facility, NCZMA/SCZMA cannot expect to receive any complaints from the public, thus hindering its ability to issue directions under Section 5 of the EP Act, one of its mandated activities.

### 2.4 Conclusion

- NCZMA as well as the SCZMAs failed in carrying out their primary responsibilities due to ad-hoc status and manpower constraints. Despite the Hon'ble Supreme Court directions for setting up NCZMA and SCZMAs for effective implementation of CRZ notifications, the NCZMA as well as the SCZMAs depended on MoEF&CC and the respective coastal state environment departments for funds and functionaries.
- DLCs have not been established in Andhra Pradesh as of March 2021 and there are delays in reconstitution of DLCs in other coastal States.

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<sup>17</sup> and the rules made thereunder, or any other law which is relatable to the objects of the said Act

<sup>18</sup> <http://environmentclearance.nic.in/NCZMA.aspx>

<sup>19</sup> [www.envfor.nic.in](http://www.envfor.nic.in)

- Though preparation of the Coastal Zone Management Plans formed the primary step in the process of sustainable development of coastal areas, the states failed to come up with CZMPs in the stipulated time.
- Though the institutions had a major part in protecting the coastal environment, their role shrunk to mere deliberations or decision making on reclassification of CRZ areas and recommendation for approval / grant of approval of developmental activities.
- NCZMA and SCZMA did not maintain dedicated websites for dissemination of information related to their functioning.

## Chapter 3: Project Clearances under CRZ Notifications

To implement the CRZ notifications which sought to regulate developmental activities in the coastal areas, MoEF&CC classified the coastal areas into different zones based on their vulnerabilities. Activities in these zones were to be restricted to the activities specified in the CRZ notifications and industries falling in the CRZ areas had to seek prior clearance from the MoEF&CC/SEIAA, based on recommendations of NCZMA/SCZMA. Over the last two decades, development activities were granted clearances according to the provisions of the EIA Notification 2006 and CRZ Notification 1991/ 2011/2019 (whichever applicable). The clearances were accorded by the following authorities subject to recommendations given by the concerned SCZMAs:

**Table 3.1: Various authorities mandated to accord clearance to projects in CRZ areas**

Type of Projects	Authorities mandated to accord clearance
For the projects attracting EIA Notification 2006	MoEF&CC or SEIAA
For the projects not covered by the EIA Notification, 2006 but attracting para 4 (ii) of the CRZ Notification	MoEF&CC
For construction projects involving more than 20, 000 sq.m. built up area	MoEF&CC
For construction of building projects less than 20,000 sq.m. built up area	State /Town Planning authorities

Projects are approved by MoEF&CC/SEIAA based on the Environment Impact Assessment (EIA) report submitted by the Project Proponents<sup>20</sup> (PP). EIA report consists of the Environment Management Plan (EMP) which proposes mitigation measures to be taken by the PP to reduce adverse environment impact. EIA process aids the decision maker to carry out a cost benefit analysis of the project proposals and are the most important tool to ensure sustainable management of the coastal space. The main steps in the EIA process depicted in the **(Annexure 1)** in the form of a process flowchart.

Audit studied the project clearance process of sampled projects that were accorded approvals by MoEF&CC /SEIAA. The audit observations are given in the succeeding paragraphs.

### 3.1 Project approvals despite Inadequacies in EIA reports

Audit observed many infirmities in preparation of EIA reports, despite which the projects based on these EIA reports were approved. This would affect the quality of decision making regarding the conservation of coastal ecosystems. Some of these are discussed below:

#### (i) Preparation of EIA by non- accredited consultants

MoEF&CC in its instructions (March 2010) stipulated that the EIA received for a given project after July 2010 would be considered for Environmental Clearance, only if the EIA was conducted by the consultants accredited by National Accreditation Board of Education &

<sup>20</sup> The agency which proposes to set up a project.

Training (NABET)/ Quality Council of India (QCI). Further, the consultants could carry out EIA in only those sectors for which they were accredited.

Audit observed 21 project approvals (**Annexure 2**) where the EIA consultant was non-accredited or was not accredited for the sector specific to the project. A few cases are illustrated as below:

**Table 3.2: Preparation of EIA by non-accredited consultants**

Project	Project approval	Consultant for EIA
Laying of Natural Gas pipeline by Mahanagar Gas Ltd, Maharashtra	Accorded clearance by MoEF&CC in 2018	The project entailed transportation and distribution of natural gas by laying of pipelines from Uran to Navi Mumbai Municipal Corporation. The consultant JV Analytical Services, Pune was not accredited for Pipeline Sector.
Construction of Hotel Building in Mangalore, Dakshina Kannada District by M/s. Motimahal Hotels Pvt. Ltd., Karnataka	Accorded clearance by MoEF&CC in 2017	The Environment Management Plan and the Disaster Management Plan which formed a part of the EIA was proposed by the project proponent itself and an accredited consultant was not appointed for this project.

**(ii) Use of outdated baseline data for Environment Impact Assessment:**

MoEF&CC in its instructions (August 2017) had specified that the baseline data<sup>21</sup> should not be older than 3 years, at the time of submission of the proposal for grant of Environmental Clearance. Audit observed 12 project approvals (**Annexure 3**) where the EIA made use of outdated baseline data, where the data collected was outdated by 2 to 11 years. Some cases are discussed below:

A. The project '**Construction of 35 Km Road coastal road from Princess Flyover to Worli in Mumbai**', was accorded clearance by MoEF&CC in 2017. Government of Maharashtra in June 2011 constituted a Joint Technical Committee (JTC) to examine various options in the construction of the Coastal Road in Mumbai and its impact on the environment. The JTC report, a component of EIA study (2016) justified the construction of road for smoother traffic movement based on comprehensive Traffic Studies conducted for Mumbai Metropolitan Region in 2008. MoEF&CC approved the project in 2017 without updating the baseline study and without taking into account the major infrastructural development projects in the vicinity during this period.

B. The project '**Development of the petroleum, chemical and petrochemical investment region (PCPIR) in Dahej, District Bharuch of Gujarat**' aimed to establish production facilities for petroleum, chemicals and petrochemicals in the region. As per the Terms of Reference approved by MoEF&CC in 2013, the project proponent was to carry out surface water quality analysis. Audit observed that the EIA report of the project included

<sup>21</sup> Baseline study serves the purpose of a base reference against which the changes due to implementation of the project are measured.

water quality analysis data pertaining to 2010-11. The baseline data was outdated by more than 7 years. The project was accorded clearance by MoEF&CC in 2017.

C. The project '**Construction of Mumbai Trans- Harbour Sea link (MTHL)**' by M/s **Mumbai Metropolitan Region Development Authority** was accorded clearance by MoEF&CC in 2013. As the impacts of the project on mangroves, habitat of flamingos and mudflats were not addressed in the EIA, the National Green Tribunal in October 2015 ordered that MoEF&CC needs to consider the project afresh. Audit observed that the project proponent applied to MoEF&CC in 2015 and the project was granted clearance in December 2015 based on EIA report which used the baseline data of only air, water, noise, soil quality, pertaining to the year 2011 while the information regarding the migratory birds visiting the area pertained to 2008<sup>22</sup>. Thus, the baseline data was outdated by four to seven years.

**(iii) Environment impacts not fully analyzed in the EIA**

EIA aims in evaluating the full range of effects on the environment of the proposed project which begins with the evaluation of ecological significance of the project area i.e., identification of significant biodiversity in the project area. The ecological evaluation is followed by a detailed impact prediction analysis. Audit observed that MOEF&CC granted project approvals even though the EIA did not comprehensively address the ecological aspects in the project area. It was observed that in respect of 14 project clearances (**Annexure 4**) out of 43 sampled projects approved by MoEF&CC, the environment impact studies failed to identify key biodiversity in the area and did not include mitigation measures to alleviate the risks faced by the unique biodiversity. Some cases are illustrated below:

**Table 3.3: Cases where Environment Impact Studies failed to identify key biodiversity in the area**

Project	Approved	Biodiversity not assessed/mitigation measures not taken up
Expansion of facilities at port Redi, Sindhudurg, by M/s Redi Port Ltd. in Maharashtra	Accorded clearance by MoEF&CC in 2018	The project area was home to 56 species of phytoplanktons, 27 species of freshwater fishes and mangroves. EIA study did not assess the impact of reclamation activities on these.
Laying of Natural Gas pipeline, Mumbai by Mahanagar Gas Ltd, Maharashtra	Accorded clearance by MOEF&CC in 2018	The EIA study, failed to identify the presence of mangroves existing in the area and did not assess the impact of the project on these ecosystems.
Deepening of Approach Channel by Mormugao Port Trust in Goa	Accorded clearance by MoEF&CC in 2016	Neither the impacts nor the mitigation plan for endangered species windowpane oyster <sup>23</sup> , corals and associated life forms in Chicalim-Sancole Bay, four kms away from the dredging area. These biotas were identified by the PP and formed a part of the EIA report

<sup>22</sup> Assessment made by the Salim Ali Center for Ornithology and Natural History (SACON).

<sup>23</sup> Which is classified as endangered species by IUCN.

**(iv) Disaster management not fully addressed in the EIA**

EIA studies include assessment of large scale technological and sudden onset of disasters resulting from natural hazards to prevent and mitigate consequent environmental damage. The Disaster management plan (DMP) is one of the key prerequisites that the project proponent has to submit to the approval authorities. We observed 16 projects clearances (**Annexure 5**) by MoEF&CC that were either devoid of DMPs or did not specifically address disasters. A few cases are highlighted below:

**Table 3.4: Clearances granted in absence of DMPs or where they did not address specific disasters**

Project	Approval	Deficiency in Disaster management plan
<b>Redevelopment of Edible Oil Transit Terminal by Ruchi Infrastructure Limited at Chennai, Tamil Nadu</b>	Accorded clearance by MoEF&CC in 2018	The project area was prone to floods and cyclones. The EIA did not contain Disaster Management Plan to address these issues.
<b>Setting up of Mini Bulk Carriers Handling Facility by Kolkata Port Trust, West Bengal</b>	Accorded clearance by MoEF&CC in 2017	Project site was classified as a severe intensity seismic zone <sup>24</sup> . As per the recommendations of the WB SCZMA, the project area was prone to cyclonic storms. The EIA report was devoid of disaster management plan to address this.
<b>Development of four berths in Western Dock Arm in New Mangalore port, Karnataka</b>	Accorded clearance by MoEF&CC in 2016	Project site was classified as Zone III in accordance with the BIS, 2000, Seismic Map of India and had moderate exposure to earthquakes, storms, cyclones and Tsunami. The Disaster Management Plan did not envisage any mitigation measures.

Thus, deficiencies in the preparation of EIA reports like use of old baseline data, EIA reports made by non-accredited consultants, lack of efforts to address disasters and failure to address the full range of ecological impacts in the EIA would weaken the process to conserve the coastal ecosystem.

### **3.2 Deficiencies in the Environment Management Plan (EMP)**

The EMP consists of all mitigation measures under each activity of the project during construction, operation and the entire life cycle of the development activity, along with costs and aims to minimize adverse environmental impacts of the project. As per the EIA Notification 2006, the project proponent was required to make provisions for and earmark detailed budget for EMP. Also, as per the EIA Notification 2006, the EMP should include

<sup>24</sup> in accordance with the Bureau of Indian Standards (BIS) 2000, Seismic Map of India.

description of all the administrative aspects of ensuring that mitigation measures are implemented and their effectiveness monitored.

(i) **Mitigation Activities not included in EMP**

We observed in 13 project clearances (**Annexure 6**) where activities forming a part of the mitigation plans like mangrove conservation/ replantation biodiversity conservation plan, rain water harvesting plan failed to be included in the EMP as the same was left to the project proponent (PP) to be carried out. Also, we observed that MoEF&CC did not verify whether the same had been carried out by the project proponent as directed. A few cases are highlighted below:

A) The project '**Modification of existing iron ore terminal to handle coal at Kamarajar port**' **Tamil Nadu** was approved by MoEF&CC in 2018. MoEF&CC, while granting the clearance, directed the PP to design a management plan for prevention of fires. Also, the PP was to create an inventory of floral composition of the biota of marine and intertidal biotopes and draw up a detailed marine biodiversity conservation management plan. However, it was observed that these activities did not form a part of the EMP, and the cost of implementation was not worked out by the PP.

B) The project '**High Speed Railway Project across CRZ areas**' in **Mumbai** was approved by MoEF&CC in 2019. While recommending this project, the EAC imposed a specific condition that a robust conservation and management plan for Thane Creek Flamingo Sanctuary with detailed action plan for immediate implementation in consultation with the concerned agency in the State. However, it was observed that the EMP was devoid of any information regarding the costs to be incurred for this activity.

(ii) We observed that in nine project clearances (**Annexure 7**) by MoEF&CC, the project proponent had neither earmarked any quantifiable funds for EMP nor provided details of the cost break-up of the EMP budget. Further in two cases, we observed that project proponent did not include cost of activities that were to be undertaken as a part of mitigation measures.

A few instances are highlighted below:

A) The project which entailed setting up of '**Sewage Treatment Plant in CRZ-I area in Malad, Maharashtra**' was approved by MoEF&CC in 2017. Around 36 hectares of mangrove cover was required to be compromised and compensatory afforestation of 180 hectares was required under the project. The CRZ clearance required the Project Proponent to develop a mangrove conservation plan in consultation with the Mangrove Foundation of Maharashtra or any reputed Institute for rehabilitation of mangroves. We observed that though the EMP stipulated removal and replantation of the mangroves, the cost for the same were not prescribed.

B) Another project '**Construction of Mumbai Coastal Road**' in **Maharashtra** which was approved by MoEF&CC in 2017 involved reclamation of around 90 hectares. The mitigation measures involved installation of noise barriers all along the coastal road, appropriate



handling of solid and liquid wastes and preparation of marine biodiversity conservation plan for the region from an institute which had an expertise in the field. However, the EMP only comprised of activities relating to management of air, water, soil and noise pollution around the project site.

Failure of the EMP to address the full range of ecological impacts of the project would weaken the process of ensuring projects are not detrimental to the coastal area.

### 3.3 Absence of cumulative impact studies for project clearances

Cumulative environmental impact assessments are significant to study the incremental effects resulting from the combined influence of various actions at the project area. Mitigation, monitoring and management of the environment can be recommended taking into consideration the risks from the combined effects of the projects in an area. As per the EIA Notification 2006, PPs were to provide information regarding the factors which could lead to detrimental environmental effects or which have the potential for cumulative impacts of the project with other existing or planned activities in the locality. We observed that in 11 project clearances (**Annexure 8**), no information was given regarding the cumulative effect. Instances were noted where the PPs did not conduct any substantive cumulative impact studies. A few cases are highlighted below.

A. The project '**Laying of an effluent pipeline' by Madhu Silica Pvt. Ltd. (MSPL) in Bhavnagar, Gujarat** was granted clearance by MoEF&CC in 2015. The project envisaged for 10 MLD of effluent disposal to the marine outfall which was already disposing 20 MLD of effluents from Chitra Industries Association and Bhavnagar Municipal Corporation. CPCB had had listed Bhavnagar as one of heavily polluted industrial clusters. Despite this, that clearance was granted to the project without conducting cumulative environmental impact assessment studies

B. In two projects, '**International Leather Complex by Adani Port and SEZ Ltd.**' and '**Marine disposal of treated effluent through dedicated pipeline by M/s Hyacinths Pharma Pvt. Ltd. in Andhra Pradesh**, the EAC recommended (2014) a cumulative study to assess the impact of marine disposal, considering the presence of other marine outfalls in vicinity of the proposed project. EIA studies did not include any cumulative EIA and the projects were approved in 2015. In another pharmaceutical project, '**Setting up of bulk drug unit by Divi's laboratories, East Godavari District in Andhra Pradesh**' was accorded clearance by MoEF&CC in 2019. Though the EIA report had identified a number of marine outfalls around the project site, no cumulative study was undertaken by the PP. The EAC failed to address this during the appraisal.

Failure to address cumulative effects of the project in light of other projects in the area would increase the risks to the ecology of the coastal areas.

### 3.4 Non-verification of information provided by project proponents

We observed three cases of project approvals where the MoEF&CC failed to make independent efforts to verify the veracity of the opinion given by private consultants. MoEF&CC merely relied on the information submitted by the Project Proponent with respect to potential ecological risks due to the project activities. It is to be noted that some of the project clearances were quashed later by the NGT on learning that the PP had deliberately suppressed vital information while requesting for clearance.

A. The project '**Mumbai Trans-harbour sea link (MTHL) by M/s Mumbai Metropolitan Region Development Authority (MMRDA)**' was accorded clearance by MoEF&CC in 2013. The clearance as per the information provided by the project proponent indicated that the area of mangroves and mudflats affected under the project was 0.18 hectares. As per the Maharashtra Coastal Zone Management Authority (MCZMA) recommendation, the affected area was 0.99 hectares (i.e. 0.06 hectares at Sewri and 0.93 hectares at Chirle). The project involved diversion<sup>25</sup> of 38.58 hectares of mangrove areas along with 8.84 hectares of forest land. It was also observed by NGT the impacts on coastal ecosystem comprising of mudflats and flamingos had not been evaluated by the PP. The clearance thus granted by MoEF&CC was quashed in October 2015 on grounds that critical information had been suppressed by the project proponent. The project was considered afresh and was granted clearance in December 2015 after addressing the requirements of NGT.



Fig. 2: Mangroves in the Sewri area in 2018 Fig. 3: Mangroves in the Sewri area in 2021

B. The project '**Laying of treated effluent disposal pipeline in the Gulf of Kutch at Mithapur in Gujarat by M/s Tata Chemicals Ltd**' was accorded clearance by MoEF&CC in 2017. According to an EAC meeting, Poshitra Bay which is adjoining area to the effluent discharge point was known to be the last remaining feeding ground of Critically Endangered Dugong species<sup>26</sup>. Poshitra was also an endemic site for critically endangered molluscs<sup>27</sup>. The EIA study was silent about marine fauna around the project site and the EIA report merely stated that 'marine reptiles and mammals common to the Gulf would not be affected due to the construction activities since they keep away from such sites.' It was observed that

<sup>25</sup> As per the appeal filed by Sh. Dileep B.Nevatia in the NGT in 2013.

<sup>26</sup> The Western Indian population was confined to this part of Gulf of Kutch.

<sup>27</sup> Such as *Sakuraeolis gujaratica* and *Anteaeolidiella poshitra*.

MoEF&CC accepted the PP's assertion and did not recommend environmental impact analysis to verify the critical facts.

C. The project '**Expansion of Adani Petronet (Dahej) Port in Gujarat**' involved reclamation of 23 hectares of intertidal mudflats. They are areas of high biological productivity with abundant invertebrates which provide food for migratory birds. Also, they function as breeding grounds for many fish species. However, the EIA study of this project stated that the mudflats in the project area were biologically inactive. Audit observed that MoEF&CC accepted the opinion of the PP and did not independently examine this issue and accorded clearance in 2016.

Thus, failure on part of MoEF&CC to verify information critical to conservation of the coastal ecosystem would impact its conservation.

### 3.5 Deficiencies in the process of Public Hearing

Public hearings provide an opportunity to those directly affected by the project to express their views on the environmental and the social impacts of the proposal. Public consultation may provide new information, improve understanding and help the EIA process to be transparent and fair. Public hearings are to be conducted for projects attracting EIA Notification 2006. We observed five cases of project approvals (**Annexure 9**) where the project proponent failed to adhere to various provisions regarding public consultation.

Audit observations for some cases are as follows:

A. The project '**High-Speed Railway corridor by National High Speed Rail Corporation Ltd.**' approved by MoEF&CC in 2019 passed through the states of Gujarat, Dadra & Nagar Haveli and Maharashtra. The Public hearing for this project was conducted in 12 locations in these states. It was noticed that the notice period for public hearing in all the 12 locations ranged between 03 to 15 days<sup>28</sup>, and the notice was published only in a local newspaper<sup>29</sup>. Also, in response to the issues raised during public hearing regarding the impact of vibrations on Greater flamingos of Thane bird sanctuary, the PP stated during the public hearing that the impact of vibrations caused by construction activities would have no adverse impact on flamingos. However, when the same concern was raised by the EAC, the PP responded that the impact of vibrations would be understood only when the site work starts. Mismatch between the information given in public hearing and that furnished during the EAC meeting was noted by the audit.

B. The project involving setting up of '**Mini Bulk Carriers Handling Facility at Haldia dock Complex, by Kolkata Port Trust**' was granted EIA clearance by MoEF&CC in 2017. It was observed that 46 persons apart from the SPCB and the port authorities had attended the public hearing. However, the EIA report did not include any of the responses from the local communities raised during the hearing.

<sup>28</sup> The minimum notice period is 30 days.

<sup>29</sup> One national paper and 1 vernacular paper.

Deficiencies in the process of public hearings which provide valuable input on impacts to local community, would violate the principles of equity and that of sustainable development.

### 3.6 Grant of clearance to projects without giving due consideration to Ecologically Sensitive Areas (ESAs)

During examination of the project clearances, we observed two instances where clearances were granted without factoring in the presence of Ecologically Sensitive Area in and around the project area. Some of these cases are illustrated below.

Table 3.5: Non-factoring in the presence of Ecologically Sensitive Area in and around the project area

Project	Approval	Sensitive area not considered
<b>Cochin Residential Development Project by TRIF Kochi Projects</b>	Accorded clearance by MoEF&CC in 2016	It was observed that though Mangalavanam Bird sanctuary was situated within a distance of 400 metres from the project site, clearance from NBWL was required as it was located within 10 Kms of an ecosensitive zone around a wildlife sanctuary, however, the same was not taken.
<b>Mumbai Manmad pipeline project by Bharat Petroleum Corporation Limited, Maharashtra,</b>	Accorded clearance by MoEF&CC in 2015	It was observed that against 3.17 hectares of mangroves to be replanted, no replantation was taken up.

Such clearances would affect the ecosystem balance of these fragile and vulnerable areas.

### 3.7 Irregular Grant of clearances and recommendations by the State Coastal Zone Management Authorities

#### 3.7.1 SCZMA exceeded authority to clear projects

The SCZMAs are required to examine the project proposals, assess the risks posed by the project and potential impact of the same on the ecosystem. As per CRZ Notification 2011, SCZMAs are to examine the project proposals that attract the notification and recommend them to approval authorities i.e., MoEF&CC or SEIAA for grant of clearance. Audit observed 20 cases where the SCZMA usurped the powers of clearance granting authorities and granted clearance to the projects. A few cases have been highlighted below:

A. MoEF&CC stipulated (December 2012) that if a project requiring Environmental Clearance was located within the eco-sensitive zone around a Wildlife Sanctuary or National Park<sup>30</sup>, the PP was required to obtain prior clearance of National Board of Wildlife (NBWL). We observed that the project **Establishment of Kundhukal Fishing Harbour in TamilNadu** was located within 1 km from Kurusadai Island which was a part of the Core area of Gulf of Mannar Marine National Park (GoMMNP), in which activities can be carried out only after obtaining prior approval from the NBWL. However, TN SCZMA granted CRZ clearance for the project in 2018 without the requisite prior clearance from the NBWL.

<sup>30</sup> Or in absence of delineation of such a zone, within a distance of 10 kms from its boundaries.

B. SCZMA of Karnataka in 2015, granted CRZ clearance to a project with an objective to **strengthen the 7.76 km long embankment along the left bank of estuarine stretch of Aghanashini River**. Though the proposed project area was in ecologically sensitive zone (CRZ I), it was observed that the SCZMA accorded clearance without carrying out an EIA or a detailed study of the environment, the aquatic life and effect on the mangroves. Also, grant of clearance by SCZMA was irregular as SCZMAs could only recommend for clearance as MoEF&CC/SEIAA are the approval bodies.

### 3.7.2 Project approval without submission of mandated documents

We observed 46 project approvals where the proponent failed to submit mandatory documents such as EIA reports, disaster management report, risk assessment report, CRZ maps, No Objection Certificate from the concerned State Pollution Control Boards for the projects involving discharge of effluents, sewage etc. as detailed at **Annexure 10**. Some cases are illustrated below:

A. The project **'Construction of Tuna Fishing Harbour in Tiruvottiyur, Chennai by Fisheries Department, Govt. of Tamil Nadu'** was granted clearance by TN SCZMA in 2017. The project aimed at decongesting the Chennai fishing harbour and to create facilities for catching, processing of Tuna Fish. The EIA report of the project proponent revealed that the project involved construction of Desalination plant, intake of Sea water, discharge of treated effluents, RO rejects into the Sea. The SCZMA in its clearance had stipulated provision of ETP of adequate capacity for treatment of sewage and trade effluents from vessel washing. Also, the unit was advised not to generate effluents from fish packing facility in the harbour. This necessitated the requirement of No objection Certificate from SPCBs, however, we observed that the same had not been taken in the extant case.

B. The project **'Additional Salt Works (2395.15 acres) located at village Kalatalav and Narmad, Bhavnagar district in Gujarat'** was granted clearance by SEIAA in 2017. We observed that the clearance was granted in the absence of mandatory documents, namely EIA Report including the marine and the terrestrial components, risk assessment report, Environment Management Plan, the CRZ map with HTL/LTL marked by the authorized agency which was highly irregular.

Grant of project approvals in excess of its authority and without mandatory documents would weaken the checks placed in the approval mechanism and thus, hinder conservation of the coastal ecology.

### 3.8 Modification of CRZ notification to permit specific projects

MoEF&CC amended the CRZ notification 2011 to allow for two specific development projects in the state of Maharashtra. The projects are discussed as below.

A. The project for **'Construction of a Coastal Road in Mumbai by Municipal Corporation of Greater Mumbai (MCGM)'** was accorded clearance by MoEF&CC in 2017. The project required reclamation of land in CRZ-I area which was not permissible as per the

provisions of the CRZ Notification 2011. Hence, on the basis of a recommendation received from SCZMA of Maharashtra, MoEF&CC amended the CRZ Notification 2011 in 2015 allowing for construction of road by way of reclamation in CRZ area.

B. A project of '**Construction of a memorial and a statue of Chhatrapati Shivaji Maharaj, at Nariman Point, Mumbai**' along with art museum, amphitheatre, exhibition gallery, marine aquarium, coastal/ marine resources interpretation centre, cafeteria, lavatories, medical facilities, stalls and offices were also planned. Maharashtra Coastal Zone Management Authority recommended the project to MoEF&CC in 2014 as a special dispensation under the CRZ Notification 2011. Based on the recommendation of the Maharashtra SCZMA, MoEF&CC in December 2014 amended CRZ Notification 2011 to allow for the construction of the memorial in CRZ-IV areas (which included water areas from the low tide line to 12 nautical miles on the seaward side) on case-to-case basis. However, audit examination revealed lapses in the EIA process of the project. Audit observed that the EIA was prepared by a non-accredited consultant and EIA lacked comprehensive ecological evaluation of the project site. Further, though the project attracted EIA appraisal as per the EIA Notification 2006, the project was exempted from public hearing and was granted environmental clearance in 2015.

Modification of CRZ notifications for approval of specific projects not only sets a bad precedence but also ends of defeating the efforts to conserve the coastal ecosystems.

### **3.9 Non-inclusion of major infrastructure project categories in the EIA Notification**

The provisions of CRZ notification requires the projects that attract both EIA Notification 2006 and CRZ Notification to undergo the approval process as per the EIA Notification. However, the EIA Notification 2006, does not comprehensively cover all kinds of development projects. Audit noted that projects by nature and scale of operation attracted the comprehensive EIA assessment in addition to CRZ clearances. However, these projects were approved without undergoing the multistage process of EIA. This gap in the project approval mechanism resulted in awarding project clearance without Terms of Reference (ToRs) and public consultation. The projects are discussed below:

A. **Mumbai Coastal Road:** As construction of municipal roads do not fall in any of the categories of project attracting EIA Notification, the proposed project of Mumbai Coastal Road was granted clearance under CRZ Notification in 2017. Thus, the project which had otherwise significant environmental concerns bypassed the critical stage of public hearing as CRZ Notification does not provide for public consultation in the approval process. It is pertinent to note that Rule 4 (e) of the Notification envisaged that MoEF&CC may under a specific or general order specify the projects which require prior public hearing of project affected people.

B. **Mumbai Trans-harbour Sea link (MTHL):** The project involved construction of a 22 Km long road bridge across Mumbai Harbour between Sewri and Chirle. The bridge passed through CRZ-I area comprising of mudflats (at Sewri and Shivaji Nagar), mangroves and a

flamingo breeding site. The project was granted environmental clearance as per EIA Notification 1994 and CRZ Notification 1991 in 2005. As the project work could not begin in the stipulated time period, the EC expired. In 2015, the project was granted clearance as per the provisions of the CRZ Notification 2011. The project did not attract provisions of EIA Notification 2006 as standalone bridges did not fall into any category of EIA Notification. This resulted in approving the project without ToRs and public consultation, though the project included land acquisition, rehabilitation and resettlement of local residents. It is pertinent to note that the standalone bridges now find a place in the Draft EIA Notification 2020, however the bridges with the built-up area  $\geq 1,50,000$  sq. m or 15 hectares, as this project, would be treated as Category B2 project and its clearance would require only two processes i.e., preparation of Environment Management Plan and its appraisal by SEIAA. Thus, the project would still not be considered in a comprehensive manner as main processes such as public consultation and preparation of an EIA Report would be skipped.

### 3.10 Conclusion

- There were deficiencies in the project approval mechanism of MoEF&CC. EIA studies lacked holistic ecological evaluation and failed to identify the key ecological risks and downplayed potential ecological impacts. Clearances were granted to the Project Proponents though the projects failed to address the impact on vulnerable flora and fauna.
- Failure to perform cumulative impact assessment resulted in the grant of clearances to projects without studying the combined effects of individual impacts in the project area.
- MoEF&CC failed to ensure that the Project Proponents earmarked budget for EMP.
- The Ministry relied on the Project Proponent without carrying out independent verification of the information furnished by the Proponent/EIA studies.
- There were cases where MoEF&CC amended the CRZ notification to facilitate for approval of individual projects. These modifications were made without conducting any technical studies on the repercussions of the same to ecosystems and impacted the entire coastline.
- As such, the process of grant of clearances for setting up projects could not ensure fully that the proposed projects would not have a detrimental impact on the coastal ecology.

## Chapter 4: Post clearance monitoring and enforcement of CRZ Notifications

Monitoring is an essential component for sustainability of any developmental project. It forms an integral part of any environmental assessment process. Monitoring of the project after its approval helps in verifying the outcome of the implemented mitigation measures and also to alter the mitigation measures in case of identification of problems.

### 4.1 Effectiveness of post clearance monitoring

We examined the effectiveness of post clearance mechanism of the approved projects through site verification, and examination of the compliances to the conditions as stipulated by SCZMAs as well as the clearances granted by MoEF&CC. Regional Offices of the MoEF&CC have been assigned the responsibilities for monitoring compliances to the conditions stipulated in the clearances. PPs are to submit half yearly compliance reports and annual environmental statements to the Regional Offices. SPCBs are to monitor the compliance to the conditions while granting 'Consent to Establish/ Operate'. Our observations in this regard are given in succeeding paragraphs.

#### 4.1.1 Non-compliance to conditions stipulated in the Clearances

We observed that in 18 projects (**Annexure 11**), the Project Proponent failed to comply with conditions mentioned in the Clearance as well as the conditions stipulated by SCZMA while recommending for the clearance. A few cases are illustrated below.

A. The proposed project of **Construction of Petroleum Products Storage Terminal, Karnataka Port by Tropicana Liquid Storage Pvt. Limited** was accorded clearance by MoEF&CC in 2015. Audit observed that oil spillage contingency plan as required under the clearance was not formulated and dedicated boats were not deployed to avoid oil spillage, as specified while granting approval. There was no computerized SCADA (Supervisory Control and Data Automation) system at the project site to identify leakages in the pipeline and to cut off the pumping immediately. The project proponent had not set up separate environmental management cell for effective implementation of the stipulated environmental safeguards as instructed by MoEF&CC while granting clearance.

B. The proposed project of **Integrated Cooum River Eco-restoration Project by Chennai Rivers Restoration Trust, Tamil Nadu** was granted clearance by MoEF&CC in 2017. While recommending clearance for this project, TN SCZMA allowed for de-siltation of 5,08,177 cu.m. silt of the Cooum River. Also, MoEF&CC imposed condition that the silt generated through dredging was to be scientifically disposed outside the CRZ area. Bunding and landscaping changes were also prohibited. It was observed that the project proponent carried out desiltation of 8,94,757 cu.m, and only 40 percent of the silt generated was sent to dump yards. The remaining silt was deposited on the river banks, leading to formation of bunds that affected the landscape.

C. A proposed project of **Cochin Residential project by TRIF, Kochi Projects Pvt Ltd. In Kerala** was approved by MoEF&CC in 2016. As per the EC, no development was to be carried



out within 0 to 200 metres from the High tide Line. It was observed that the entire project was carried out within 200 metres from HTL. The CRZ Notification 2011 permitted drawl of groundwater only when done manually through ordinary wells for drinking requirements, horticulture and fisheries, and where no other source of water was available. Audit noticed that water was drawn from a tubewell which met the entire water requirement for construction related activities.

D. A proposed project **Mumbai Trans Harbor Sea Link by MMRDA, Maharashtra** approved in 2016, aimed to divert 47.41 ha of forest land. MoEF&CC granted clearance while imposing the condition that the Government of Maharashtra should create and maintain alternate habitat for the avifauna whose nesting trees were cleared under the project. Artificial bird nests made out of the eco-friendly material was to be used in the area including forest area and human settlements adjoining the forest area being diverted for the project. We observed that although a total of 669 number of trees were removed for the project, no alternate habitat for the affected avifauna was created.

Thus, MoEF&CC and its regional offices failed to ensure that the project proponents adhere to the conditions prescribed in the clearances. Non-compliance to these key conditions have an adverse impact on the surrounding ecosystem of the project as well as indicate inefficient monitoring on part of the MoEF&CC and its regional offices.

#### **4.1.2 Non-submission of mandatory reports**

The post clearance mechanism for the projects which are granted clearance under EIA/CRZ Notification mandate submission of half-yearly compliance reports in respect of the stipulated terms and conditions of the environmental clearance. These are to be submitted to the concerned Regional Offices of MoEF&CC and form the basis for monitoring by different authorities.

##### **(i) Non-submission of half-yearly reports**

Audit observed that the project proponents in 13 cases (**Annexure 12**) granted clearance by MoEF&CC failed to periodically submit these reports. MoEF&CC, while granting clearance stipulates a condition that it has the right to revoke the clearance in the event of non-compliance to the provisions of the notifications. However, audit could not find any case where MoEF&CC initiated action on the project proponent in this regard.

MoEF&CC assured (February 2022) that the ministry is planning for online submission of the half yearly monitoring reports by the project proponents.

##### **(ii) Non submission of annual environment statements**

As per the provisions of the notification, the proponent has to submit an annual environmental statement to the concerned State Pollution Control Board. It was noticed that this statement dealt with generic issues of air and water quality and, did not contain the details specific to the project. It was also observed that the mandatory annual environmental

statement was not furnished for 17 projects (**Annexure 13**) out of 43 sampled projects granted by MoEF&CC during 2015-20.

**(iii) Consent to Operate/ Establish not obtained before commencement**

As per Section 25 of the Water (Prevention and Control of Pollution) Act 1974, all industries and local bodies discharging any domestic sewage or trade effluent into water, stream, well, sewer or on land are required to obtain Consent to Establish (CTE) from the State Pollution Control Board for establishment of any new unit or before carrying out construction activities. The units are also required to obtain Consent to Operate (CTO) before commencing commercial production.

We found that 13 projects in the CRZ areas (**Annexure 14**) were observed to have commenced without obtaining any CTE or CTO from the concerned State Pollution Control Board. Further, no project proponent was penalized though contravention of Section 25 of this Act was an offence punishable with imprisonment for a term not less than one year and six months but which may extend to six years and with fine.

As such, the system of post monitoring of clearances suffered due to lack of necessary information from the project proponents regarding the environment impact of the projects. Further, audit noticed instances where the clearance conditions were not followed by the project proponents, indicating failure of MoEF&CC and its regional offices to monitor effectively. These infirmities would impair the ability of regulatory agencies from noticing and stopping any negative impacts on the coastal environment as a result of the approved projects.

## **4.2 Enforcement of CRZ provisions**

CRZ Notification 2011 authorises SCZMAs to recommend grant of approvals to permissible projects and ensure compliance of their orders, identify violations, if any and direct the concerned authorities for follow up action. Audit reviewed the enforcement of CRZ provisions by SCZMAs and DLCs and observed instances where SCZMAs failed to take action against CRZ violations. Also, the DLCs failed to identify violations and report the same to SCZMAs. Audit reviewed the status of sample CRZ violations<sup>31</sup> in the states and observations in this regard are detailed below.

### **4.2.1 Irregular development activities in CRZ 1 areas**

**(i) Construction on Olive Ridley Turtle Nesting Sites**

Audit observed irregular construction of a jail complex in CRZ 1A area located at Bangar in Puri district, Odisha. The construction was inside Balukhand-Konark Wildlife Sanctuary, which

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<sup>31</sup> Cases of violation reported in the para are of two kinds. First is reported violations, wherein a complaint was made to SCZMAs and audit conducted a joint physical verification, which is mentioned in report, wherever applicable. Second type are the unreported violations where audit have used GIS tools to compare the satellite images of irregular construction with approved CZMPs for the place to conclude if they are in prohibited zones.

also has Olive Ridley Turtle nesting sites on the beaches. The figures below indicate the approved CZMP for the area and the satellite images obtained by audit for the area in December 2020.



Fig. 4: CZMP for the coast around Balukhand sanctuary and Turtle reserve, indicating CRZ 1A zone in green shade and irregular construction is marked in red

Further, satellite images obtained by audit below indicates that there was no construction in the area in 2011.



Fig. 5: Satellite Image (October 2011) of area before construction of jail complex showing empty land within the red marked area



Fig. 6: Satellite Image (December 2020) of jail complex at Bangar within the red marked area

**(ii) Irregular construction of racetrack in CRZ 1 area in Pattipulam, Tamilnadu**

Audit observed that a racetrack was constructed at Pattipulam, Chennai in CRZ 1 area. The figures below indicate the approved CZMP for the area and the satellite images obtained by audit for the area in March 2021. As per the approved CZMP, the area where racetrack is constructed (marked in red) falls partly in CRZ 1A area and partly in No Development Zone (NDZ). The satellite images obtained by audit from March 2021 indicates the presence of irregular construction of the racetrack in the restricted area.

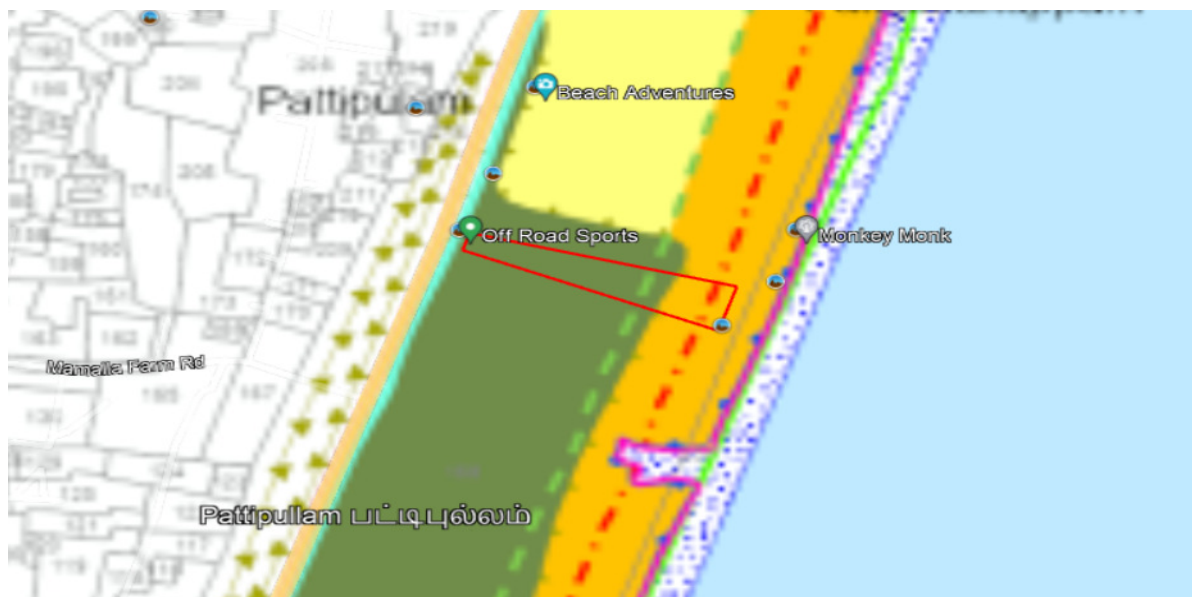


Fig. 7: Approved CZMP of Pattipulam area indicating CRZ 1A zone in green shade and NDZ in yellow shade



Fig. 8: Satellite image (March 2021) of racetrack constructed in CRZ 1A and NDZ area

#### 4.2.2 Irregular activities in No Development Zone

##### a) Irregular construction of Beach Resort in No Development Zone

A complaint was received at TN SCZMA about the construction of a resort (Golden Bay Resorts) in No Development Zone in Kuvathur area of Kanchipuram district. The CZMPs approved as per CRZ notification 2011 defines No Development Zone as area upto 200 metres<sup>32</sup> from HTL on the landward side in case of seafront and 100 metres along tidal influenced water bodies or width of the creek whichever is less. Audit assessed the follow up action of TN SCZMA and found that DLC, Kanchipuram district visited the resort and reported to TN SCZMA that the resort has been in operation since 2013 without a valid Consent to Establish Certificate. It was also reported that the resort had been discharging untreated sewage to the sea. TN SCZMA issued show cause notice to the resort in 2017. It was noted that no further follow up action was taken by TN SCZMA as on March 2021. Audit obtained satellite images of the area and compared it with the approved CZMP, as shown below.

<sup>32</sup> Revised to 50 meters from the HTL, or width of the creek whichever is less, along the tidal influenced water bodies, as per CRZ notification 2019.

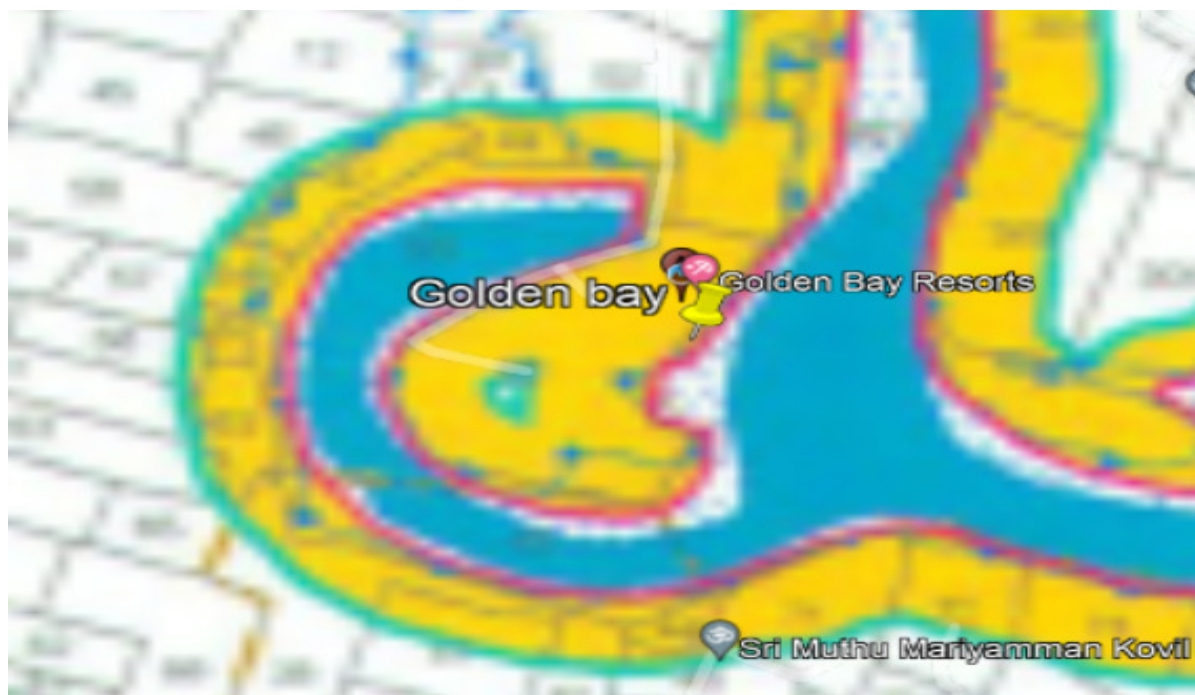


Fig. 9: Approved CZMP for the area with NDZ indicated in yellow shade

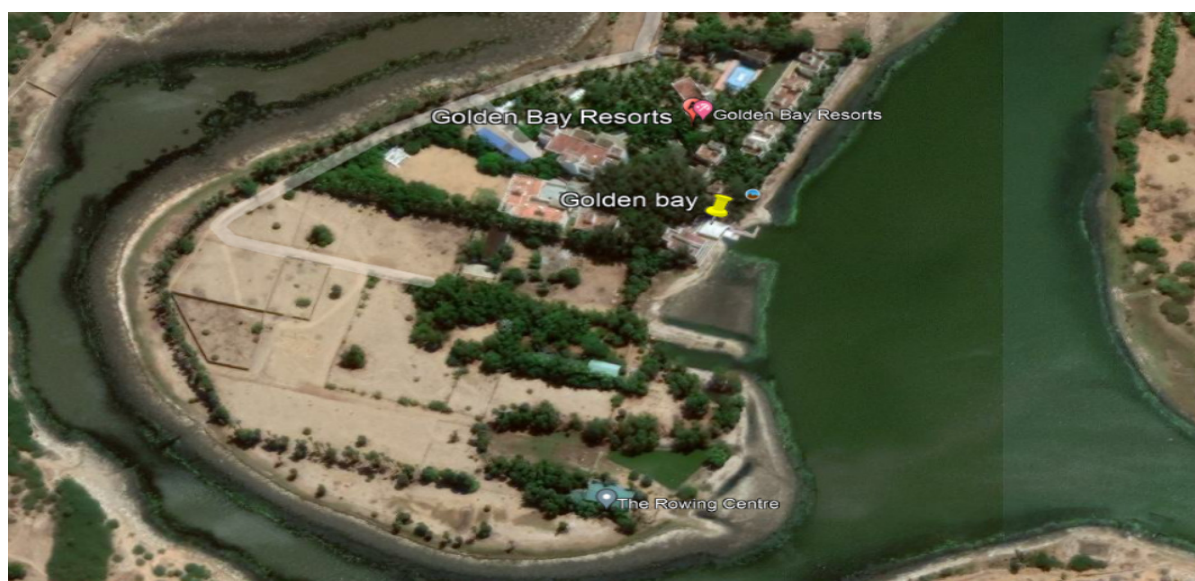


Fig. 10: Satellite Image (October 2021) of the resort in No Development Zone

During JPV by the audit team and relevant officials from the State in March 2021, the presence of the resort as well as a boat jetty was confirmed.

**(b) Irregular construction of Jetty extension in No Development Zone**

Gujarat SCZMA received a complaint in June 2018 about an irregular construction in Devbhumi, Dwarka and instructed the Gujarat SPCB for site inspection. Gujarat SPCB confirmed the illegal construction of a 30-meter-long jetty and instructed the violators to remove the construction. Audit obtained satellite images of the area as shown below:



Fig. 11: Satellite image (November 2015) of area without jetty extensions in yellow marked region

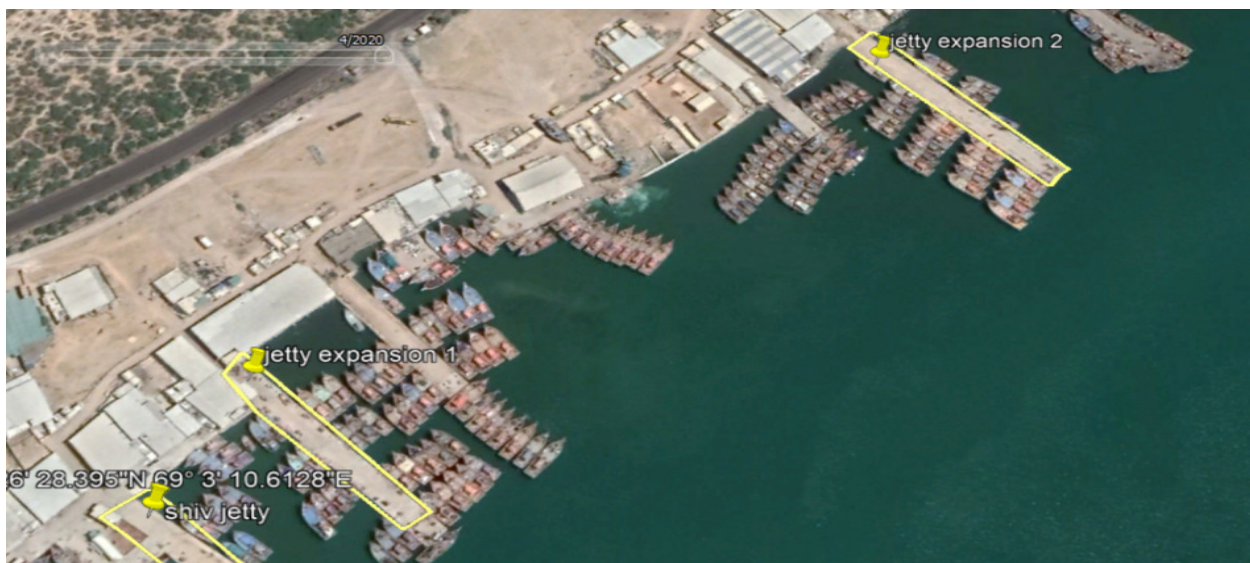


Fig. 12: Satellite image (September 2021) of the jetty extensions

From the images above, it is observed that even though the Gujarat SPCB instructed the violators to remove the construction in 2018, the structure still remains even as of 2021, indicating ineffective follow up on part of concerned authorities.

### c) Encroachment and CRZ violations in Vembanad Lake region

Vembanad lake<sup>33</sup> is the largest lake in the state of Kerala and is designated as Critically Vulnerable Coastal Area. Approved CZMP for the region identifies the islands in the lake ecosystem as No Development Zone. The Vembanad ecosystem is under developmental pressures from irregular reclamation and construction in and around the lake area.

Kerala SCZMA in June 2018 received a complaint about construction of a resort in Nedyathuruth island in Panavally panchayat, Alleppey district. As per approved CZMP for the region, the island is designated as No Development Zone. The Hon'. Supreme Court in January 2020 declaring the resort as encroachment in the lake region, directed to demolish the resort. It was found that the resort is yet to be demolished. While analysing the satellite images of

<sup>33</sup> With an area of 2033 sq. kms. and a maximum length of 96.5 km, it is the second largest Ramsar site in India

the project area, audit identified another resort, Grand Ayur Island in Anjuthuruthu island in Panavally panchayat, Alleppey district. These islands formed a part of No Development Zone in the lake region under CRZ notification. The figures below indicate the approved CZMP for the island area (NDZ indicated in yellow shade) and satellite images obtained by audit for the area indicating irregular construction in No Development Zone.



**Fig. 13: Approved CZMP of the area on left and satellite image from 2021 for the area on right**

#### **d) Irregular development activities in Akkulam lake region**

Akkulam lake in Trivandrum is a wetland ecosystem in Thiruvananthapuram, that has continuously been threatened by reclamations and construction activities<sup>34</sup> in the lake region. Audit observed that based on a complaint received by Kerala SCZMA about illegal constructions and reclamation in the Akkulam lake region, Kerala SCZMA directed Municipal Corporation of Thiruvananthapuram to furnish an Action Taken Report (ATR), to which response is still awaited. DLC conducted a site verification September 2020 and found irregular construction in the region. While analysing the satellite imagery of the region, audit found irregular construction of a residential building on the HTL. We observed that the residential complex is constructed around the HTL and an approximate area of 1.48 Hectares falls in the intertidal zone (seaside from HTL). The images for the same are given below:

<sup>34</sup> The MoEF&CC conducted a study on Akkulam lake in 2017 and observed that reclamation and modification on many parts of backwaters resulted in the shrinkage of wetland area. Kerala State Remote Sensing and Environment Centre (KSREC) reported construction of public offices within the lake region. These activities have resulted in shrinkage of wet land area of 28.49 hectares from 1967 to 2020.



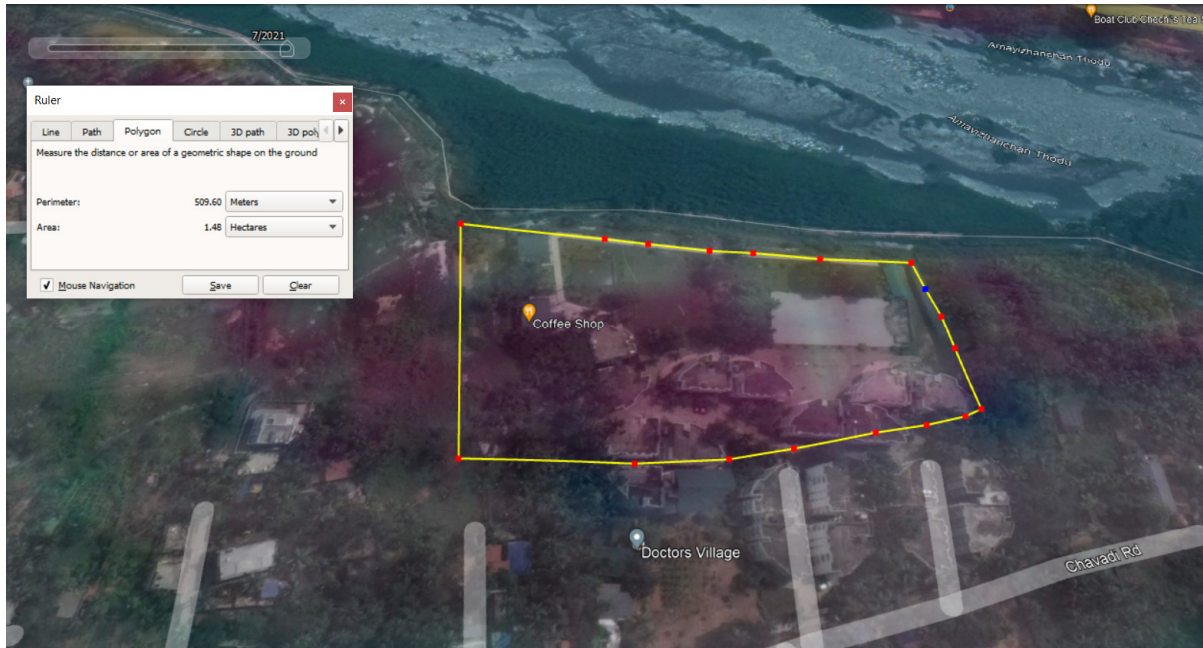


Fig. 14: Site image in 2021 indicating approx. 1.48 hectares construction in intertidal zone (HTL in purple shade)

**e) Construction of a mall in No Development Zone**

M/s Lulu International Shopping Mall is constructed in the NH Bypass Road near Aakkulam in Thiruvananthapuram. JPV conducted by the audit revealed that the portion of land adjacent to the boundary line with nearby TS Canal falling under NDZ area has been reclaimed and concrete beams and basins for fixing high mast lights were constructed. A stone wall with an average height of three metres with a wire mesh fencing on the top of it was constructed in the CRZ area adjacent to TS canal, as shown in the following photos:



Fig. 15: Images indicating reclamation and construction of stone wall in No Development Zone

**f) Illegal Road construction in No Development Zone in Udupi district, Karnataka**

A complaint was received by Karnataka SCZMA about illegal construction of a road in the islands of Shambhavi River. During the site inspection, it was observed that a road and two bridges were constructed without obtaining CRZ clearance. Further, it was reported that

mangrove plantations were destroyed for construction of the road. Though show cause notice was issued to the state works department, no follow up action has been taken by Karnataka SCZMA. The presence of the road was verified by the audit team during JPV. Audit obtained satellite images of the site which clearly show the road as depicted below:



**Fig. 16: Satellite image of the road constructed in the middle of the island (No Development Zone)**

**g) Irregular approval of a commercial project in wetland area of Vembanad Lake by M/s TRIF, Kochi**

The proposed project of residential complex by TRIF was recommended for clearance by EAC of MoEF&CC in September 2011. MoEF&CC raised query to Kerala SCZMA about the nature of the land and the clearance was kept in abeyance. The report of Kerala SCZMA declared the project area as CRZ area and that reclamation cannot be carried out for commercial activity in the project area, which is a part of wetland. Kerala SCZMA conveyed the same stance when MoEF&CC in 2012 sought the status for the nature of land. In 2016, clearance was granted for the project by MoEF&CC. During audit examination, it was found that the project proponent started construction in 2013, much before the grant of clearance. It was noted that MoEF&CC granted approval to the project though the project area falls in notified wetland area in violation of the provisions of CRZ notification 2011 as well as Wetland notification 2010.

**h) Discharge of untreated effluents by coastal aquaculture units in Guntur district, Andhra Pradesh**

Complaints were received by Andhra Pradesh Pollution Control Board (APPCB) in 2018 about discharge of wastewater from the prawn seed hatcheries namely M/s Gayathri Hatchery-I and M/s Surya Vamsi Shrimp Hatcheries<sup>35</sup> operating on shore area causing contamination of coastal waters. APPCB while issuing show cause notice, directed the firms to stop further discharge of untreated wastewater outside the premises within three days. Audit conducted a JPV with APPCB at Gayatri hatcheries in August 2021 and found that the hatcheries continued to discharge untreated effluents directly into the sea (CRZ IV).

<sup>35</sup> M/s Gayathri Hatcheries-I, Pandurangapuram Village, Adavi Panchayat of Bapatla Mandal, Guntur District.

We further observed that APPCB issued show cause notices (March 2018) and closure orders (May 2018) as they did not obtain/renew consent. The firms applied (May/June 2018) for CTOs by claiming ignorance of law and the APPCB granted/renewed consents revoking (May/June 2018) the closure orders subject to condition that they shall not discharge untreated effluents outside the industry premises under any circumstances. Audit obtained satellite images of the area which showed the existence of many hatcheries which were releasing their effluents into the sea.



**Fig. 17: Surrounding area of Gayatri Hatchery on Kothapeta Rural Beach side in East Godavari district, indicating direct release of effluents in the sea by many other hatcheries**

We further examined the aerial imagery of the Konapapapeta beaches in East Godavari district and observed that Konapapapeta beach also has clusters of hatcheries and shrimp farms that release effluents directly into sea as seen in the satellite image from March 2021 below:



**Fig. 18: Presence of many hatcheries on coastline and open discharge of the effluent into sea by hatcheries on Konapapapeta beach, East Godavari district.**

**(i) Irregular operation of Ice plants and Fish Packing Units in CRZ areas of Kanyakumari district, Tamil Nadu**

Setting up and operation of ice plants in CRZ areas require CRZ clearance. We noted cases of ice plants operating in Kanyakumari district without obtaining CRZ clearances. During JPV, it was observed that a fish packing unit was operating within the premises of an ice plant. The activities were irregularly granted clearance by DLC, Kanyakumari. TN SCZMA in August 2020 directed DLC, Kanyakumari to take penal action against the violation and report on the same. It was noted that DLC is yet to take any action in this regard till March 2021.



Fig. 19: Pictures taken during JPV for unauthorised operation of Ice plant and Fish Packing unit

Another instance of irregular operation of an ice plant was noted in Kanyakumari district, where the plant discharged wastewater directly to the sea. It was also found that the ice plant was drawing ground water, violating provisions of CRZ notification. Though TN SCZMA directed DLC to take penal action, DLC was yet to take any action in this regard.



Fig. 20: Pictures taken during JPV for open discharge of wastewater to sea by the Ice plant

**4.2.3 Storage of impermissible products in port areas**

As per the CRZ Notification 2011, 15 specified petroleum and chemical products were permitted for storage in CRZ area. While examining the compliances to the terms of clearance granted, we observed that in two cases, impermissible items were allowed to be stored in the CRZ area:

**A. Expansion of Adani Petronet (Dahej) Port by Adani Petronet Port Private Limited (APPPL)** was granted clearance in October 2016. The project involved expansion of cargo handling capacity along with reclamation of 23 hectares back- up area to store and handle dry multi-purpose cargo (steel and silica sand) and development of additional coal stockpile I.

Development of a storage area for the aforesaid dry bulk cargo in the intertidal zone (CRZ-IB) and development of coal stockpile in CRZ- III zone in the instant case was in contravention to the CRZ Notification 2011 as none of the aforementioned items were included in the list of permissible products of the notification.

**B. Construction of Petroleum Products Storage Terminal at Karwar by Tropicana Liquid Storage (P) Limited** was granted CRZ clearance in March 2008. We observed that the facility was used to store bitumen by the project proponent, which does not figure in the list of the petroleum products permitted for storage in the port areas as per the CRZ Notification 1991 and 2011. Even though the fact that the facility was being used to store bitumen was indicated in the compliance report submitted by the PP, no action was taken against the violation. Though storage of bitumen in CRZ area is now allowed under the new CRZ Notification 2019, the fact remains that EIA Report prepared then for seeking CRZ clearance had evaluated only the impacts of storing and transferring liquid petroleum in the tanks.

Thus, SCZMAs and DLCs did not proactively monitor the violations in coastal space and irregular constructions in restricted CRZ zones were carried out.

MoEF&CC stated (February 2022) that information related to violations are of utmost importance to the Ministry and assured that the recommendations would be taken up at the highest level of the Ministry.

### 4.3 Conclusion

- Post clearance monitoring of the project was ineffective as mandatory reports such as half yearly compliance reports and annual environmental statements were not being furnished by project proponents. Project proponents did not adhere to the conditions prescribed in the clearance.
- SCZMAs did not take proactive action against the CRZ violations and in the instances where they acted upon, follow up action was ineffective. With help of GIS tools, we identified unreported violation such as irregular constructions in CRZ 1A zone and No Development Zone.
- NCZMA did not monitor the activities of SCZMA related to monitoring and follow up of violations. Lack of monitoring and enforcement actions would result in providing ineffective deterrence for the destruction of coastal ecology by development projects.

## Chapter 5: Conservation of Coastal Ecosystems

Audit sampled two coastal districts from each of the nine coastal states to assess the health of vulnerable and fragile marine ecosystems due to impacts of anthropogenic activities. Observations in this regard are discussed below.

### 5.1 Threats to biodiversity

#### (i) Threats to Corals in the Gulf of Mannar Biosphere Reserve, Tamil Nadu

Coral reefs are referred to as tropical forests of the ocean as they provide food, protection, shelter and breeding ground to nearly one-quarter of all the known marine species globally. They are classified as Ecologically Sensitive Areas under CRZ Notification 2011.

The key coastal habitats in the Gulf of Mannar are coral reefs, sea grass and mangroves. These habitats are some of the most diverse and valuable ecosystems on Earth. In 1989, the entire Gulf of Mannar area covering 10,500 sq. km was declared as the Gulf of Mannar Marine Biosphere Reserve by Government of India. The Gulf of Mannar Biosphere Reserve Trust (GoMBRT) was formed in 2002 to implement the UNDP-GEF (United Nations Development Program – Global Environmental Facility) funded project on the conservation and sustainable use of the marine resources of the Gulf of Mannar Biosphere Reserve. After completion of the project in 2012, the Government of Tamil Nadu took over the functions of the trust from 2013. The following deficiencies were noticed:

#### a) Absence of baseline data for marine environment at the Biosphere Reserve

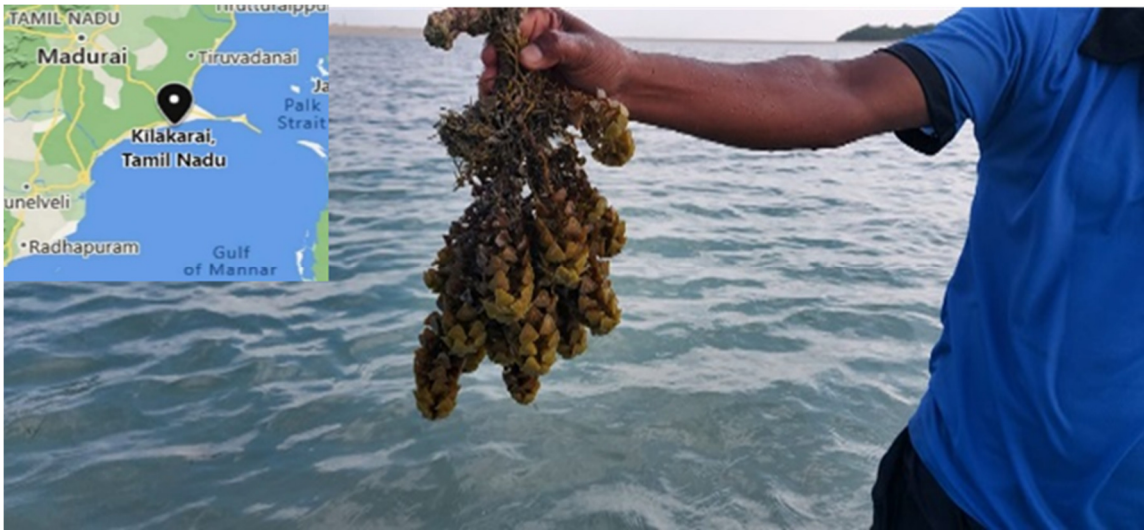
Audit observed that no baseline data for monitoring the status of coral reefs had been maintained at the Gulf of Mannar Biosphere Reserve till 2018. It was only in 2019 that a Baseline survey of the Coastal habitats and associated biodiversity between Rameshwaram and Kanyakumari in the Gulf of Mannar was conducted by a research institute<sup>36</sup> that was centrally sponsored by the MoEF&CC under the National Adaptation Fund for Climatic Change.

#### b) Alien invasive algae species at Biosphere Reserve

Smothering effects of the *Kappaphycus alvarezii*, an algal species introduced for commercial cultivation<sup>37</sup> in 1990, on live corals in Gulf of Mannar were reported in 2007-08. An alarming increase in the percentage of dead corals in all four group of islands in the Gulf of Mannar was noticed during 1998-2014. Joint Physical Verification of Coral reefs in the island of Thalayani (Keelakarai group of islands, Ramanathapuram) with officials of the Wildlife Range, Keelakarai, confirmed this situation.

<sup>36</sup> Named Suganthi Devadason Marine Research Institute at Thoothukudi, Tamilnadu.

<sup>37</sup> An alternative livelihood income generation for the coastal community.



**Fig. 21: Dead coral covered with algae**

Audit observed that out of the 100 sq. km coral area in Gulf of Mannar Marine National Park, the department removed these seaweeds only to an extent of two sq. km (2% of the total reef area) during 2015-16 to 2019-20 as targeted in the management action plans for the Conservation and Management of Corals Scheme of MoEF&CC. Also, despite the serious reduction and degradation of the live coral cover, no viable strategy to mitigate the propagation of the invasive species had been devised or implemented by the Department of Forest, Tamil Nadu.

**(ii) Absence of a monitoring system for coral reefs, Goa**

As per the World-Wide Fund for Nature (WWF) India survey of coral reefs at Grande Island in 2018, one of the few coral sites in Goa, a long-term periodic monitoring system for the protection and conservation of the reefs was required. The corals are classified as CRZ IA. We however observed that:

- The Forest Department had not done any mapping or identification of the areas inhabited by corals and as a result, a management action plan for their protection was also not prepared.
- No guidelines from Forest Department or Goa CZMA were issued to the Department of Tourism or operators of waterborne vehicles who carry out water sports activities around Grande Island, with an aim to preserve the Corals in the area.
- WWF-India, in its survey, had found rare marine species in these reefs. However, no guidelines for the fishing activities around these reefs were issued by any state government authority to the Fisheries Department which regulated fishing activities in Goa with an aim to protect and conserve such species.

### (iii) Olive Ridley Sea Turtles in Goa

Olive Ridley turtles are legally protected under Schedule I of the Wildlife Protection Act, 1972, which prohibits trade in the turtle products. Olive Ridley is the only species of sea turtle known to nest at the beaches of Goa. There are four designated nesting sites<sup>38</sup> as per the CRZ Notification. As per CRZ notification 2011, management plans for turtle nesting sites was required to be prepared. Audit observed that



Fig. 22: Olive Ridley Turtles<sup>39</sup>

management plans for these sites were not prepared. Further, as per the provisions of the notification, no development activities were permitted in these turtle nesting sites. However, we observed shacks being allowed at the nesting sites of Agonda, Morjim and Mandrem beaches, as shown in the pictures below-



Fig. 23: Wooden huts at Agonda Beach



Fig. 24: Beach beds in intertidal zone (turtle nesting sites) at Morjim Beach

### (iv) Coastal Sand Dunes in Goa

A coastal sand dune is a mount, hill or ridge of sand formed mainly by aeolian action that lies behind the beach affected by tides. They provide natural coastal protection against storm surge and high waves, preventing coastal flooding and structural damage, as well as providing important ecological habitat. The Coastal Regulation Zone, 2011 declared the sand dunes as CRZ I(a) areas and dressing or altering the sand dunes for beautification, recreation has been declared as prohibited activities within the CRZ.

To carry out mapping of coastal sand dunes along the Goa coast, on the request of the Goa Coastal Zone Management Authority (Goa SCZMA), the National Centre for Sustainable Coastal management (NCSCM) Chennai prepared a 'Sand Dune Report'. The report assessed

<sup>38</sup> Mandrem and Morjim beaches in North Goa and Galgibag and Agonda beaches in South Goa

<sup>39</sup> Source: K Sivakumar, Wildlife Institute of India, Dehradun



the collective length of sand dunes demarcated across Goa<sup>40</sup>. It also depicted that construction of hotels/resorts/guesthouses, dune reclamation for making approach road to the beaches, and landscaping were the major causes of destruction of sand dunes of Goa, prominently along the coastal stretches of Betul to Cansaulim, Siquerium to Baga, Arambol, and middle of Morjim.

Audit observed that Goa SCZMA despite existence of sand dunes, gave permissions for infrastructure development and construction of hotel and residential houses in these areas. Some of these instances are highlighted below:

A. Goa SCZMA, in March 2015, granted recommendation to **Chakshu Properties Private Limited in for construction of a hotel in Morjim Village, Pernem Taluka, Goa**. The PP approached Goa SCZMA again in December 2015 with a revised plan for construction of villas instead of hotel consisting of two floors (Ground and First Floor). Despite the fact that the proposed site was a pristine beach area having sand dunes (three to four metres in height) covered with vegetation, Goa SCZMA recommended the revised proposal.

B. A proposed project for **Construction of four lane National Highway 17 B from Varunapuri to Sada Junction (Mormugao) near Baina beach** was recommended by the Goa SCZMA in 2015 despite observations of the site inspection team which stated that Baina beach contained sand dunes covered with vegetation and that it was prone to annual cycles of erosion which made it ecologically sensitive. The report also stated that digging of huge pits for the foundation of several columns was bound to disturb the ecological stability of a sensitive beach.

During a JPV, it was observed that the sand dune was cut and flattened to make space for new beach shacks as shown below:



**Fig. 25: Destruction of sand dunes for new beach shacks**

<sup>40</sup> 22.62 km (99 patches); with 6.90 km of the coastal stretch (24 patches) in North Goa and 15.72 km of the coastal stretch (75 patches) in South Goa

C. The Sand Dune report also revealed sand dune erosion along the coastal stretches of



**Fig. 26: Motor vehicles plying on beaches**

Morjim, Ashwem and Colva beaches. The South Goa Collector, under the provisions of the Motor Vehicle Act, issued directions in 2018 according to which movement of all kinds of motor vehicles were prohibited on beaches. However, audit observed that there was no monitoring to stop the vehicle movement on the beaches as vehicles were seen plying/parked on the beaches at Utorda and Morjim Beach (which is also designated Turtle Nesting Site).

#### **(v) Mangroves**

Mangroves are salt tolerant plant community found in tropical and sub-tropical inter tidal regions and are unique eco-systems which provide breeding and feeding ground for many aquatic species. Mangrove forests have also proved to be capable of acting as a protective belt against the tsunami waves and as such require effective conservation and scientific management intervention. They are designated as Ecologically Sensitive Areas (ESAs) under CRZ I under the CRZ notifications.

#### **(a) Gaps in the Mangrove conservation efforts in Goa**

In order to protect the mangroves that occupied about 2000 hectares of area<sup>41</sup>, the Government of Goa in 2011, notified 14 Mangrove species as protected species and their cutting and felling was banned. We, however, noted several instances of cutting of mangroves and other issues in conservation of mangroves in the state as detailed under:

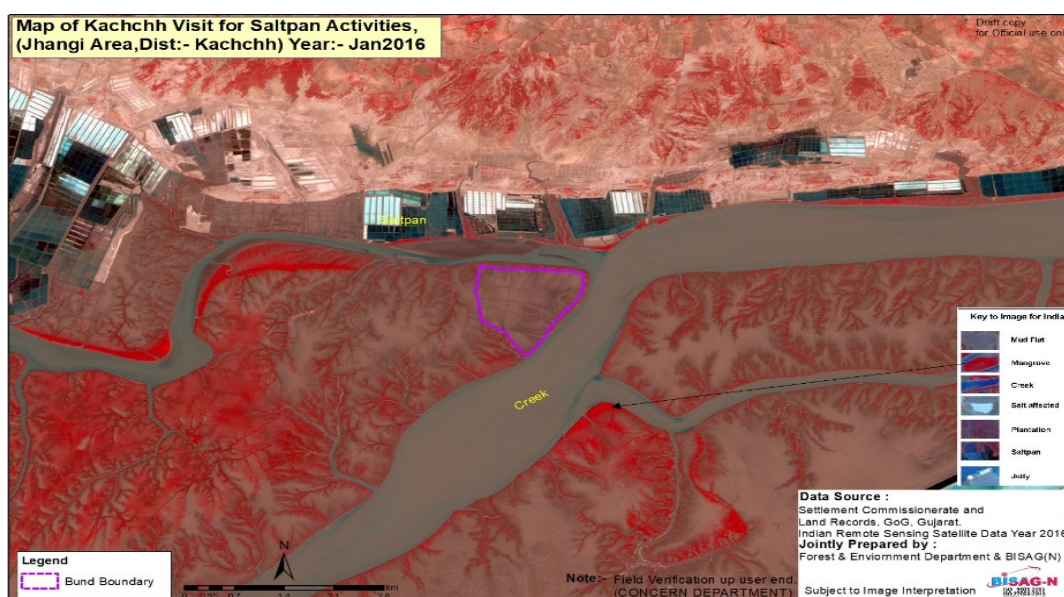
- Goa SCZMA, in 2015, granted permission to the proposal of cutting of 247 mangroves for the **Construction of bridge over river Mandovi (Atal Setu) by M/s Goa State Infrastructure Development Corporation**. One of the conditions in the permission stipulated that the project proponent was to carry out plantation of the same number of mangroves on completion of the project. However, the replantation had not been carried out by the proponent.
- Goa SCZMA, in 2017 granted permission to the proposal of cutting of 69 Mangrove trees for **Construction of bridge across river Zuari on NH-17 by M/s Public Works Department, Panaji, Goa**. The permission envisaged a condition that the project proponent should deposit with the Mangrove Society of India, an amount for the plantation of the mangroves. However, it was observed that mangrove replantation had not been carried out.

<sup>41</sup> Along the estuaries of Zuari, Mandovi, Terekol, Chapora, Sal, Talpona, Galgibag and Cumbarjua Canal.

## (b) Failure of Gujarat SCZMA to restore mangrove destruction in Kutch, Gujarat

Deendayal Port Trust (DPT)<sup>42</sup> a major port of India, owned by the central government, leased out areas (CRZ-I) to salt manufacturers for extraction of salt.

Audit noticed that though salt manufacturing was a permitted activity as per the CRZ Notification 2011, CRZ clearance for undertaking salt works in the area was not sought by the lessees. In 2018 Gujarat SCZMA received a complaint regarding large-scale destruction of mangroves at Nani Chirai and Moti Chirai areas of Bhachau Taluka, Kutch. Further, Kachchh Camel Breeders Association (KCBA), Bhuj besides making a complaint to DLC, filed an appeal before National Green Tribunal (NGT) regarding mangrove destruction in 2018. On the directions of NGT, Gujarat Pollution Control Board (Gujarat SPCB) and the Central Pollution Control Board (CPCB) conducted site inspection and prepared a report which revealed substantial work of bunding and blocking of creeks which restricted the flow of tidal water to the mangroves, thus, resulting in their destruction. On the orders of NGT, Gujarat SCZMA carried out assessment by remote sensing (July 2020) which revealed that the bunds<sup>43</sup> had been constructed in the Jangi area and nearly 32 hectares<sup>44</sup> of mangroves had been destroyed. The destruction of these mangroves in CRZ I areas not only proved to be costly to ecosystems like mangroves but also posed threat of extinction to unique breed of “Kharai” camels which were dependent on the mangroves in the area for their food. The decrease in mangrove areas as seen in satellite photos obtained by audit is shown below:



**Fig. 27: Mangrove area (indicated in red shade) before allocation of lease in 2016**

<sup>42</sup> Erstwhile Kandla Port Trust.

<sup>43</sup> With a total length of 5,271 metres.

<sup>44</sup> Total mangrove area before allocation of lease in 2016 was 159.26 ha which was reduced to 127.34 ha in the year 2020 due to creation of bunds.

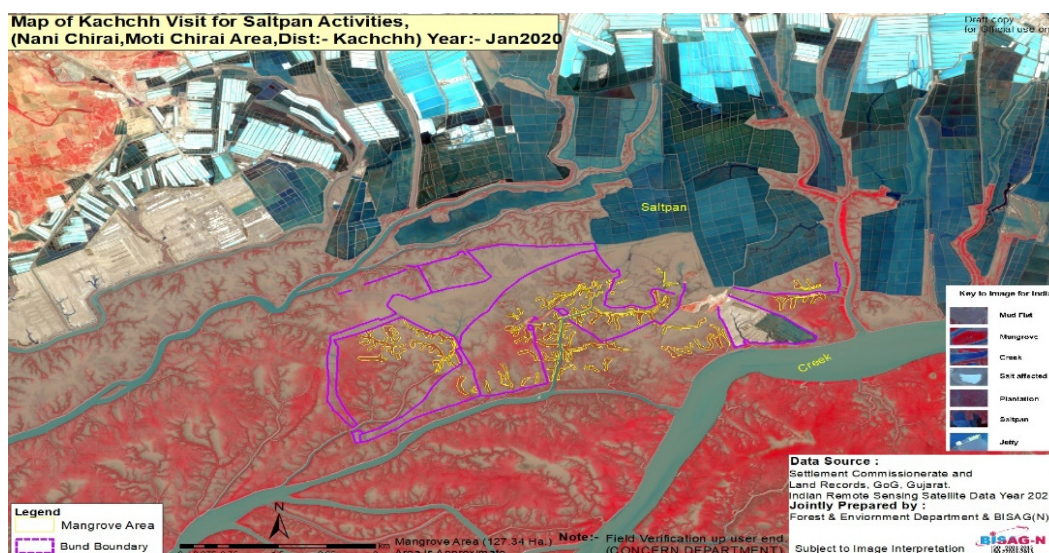


Fig. 28: Mangrove area (indicated in red shade) reduced to 127.34 hectares in the year 2020

The non-compliances as noticed by Audit are as follows:

- As per the NGTs order (September 2019), all obstructions in the creeks were to be removed and continuous flow of estuarine water in the creeks was to be ensured. Neither the persons responsible for obstruction of creeks were identified nor the restoration of mangroves was initiated even till February 2021.
- The NGTs order also stated that the quantum of damage caused to the mangroves shall be assessed by the Gujarat SCZMA the same shall be recovered from the persons responsible for the same within a period of one month from the issue of the order. However, Gujarat SCZMA could not ascertain whether creation of bunds and destruction of mangroves was done by lease holders or by other miscreants. Therefore, no compensation for creation of bund and destruction of mangroves could be collected as of February 2021.
- NGT in its order directed the Forest Department, Government of Gujarat to take immediate action to restore the damaged mangroves within a period of 6 months from the issue of the order. It was observed that although Gujarat SCZMA directed DPT to carry out compensatory afforestation at the rate of three times of total mangrove destruction, no action for restoration of mangroves was taken till date.

#### (vi) Gaps in the management of Khazan lands in Goa

The eco sensitive low-lying areas that are influenced by tidal action known as Khazan lands are used primarily for cultivation, fish farming and salt panning. As they have been classified as ESA, all types of development activities were prohibited therein. We observed that the State of Goa had demarcated the Khazan lands and also had not prepared the Management plan these lands as required under the CRZ Notification. Details regarding the Khazan land was limited to that available with the Town Planning Authorities of Goa.

It was further observed that due to non-demarcation of Khazan lands by the State, Goa SCZMA granted approvals to projects which were otherwise impermissible in these protected areas. For instance, clearances for projects involving construction of a bypass from Bambolim plateau to Verna Plateau and for cutting of 69 mangroves and temporary land filing in the said area were granted by Goa SCZMA in December 2015 and October 2017, respectively, without ascertaining that the projects involved use of Khazan Lands. Although, Goa SCZMA in their reply stated that the permission granted by Authority for construction of bypass was temporary in nature, the fact that 12 columns constructed in the salt pans under the project were of permanent nature and were impermissible in the Khazan Land.

## 5.2 Pollution caused by untreated municipal waste

The CRZ Notification 2011 prohibited activities leading to the disposal of untreated wastes and effluents into coastal waters and dumping of city and town wastes like construction debris, industrial solid wastes in CRZ areas. It provided that the concerned authorities shall implement schemes for phasing out: (i) the existing practice of discharging untreated waste and effluents within a period not exceeding two years from the date of issue of the Notification; (ii) the existing practice of dumping of solid wastes within one year from the commencement of the Notification.

Audit observations of the test checked districts indicated that the sewage treatment plants were either altogether absent or were functioning without any monitoring, leading to discharge of harmful effluents into coastal waters as detailed below:

### (i) Municipal sewage discharge into the sea at coastal districts of Karnataka

Out of the 12 Urban Local Bodies<sup>45</sup> located along the coast of Karnataka, only Mangalore City Corporation had a sewage network to cover 100 per cent of its area with four STPs.



Mangalore City Corporation had a sewage network to cover 100 per cent of its area with four STPs.

The City Municipal Council of Udupi, Karwar and Bhatkal had a partial sewerage network that catered to only 25 per cent, 14 per cent and 25 per cent area respectively.

**Fig. 29: Flow of untreated sewage from wet wells of the western area of Mangalore City to the Arabian sea**

Rest of the households either had individual septic tanks or soak pits to treat sewage. As per the Status of sewage generation, treatment and disposal in the coastal area prepared by the

<sup>45</sup> There 12 urban local bodies located along the coastline of Karnataka (Mangalore city Corporation, CMC Ullal, TMC Mulki, CMC Udupi, TMC Kuap, TMC Kundapura, TP Saligrama, TMC Bhatkal, TP Honnavar, TMC Kumta, TMC Ankola, CMC Karwar).

Karnataka Pollution Control Board (Karnataka SPCB) in December 2019, there was a gap of 26.85 MLD in sewage treatment in the coastal areas in Karnataka, out of which 7.6 MLD of untreated sewage was being discharged into the sea. The satellite pictures obtained by audit

show the flow of untreated sewage from the wet wells of western area of Mangalore City to the Arabian sea. We also observed that untreated waste from the coastal towns of Karwar, Murudeshwar was being let into the sea.



**Fig. 30: Urban sewage directly entering coastal waters at Murudeshwar Beach**

The matter of Urban untreated sewage being let into coastal waters was brought to the notice of Karnataka Pollution Control Board during 2017-19 by the State Environment Department of Uttara Kannada and Dakshina Kannada, however no further action was taken by Karnataka SPCB.

#### **(ii) Inadequate monitoring of Sewage Treatment Plant effluents, Goa**

A total of seven<sup>46</sup> STPs were functioning in Goa and another two STPs at Bandora and Colva were under construction as of December 2020. We observed that out of seven STPs, three STPs namely, Baina (20 MLD), Margao (20 MLD) and Durbhat (1 MLD) were functioning since 2017 without obtaining 'Consent to Operate' from Goa Pollution Control Board (Goa SPCB). We observed that these three STPs were discharging effluents directly into the sea. As per coastal data prepared by Goa SPCB for the month of October 2020, fecal coliform present in the coastal waters of eight out of 10 Goan Beaches<sup>47</sup> ranging from 110 to 140 (Most Probable Number/100ml) that were more than the prescribed limits (i.e.100 MPN/100 ml).

Goa SPCB while issuing (August 2018) a renewal of Consent to Operate for STP Margao, had specified that the treated effluent should not be discharged into any river/creek/nallah and should be recycled to the maximum with the remaining being used for gardening activities. However, this STP after utilizing some effluent for gardening and non- potable use in the premises was discharging treated effluent into River Sal. However, no action was taken by Goa SPCB.

<sup>46</sup> Panaji -Tonca (15 mld), Panaji Tonca (12.5 mld), Margao (20 mld), GMC Bambolim (1.35 mld), Vasco-Baina (20 mld), Ponda-Durbhat (1 mld), Sanquelim (0.80 mld).

<sup>47</sup> Samples taken from Miramar, Calangute, Morjim, Mobor, Baina, Galgibag, Colva and Vagator beaches.

### (iii) Discharge of untreated sewage into the sea by the Municipal Corporations/ Municipalities in Maharashtra

On the request of Maharashtra Pollution Control Board, National Institute of Oceanography (NIO), Mumbai, carried out a study (2018) which showed that the domestic wastewater was the major contributor to degrading ecology of creeks and estuaries that received such wastes. The report suggested that the inshore areas should be freed from unplanned release of sewage.

We observed that nine<sup>48</sup> Municipal Corporations (MCs) in the coastal region of Maharashtra discharged untreated sewage into the rivers, seas and creeks during 2015-16 to 2019-20. 22 Municipal Councils coming under Palghar, Raigad, Ratnagiri and Sindhudurg districts of coastal region generated 71.80 MLD of sewage in 2015-2020, which was not treated at all and was disposed directly into water bodies.

The Mumbai region alone had 8 operational STPs. Audit analyzed the data relating to the annual performance evaluation of the STPs in Mumbai region by Maharashtra Pollution Control Board (MPCB) during 2015-16 to 2019-20 and observed that the treated sewage too, did not meet the standards prescribed by MPCB. We, further, observed that though the MPCB issued directions<sup>49</sup> to these local bodies wherein they were instructed to provide adequate STPs, achieve the consented standards prescribed by MoEF&CC and implement short term & long- term measures for treatment of sewage, no further action or follow up was taken up by MPCB against these bodies. In a few cases, it was observed that show cause notices issued by MPCB stipulated environmental compensation that was required to be paid by the errant local bodies for the discharge of untreated/ partially treated sewage. However, no efforts were made by the MPCB to ensure that the same had been paid by the offenders.

### 5.3 Waste from Fish processing industry at Veraval, Gujarat

Processing and preserving of fish, crustaceans in India annually generate 70 million m<sup>3</sup> waste/ effluents. Among the coastal states, maximum fish processing waste generation was observed in Gujarat (30.51%) followed by Maharashtra (23%).

We observed the discharge of sewage generated at the Veraval Fishing Harbour directly into the sea. Though Veraval harbour was designed for 3,500-4,000 boats it was observed to handle approximately 8,000 boats, which would increase the waste being generated. The harbour lacked an effluent treatment facility due to which untreated effluents and the sewage generated at the harbour were being discharged directly into the harbour waters. Further, the directions issued by the Gujarat SPCB envisaged regular dredging of the harbour, provision for collection of fish waste from the harbour area to compost units. However, we observed that the Veraval Harbour did not comply with the directions issued by Gujarat SPCB.

<sup>48</sup> Greater Mumbai, Navi Mumbai, Thane, Bhivandi Nizampur, Ulhasnagar, Kalyan-Dombivli, Mira-Bhayander, Vasai Virar and Panvel.

<sup>49</sup> Under Water (Prevention & Control of Pollution), Act 1974.

Also, Gujarat SPCB took no further action against the harbour. Hence, Veraval Fishing Harbour continues to operate without Composite Consent and Authorisation (CCA) discharging untreated effluent into Veraval Sea.

#### **5.4 Aquaculture Waste Discharge at Coringa Wildlife Sanctuary, Andhra Pradesh**

Entire Coringa, East Godavari as well Krishna in Andhra Pradesh, has been identified as CVCA<sup>50</sup> site as per CRZ Notification 2011. The Government of Andhra Pradesh declared the Coringa Sanctuary as Coringa Wildlife Sanctuary (CWLS) in 1978<sup>51</sup> and contains mangrove swamps, mudflats, sandy beaches and sandy islands. Coringa mangrove forest is the second largest mangrove region along the east coast of India.

It was observed that out of 1483.05 Ha. of land registered under aquaculture in Tallarevu Mandal, an area encompassing the CWLS on three sides, around 861.64 hectares was within the periphery of Coringa Sanctuary.

Audit observed that eleven aqua/shrimp units located around CWLS in Tallarevu Mandal were discharging their untreated effluents into the drains which eventually joined the Coringa river. Due to discharge of untreated effluents in Coringa waters, except for pH value which was within the set standards of Coastal Aquaculture Authority (CAA), the remaining values of the effluent analysis were found to be abnormally higher<sup>52</sup> than the standards prescribed.

We observed that the Andhra Pradesh Pollution Control Board (APPCB) issued show cause notices to five out of the aforementioned 11 units during 2017-20 as most the units were operating without a 'Consent to operate'. However, no further action in the form of imposition of penalty or legal proceeding as per the provisions of the Water (Prevention & Control of Pollution), Act 1974 was taken by APPCB against these five units. Also, APPCB failed to take any action against the other 6 units that were also discharging their waste without treatment.

Audit observed that the Fisheries department accorded permissions for operating the aquaculture units without ascertaining the method for effluent treatment and the area for its disposal. The Regional Office, APPCB accorded Consents for Establishment (CFE) and Operation (CFO) without ascertaining the presence of facilities in the units for treatment of effluent. Audit noticed no ETP facility in any of the units during joint physical inspection with

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<sup>50</sup> In all, there are 34 species of mangroves, 312 estuarine fish species, 14 species of prawns, 34 species of crustaceans, a wide range of 103 species of molluscs, 65 species of phytoplankton besides other species of snails and reptiles. As many as 257 avian species have been identified as visitors every year.

<sup>51</sup> Under the Wildlife Protection Act, 1972.

<sup>52</sup> Higher level of BOD results in more rapid depletion of oxygen in the stream and availability of less oxygen to higher forms of aquatic life. A greater amount of oxidizable organic material in a sample with high levels of COD, would reduce dissolved oxygen (DO) levels. Presence of abnormally high Total Suspended Solids (TSS) in the effluents discharged results in clogging of fish gills, either killing them or reducing their growth rate. They also reduce light to penetrate through which impairs the ability of algae to produce food and oxygen, which can be fatal to life below water which would adversely impact the marine ecosystems of the sanctuary.



the officials of APPCB. Further, prior recommendation from Andhra Pradesh SCZMA and clearance from State/Town Planning Authorities was mandatory as the area fell under CRZ-I, however, these were not obtained. Audit also observed that the zoning regulations related to CRZ were ignored which resulted in establishment of aquaculture units within the 100 meters zone from the high tide/flood line from the Coringa which was in contravention to the CRZ Notification 2011.

## 5.5 Conclusion

- There were many deviations from the approved CZMP which affected vulnerable biodiversity of the fragile ecosystems. Further, many activities which were banned in these sensitive coastal areas continued unabated, with the PCBs/SCZMAs not taking any action to stop these violations.
- State Government did not prepare management plans for vulnerable ecosystems such as the coral reefs, turtle nesting sites etc. which impacted their conservation. Despite the existence of CRZ notifications, coastal areas continued to be impacted by anthropogenic activity, often resulting in their degradation.

## Chapter 6: Integrated Coastal Zone Management Project

To achieve the objectives of integrated and sustainable coastal management, MoEF&CC approached the World Bank in March 2010 to seek technical and financial assistance for taking up an Integrated Coastal Zone Management Project (ICZMP) which was approved<sup>53</sup> in March 2010. The World Bank proposed to extend financial assistance to the Government of India for ICZMP with overall cost of ₹ 1153.63 crore in which the World Bank component was ₹ 896.37 crores which was 77.7 percent of the project cost. The balance of ₹ 177.66 crore (15.4 percent) was proposed to be borne by the Government of India and ₹ 79.60 crore (6.9 percent) was to be borne by the participating State Governments.

The project's objective (PDO) was capacity development in sustainable coastal management approach for India's coastal zones, and piloting integrated coastal zone management approaches in select states, namely Gujarat, Odisha and West Bengal. The components of the Project are depicted in the table below:

**Table 6.1: Components of ICZMP**

National Component	State component (Gujarat)	State component (Odisha)	State component (West Bengal)
<ul style="list-style-type: none"> <li>mapping, delineation and demarcation of hazard lines, ecologically sensitive areas (ESAs) and delineation of coastal sediment cells all along the mainland coast of India</li> <li>capacity building of MoEF&amp;CC as the secretariat for (NCZMA), setting up of the National Centre for Coastal Zone Management and nation-wide training program for ICZM</li> </ul>	<ul style="list-style-type: none"> <li>piloting ICZM approaches in the state of Gujarat which included preparation of ICZM Plan for the Gulf of Kachchh and capacity building of departments such as Forest and Environment, State Pollution Control Board</li> <li>priority investments in the Gulf of Kachchh region like conservation and protection of coastal resources, pollution abatement and Livelihood security of coastal communities.</li> </ul>	<ul style="list-style-type: none"> <li>Piloting ICZM approaches in the state of Odisha which included preparation of an ICZM plan for coastal stretches of Paradip-Dhamra and Gopalpur-Chilika</li> <li>Capacity building of state departments including the Chilika Development Authority.</li> <li>Priority investments in Orissa for Gopalpur-Chilika and Paradip-Dhamra, conservation and protection of coastal resources, pollution abatement and livelihood security of coastal communities.</li> </ul>	<ul style="list-style-type: none"> <li>preparation of ICZM plan for West Bengal</li> <li>capacity building</li> <li>priority investments in the two targeted coastal stretches of Digha-Shankarpur and Sagar Island in the Sundarban</li> </ul>

The project had four implementing agencies i.e., MoEF&CC at the National Level with lead responsibility and the Department of Forest & Environment (DoFE) in each of the three participating states for implementing the project<sup>54</sup>. In addition, Steering Committees at the National and state levels were set up for inter-sectoral coordination.

Our observation on the activities taken up under four different components of the ICZMP are given below:

<sup>53</sup> By the Cabinet Committee on Economic Affairs

<sup>54</sup> Each of the four implementing agencies set up Special Purpose Vehicles in the form of registered societies, i.e., National Project Management Unit (NPMU) at the National Level and State Project Management Unit (SPMU) at the State level to manage the Project Development Objectives, coordinate project activities and directly execute some of the relevant project sub-components.

## 6.1 Assessment of activities under the National component of ICZMP (Component 1)

### 6.1.1 Absence of Ground Demarcation of Hazard Line

The concept of Hazard Line<sup>55</sup> was central to the implementation of IZMP. Hazard Line mapping aimed to identify and thus mitigate risks from various disasters to life and property in the coastal areas. The mapping was to be carried out for the entire coastline of the country by the Survey of India at a cost of ₹125 crore, which was later revised to ₹139.04 crore in 2018. Expenditure of ₹112.49 crore was incurred under the project till March 2020. The entire work of mapping of Hazard Line was completed in August 2018. The composite hazard line was to be marked on the ground by iron tip pegs in private land and stone pillars were to be erected on government land subject to requisite approvals taken by MoEF&CC. However, the same was yet to be done by MoEF&CC. As such, the lack of a visible hazard line on the ground prevented its use as tool for planning for local purposes.

### 6.1.2 Non preparation of Integrated Management Plans (IMPs) for Critically Vulnerable Coastal Areas (CVCAs)

Considering the vulnerability to developmental and other threats, the CRZ notification had designated 12<sup>56</sup> ecological sensitive areas as CVCAs. The same were to be declared as CVCAs through a process of consultation with local fisher folk and coastal communities with the objective of promoting conservation and sustainable use of coastal resources and habitats. MoEF&CC was to develop and notify guidelines detailing the process of identifying, planning, and implementing such CVCAs in consultations with the stakeholders<sup>57</sup>. Also, Integrated Management Plans (IMPs) were to be prepared for the CVCAs keeping in view the conservation and management of mangroves, needs of local communities<sup>58</sup> and the impact of sea level rise and other natural disasters.

We observed that though the guidelines for IMPs, had been prepared by National Centre for Sustainable Coastal Management (NCSCM) and submitted to MoEF&CC in September 2016, it was yet to be notified and disseminated to the States. As such, the IMPs could not be prepared by the coastal states. The CVCAs thus remained unprotected, and their sustainable development could not be ensured even after their identification.

MoEF&CC stated (February 2022) that the guidelines would now be notified to enable the coastal States/UTs to prepare the IMPs.

<sup>55</sup> Hazard Line is the line at which natural hazards like adverse weather incidents and tsunami are likely to impact the coast.

<sup>56</sup> Sunderbans mangrove area, Gulf of Khambat and Gulf of Kutchchh in Gujarat, Malvan, Achra in Ratnagiri in Maharashtra, Karwar and Kundapur in Karnataka, Vembanad in Kerala, Gulf of Mannar in Tamil Nadu, Bhaitarkanika in Orissa, Coringa, East Godavari and Krishna in Andhra Pradesh.

<sup>57</sup> State Government, local coastal communities and fisherfolk inhabiting the area.

<sup>58</sup> Dispensaries, schools, public rain shelter, community toilets, bridges, roads, jetties, water supply, drainage, sewerage.

## **6.2 Assessment of activities under Component 2 of ICZMP: Piloting ICZM approaches in State of Gujarat**

### **6.2.1 Delay in the preparation of the ICZM Plans**

Under ICZM Programme, ICZM Plans were to be prepared for selected coastal stretches of the state of Gujarat within 2 years i.e., 2012 from the start of the project. However, Gujarat could complete the preparation of ICZM plan only in 2018. Inordinate delay in the preparation of these plans resulted in the implementation of pilot investment activities which did not emerge from the ICZM plans and thus, these activities could not complement the plans to this extent.

### **6.2.2 Capacity building of various stakeholder institutions such as Gujarat Ecological Education and Research Foundation (GEER) and Gujarat Pollution Control Board (Gujarat SPCB)**

A project for capacity building and coral transplantation activities under the ICZMP was undertaken by SPMU through GEER in the year 2010 at an estimated cost of ₹ 15.74 crore. The project aimed at capacity building of the project staff and establishing marine field stations at different places. During the physical verification of two of the marine field stations at Mandvi and Jamnagar, it was observed that out of 40 instruments installed under the project at these two places, 33 instruments were operated only for checking and calibration and were never used for the intended purpose i.e., to study the physiochemical parameters of soil and water of the intertidal area of the Gulf of Kutch. Further, as against four persons required to be deployed at each field station, only one person at Mandvi and two persons at Jamnagar field station were found deployed.

MoEF&CC attributed (February 2022) the non-utilisation of the equipment to COVID-19 pandemic. However, the fact remains that the equipment had not been utilized during 2016-19 i.e. before the pandemic.

In a similar instance, under the capacity building of Gujarat PCB, the laboratory infrastructure was to be enhanced by purchase of sophisticated analytical instruments. Gujarat SPCB developed State of Art Laboratory at Gandhinagar, Bhuj, Jamnagar and Rajkot and procured 18 sophisticated Scientific Analytical Instruments under ICZM Project. During the joint physical verification of visited Central laboratory at Gandhinagar, it was observed that four scientific instruments, costing ₹4.47 crore were procured under the project, but were never used by the Gujarat SPCB for sample analysis and were lying idle in the labs. The Comprehensive Maintenance Contracts of these instruments also lapsed in the year 2019.

## **6.3 Assessment of activities under Component 3 of ICZMP: Piloting ICZM approaches in State of Odisha**

### **6.3.1 Delay in the preparation of the ICZM Plans**

Under ICZM Programme, ICZM Plans were to be prepared for selected coastal stretches of the state of Odisha within 2 years from the commencement of the project. However, ICZM

plan was prepared only in 2018. Also, the ICZM plan of Odisha was yet to be accorded the formal approval by MoEF&CC. Inordinate delay in the preparation of this plan resulted in the implementation of pilot investment activities which did not emerge from the ICZM plan and thus, these activities could not complement the plan to this extent.

### **6.3.2 Insufficient capacity building measures at Odisha State Pollution Control Board (OSPCB) and Chilika Development Authority (CDA)**

(i) Owing to various industrial activities in the Paradeep- Dhamra coastal stretch in Odisha, the region figured as one of the worst polluted coastal stretches in terms of various coastal Water Quality parameters. OSPCB established a Centre for Management of Coastal Ecosystems in 2010 which aimed to analyse the sources, levels and pathways of various pollutants in the Paradeep-Dhamra coastal stretch. 19 laboratory equipment was procured at Rs. 2.76 crore during the period of 2013-2015. This Centre was to collect water and soil samples and assess the coastal water quality parameters. It was noted that during the period 2015-20, the Centre failed in carrying out this activity effectively. Against the targets set for the collection and analysis of samples there was shortfall ranging from 33 per cent to 59 per cent. Further, the Centre was working at 55 % of the required manpower<sup>59</sup> and this resulted in non- operation of the equipment procured for the analysis of the samples. Though the aim of the Centre was to address the coastal pollution in the region by identifying the local sources of pollution, the Centre could not achieve the same.

MoEF&CC stated (February 2022) that the step-wise recruitment is in process.

(ii) For effective management of Chilika Lake eco-system<sup>60</sup>, a study<sup>61</sup> revealed that the northern sector of this eco-system was getting infested with an invasive weed, *Phragmites karka* on an area of nearly 150 sq. km, considerably reducing the water holding capacity of the lake. To address this issue, one multipurpose Amphibian Weed Harvester (AWH) was procured (December 2018) under ICZMP at a cost of ₹2.14 crore. Audit observed that the machine was handed over to CDA at Ansupa lake (a freshwater lake) instead of the research center at Chilika Lake which had entered into the agreement for procurement of the weed harvester. It was also observed that the deployment of the machine at Ansupa Lake was more than at Chilika where the weed infestation was major. Although CDA could furnish satellite images of deweeded area of Ansupa Lake, it could not furnish the data regarding the area deweeded at Chilika. Thus, the effectiveness of the Weed Harvester remained unassessed at Chilika for which it was procured.

MoEF&CC stated (February 2022) that the weed harvester machine was currently deployed at Ansupa Lake and would be deployed at Chilika after deweeding at Ansupa is over.

<sup>59</sup> Deficient staff with 22 persons as against the requirement of 41 personnel as of February 2021.

<sup>60</sup> A Ramsar Site that is known to support the largest congregation of migratory birds and Irrawaddy dolphins besides supporting the livelihood of more than 0.2 million local communities.

<sup>61</sup> Study 'Qualitative and Quantitative assessment of biological diversity of macrophytes of Chilika Lagoon' was conducted by Regional Plant Resource Centre, Bhubaneswar.

Further, the CDA had been collecting water and sediment samples from 30 pre-determined stations of the lake at an interval of 30 days. As the salinity gradient of the lake changes with



**Fig. 31: Water Quality Monitoring Buoy System**

every tidal cycle, the monitoring of the lake at an interval of 30 days was found inadequate. Hence, CDA decided to deploy sensor-mounted floating data buoys, powered by solar panel, at 10 strategic locations in four ecological sectors of the Lake to monitor various parameters<sup>62</sup>. These parameters would be measured in each station on real-time basis and transmitted to the modelling computer at the Wetland Research & Training Centre at Chilika.

Ten Water Quality Monitoring Buoy System, twelve multi-parameter Water Quality Monitoring System (WQMS) with sensors and one Control Centre Data reception were purchased and installed (October 2012) at 10 different locations in Chilika lagoon at ₹ 2.69 crore.

On scrutiny of records, we observed that within one year and four months of deployment, out of 10 WQMBS, six were stolen and only four buoys were in operation as of June 2016. Also, the pH data had not been received from any of the buoys since 2014. Thus, without complete and continuous data from 10 stations, the monitoring of Chilika Lake despite an expenditure of ₹2.69 crore could not be achieved by Chilika Development Authority.

### **6.3.3 Activities under the sub component Conservation and protection of coastal resources in Odisha**

#### **(i) Inadequate protection of Olive Ridley turtles in Odisha**

Gahirmatha rookery near Dhamra river mouth, Rushikulya river mouth and Devi River mouth of Odisha have become important mass nesting sites of Olive Ridley sea turtles which are designated as 'vulnerable' species under the IUCN Red List of Threatened Species. To provide protection to the Olive Ridley turtles, Rajnagar Forest Division, Kendrapara District in March 2016 procured two highspeed sea going vessels for coastal patrolling in Gahirmatha Marine Wildlife Sanctuary for ₹ 6.23 crore. Both the vessels were operated between September to October 2017, after which defects arose in both. Even though one vessel was made operational in December 2018, audit observed that the engines of both the vessels became defective in February 2020 and thereafter could not be repaired. Thus, even after the incurring an expenditure of ₹ 6.23 crore, the objective of effective sea patrolling in Gahirmatha Sanctuary remained unachieved.

<sup>62</sup> Salinity, temperature, conductivity, dissolved oxygen, pH, depth, turbidity, chlorophyll and blue green algae.

**(ii) Non-operation of research laboratory at Dangmal, Kendrapara District, Odisha**

Bhitarkanika Wildlife Sanctuary, a unique biodiversity hot spot supports a rich biodiversity including mangroves, largest population of estuarine crocodiles, and other wildlife<sup>63</sup>. There was no facility available for rescue and treatment of injured wild animals, analysis of viscera of dead wild animals for assessment of food habits, pathological/microscopic studies for diseases and development of treatment protocol, preservation of various parts/organs of wild animals for study and analysis.

To facilitate these objectives, under ICZM Project, a research laboratory at Dangmal was constructed in November 2016 at a cost of ₹ 32.78 lakh. Audit observed that the laboratory was not functional since beginning. During physical verification of the laboratory, we observed that the laboratory was still not functional, and the facility was in a dismal state, as shown in the following photographs:



Fig. 32: Room no.1 of the laboratory at Dangmal



Fig. 33: Room no.2 of the laboratory at Dangmal

**(iii) Efforts towards conservation of the Mangroves**

The mangroves along the coast of Odisha are threatened due to high density of population in these areas and competing demand for land for agriculture and prawn farming. Under ICZMP, mangrove plantation was taken up over 228 ha of land in Mangrove Forest Division, Rajnagar and Puri Wildlife Division in three phases during 2016-2018. Audit observed that one of the activities envisaged under the Management Action Plan for Conservation of Mangroves in the Mahanadi Delta of Odisha was construction of trenches and channels to facilitate tidal inundation and smooth flow of tidal water. Audit observed that the flow of tidal water was obstructed as most of the feeder channels around the plantation sites were filled with sand. The survival rate of mangrove plantation carried out under the project ranged from zero to 35 per cent.

**(iv) Shore line protection at Pentha in Odisha:**

Pentha is an agricultural village located in the south of Dhamra in Paradeep-Dhamra stretch in Kendrapara District of Odisha. To prevent the shoreline erosion at Pentha, a proposed pilot

<sup>63</sup> Such as rare white crocodile, largest water monitor lizard, snakes, varieties of resident and migratory birds and mammalian species (spotted deer, sambar, wild boar, fishing cat, jungle cat, otter) etc.

project 'Laying of geosynthetic tubes<sup>64</sup> as protection measure for control of erosion' was granted clearance by Odisha Coastal Zone Management Authority in 2012. An embankment was to be created by covering the geotubes filled with river sand by gabion boxes that are made up of stones tied up by polypropylene ropes. The work was awarded (2012) to M/s Garware Wall Ropes Pvt. Ltd at a cost of ₹32.96 crore and was completed by June 2016. We examined the following deficiencies relating to the construction of embankment:

- During the visit of the review committee in January 2014, it was observed that a part of the wall constructed was damaged by the tidal waves during the cyclone Phailin in 2013 and that most of the rope gabion boxes exposed to the seaside were damaged, as a result of which the stones filled inside the rope gabions had come out and were scattered due to loose filling of granite stones. The damage was due to poor construction, as the size of the stones used were smaller than those specified in the contract agreement.
- The clearance awarded by OCZMA and the DPR of the project had envisaged that coastal afforestation was to be taken up between the Sea and the Geo-tube embankment<sup>65</sup>. The species identified for the sustainability of the project were casurina, prospis, neem, pandanas and babul. However, it was observed that the plantation was not done, citing that there was no space available in front of geo-tube embankment.
- The armoury stone protection works in front of the geo-textile tube embankment that were to act as a first line of defence to high tide waves was taken up for an additional cost of ₹4.65 crore from the State Fund and completed in March 2018. This armoury section of the geo-tube embankment was damaged in May 2019 when the coast of Odisha was hit by severe cyclonic storm 'Fani'. The embankment suffered further damage in August 2019 when some miscreants set some gabion ropes on fire. This entailed an additional expenditure of ₹ 3.28 crore.

#### **6.3.4 Provision of Alternative Livelihood to the coastal communities**

##### **(i) Idling of infrastructure created under the activity relating Hygienic drying of fish:**

As the fishermen of Odisha lose almost seven months livelihood support in a year due to ban on fishing for the protection of Olive Ridley turtles, ICZMP aimed at providing livelihood support to the fishermen living in the periphery of Chilika Lake and Gahirmatha Wildlife Sanctuary. An activity relating to Infrastructure development for dry fish production was taken up under the project<sup>66</sup> in 2014.

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<sup>64</sup> Under this scheme, geo-synthetic tubes were to be laid in the beach over a length of 675 metres of the coast followed by coastal afforestation with an objective to reduce the wave energy on the coast and facilitate the settlement of sand between the geo-tube and the coast.

<sup>65</sup> So as to break the wave energy and to increase the stability and functioning of the Geo-Tube.

<sup>66</sup> The project involved purchase of solar drier, construction of concrete platform, godown, installation and operationalizing the same. This activity was executed by the Fisheries & Animal Resources Department (F&ARD) as Pilot Executing Agency with formation of Self- Help Group (SHG).



We observed that a total of 150 SHGs were formed in Puri and Ganjam districts which were provided ₹ 1.50 lakh each towards seed money and 99 solar dryers<sup>67</sup> were installed for ₹ 5.23 crore in 2014. During the Joint Physical verification (August 2021) of 82 solar dryers under Gopalpur cluster, the following deficiencies were noticed:

a) Audit observed that the Gopalpur site was devoid of any solar dryers except the godowns constructed for the purpose. The site where the solar dryers were installed was occupied by a garbage processing plant installed by the Gopalpur Notified Area Council.

Further, it was reported by F&ARD department that as the project had become defunct since 2016 and the equipment installed had got damaged and was stolen, the solar dryer yard was demolished by the district administration to facilitate another project under 'Swachha Bharat Mission' to develop Micro Composting Centre.

b) At Sana Aryapalli, audit observed that only platforms had been constructed for the installation of the solar dryers. The sheds and solar panels had been damaged in cyclone and the dryers were stolen.

c) At Purunabandha and Nolia Nuagaon, we observed that the dryers were rusted and in a non-functional condition.



Fig. 34: Damaged Solar Panels at Nolia Nuagaon



Fig. 35: Rusted dryers left unused at Purunabandha

As none of the dryers examined in audit was functional enough to provide livelihood support to the community, the expenditure of ₹6.72 crore on creation of facilities under the ICZMP was rendered unfruitful.

## (ii) Infertuous expenditure on activities for promotion of Eco-tourism

To address the livelihood issues through ecotourism for long term conservation of biodiversity along the coast of Odisha, a few activities like construction of camp infrastructure<sup>68</sup> were to be undertaken at the three sites namely, Gahirmatha Wildlife sanctuary, Bhitarkanika Wildlife Sanctuary and Chilika Coast.

<sup>67</sup> A solar dryer is a system for hygienic drying of fish using solar energy.

<sup>68</sup> With a provision of kitchen, drinking water, solar lighting, along with furniture and fittings, construction of platforms for pitching tents etc.

(a) Audit observed that even though five camp infrastructure along the Chilika coast<sup>69</sup> were constructed in 2018 after incurring an expenditure of ₹ 1.46 crore, the same could not be made functional due to lack of proper water supply and electricity.

(b) A project on Development of Participatory Eco-tourism at Chilika and Tampera under Livelihood security was taken up by Odisha Tourism Development Corporation (OTDC). Scrutiny of records revealed that various assets like construction of food courts, public convenience, parking, tourist information centre etc., were created by OTDC at an expenditure of ₹ 2.97 crore to enhance tourism potential through Eco-tourism Development Society (EDS). Although, these assets were handed over to EDS during May 2016, they could not be made operational by EDS by September 2021, as such the site failed to attract tourists.

(c) To promote livelihood through eco-tourism in Chilika coast and Bhitarkanika, seven transit boats, four luxury boats and three catamaran boats were purchased between March to July 2014 by Wildlife Division of Chilika, Forest Division of Rajnagar and Forest Division of Berhampur respectively at a cost of ₹ 7.95 crore.

On scrutiny of records, it was observed that the seven transit boats purchased by the Chilika Wildlife division were operated for only 11 months<sup>70</sup> by the department. However, due to huge consumption of fuel, these boats were not found useful from the ecotourism point of view. Three catamaran boats purchased by Berhampur Forest division were transferred to Rajanagar Forest Division in February 2016 after lying idle for almost two years from the date of purchase. These three boats were operated up to September 2017 and thereafter left defunct. Audit noticed that four luxury boats under the Forest Division of Rajnagar also could not be made operational. After remaining idle for one year and three months, an agency which was engaged (January 2016) to operate the boats up to September 2017, exited from operation in October 2017 as it sustained huge loss due to lack of support from the department.

## **6.4 Assessment of activities under Component 4 of ICZMP: Piloting ICZM approaches in State of West Bengal**

### **6.4.1 Delay in the preparation of the ICZM Plans**

Under ICZM Programme, ICZM Plans were to be prepared for selected coastal stretches of the state of West Bengal within 2 years from the start of the project. However, the preparation of ICZM plans could take place only in August 2020. Inordinate delay in the preparation of these plans resulted in the implementation of pilot investment activities which did not emerge from the ICZM plans and thus, these activities could not complement the plans to this extent.

<sup>69</sup> Rambhartia, Berhampur, Khirisahi, Balianla, Pokharikuda.

<sup>70</sup> December 2014 to October 2015.

#### **6.4.2 Gaps noticed in respect of activities under the Environment and pollution management sub- component of the ICZMP in West Bengal**

##### **(i) Poor functioning of Sewage Treatment Plant (STP) at Digha leading to release of polluted water into sea**

Under the Environment and pollution management sub- component of the ICZMP in West Bengal, a project namely 'Renovation of Sanitary Sewerage Scheme at Digha' was undertaken by the Public Health Engineering Directorate (PHED), West Bengal in December 2012. The project envisaged construction of an STP with a capacity of 201 million litres per month at an estimated cost of ₹ 34 crore. The same was constructed in September 2016 at a cost of ₹ 28.87 crore.

It was observed that although parameters relating to Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), suspended solids, Nitrogen, Phosphate, etc. were measured, no periodicity was fixed for collection and testing of the samples. Further, the parameters of the treated water, namely pH, Total Dissolved Solids, Oil & Grease were found to exceed the permissible limits. Further, it was observed the tests for checking the fecal coliform in effluent were not carried out during 2015-20. Thus, even after incurring an expenditure of Rs. 28.87 crore on construction of the STP, the treated sewage water continued to carry pollutants in excess of permissible limits, thereby threatening the marine ecosystems.

##### **(ii) Non- implementation of Solid Waste Management at Digha**

One of the objectives of the ICZMP in Digha and Shankarpur area was to develop a scientific management plan to tackle the issues associated with municipal solid waste collection, transportation and sanitary disposal and reduce the coastal pollution. Digha Shankarpur Development Authority (DSDA) was the implementation agency for this project.

DSDA took up the work in 2010 and got a feasibility study conducted through a consultancy firm<sup>71</sup> after incurring an expenditure of Rs. 24.22 lakh. The study showed that out of the total waste generated i.e., 12.43 TPD, on normal days and 33.64 TPD during peak season, only 3.36 TPD on normal days and 7.86 TPD during peak season could be collected by DSDA and the same was found to be dumped in an open area. This open dumping site was operational since 2002 and had a composting facility which was non- operational. Audit observed that this project was dropped due to paucity of funds as the DSDA authorities pointed out that they would not be able to provide Rs. 2.20 crore per annum required as annual maintenance and operation charge of the project. We also observed that no other project was subsequently taken up by the State Government. Thus, the objectives of reducing the coastal pollution remained unaddressed.

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<sup>71</sup> M/s CRISIL Risk and Infrastructure Solutions Limited.

**(iii) Renovation of Fish Auction Centre at Digha**

An unhygienic temporary fish auction centre was operating without a proper drainage and disposal of solid waste at Digha Mohana in the district of Purba Medinipur for more than two decades. Under ICZMP, the fish auction centre was proposed (2010) to be renovated by March 2015. The West Bengal Fisheries Corporation Limited (WBFCL), an enterprise of the Government of West Bengal was entrusted with the responsibilities for planning, designing and executing the construction of fish auction centre at a cost of Rs 6.75 crore. WBFCL prepared the Detailed Project Report after proper site selection and survey of the land required for executing this project. However, it was observed that the land earmarked for construction of Fish Auction Centre that had been transferred to WBFCL by Digha Fisherman and Fish Traders Association was reallocated to BENFISH (West Bengal Fishermen's Co-operative Federation Ltd) for construction of an ice plant without intimating WBFCL. Further, the World Bank experts on their site visit to Digha noticed that there was shortfall in the area of the land for construction of proposed auction centre and the actual area on the ground did not match with the drawing based on which the bid document was prepared, and the advertisement was made.


The project was dropped in the 11th Governing Council Meeting of SICOM held in 2014 for the reason that it had not obtained necessary clearances. Thus, the absence of necessary ground survey by WBFCL before initiating the bidding process resulted in a total expenditure of Rs 18.00 lakh incurred on advertisement cost, pre-bid meeting, bid opening meeting, site visit for measurement of land etc. wasteful.

## **6.5 Conclusions**

- Although the ICZM project, Phase I was termed successful, a number of deficiencies were noticed during the audit of this project at both the Centre and the States. The lack of a visible hazard line on the ground prevented its use as tool for planning for local purposes.
- The IMPs for CVCAs could not be notified even after completion of Phase-I of ICZMP and remain unprotected in the absence of specific management plans. The preparation of ICZMP plans were also delayed, resulting no linkage between the plan and actual projects undertaken.
- The project could not strengthen the capacity building of the selected institutes as most of them were operating with insufficient manpower. Infrastructure created under the project was lying defunct due to the inability of the State authorities to raise funds to maintain the same. The monitoring and protection measures of the coastal resources were found to be inadequate. Non- execution of critical projects which had the potential of reducing the coastal pollution to a great extent defeated the very purpose of this project. As a result, the ICZM project was not very successful in the development of capacity for sustainable coastal management for India's coastal zones.

## Chapter 7: Sustainable Development Goals

The United Nations adopted the Sustainable Development Goals (SDGs) in September 2015 as a universal demand for actions to end poverty, protect the planet and to ensure that all people enjoy peace and prosperity by 2030. 17 Sustainable Development Goals (SDGs) were formally adopted for the next 15 years by the 70<sup>th</sup> Session of the UN General Assembly with the adoption of the document titled 'Transforming our World: the 2030 Agenda for Sustainable Development' on 25 September 2015. At the session, each of the countries, including India, accepted the primary responsibility for follow-up and review, at the national, regional and global levels, in relation to the progress made in implementing the goals and targets over the coming 15 years. The SDGs came into effect from 01<sup>st</sup> January 2016.

SDG 14- 'Life below water'	
	
<p>This Sustainable Development Goal aims to conserve and sustainably use the oceans, seas and marine resources for sustainable development. The targets under this goal relevant to conservation of coastal areas which were examined in audit are as detailed below:</p>	
Target	Description
14.1	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans
14.3	Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperate on at all levels
14.5	By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

In India, National Institution for Transforming India (NITI Aayog) has the overall responsibility of SDGs implementation and aligning government schemes/ programs to SDGs. It was entrusted with the responsibility for identification of national targets for the SDGs and assigning them to the Ministries/ Departments concerned for implementation. NITI Aayog, designated Ministry of Earth Sciences as a nodal ministry for the implementation of activities towards SDG-14. Audit reviewed the efforts of the Government towards achieving targets under the goal. Audit focused majorly on the preparedness of the Ministries strategy as well as the by the relevant institutions.

### 7.1 Incomplete stakeholder mapping

Stakeholder mapping aids the decision maker to assess how the interest of the stakeholder is to be addressed in the project plan, policy and programme or other action. NITI Aayog carried

out stakeholder mapping with respect to the targets under SDG-14. Accordingly, the stakeholder/ line ministries for SDG-14 were- Ministry of Earth Sciences; Ministry of Environment Forest and Climate Change; Department of Fisheries, Ministry of Fisheries, Animal Husbandry, & Dairying; Ministry of Agriculture and Farmer's Welfare. This mapping was revised in August 2017 and August 2018.

Audit examined the stakeholder mapping and found that a few significant stakeholder organisations were not included in the mapping. The Indian Coast Guard, designated as the central coordinating agency for combating oil pollution, has the mandate of surveillance of maritime zones of the country against oil spills. Despite being a significant stakeholder in the activities related to SDG 14.1 (Marine Pollution), Indian Coast Guard was not identified in the stakeholder mapping.

Ship source pollution is one of the significant causes of marine pollution affecting marine biodiversity. Various provisions under Merchant Shipping Act 1958 mandates the Ministry of Ports, Shipping and Waterways to prevent and contain pollution arising from ships, ship wrecks, ship building and ship repair industries and ship breaking. The stakeholder mapping did not include Ministry of Ports, Shipping and Waterways.

MoES stated (February 2022) that the recommendations related to stakeholder mapping for achievement of SDG-14 have been noted and the issue would be taken up with NITI Aayog and other stakeholder ministries in this regard.

## **7.2 Inadequacies in the National Indicator framework**

SDG Indicators are the quantitative outputs that helps the implementer to assess the progress of implementation efforts. UN General Assembly in 2017 adopted 232 indicators as the Global Indicator Framework (GIF) of SDGs. The member countries were to prepare the National Indicator framework (NIF) based on the GIF which would give appropriate directions to the policy makers and implementers of various schemes and programmes to track their progress on achieving related SDG targets. The Ministry of Statistics and Programme Implementation (MoSPI) was entrusted with the responsibility of developing National Indicator Framework (NIF) for measuring the progress of SDGs and associated targets. MoSPI in July 2019 came up with the guidelines for development of SDGs State Indicator Framework (SIF). Given the significance of SDG indicators in assessing the progress towards SDGs, the national indicators were to align with the Global indicators taking into account the country specific environmental aspects. In this regard audit reviewed the indicators framed against the individual SDG 14 targets and found a few shortcomings.

7.2.1 The global indicators for SDG 14.1 include 'Index of coastal eutrophication and plastic debris density'. While the national indicator Coastal Water Quality Index (CWQI) prepared by MoES takes into account the nutrient pollution, MoES was yet to prepare an indicator related to plastic debris density. MoES stated (January 2022) that they have initiated collection of preliminary data with regard to this indicator in 2019.

7.2.2 The Global indicator for SDG target 14.2 was ‘use of ecosystem-based approach to manage marine areas.’ The ecosystem approach promotes integrated management of land water and living resources in a way that achieves mutually compatible conservation and sustainable use and delivers equitable benefits for people and nature. The National indicators for SDG 14.2 were ‘percentage change in area under the mangroves’ and ‘percentage change in marine protected areas. We observe that the indicators do not address holistically the SDG target and do not conform to global indicators to this extent as the indicator essentially measured only the output of the programmes developed for management of mangrove ecosystems. The list of activities planned to achieve the target should have also formed the sub-indicators and biodiversity, fisheries indices should have ideally formed the output indicators for the target.

7.2.3 As per the NIF prepared by MoSPI, ‘Implementation of CRZ notification 2011’ was included as one of the national indicators for Global indicator SDG 14.2.1. We observed that this indicator was later removed in 2020 due to the fact that the indicator was static in nature and that it was not suitable for measurement. However, the enforcement of CRZ is critical to the implementation of ecosystem-based approach in the coastal environment. Implementation of CRZ as well as ICZMP involves a sequence of activities that begin with the preparation of CZMPs, demarcation of CVCAs, demarcation and ground marking of various spatial reference lines. However, these deliverables were not brought into the indicator framework.

### 7.3 Data quality related issues

Quality data is vital to track the progress on implementation of SDG targets. Tracking progress on SDG targets require collection, analysis and integration of data from different sources. Audit assessed the data gaps related to SDG-14 output indicators and observed the following:

a) CWQI is one of the significant indicators to assess the achievement of SDG 14.1 related to marine pollution. Various parameters forming the CWQI are measured by MoES under Sea Water Quality Monitoring Programme (SWQM) by National Centre for Coastal Research. The objective of the SWQM was to periodically monitor water quality parameters in the coastal waters of India. The programme included collection and analysis of data from selected major towns / cities on land-based sources of marine pollution such as domestic, industrial, agriculture and aquaculture wastes. Audit found that the data collection points reduced drastically from 81 locations during 1990-2011 to 17 in the year 2017. The number of data collection points were further increased to 50 in 2021. Also, it was observed that data was not collected continuously for all the four seasons by all the participating institutes. Lack of continuous data will affect the analyses that were to be conducted to understand the data patterns over time.

### 7.4 Localisation of indicators

While reviewing the state indicators for SDG targets, it was found that most of the coastal states had not come up with localized indicators based on their individual critical

development priorities and data requirements. We observed that the State Indicator frameworks were not prepared by the states of Maharashtra and Kerala. It was observed that with the exception of Gujarat, all other coastal states adopted the national indicators as developed by MoSPI without adapting them to the state specific environmental aspects. Also, in the states where SIFs had been formulated, further localization to District levels was done only by the State of Karnataka by notifying District Indicator Framework (DIF).

## **7.5 Conclusion**

- The stakeholder mapping for SDG-14 does not factor in some of the key players associated to the target achievement.
- Localisation of SDGs is in its nascent stage with two of the coastal states yet to notify the State Indicator Frameworks and only the state of Karnataka developing a District Indicator Framework for SDG-14.



## Chapter 8: Conclusion and Recommendations

Coastal and estuarine ecosystems deliver a wide range of goods and services, many of which provide material benefits such as food supply, regulation of water-quality processes, storm protection, and carbon storage. For conservation of the coastal ecosystem and ensure its sustainable use, the Government of India introduced the CRZ notifications and the ICZMP project. We audited the CRZ notifications and the implementation of ICZMP project to arrive at conclusions about their efficacy and effectiveness.

### **1. Adequacy of Institutional mechanism at Centre as well as State to regulate the activities in CRZ areas as per the provisions of CRZ notification 2019**

Our examination of the institutional mechanism to regulate the activities in CRZ areas as per the provisions of CRZ Notification 2019, existing at Centre/States showed that the NCZMA was not a permanent body with defined members. NCZMA largely met to clear the proposal for projects and did not fulfil the other research and advisory role assigned to it. The Expert Appraisal Committee lacked technical members in the meetings, thus its recommendations lacked scientific basis. SCZMAs in the states were not reconstituted in time, lacked participation from important stakeholders, were not sufficiently resourced, and cleared projects without quorum. DLCs were not reconstituted in many states, and lacked participation from significant stakeholders; thus, could not function effectively to enforce the CRZ notifications. As such, deficiencies in the constitution and functioning of NCZMA, SCZMA and DLCs would dilute their effectiveness in addressing challenges in ensuring sustainable development of the coastal areas. Also, the different agencies involved in implementation of CRZ notifications could not ensure timely preparation of Coastal Zone Management Plans as well as plans for the protection of Ecologically Sensitive Areas in the coast which was a key to the sustainable development of the coastal areas. Thus, the institutional mechanism to regulate activities in the coastal areas as per CRZ notification was weak and could not function as effectively as envisaged in the CRZ notifications.

### **2. Procedure for grant of CRZ clearances by the Government, to conserve coastal ecology**

We examined whether CRZ clearances granted by the Government were as per due procedure, to conserve coastal ecology. As per CRZ notifications, only permitted activities are allowed in different coastal zones and projects are approved, based on the environment impact studies and the mitigations plans to address risks posed to the coastal ecology. Audit observed that even though the environment impact studies had various inadequacies like preparation of environment impact reports by non-accredited consultants, use of old baseline data, lack of complete analysis of environment impacts, disaster management not fully addressed in the EIA reports, projects based on these EIA reports were approved by MoEF&CC/SCZMAs.

Further, mitigation plans to address the risks to environment posed by these projects were not adequate as the risks were only cursorily addressed in many projects. Cumulative impact studies were not prescribed as a precondition for approval, to check if the addition of the project would alter the coastal ecology. Further, MoEF&CC accepted and did not verify critical environment parameters for the project. Audit also observed that the process of public hearing which would have valuable input on impacts to local community were short-changed. Audit also observed that clearances to projects were given without considering that they were located in Ecologically Sensitive Areas, which would affect the ecosystem balance of these fragile and vulnerable areas. Grant of project approvals in excess of its authority and without mandatory documents by SCZMAs would weaken the checks on the approval mechanism and hinder conservation of the coastal ecology. Audit also observed that the CRZ notifications were amended to allow for specific projects, hence mitigation plans to reduce the risks to the coastal ecology that these projects would lead to, would not be ensured.

Hence the safeguards put in place to ensure that the projects did not impact the environment were contravened. As such, these projects could have a detrimental impact on the coastal ecology.

### **3. Safeguard of coastal ecosystems by post clearance monitoring as well as enforcement mechanism of CRZ notifications**

Monitoring of projects after their approval by MoEFF&CC and its agencies ensures that the conditions under which the project was approved are being complied with. Audit examination showed that MoEF&CC and its regional offices failed to ensure compliance to conditions stipulated in the clearances. Further, the project authorities did not submit mandated reports timely, which would have facilitated the monitoring process. Critical clearances like Consent to Operate and Consent to Establish were not taken by the project proponents. Thus, the post clearance mechanism was not effective in ensuring compliance to the provisions of CRZ notifications. As such, the risks posed by these projects to the coastal ecology would go unchecked.

Further, audit observed that the enforcement mechanism to detect and punish violations of CRZ notifications suffered from a lot of infirmities. With the help of satellite imagery, Audit observed that there were irregular development activities in CRZ 1 areas like construction on the nesting sites of Olive Ridley turtles in Odisha and construction of racetrack in CRZ 1 area in Pattipulam, Tamil Nadu. With help of GIS tools, we identified unreported violation such as irregular constructions in CRZ 1A zone by construction of Beach Resorts in Kachipuram district and jetty extensions built in the No development Zone in Devbhumi, Dwarka. Audit also observed encroachment and CRZ violations in the eco-fragile Vembanad Lake and Akkulam lake region, construction of a mall in NDZ in Thiruvananthapuram, road construction in No Development Zone in Udipi district, Karnataka, construction of a commercial residential project in wetland area of Vembanad Lake. Further, audit observed that many industries caused pollution of the coastal areas like coastal aquaculture units in Guntur district, Andhra Pradesh and ice plants and fish packing units in CRZ areas of Kanyakumari district, Tamil Nadu.

No effective action was taken by authorities like SCZMA/Pollution Control Board/DLCs. As such, in the absence of effective action against violations, there was no deterrence and degradation of the coastal areas continued. Thus, the post clearance monitoring and enforcement of CRZ notifications were ineffective which would result in irreversible changes to the coastal ecosystem.

Audit also sampled two coastal districts from each of the nine coastal states to assess the health of vulnerable and fragile coastal ecosystems due to impacts of anthropogenic activities. We found that coastal biodiversity like corals in the Gulf of Mannar Biosphere Reserve and in Goa faced threats due to absence of data to monitor their spread and condition. The Coastal Sand Dunes in Goa suffered as construction permission was given in the areas where they existed. Mangroves were also not fully conserved as instances of cutting of mangroves for development projects were observed in Goa. In Gujarat, SCZMA failed to restore mangrove destruction in Kutch and impermissible activities affecting mangroves was allowed in the Khazan lands in Goa.

Further, the coastal ecology suffered due to municipal sewage discharge into the sea at coastal districts of Karnataka, and Discharge of untreated sewage into the sea by the Municipal Corporations/ Municipalities in Maharashtra. Audit also observed waste from fish processing industry at Veraval, Gujarat being dumped in the coastal waters, and aquaculture waste discharge at Coringa Wildlife Sanctuary, Andhra Pradesh.

As such, despite the existence of CRZ notifications, coastal areas continued to be impacted by anthropogenic activity, affecting vulnerable biodiversity and resulting in their degradation.

#### **4. Achievement of Project development objectives under Integrated Coastal Zone Management Programme (ICZMP)**

The aim of ICZMP programme was capacity development in sustainable coastal management for India's coastal zones, and piloting integrated coastal zone management approaches in Gujarat, Odisha and West Bengal. We observed that at the central level, preparation of Integrated Management Plans for Critically Vulnerable Coastal Areas (CVCAs) could not take place and there was no ground truthing of the hazard line. This impacted the conservation of the CVCAs and the objective of safeguarding them was defeated. Audit scrutiny of ICZMP program in Gujarat showed delay in the preparation of the ICZM Plans and the capacity of various stakeholder institutions were not developed. In Odisha also, the preparation of ICZM plans were delayed, capacity building measures at Odisha State Pollution Control Board (OSPCB) and Chilika Development Authority were insufficient. Further, measures to protect of Olive Ridley turtles in Odisha were inadequate, capacity of labs for analyses of coastal water data was inadequate and alternate livelihood initiatives did not succeed. Measures taken under ICZMP for conservation of the mangroves and shore line protection at Pentha in Odisha were not successful. Audit examination of ICZMP in West Bengal also showed delay in preparation of ICZM plans, and activities taken up under ICZMP like sewage treatment plant at Digha, solid waste Management at Digha, renovation of fish auction centre at Digha were

ineffective in stopping pollution of the coastal areas. As such, the ICZM project was not very successful in the development of capacity for sustainable coastal management for India's coastal zones.

#### **5. Evaluation of the measures taken up by the Government towards achieving the targets under SDG-14.**

Audit also examined the efforts of the Government towards achieving targets under the SDG 14 which aims to conserve and sustainably use the oceans, seas and marine resources for sustainable development. We found that all the stakeholders in the field of coastal management were not mapped, Ministry of Earth Sciences was yet to prepare an indicator related to plastic debris density which was a vital part of action to preserve the coastal and marine ecosystem. Further, National indicators for SDG 14.2 were not completely defined in terms of activities and outputs. Implementation of CRZ as well as ICZMP involves a sequence of activities that begin with the preparation of CZMPs, demarcation of CVCAs, demarcation and ground marking of various spatial reference lines. However, these deliverables were not brought into the indicator framework. There was a lack of sufficient data collection centres to monitor coastal water quality which would affect the analyses that were to be conducted to understand the data patterns regarding coastal water quality over time. Further, states had not localised their Indicator frameworks to suit their local conditions. As such, the measures taken up by the Government towards achieving the targets under SDG-14 need further impetus.

#### **Recommendations**

1. SCZMAs and NCZMAs may be made as permanent bodies with full time members to carry out all the mandated activities for protecting the coastal environment.
2. The DLCs may be formed and reconstituted without delay in all the relevant districts. The composition of DLCs may be inclusive in nature representing all the relevant stakeholder sectors.
3. MoEF&CC needs to ensure that the NCZMA/ SCZMAs share information regarding their discussions/minutes of meetings with the public in a uniform manner. Interactive Grievance Redressal Mechanism may be adopted by the SCZMAs.
4. The Ministry may ensure that the PP carry out in-depth ecological evaluation of the project environment before granting the clearances to the projects as well as enforce the practice of cumulative assessments already defined in the EIA Notification, 2006.
5. MoEF&CC may ensure that the PPs submit a viable EMP addressing all the risks to the environment and the EMP along with the Impact Prediction analyses are largely coherent. Also, the mitigation proposals may be clearly brought out in the EMP and costed.
6. MoEF&CC may revisit the roles and composition of different agencies to strengthen the post clearance monitoring.

7. Expert cells, which are well versed in GIS tools may be created in DLCs to effectively and efficiently monitor the changing landscape on the coastline and track irregular developments. Presence of such a surveillance mechanism would not only track irregular activities but would also serve as a deterrence tool.
8. The State Governments may make necessary efforts for mapping and preparation of Management Plans for the coral reefs, turtle nesting sites etc.
9. Efforts may be made by MoEF&CC to notify the IMPs for Ecologically Sensitive Areas at the earliest.
10. MoEF&CC should ensure deploying sufficient manpower with technical expertise at SICOM and various institutes strengthened under the project. Efforts should be made to rationalise the manpower deployment to ensure optimum utilisation.
11. MoES and MoEF&CC may review the stakeholder mapping to ensure the inclusion of all relevant institutions with respect to SDG 14 targets.
12. Localisation of the indicators should be prioritised in the stakeholder states by ensuring formulation of District Indicator Frameworks in the states.



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New Delhi

Dated: 30 March 2022

Countersigned



(GIRISH CHANDRA MURMU)

Comptroller and Auditor General of India

New Delhi

Dated: 30 March 2022



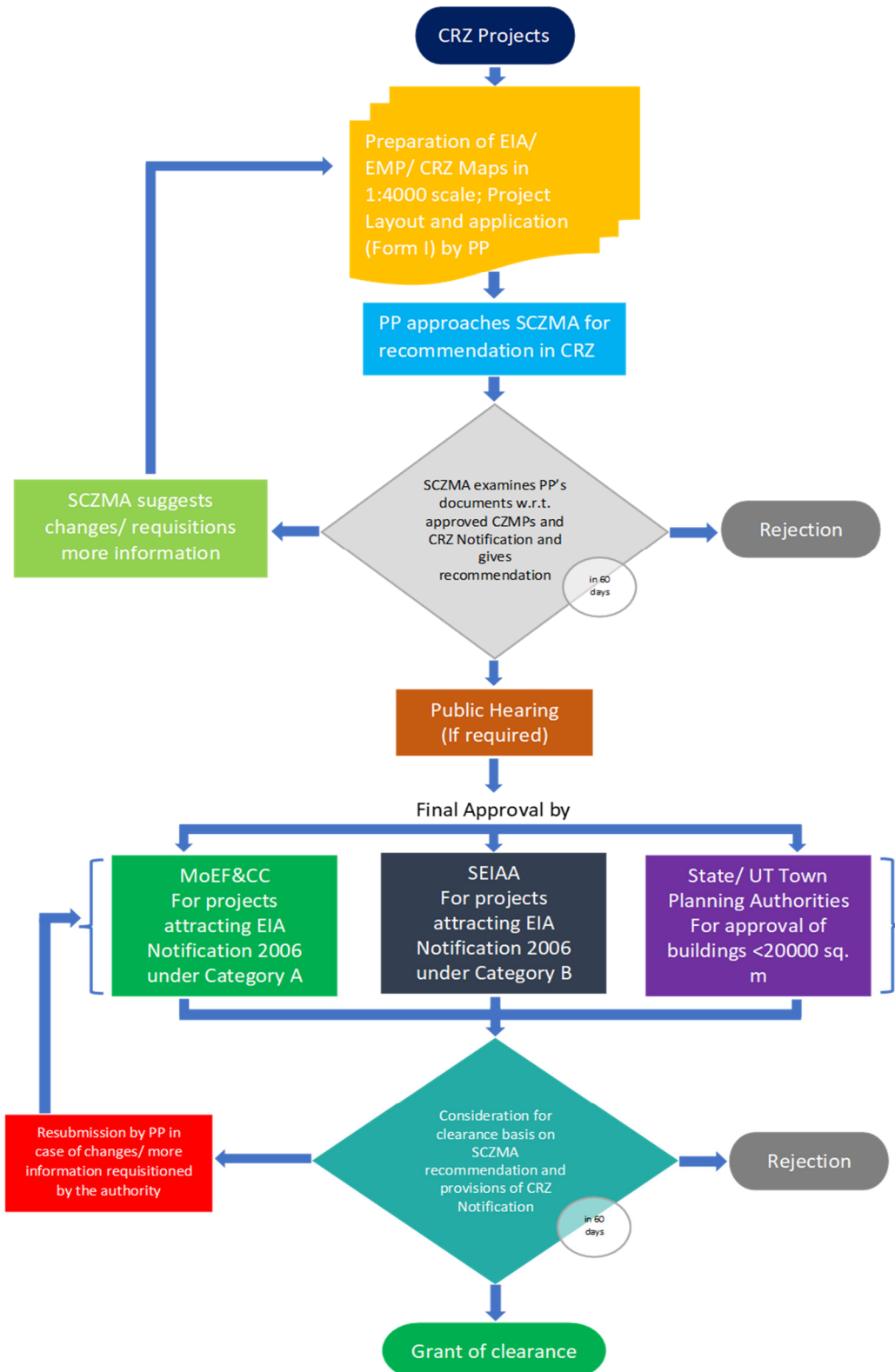
# **Annexures**





**Annexure 1: Process flowchart entailing the main steps involved in the CRZ Project approval**

(Reference: Introduction, Chapter 3 of the report)



**Annexure 2: Employment of non-accredited consultant/ non- accreditation of the consultant in a particular category of the project**

(Reference: Para 3.1 (i) of the report)

S. No.	Project	Project approval by MoEF&CC	Consultant for EIA
1.	Laying of Natural Gas pipeline by Mahanagar Gas Ltd, Maharashtra	2018	The consultant JV Analytical Services, Pune not accredited for Pipeline Sector.
2.	Construction of Hotel Building in Mangalore, Dakshina Kannada District by M/s. Motimahal Hotels Pvt. Ltd., Karnataka	2017	The Environment Management Plan and the DMP which formed a part of the EIA was proposed by the PP itself and an accredited consultant was not appointed.
3.	Expansion of port facilities by Redi Port Ltd in Maharashtra	2018	The consultant engaged was not accredited in the areas of Air Pollution, Prevention, Monitoring and Control, Hazardous Waste Management, Ecology and Biodiversity.
4.	Construction of Petroleum Products Storage Terminal at Karwar, Karnataka Port by M/s Tropicana Liquid Storage (P) Ltd. , Karnataka	2015	The Environment Management Plan was prepared by Marine Science Research Institute, Karwar, which was not an accredited consultant organisation.
5.	Establishment of intake and outfall facility for Nuclear Power Plant at Mithivirdi, District Bhavnagar, Gujarat by M/s Nuclear Power Corporation of India Limited, Gujarat	2015	M/s Engineers India Limited, appointed as a consultant for this project was not accredited by NABET for "Nuclear Power and processing of fuel" sector.
6.	Development of the petroleum, chemical and petrochemical investment region (PCPIR) at Dahej, Vagra, District Bharuch by M/s Gujarat Industrial Development Corporation Gujarat	2015	The consultant, NEERI, Nagpur was not accredited under by National Accreditation Board of Education and Training/ Quality Council of India.
7.	Mumbai Trans Harbor Sea Link by M/s Mumbai Metropolitan Region Development Authority, Maharashtra	2016	A consortium of Arup, Consulting Engineers and KPMG had been appointed as consultants for this project. However, the NABET Accreditation certificate annexed in the records pertaining to M/s Consulting Engineers Services Pvt. Ltd and the same was not accredited for sea link construction sector.
8.	Laying of an effluent pipeline by Madhu Silica Pvt. Ltd. (MSPL) in Bhavnagar, Gujarat	2015	Consultant M/s Indomer Coastal Hydraulics (P) Ltd., Chennai was not accredited by National Accreditation Board of Education and Training/ Quality Council of India
9.	Widening and improvement of the existing highway of Bhavnagar-Pipavav- Porbandar-Dwarka Section of NH-8E, Gujarat	2016	The consultant M/s STUP Consultant Pvt. Ltd., Kolkata was not accredited by National Accreditation Board of Education and Training/ Quality Council of India

S. No.	Project	Project approval by MoEF&CC	Consultant for EIA
10.	Additional Salt works (2846.15 acres) located at village Kalatalav & Narmad, Taluka & Dist. Bhavnagar	Accorded clearance by SEIAA in 2017	The consultant National Institute of Oceanography-CSIR was not accredited by National Accreditation Board of Education and Training/ Quality Council of India
11.	Mumbai Coastal Road Project (South) - Princess Flyover to Worli end of Sea Link by M/s Municipal Corporation of Greater Mumbai	2017	Certificate of accreditation provided by consultant did not state the period of validity due to which it could not be ascertained, whether at the time of preparation of EIA report, the consultant was eligible for the same.
12.	High Speed Railway Project across CRZ areas in Mumbai, Mumbai Sub-urban, Thane and Palghar District by M/s National High Speed Rail Corporation Ltd, Maharashtra	2019	The Consultants, M/s GPS Technologies Pvt. Ltd was not accredited by National Accreditation Board of Education and Training/ Quality Council of India
13.	2X800 MW Uppur Supercritical Thermal Power Plant at District Ramanathapuram by TANGEDCO, Tamil Nadu	2017	The consultant was not accredited by National Accreditation Board of Education and Training/ Quality Council of India.
14.	Laying of treated effluent disposal pipeline from their Plant to final disposal point in the Gulf of Kutch at Mithapur by Tata Chemicals Limited, Gujarat	2017	The consultant National Institute of Oceanography-CSIR was not accredited by National Accreditation Board of Education and Training/ Quality Council of India
15.	Setting up of Bulk Drug Manufacturing Unit in East Godavari District by M/s Divi's Laboratories Limited, Andhra Pradesh	2019	The Consultant M/s Indomer Coastal Hydraulics Pvt. Ltd. was not accredited by National Accreditation Board of Education and Training/ Quality Council of India.
16.	International Leather Complex at Kothapatnam village, Nellore District by M/s Adani Port and SEZ Ltd., Andhra Pradesh	2015	The Consultant Environment Protection Training and Research Institute (EPTRI) was not accredited by National Accreditation Board of Education and Training/ Quality Council of India.
17.	Deepening of approach channel for capesize vessels at Mormugao Port by M/s Mormugao Port Trust, Goa	2016	The Consultant M/s WAPCOS Limited, Gurgaon was not accredited by National Accreditation Board of Education and Training/ Quality Council of India.
18.	Rerouting of Mumbai Manmad pipeline by M/s Bharat Petroleum Corporation Limited, Maharashtra	2015	The Consultant M/s Eco Chem Sales and Services, was not accredited by National Accreditation Board of Education and Training/ Quality Council of India.
19.	Proposal for 5 MLD Hybrid Desalination Project at IREL Complex, Chatrapur, Ganjam District by M/s Indian Rare Earths Limited, Odisha	2018	It was observed that the accreditation certificate pertaining to Mecon, Ranchi, was placed on the records instead of accreditation certificate of Mecon Ltd., Bangalore which was actually involved.

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S. No.	Project	Project approval by MoEF&CC	Consultant for EIA
20.	Integrated Cooum River Eco-Restoration Project by M/s Chennai Rivers Restoration Trust, Tamil Nadu	2017	The Consultant M/s SV Enviro labs and consultants, was not accredited by National Accreditation Board of Education and Training/ Quality Council of India.
21.	Converting open parking into covered parking in beach resort at Chengalpattu Taluk, District Kancheepuram by M/s Adayar Gate Hotels, Tamil Nadu	2015	The Environmental Management Plan submitted by the PP did not mention the name of the accredited consultant organisation which prepared it.

**Annexure 3: Employment of old baseline data**

(Reference: Para 3.1 (ii) of the report)

S.No.	State	Name of the Project	Date of Project clearance	Years by which the data was outdated
1.	Andhra Pradesh	Development of offshore LNG FSRU Facility at Kakinada Deep Port Water by Andhra Pradesh Gas Distribution Corporation Limited (APGDC)	09.02.2016	3 to 4 years
2.	Andhra Pradesh	International Leather Complex at Kothapatnam village, Nellore District by M/s Adani Port and SEZ Ltd.	19.12.2015	4 years
3.	Gujarat	Establishment of intake and outfall facility for Nuclear Power Plant at Mithivirdi, District Bhavnagar, Gujarat by M/s Nuclear Power Corporation of India Limited	03.05.2015	3 years
4.	Gujarat	Laying of treated effluent disposal pipeline from their Plant to final disposal point in the Gulf of Kutch at Mithapur by M/s Tata Chemicals Limited	10.07.2016	6 years
5.	Gujarat	Common treated effluent disposal pipeline project along river Kolak upto deep sea via Kolak Estuary by M/s Wel Treat Enviro Management Organization	05.09.2016	6 years
6.	Gujarat	Development of the Petroleum, Chemical and Petrochemical Investment Region (PCPIR) at Dahej, Vagra, District Bharuch by M/s Gujarat Industrial Development Corporation		
7.	Karnataka	Construction of Petroleum Products Storage Terminal at Karwar, Karnataka Port by M/s Tropicana Liquid Storage (P) Ltd.	17.06.2015	7 years
8.	Maharashtra	Mumbai Trans Harbor Sea Link by M/s Mumbai Metropolitan Region Development Authority		
9.	Maharashtra	Mumbai Coastal Road Project (South) - Princess Flyover to Worli end of Sea Link by M/s Municipal Corporation of Greater Mumbai		
10.	Maharashtra	Malad sewage treatment plant	28.08.2017	8 years
11.	Odisha	Multi- product SEZ/ Industrial Park at Gopalpur, Ganjam, Odisha by M/s Tata Steel SEZ Ltd.	20.09.2018	2 years
12.	Tamil Nadu	2X800 MW Uppur Supercritical Thermal Power Plant at District Ramanathapuram by M/s Tamil Nadu Generation & Distribution Corporation Ltd. (TANGEDCO)		

**Annexure 4: EIA failed to assess the possible impacts of the projects on marine flora and fauna, ecologically vulnerable areas**

(Reference: Para 3.1 (iii) of the report)

S. No.	State	Name of the Project	Risk to marine flora and fauna, ecologically vulnerable areas	Mitigation measures not envisaged in the EIA
1.	Andhra Pradesh	Marine disposal of treated effluent by M/s Covalent Laboratories Pvt. Ltd	As per the information available in the EIA, the pipeline passed through CRZ-III area, the 'NDZ' and the inter-tidal zone with patches of sand dunes with coastal vegetation of height less than 3 meter all along the shoreline.	EIA did not include any impact on the sand dunes and no mitigation measures was envisaged.
2.	Andhra Pradesh	Development of offshore LNG FSRU Facility at Kakinada Deep Port Water by Andhra Pradesh Gas Distribution Corporation Limited (APGDC)	The only mitigation measures that were included in the EIA of this project was that piling operations should use a soft start so as to allow marine fauna to leave the area before high noise levels are generated.	EIA report did not deliberate upon the impact of the project on any of the marine life forms except fishes in the study area which clearly indicated that the mitigation of the environmental impacts of the project on marine ecosystems were not considered.
3.	Goa	Deepening of approach channel for capesize vessels at Mormugao Port by M/s Mormugao Port Trust	<p>1. The EIA report stated there was significant pressure due to tourism on the Humpback dolphin and the coral reefs surrounding Grande Island and that dredgers and associated vessel movement may harm the dolphins, due to collision, propeller action etc. Studies have shown that the risk of a collision occurring and the likelihood that it will result in severe or lethal injury increases when vessels exceed 10–14 knots and as the vessels to be considered in the approach channel were to move at a speed of 11 knots, it was likely to cause injury.</p> <p>2. As per the EIA report, Chikalim- Sancole bay known for its intertidal marine biodiversity was just 4 kms away from the dredging area and was known to harbour more than 200 faunal and 34 phytoplankton species in addition to mangroves and windowpane oyster (<i>Placuna placenta</i>) (schedule-4 species). The EIA report also mentioned that dredging influence was normally restricted to a maximum of 4 km of the activity.</p>	<p>The Impact studies for the same were not carried out in the EIA as a result of which no mitigation measures were stipulated.</p> <p>The impact of dredging was not carried out for such an eco-sensitive zone within the study area and no mitigation measures were stipulated.</p>

S. No.	State	Name of the Project	Risk to marine flora and fauna, ecologically vulnerable areas	Mitigation measures not envisaged in the EIA
			3.The EIA Report exhibited that the intertidal area of Zuari estuary which included Chicalim- Sancoale Bay, Grande Island, Caboraj- Siridao rocky patch within the study area showed species diversity comprising of 186 aquatic species (150 finfish comprising of pelagic and demersal fishes and 36 shell fish comprising of crustaceans and molluscs). The Grande Island was rich in Coral, sponge, fish and the intertidal habitats between Caboraj- Dona Paula- Siridao had high seaweed abundance and diversity.	Although, the report listed the impacts such as land reclamation, mining, industrialization and dredging posing considerable threat to the marine flora and fauna. The mitigation measures to be taken for their conservation and management were not elaborated in the EIA
4.	Gujarat	Expansion of Adani Petronet (Dahej) Port, Bharuch District by M/s Adani Petronet (Dahej) Port Pvt Ltd	<p>The EIA Report envisaged generation of wastewater during concrete casting, cleaning of construction equipment, vehicle garage workshop, oil spills from the operation of construction equipment and Diesel Generating set and the same was stated to affect the marine water quality near the shoreline.</p> <p>The population of the intertidal macro benthos indicated relatively high standing stock of macro benthos with moderate group diversity. The EIA further stated that the reclamation would impact nearly 23 ha. of benthic habitat and no recovery of benthic organisms was possible as the habitat would be permanently lost due to reclamation.</p>	<p>Despite the identification of the impacts, no mitigation measures were enunciated in the EIA report.</p> <p>No mitigation measures were envisaged for the protection of benthic organisms in the project area.</p>
5.	Gujarat	Establishment of intake and outfall facility for Nuclear Power Plant at Mithivirdi, District Bhavnagar, Gujarat by M/s Nuclear Power Corporation of India Limited	<p>1. The EIA report indicated that the project area was moderately productive in terms of phytoplanktons and zooplanktons. Mangrove vegetation comprising of Rhizophora and Avicennia species was found in good number on the river banks near Alang shipyard and coastal vegetation comprising of Cassia species, Prosopis, Azadirachta species. The project area near the Alang shipyard had vast expanse of Tidal flats/ mudflats.</p> <p>2. The EIA report stated that the temperature of Condenser cooling water (CCW) would be 7° C above the ambient temperature of the sea water and it would probably be the only major impact on the marine ecosystem. From the scientific data available in the public domain, it</p>	<p>Both the EIA Report and the CRZ clearance were silent on the impacts of the project on such varied flora and fauna in and around the project area. As the impacts were not identified, no mitigation measures were stipulated.</p> <p>The effect of increased temperature was studied for fishes only, even when the fish landing was reported to be the lowest in the region. The same was not studied for</p>

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S. No.	State	Name of the Project	Risk to marine flora and fauna, ecologically vulnerable areas	Mitigation measures not envisaged in the EIA
			<p>could be understood that increased temperature reduces the solubility of oxygen in water, thereby increasing the Biological Oxygen Demand (BOD).</p> <p>4. According to the marine EIA, Alang- Sosiya Ship Breaking Yard (ASSBY) was located at 5 kms south of the project area and according to the information available in the public domain, there was heavy metal contamination in the intertidal zone of the shipbreaking yard. Also, a proposed Kalpsar project dam across Gulf of Khambat was at a distance of 18 kms north of the Chhaya (Mithi Viridi) site. The site selection report (June 2007) of Department of Atomic Energy (DAE), had recommended that a detailed study should be conducted to examine the effect of Kalpasar dam in the upstream of Nuclear Power Plant site on the flooding of the proposed site due to breaking of dam in the event of an earthquake of very high magnitude as the Kalpasar dam was located over deep silted fault.</p>	<p>phytoplanktons and zooplanktons which showed moderate productivity.</p> <p>The impact of the Alang shipbreaking yard and Kalpasar Dam on the project was not taken into account. As no impacts were identified, no mitigation measures were envisaged.</p>
6.	Maharashtra	Mumbai Coastal Road Project (South) - Princess Flyover to Worli end of Sea Link by M/s Municipal Corporation of Greater Mumbai	<p>1. The EIA stipulated that the mangroves in the project area would be impacted leading disappearance of reproduction and food zone for species of fish, aquatic and migratory birds, Irreversible salinisation and acidification and Coastline erosion.</p> <p>2. The EIA report identified impacts, such as: Formation of sediment plumes that would affect fish and benthos, increased turbidity affecting the growth of the plants, increase in PH of the water causing algal bloom, increase in temperature with reduced dissolved oxygen, Immediate and long term degradation of sensitive and essential breeding and nursery habitats for marine organisms leading to long term reduction in commercially important fish.</p>	<p>Against such consequences, the mitigation measures suggested are merely perfunctory such as dust suppression measures, sprinkling of water, monitoring of noise etc. and did not directly address the impacts identified.</p> <p>It was observed that the mitigation measures suggested like the use of best practicable technology, appropriate handling of liquid and solid wastes and adequate noise control measures did not directly address the identified impact.</p>



S. No.	State	Name of the Project	Risk to marine flora and fauna, ecologically vulnerable areas	Mitigation measures not envisaged in the EIA
7.	Maharashtra	Malad sewage treatment plant by M/s Municipal Corporation of Greater Mumbai	1. The EIA Report catered to development of existing facilities to improve the environmental conditions in and around the Mumbai city instead of focusing on Malad STP alone. As such it failed to incorporate the terrestrial and aquatic ecology comprising of the Benthos, Phytoplanktons, zooplanktons in and around the project area.	As no details of terrestrial and aquatic fauna were included in the EIA, no impacts on them were identified and no mitigation measures were envisaged.
8.	Maharashtra	Laying of Natural Gas from Uran (District Raigad) to Navi Mumbai Municipal Corporation pipeline by M/s Mahanagar Gas Ltd.	The pipeline was passing through villages of Uran, Bokadvira, Dronagiri, Funde, Sonari, Jasai, Ulwe and Killegaathan, all of which were famous for their mangroves. The presentation given by the PP during the EAC meeting also showed an image of the pipeline passing through a dense patch of mangroves.	Instead of devising mitigation plan for protection and conservation of the mangroves, the EIA Report denied the presence of mangroves itself along the route of the pipeline.
9.	Maharashtra	Expansion of facilities at port Redi, Sindhudurg, by M/s Redi Port Ltd	The EIA report only identified Turbidity of water as an impact during reclamation of the area with dredged material.	EIA did not deliberate upon the impacts of land reclamation and dredging in terms of loss of marine habitats; effect on marine benthos; No mitigation measures were proposed for even identified threats to environment.
10.	Maharashtra	All weather Greenfield Jetty' at Nandgaon of Taluka Palghar, District Thane, Maharashtra by JSW Infrastructure Ltd.	As per the EIA Report the entire facility was to be created on reclaimed land. We noted that only conceptual layout of the jetty at Nandgaon was available in the EIA Report. However, this conceptual layout was not further deliberated upon anywhere in the EIA report.	As no impacts of land reclamation were identified, no mitigation measures were envisaged.
11.	Maharashtra	Mumbai Trans Harbour Sea Link by M/s Mumbai Metropolitan Region Development Authority	The MCZMA in its recommendation stated that the PP was to consult an expert agency, undertake training programmes for construction personnel regularly to minimize the damage to mudflats before commencement to construction work. Also, the proponent was to take expert opinion from Bombay Natural History Society (BNHS) regarding safeguards to be placed so as to mitigate the disturbances to flamingo habitat. etc.	Niether any studies for evaluation of impacts on mudflats and flamingos was carried out by the proponent nor any expert agency was consulted. As no impacts were identified, no mitigation measures were envisaged.

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S. No.	State	Name of the Project	Risk to marine flora and fauna, ecologically vulnerable areas	Mitigation measures not envisaged in the EIA
12.	Odisha	Multi- product SEZ/ Industrial Park at Gopalpur, Ganjam, Odisha by M/s Tata Steel SEZ Ltd.	The project area showed rich diversity in terms of phytoplanktons, zooplanktons and moderate diversity of Benthic fauna (polychaete worms, crustaceans, gastropods etc.). and the project envisaged laying of pipeline.	The impact of trenching on the benthic fauna and the mitigation measures to ward off such impact were not studied.
13.	Tamil Nadu	Intake and outfall facility of Marine Algae in District Ramanathapuram by M/s EID Parry (India) Ltd	The EIA report mentioned ecologically important specialized ecosystems like sand dunes, seagrasses or mangroves in the project area.	As no impacts were identified, no mitigation measures were envisaged.
14.	West Bengal	Setting up of Mini Bulk Carriers Handling Facility on the upstream of 3 <sup>rd</sup> oil Jetty and west bank of river Hooghly at Haldia Dock Complex, Kolkata Port (West Bengal) by M/s Kolkata Port Trust	The EIA Report showed the area had a rich density of phytoplanktons, zooplanktons and benthos. The dominant flora of the Haldia industrial zone comprised of various species of trees, shrubs, herbs and climbers, fern species. The study area comprised of Nayachar island at the mouth of the Hooghly River which had mangroves.	The impacts on phytoplanktons, zooplanktons, benthos, flora including mangroves were not identified in the EIA Report. As the impacts were not identified, no mitigation measures were stipulated.

**Annexure 5: EIA was either devoid of DMP, its specific details or the onus of framing the suitable DMP was left to the project proponent**

(Reference: Para 3.1 (iv) of the report)

Cases where onus of framing specific details of DMP were left to PP				
S.No	State	Name of the Project	Criteria	Observations
1.	Goa	Deepening of approach channel for capesize vessels at Mormugao Port by M/s Mormugao Port Trust	Emergencies like accidents involving vessels, Oil spill from vessels, Fire/explosion on board vessels within the Port limits and berths, Breakdown of ship engine in the sea, and earthquake were mentioned in the EIA Report and the project site fell under the Zone -III of Seismic Map of India- a moderate intensity zone.	We observed that no mitigation measures for the delineated emergencies were found incorporated in the DMP .
2.	Karnataka	Development of four berths in Western Dock arm in New Mangalore port by M/s New Mangalore Port Trust	Highlighted in the Report.	
3.	Maharashtra	High Speed Railway Project across CRZ areas in Mumbai, Mumbai Sub-urban, Thane and Palghar District (PH) by M/s National High Speed Rail Corporation Ltd	The EIA Report stated that the project site was classified under the Zone -III, a moderate intensity earthquake zone and that the western coast was subject to occasional severe cyclonic storms.	DMP did not envisage mitigation measures to be taken by the PP during such disaster and whether earthquake resistant structures were used for construction and operation phase.
4.	Maharashtra	Construction of Hotel Building (Resort 3) in Mauje Karde, Ratnagiri District, Maharashtra by M/s Dajikaka Gadgil Developers Pvt. Ltd.	The project site was classified under the Zone -IV of the Bureau of Indian Standards (BIS) 2000, Seismic Map of India, a zone having major damage risk.	The DMP delineating the types of disasters and the mitigation measures to be taken by the PP during such disaster was not found on the records.
5.	Maharashtra	Mumbai Trans Harbor Sea Link by M/s Mumbai Metropolitan Region Development Authority	As per the Rapid EIA Report 2012, the project site was classified under the Zone -III of the Bureau of Indian Standards (BIS) 2000, Seismic Map of India, a moderate intensity zone and that the western coast was subject to occasional severe cyclonic storms.	DMP did not detail mitigation measures to be taken by the PP during such disaster and also if earthquake resistant structures were to be used for construction of this sea link.
6.	Maharashtra	Construction of Hotel Building (Resort 2) in	As per the EIA report, the project site was classified under the Zone	It was observed that a DMP delineating the types

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		Mauje Karde, Ratnagiri District, Maharashtra by M/s Dajikaka Gadgil Developers Pvt. Ltd.	-IV of the Bureau of Indian Standards (BIS) 2000, Seismic Map of India, a zone having major damage corresponding to intensity VII on the MM (Modified Mercalli Intensity) scale.	of disasters and the mitigation measures to be taken by the PP during such disaster was not prepared by PP.
7.	West Bengal	Setting up of Mini Bulk Carriers Handling Facility on the upstream of 3 <sup>rd</sup> oil Jetty and west bank of river Hooghly at Haldia Dock Complex, Kolkata Port by M/s Kolkata Port Trust	Highlighted in the report.	

**Projects where the EIA Reports did not contain any DMP**

S. No.	State	Name of the Project
1.	Gujarat	Development of Greenfield Beach Resort at Mandvi, District Kutch by M/s Tourism Corporation of Gujarat Ltd.
2.	Gujarat	Common treated effluent disposal pipeline project along river Kolak upto deep sea via Kolak Estuary by M/s Wel Treat Enviro Management Organization
3.	Gujarat	Laying of treated effluent disposal pipeline and diffuse system for disposal of treated wastewater at Marine outfall point in Gulf of Kutch at Mithapur by M/s Tata Chemicals Limited
4.	Gujarat	Construction of marine bridge between Beyt and Okha, Dwaraka by Road & Building Department
5.	Gujarat	Additional Salt works (2846.15 acres) located at village Kalatalav & Narmad, Ta. & Dist. Bhavnagar by Nirma Limited
6.	Karnataka	Construction of Petroleum Products Storage Terminal at Karwar, Karnataka Port by M/s Tropicana Liquid Storage (P) Ltd.
7.	Maharashtra	Rerouting of Mumbai Manmad pipeline by BPCL The risk assessment study of the proposed installations which were to be used to formulate the DMP was put as a specific condition in the clearance letter issued to the PP
8.	Tamil Nadu	Intake and outfall facility of Marine Algae in District Ramanathapuram by M/s EID Parry (India) Ltd
9.	Tamil Nadu	Highlighted in the report

## Annexure 6: Clearances granted by MoEF&amp;CC where crucial prerequisites were left to the PP to prepare and adhere to after grant of clearance

(Reference: Para 3.2 (i) of the report)

S. No.	State	Name of the Project	Important prerequisites not ensured before the grant of clearance	Remarks
1.	Gujarat	Development of the petroleum, chemical and petrochemical investment region (PCPIR) at Dahej, Vagra, District Bharuch by M/s Gujarat Industrial Development Corporation	A specific condition in the clearance letter, stipulated that a firm and time bound action plan for conservation of mangroves and mudflats in CRZ area was to be prepared through a reputed institute and adequate funds were to be earmarked for its implementation. The plan was required to be monitored by a committee comprising representatives of PPs, Gujarat State Forest Department and the Gujarat Maritime Board.	It was observed that action plan for conservation of mangroves and mudflats in CRZ area was not made as a pre-requisite before granting clearance to the project. The Ministry left the matter of protection of mangroves and mudflats in the area to PP's convenience.
			Another specific condition of clearance letter required preparation of scientific studies for Coastal Management Plan by a reputed expert institution. The results were to be implemented by all the stakeholders keeping in view the river ecology and dependency for sustenance on fisheries in coastal areas. Alternate water resources were also to be explored to meet the huge water demand for the project, in addition to exploring the best recycling practices.	The condition should have been made a pre requisite by the ministry before the grant of clearance as it is unlikely for any PP to carry out scientific studies and explore alternative methods or resources after receiving a clearance letter from the ministry for its project.
2.	Gujarat	Laying of treated effluent disposal pipeline from their Plant to final disposal point in the Gulf of Kutch at Mithapur by M/s Tata Chemicals Limited	A specific condition of clearance letter required the PP to develop the Baseline for Marine and coastal biodiversity of Poshitra Bay and monitor the same bi-annually with specific focus on sea grass beds, and endemic species <i>Sakuraeolis gujaratica</i> and <i>Anteaeolidiella poshitra</i> (molluscs species).	As a baseline could not be recorded retrospectively after initiating a project, inserting such a condition in the clearance letter was meaningless. The same should have been made as a pre-requisite of the project clearance.
3.	Gujarat	Construction of Residential project 'Sun City' at Barbodhan village, Surat by Pramukh Organizers LLP	Some part of construction area proposed by PP was falling within CRZ-III. Instead of insisting for revised project lay out map from the PP, GCZMA sought only undertaking from the PP that it will not carry out any construction activity in the CRZ-III	Gujarat SCZMA in its recommendation letter to SEIAA had put a condition that PP should not carry out any construction in NDZ. SEIAA did not insist upon the revised project lay out

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S. No.	State	Name of the Project	Important prerequisites not ensured before the grant of clearance	Remarks
				map before granting clearance to ensure adherence to this condition.
4.	Gujarat	Development of Greenfield Beach Resort at Mandvi, District Kutch by M/s Tourism Corporation of Gujarat Ltd.	Some part of construction area proposed by TCGL was falling within NDZ (NDZ) i.e., 200 m landward side from HTL.	Gujarat SCZMA in its recommendation letter to MoEF&CC had put a condition that PP should not carry out any construction in NDZ. EAC did not insist upon the revised project lay out map from the PP to ensure adherence to this condition.
5.	Karnataka	Construction of Hotel Building in Mangalore, Dakshina Kannada District by M/s. Motimahal Hotels Pvt. Ltd.	The proposed project site fell in the CRZ-II area and the proposed construction activity was at a distance of 34 metres from the HTL of Gurupur River. The clearance letter stipulated that the parking site should be shifted beyond the 'NDZ' of 200 metres from the HTL.	It was observed that the EAC left it on the PP to shift the parking site beyond NDZ and did not require a revised conceptual plan before recommending the project for clearance.
			The clearance letter required that a robust rainwater harvesting system should be installed in consultation with the concerned authority.	The submission of the rain water harvesting plan was not made as a pre-requisite before grant of clearance.
6.	Maharashtra	High Speed Railway Project across CRZ areas in Mumbai, Mumbai Sub-urban, Thane and Palghar District (PH) by M/s National High Speed Rail Corporation Ltd	While recommending the project the EAC required that comprehensive mangrove plantation and management plan was to be prepared by The Mangrove Cell, Thane, Forest Department, Government of Maharashtra.	Preparation of comprehensive mangrove plantation and management plan was not made a pre-requisite condition but was instead put as a specific condition in the clearance letter.
			While recommending the project the EAC required that a robust Conservation and Management Plan for Thane Creek Flamingo Sanctuary with detailed action plan for immediate implementation in consultation with the concerned agency in the State be developed in consultation with the concerned agency in the State.	Fulfilment of this requirement was not insisted before granting clearance to the project.

S. No.	State	Name of the Project	Important prerequisites not ensured before the grant of clearance	Remarks
			<p>A feasibility study on muck transportation for possibility of alternative mode of early transportation of muck was to be submitted to the MoEF&amp;CCC within six months of CRZ clearance for further examination and possible inclusion as part of the project programme.</p> <p>The Expert Appraisal Committee highlighted the need for a separate clearance from the Dahanu Taluka Environment Protection Authority as Dahanu taluka had special protection since 1991 (MoEF&amp;CC — at the behest of the Supreme Court — had passed a notification declaring the area as ecologically fragile one and had restricted hazardous industries in the area, among other things).</p>	<p>Feasibility study of this nature should have preferably been a part of the prerequisites of the project clearance. In the instant case, no such studies were later submitted by PP.</p> <p>We observed that separate clearance from the Dahanu Taluka Environment Protection Authority before granting clearance was not made as a pre-requisite before grant of clearance.</p>
7.	Maharashtra	Malad sewage treatment plant by M/s Municipal Corporation of Greater Mumbai	<p>The mangrove replantation was made a specific condition of the CRZ clearance letter. As per Clearance letter, five times the mangrove cover area was to be replenished under this project i.e., 180 ha (36 ha X 5). The PP however approached the Ministry stating that it would not be possible for it to obtain 180 ha of land for replantation and requested for amending the specific condition and replacing the condition of replantation of five times the area with 5 times the mangroves affected. The same was granted approval by modifying the clearance letter in December 2018</p> <p>The PP in the 196<sup>th</sup> EAC meeting informed that it had already acquired 24 ha of Government land suitable for mangrove replantation in the adjoining Thane district and the same had been handed over to the additional Principal Chief Conservator of Forests (Mumbai Mangrove Cell) for further process. The balance 11 ha. land was being acquired. However, no evidence relating to this acquisition of the land was found on the records.</p>	<p>We noted that the Ministry amended the CRZ Notification 2011 for allowing this particular project in CRZ-I area.</p> <p>The Ministry further allowed modification of the specific condition of the clearance letter. Both these exceptions were against the spirit of protection of marine environment, which is the actual mandate of the Ministry.</p> <p>Land acquisition is a time taking process but MoEF&amp;CC did not make land acquisition for mangrove replantation a pre-requisite for grant of clearance. The mangroves affected in this case were the best stock in Mumbai region. Also, compliance to conditions of the project clearance was not assured.</p>

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S. No.	State	Name of the Project	Important prerequisites not ensured before the grant of clearance	Remarks
8.	Maharashtra	Mumbai Coastal Road Project (South) - Princess Flyover to Worli end of Sea Link by M/s Municipal Corporation of Greater Mumbai	As per CRZ clearance, proponent was to develop a marine biodiversity conservation plan from an institute with domain expertise and to submit the same to MoEF&CC within one year.	Grant of clearance in absence of marine biodiversity conservation plan defeated the purpose of the granting clearance itself.
9.	Maharashtra	Construction of Hotel Building (Resort 3) in Mauje Karde, Ratnagiri District, Maharashtra by M/s Dajikaka Gadgil Developers Pvt. Ltd.	The cadastral map (1:4000 scale) of the proposed site showed that a portion of the Resort 3 was in the 'NDZ (NDZ)' which according to the site plan was to be used for building service roads and parking place. But the clearance letter categorically stated that no construction (including cemented/concretized parking space) should be made in the NDZ area.	The EAC did not ask the PP to submit a revised site plan showing construction for parking space/service roads, beyond the NDZ area before recommending the project and the clearance letter was issued for the project by MoEF&CC without ensuring the same.
			The clearance letter condition required that a robust rainwater harvesting system should be installed in consultation with the concerned authority.	The plan was not made as a pre-requisite before recommending the project
10.	Maharashtra	Construction of Hotel Building in <i>Mauje Chandranagar</i> , Ratnagiri District, Maharashtra by M/s Dajikaka Gadgil Developers Pvt. Ltd. and Construction of Hotel Building in <i>Mauje Karde</i> , Ratnagiri District, Maharashtra by M/s Dajikaka Gadgil Developers Pvt. Ltd.	The clearance letter enunciated that a robust rainwater harvesting system should be installed in consultation with the concerned authority.	The rain water harvesting plan was not made as a pre-requisite before grant of clearance.
11.	Odisha	Multi-product SEZ/ Industrial Park at Gopalpur, Ganjam, Odisha by M/s Tata Steel SEZ Ltd.	Odisha CZMP as per CRZ Notification 2011 was approved by MoEF&CC in August 2018 and the clearance to this project was granted in September 2018. A specific condition was inserted in the EC/CRZ clearance letter of this project that the PP should ensure that the project is in consonance with the new Coastal Zone	EAC left the onus of complying with the new CZMPs on the PP itself, whereas it the responsibility of the EAC to deliberate upon and ensure such compliance. The Ministry in this case should have granted clearance only



S. No.	State	Name of the Project	Important prerequisites not ensured before the grant of clearance	Remarks
			Management Plan. We however observed that the appraisal of the project was done as per CRZ Notification 1991 zonation.	after PP got a fresh demarcation done based on the new CZMPs.
12.	Tamil Nadu	Modification of existing iron ore terminal to handle common user coal at Kamarajar port by M/s Kamarajar Port Ltd.	A specific condition in the clearance letter stipulated that the PP would have to draw up and implement a management plan for the prevention of fires due to handling of coal.	By clearing the project without a fire prevention plan due to coal handling, ministry disregarded an important disaster management and mitigation aspect.
			The PP was to inventorise the floral composition of the biota of marine and intertidal biotopes and draw up a detailed marine bio diversity conservation management plan based on possible impacts.	Such an inventory was to serve as a basis of any environment management plan and the fact that this work was not finished before the grant of clearance raises doubts over the impact assessment done by the PP.
13.	Tamil Nadu	Alignment of conveying main to Buckingham Canal for the discharge of treated sewage from the proposed 36 MLD Sewage Treatment Plant (STP) by M/s Chennai Metro Water Supply and Sewerage Board Sholinganallur	A specific condition in the clearance letter stipulated that the marine environment of the Buckingham Canal during construction and operational phase was to be watched through a robust marine environment management plan.	Marine environment management plan was ideally required to be prepared by the PP and approved by the Ministry before the project was granted clearance.

**Annexure 7: Non- provision of separate budget towards EMP**

(Reference: Para 3.2 (ii) of the report)

S. No.	Name of the Project	Remarks
1.	Laying of treated effluent disposal pipeline from their Plant to final disposal point in the Gulf of Kutch at Mithapur by M/s Tata Chemicals Limited, Gujarat (2017)	No separate budget was earmarked for carrying out environment management activities.
2.	Discharge of treated effluent in Bhavnagar creek by M/s Madhu Silica Pvt. Ltd., Gujarat (2015)	PP did not earmark any fund for implementing the EMP.
3.	Development of four berths in Western Dock arm in New Mangalore port by M/s New Mangalore Port Trust, Karnataka (2016)	Although, an EMP costing Rs. 30 lakh was earmarked for the project, the detailed budget (capital and recurring cost) was not mentioned in the EIA.
4.	Laying of Natural Gas from Uran (District Raigad) to Navi Mumbai Municipal Corporation pipeline by M/s Mahanagar Gas Ltd., Maharashtra (2018)	PP did not make any provisions for detailed EMP budget.
5.	Mumbai Trans Harbor Sea Link by M/s Mumbai Metropolitan Region Development Authority, Maharashtra (2016)	Although, an EMP costing Rs. 335 crore was earmarked for the project, the detailed budget (capital and recurring cost) was not mentioned in the EIA.
6.	Rerouting of Mumbai Manmad pipeline by BPCL, Maharashtra (2015)	PP did not make any provisions for detailed EMP budget
7.	Multi- product SEZ/ Industrial Park at Gopalpur, Ganjam, Odisha by M/s Tata Steel SEZ Ltd., Odisha (2018)	Although, an EMP costing Rs. 45.28 crore was earmarked for the project; the detailed budget (capital and recurring cost) was not mentioned in the EIA.
8.	Relaying of Pipeline & Redevelopment of Edible Oil Transit Terminal at Chennai by M/s Ruchi Infrastructure Limited, Tamil Nadu (2018)	Although, an EMP costing Rs. 1.5 lakh was earmarked for the project; the detailed budget (capital and recurring cost) was not mentioned in the EIA.
9.	Integrated Cooum River Eco-Restoration Project by M/s Chennai Rivers Restoration Trust, Tamil Nadu (2017)	PP did not make any provisions for detailed EMP budget.

**Annexure 8: Cases where cumulative studies were not conducted to assess the overall impact**

(Reference: Para 3.3 of the report)

S. No.	State	Name of the Project	Remarks
1.	Andhra Pradesh	Marine disposal of treated effluent by M/s Covalent Laboratories Pvt. Ltd	A pharma industry was 1.9 km away from the outfall. Cumulative studies to check the effect of the effluents discharged from both the pipelines were not done.
2.	Andhra Pradesh	Marine disposal of treated effluent by M/s Hyacinth Pharma Pvt. Ltd	EAC desired a cumulative impact study to assess risk posed by many outfall points in the region. However, the PP did not assess the same.
3.	Andhra Pradesh	Setting up of Bulk Drug Manufacturing Unit in East Godavari District by M/s Divi's Laboratories Limited	Nothing on record indicated that a similar exercise to identify other marine outfalls in vicinity and need for a cumulative assessment was done.
4.	Andhra Pradesh	International Leather Complex at Kothapatnam village, Nellore District by M/s Adani Port and SEZ Ltd.	ToRs for the project required a cumulative impact study of marine disposal, considering other marine outfalls in vicinity. However, no such studies were submitted by PP to APCZMA
5.	Goa	Deepening of approach channel for capesize vessels at Mormugao Port by M/s Mormugao Port Trust (MPT)	Proposed project was within the active "Port Basin/Navigational Channel" area of the MPT Complex. There were large scale activities already on-going in this region with many industries and many Barge Yards and Ship Building units along the bank of Zuari River. EIA report too mentioned that the impacts on marine ecosystems will be of cumulative nature. But PP did not study them.
6.	Gujarat	Discharge of treated effluent in Bhavnagar creek by M/s Madhu Silica Pvt. Ltd.	Cumulative studies for assessing impacts on the Creek due to disposal by PP in addition to existing 20 MLD disposal of Chitra GDC was not carried out.
7.	Maharashtra	High Speed Railway Project across CRZ areas in Mumbai, Mumbai Sub-urban, Thane and Palghar District (PH) by M/s National High Speed Rail Corporation Ltd	Cumulative studies for studying the adverse effects of other infrastructure development projects such as Thane Creek Bridge III on the biodiversity of Thane Creek was not done.
8.	Maharashtra	Construction of Hotel Building (Resort 3) in Mauje Karde, Ratnagiri District, Maharashtra by M/s Dajikaka Gadgil Developers Pvt. Ltd.	The cumulative effects due to proximity to two similar hotel construction sites (Resort 1 and 2) were not assessed.
9.	Maharashtra	Construction of Hotel Building (Resort 2) in Mauje Karde, Ratnagiri District, Maharashtra by M/s Dajikaka Gadgil Developers Pvt. Ltd.	The cumulative effects due to proximity to two similar hotel construction sites (Resort 1 and 3) were not assessed.
10.	Maharashtra	Construction of Hotel Building (Resort 1) in Chandranagar, Ratnagiri District, Maharashtra	The cumulative effects due to proximity to two similar hotel construction sites (Resort 2 and 3) were not assessed.

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S. No.	State	Name of the Project	Remarks
		by M/s Dajikaka Gadgil Developers Pvt. Ltd.	
<b>11.</b>	Odisha	Desalination plant for 5MLD hybrid Desalination project.	Cumulative studies for assessing the damage to Marine environment by disposal of brine waste in addition to existing STP discharge into the ocean was not carried out by PP.

## Annexure 9: Issues related to public hearing

(Reference: Para 3.5 of the report)

S.No.	State	Name of the Project	Issues related to public hearing	Remarks
1.	Andhra Pradesh	International Leather Complex at Kothapatnam village, Nellore District by M/s Adani Port and SEZ Ltd.	While examining the records related to the public hearing, it was noticed that all the documents were in vernacular language.	Method adopted to deliberate upon the material in vernacular language by the EAC was not described. Further, the minutes of the meeting, public grievances, their resolutions were not available in the EIA Report.
2.	Goa	Deepening of approach channel for capesize vessels at Mormugao Port by M/s Mormugao Port Trust	The EAC in had asked PP to upload Volume- II of the EIA Report as it was claimed that the public hearing proceedings were covered in the said volume.	The same was not available on the records, thus, it could not be ascertained if the due procedure was followed.
3.	Gujarat	Widening and improvement of existing highway by NHAI	Mismatch between the information given during public hearing and that furnished in the EIA.	In public hearing, as per PP, a total of 35652 trees were to be cut for the project, however, as per EIA report, 15000 trees were to be cut.
4.	Maharashtra	High Speed Railway Project across CRZ areas in Mumbai, Mumbai Sub-urban, Thane and Palghar District (PH) by M/s National High Speed Rail Corporation Ltd	i. Non-provision of the minimum notice period of 30 days.	Public hearing was held in 12 places and the notice period at these places ranged between 03 to 15 days only.
			ii. Advertisement for public hearing needs to be published in one major National daily and regional Vernacular daily.	The notice was published in only local newspaper.
			iii. Mismatch between the information given in public hearing and that furnished during the EAC meeting.	On the issue of effect of vibrations on the Thane creek flamingos due to construction of tunnels, PP submitted in public hearing that vibrations would not propagate upto creek surface, so there is no adverse impact on flamingos. But PP in its submission to EAC stated that it was not possible to predict the impact of vibrations on flamingos till the work actually started.
5.	West Bengal	Setting up of Mini Bulk Carriers Handling Facility on the	As per public hearing procedure, the final EIA report should incorporate the	The EIA Report sent to the Ministry was devoid of the responses of the people, the

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		upstream of 3 <sup>rd</sup> oil Jetty and west bank of river Hooghly at Haldia Dock Complex, Kolkata Port (West Bengal) by M/s Kolkata Port Trust	concerns expressed in the public hearing along with action plan and financial allocation, to address those concerns before it is sent to for appraisal.	action taken by the PP to address the concern raised in the public hearing.
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## Annexure 10: Non submission of mandatory documents by the PPs

(Reference: Para 3.7.2 of the report)

S. No.	Name of the project/State	Rapid EIA <sup>72</sup>	Dis-aster Mgmt . Report	Risk Assmt. & Mgmt. Plan	CRZ map with HTL and LTL marked <sup>73</sup>	Project layout laid on CRZ map	Map with CRZ zones	NoC from SPCBs for effluent discharge
1.	Deepening of approach channel for capesize vessels at Mormugao Port by M/s Mormugao Port Trust, Goa (2016)	✓	✓	✓	✓	✓	✓	X
2.	Installation of TIC, Toilet block, rain shelter Gazebos, Utorda, Goa	x	x	x	x	x	x	x
3.	Provision of Mobile Toilet block (GTDC), Querim Beach, Goa	x	x	x	x	x	x	x
4.	Construction of resort (Amit C Prabhu) , Goa	x	x	x	x	x	x	✓
5.	Construction of residential house (Anicito Fermino Fernandes) , Goa	N.A.	x	x	x	x	x	N.A.
6.	Construction of residential house (Etelvina Rodrigues), Goa	N.A.	x	x	x	x	x	N.A.
7.	Construction of Public Conveniences (GTDC), Candolim Beach, Goa	x	x	x	x	x	x	x
8.	Construction of toilet blocks, rain shelter and TIC , Terekhol, Goa	x	x	x	x	x	x	x
9.	Permanent Toilet block, Upgradation/beautification of places of touristic interest (GTDC), Palolem Beach, Cancona, Goa	x	x	x	x	x	x	x
10.	Const. of terminal building over existing jetty in Panaji	x	x	x	x	x	x	x
11.	Beautification of Rua De Orem Creek and Convention Centre, Goa	x	x	x	x	x	x	x
12.	Beautification of Beach Front Promenade, Goa	x	x	x	x	x	x	x
13.	Construction of residential house (Luisa Desouza) , Goa	N.A.	x	x	x	x	x	N.A.
14.	Construction of Sweage Treatment Plant at Colva (SIDCL) , Goa	x	x	x	x	x	x	✓
15.	Construction of STP (SIDCL), Bandora, Goa	x	x	x	x	x	x	✓
16.	Const. of Sewage Treatment Plant (1mld) (SIDCL), Durbhat, Goa	x	x	x	x	x	x	✓

<sup>72</sup> including marine and terrestrial components<sup>73</sup> By authorised agency

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17.	Construction of residential House (Yuvraj K Bandothkar) , Goa	N.A.	x	x	x	x	x	N.A.
18.	Construction of new KCL storage unit (Zuari Agro Chem.), Goa	x	x	x	x	x	x	✓
19.	Expansion of Adani Petronet (Dahej) Port, Bharuch District by M/s Adani Petronet (Dahej) Port Pvt Ltd, Gujarat (2016)	✓	✓	✓	✓	✓	✓	x
20.	Development of Greenfield Beach Resort at Mandvi, District Kutch by M/s Tourism Corporation of Gujarat Ltd.(2015)	✓	✓	✓	x	✓	x	x
21.	Discharge of 10 MLD industrial effluent in Bhavnagar creek, Bhavnagar by M/s Madhu Silica Pvt. Ltd., Gujarat (2015)	✘	✓	✓	✓	✓	✓	✓
22.	Common treated effluent disposal pipeline project along river Kolak upto deep sea by M/s Wel Treat Enviro Management Organization, Gujarat (2016)	✓	✓	x	✓	✓	x	✓
23.	Laying of treated effluent disposal pipeline at Marine outfall point in Gulf of Kutch at Mithapur by M/s TCL, Gujarat, (2017)	✘	✓	✓	x	✓	x	✓
24.	Revival of Existing Jetty with Liquid Storage Terminal, Pipeline Road Connectivity, Gandhidham, Kutch by Ahir Salt & Allied Product Pvt. Ltd, Gujarat	✓	✓	✓	✓	✓	✓	x
25.	Residential (Subplot Type) purpose project 'Sun city' at Barbodhan Village, Olpad Taluka, Surat by Pramukh Organisers LLP, Gujarat	✓	✓	x	✓	✓	✓	x
26.	Construction of marine bridge between Beyt and Okha, Dwaraka by Road & Building Department, Gujarat	✘	✓	x	✓	✓	✓	✓
27.	Additional Salt works (2846.15 acres) located at village Kalatalav & Narmad, Ta. & Dist. Bhavnagar by Nirma Limited	✘	✓	x	x	✓	x	✓
28.	Mumbai Coastal Road Project (South) - Princess Flyover to Worli end of Sea Link by M/s Municipal Corporation of Greater Mumbai (2017), Maharashtra	✓	✓	✓	✓	✓	x	x
29.	Intake and outfall facility of Marine Algae in District Ramanathapuram by M/s EID Parry (India) Ltd.(2016), Tamil Nadu	✓	x	x	✓	✓	x	x
30.	Alignment of conveying main to Buckingham Canal for the discharge of treated sewage from proposed 36 MLD Sewage Treatment Plant (STP) by M/s Chennai Metro Water Supply And Sewerage Board Sholinganallur (2017), Tamil Nadu	✓	✓	✓	✓	✓	✓	x
31.	Construction of Training Walls for Permanent Stability of Bar Mouth at Pulicat Village by Fisheries Department, Tamil Nadu	✓	✓	✓	✓	✓	x	✓
32.	Widening of North Chennai Thermal Power Station Road & Ennore Port Road by Tamil Nadu Road Development Company, Tamil Nadu	✓	✓	✓	✓	✓	x	✓



33.	Development of Mall at Thiruvottiyur Village, Chennai by M/s. Alwarpet Properties Pvt. Ltd., Tamil Nadu	x	x	x	x	x	x	x
34.	Development of Fishing Harbour at Vellapallam Village, Nagapattinam by Fisheries Department, Tamil Nadu	✓	✓	✓	✓	✓	x	x
35.	Renovation of Fishing Harbour at Mudhunagar, Cuddalore by Fisheries Dept, Cuddalore	✓	x	x	✓	✓	x	x
36.	Proposed Development of Eco-Park Bharathy Nagar, Tondiarpet Village, Chennai by Greater Chennai Corporation, Tamil Nadu	x	x	x	✓	✓	x	x
37.	Construction of new Fishing Harbour at Tharangambadi, Nagapattinam District by Assistant Director of Fisheries, Nagapattinam North, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
38.	Construction of Fish Landing Centre at Kunthukal, Ramanathapuram District by Assistant Director of Fisheries, Rameswaram, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
39.	Construction of Government Guest House Building (Government Kerala) at Kanyakumari by Additional Director (Hospitality), Department of Tourism, Government of Kerala, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
40.	Construction of Residential building by Brahma Kumari Beena, Kanyakumari by Prajapita Brahma kumaris, Ishwariyavishwavidhyalaya, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
41.	Construction of Memorial for former Chief Minister of Tamil Nadu Selvi J. Jayalalitha by E E, Building & Construction Division I, P W D, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
42.	Proposed Residential Complex at Ernavur village, Thiruvottiyur, Thiruvallur District by M/S. Coromondal International Ltd, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
43.	Construction tenements at Four shore Estate in R.S No. 7581, 7582 of Mylapore Village by M/S. Tamil Nadu Slum Clearance Board, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
44.	Modernization of Foundry unit at survey Nos.39 A &39 B, Kathivakkam village, Ambattur Taluk by M/S. Hinduja Foundries, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
45.	Proposed Construction of packing of Dry Fish and Chilled Fresh Fish by M/S. GVD International, Chennai, Tamil Nadu	✓	✓	✓	✓	✓	✓	x
46.	Construction of Tuna Fishing Harbour, Tiruvottiyur, Chennai by Fisheries Department, Ponneri, Tamil Nadu	✓	✓	✓	✓	✓	✓	x

x EIA report did not contain terrestrial component

**Annexure 11: Instances where the conditions as per the clearance letter as well as the conditions stipulated in the SCZMA recommendations were not being complied with by the PP**

(Reference: Para 4.1.1 of the report)

S. No.	State	Project Name	Observation
1.	Goa	Deepening of approach channel for capesize vessels at Mormugao Port by M/s Mormugao Port Trust	As per EIA the report, the PP had to provision Rs. 35 lakhs under Environmental Management Plan. However, no funds were provisioned by PP under Environmental Management Plan.
2.	Gujarat	Development of Proposed Petroleum, Chemical and Petro-Chemical Special Investment Region, (PCPIR) by Gujarat Industrial Development Corporation	<ul style="list-style-type: none"> <li>i. A scientific study for Coastal Management Plan was to be prepared by an expert institution and the same was to be implemented by all the stakeholders. However, the study was not undertaken by the PP.</li> <li>ii. PP had to prepare environmental policy and get the same approved by its Board of Directors. However, the Environmental Policy was not prepared by the PP.</li> </ul>
3.	Gujarat	Laying of treated effluent pipeline and disposal of effluent into Bhavnagar creek	<ul style="list-style-type: none"> <li>i. Online monitoring sensors were to be provided at the pipeline outlet and at the creek outfall. However, no monitoring sensors were provided by the PP.</li> <li>ii. Plantation of mangrove plantation in 25 ha. land was to be done and reported to the Forest &amp; Environment Department/ MoEF&amp;CC. No plantation was carried out till date (August 2021) by the PP.</li> </ul>
4.	Gujarat	Laying of pipeline along the river Kolak up to deep sea for CETP in Village Morai, Vapi	PP was required to set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive. The PP did not set up the cell.
5.	Gujarat	Laying of treated effluent disposal pipeline from their Plant to final disposal point in the Gulf of Kutch at Mithapur by M/s Tata Chemicals Limited	<ul style="list-style-type: none"> <li>i. Baseline data for Marine and coastal biodiversity of Poshitra Bay were to be developed and monitored bi-annually with specific focus on sea grass beds, and endemic species Sakuraoelis gujaratica and Anteaolidiella poshitra. Baseline studies were not conducted by PP.</li> <li>ii. Submission of annual environment audit reports to GCZMA. Annual environment audit reports were not submitted by PP.</li> <li>iii. Comprehensive EIA Report was to be prepared and submitted to GCZMA. PP did not submit any Comprehensive EIA Report to GCZMA.</li> </ul>

S. No.	State	Project Name	Observation
6.	Gujarat	Revival of Existing Jetty with liquid Storage Terminal, Pipeline, Road connectivity, Railway line & sidings at Mithirohar, Gandhidham, Kutch	i. PP had to obtain all necessary permissions from different Government Departments/ Agencies before commencing their activities. GPCB granted Consolidated Consent and Authorisation (CCA) for laying off only five pipelines,
			ii. During site visit, we noticed that PP had laid six pipelines each of 1800-meter length.
			iii. Thus, PP laid and operated an additional pipeline without obtaining CCA from GPCB.
			iv. The PP had to carry out mangrove plantation in 50 ha. area in consultation with GEC/ Forest Department within a period of two years from the date of commencement of the project. No plantation (August 2021) was carried out by the PP.
			v. PP was required to take up massive green belt development activity in consultation with GEC/ Forest Department/ GEER Foundation and submit a comprehensive plan to forest department/ SEIAA. PP neither consulted Forest Department/ GEC/ GEER Foundation nor submitted any comprehensive plan.
			vi. PP had to spend ₹ 20.67 lakh and ₹ 2.51 lakh included as Capital cost and Maintenance cost for green belt development as per the EMP. PP did not incur any expenditure for this purpose till date.
7.	Gujarat	Additional Salt works (2395.15 Acres) located at Village Kalatalav & Narmad, Bhavnagar	i. As per the condition imposed by GCZMA as well as SEIAA, PP was required to carry out mangrove plantation in additional 50 ha area. This condition was not complied by the PP
			ii. PP shall commission a comprehensive EIA through a reputed institute. Comprehensive EIA was not prepared by PP
			iii. PP was to regularly carry out study on environmental surveillance covering the status of mangroves and other coastal and marine ecosystems in the vicinity through the reputed institute and submit the report every year to the F&E Department. No such study was carried out by the PP.
			iv. PP was to submit annual environmental audit report indicating the changes with respect to the baseline environmental quality in the coastal and marine environment by the PP to F&E Department and SEIAA. This condition was not complied by the PP
8.	Gujarat	Construction of Marine bridge between Beyt Dwarka and Okha by Road and Building Department, Jamnagar, GoG	i. PP was required to set up separate environmental management cell. No such cell was created by PP.
			ii. Permission for Non-agricultural use for the land to be obtained. The construction camp was established on the agricultural land without permission for Non-agricultural use
			iii. Records related to monitoring of fugitive emission in the work area required to be maintained. Such records were not maintained.
			iv. Used oil to be sold to registered recyclers only. According to PP, used oil was being sold to local vendors and not registered recyclers.

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S. No.	State	Project Name	Observation
			<p>v. Annual environment audit reports indicating changes, with respect to the baseline environmental quality in the coastal and marine environment was to be submitted to Forest and Environment Department by the PP. Annual environment audit after commencement of construction was not carried out.</p> <p>vi. Construction Camp was to be kept outside CRZ area. We observed using Google Maps as well as the approved CZMP for the area that a part of the construction camp fell under CRZ area</p> <p>vii. Construction/installation of settling ponds and oil receptors to prevent the entry of the surface runoff from fuel and other contaminants into the marine water. No such settling ponds and/or oil receptors were observed at project site.</p>
9.	Karnataka	Construction of Petroleum Products Storage Terminal at Karwar, Karnataka Port by M/s Tropicana Liquid Storage (P) Ltd.	<p>i. There is no Proper oil spillage contingency plan put in place. Dedicated boats fitted with booms/skimies etc. are not deployed to avoid oil spillage. The PP had not tied up with the Karwar Port for firefighting and oil spill mitigation measures.</p> <p>ii. There is no computerized SCADA (Supervisory Control and Data Automation) system for identifying leakage in the pipeline to cut off pumping immediately.</p> <p>iii. The PP has not set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.</p>
10.	Kerala	Cochin Residential Development Project by M/s TRIF Kochi Projects Private Ltd, Ernakulam	<p>i. As per specific condition I(iv) of EC, there shall be no development within 0-200 metres from HTL. We observed that the entire construction of the project was carried out within 200m of HTL. No action has been taken by MoEF&amp;CC/KCZMA against the violations of the conditions of EC.</p> <p>ii. Specific condition I (xxx) of EC stipulated that, under the provisions of EP Act, 1986, legal action shall be initiated against the PP if construction of the project was started without EC. The Chief Town Planner, Thiruvananthapuram approved (June 2012) the layout of buildings and usage of the plot subject to the condition that EC should be obtained for the project and, Kochi Municipal Corporation should ensure that construction is according to CRZ Notifications. However, Corporation of Kochi has issued (March 2011&amp; July 2012) building permit to the project before the issue (February 2016) of EC by MoEF&amp;CC. No punitive action was taken by MoEF&amp;CC/KCZMA in this regard.</p> <p>iii. Clause 3(xi) of CRZ Notification 2011 drawl of ground water is permissible only when done manually through ordinary wells for drinking, horticulture, agriculture and fisheries and where no other source of water is available.</p>

S. No.	State	Project Name	Observation
			<p>But during JPV it was noticed that the main source of water was Ground water for which a Tube well was constructed for meeting the entire water requirement.</p> <p>iv. As per specific condition II (vi) of EC, the installation of the Sewage Treatment Plant (STP) should be certified by an independent expert and a report in this regard should be submitted to the Ministry before the project is commissioned for operation. The project was commissioned without the certification by an independent expert on the installation of STP.</p>
11.	Kerala	Construction of Star Hotel at Alappuzha West Village, District Alappuzha by M/s East Venice Hotels and Resorts Pvt Ltd	Construction of basement shall be allowed only if NOC is obtained from State Ground Water Authority. NOC from Ground Water Authority was not obtained for construction of the basement.
12.	Maharashtra	Mumbai Coastal Road Project (South) - Princess Flyover to Worli end of Sea Link by M/s Municipal Corporation of Greater Mumbai	Condition on rehabilitation and resettlement of the fishermen communities in the event project impacts existing livelihood pattern of these communities. Observation taken in the main report.
13.	Maharashtra	Mumbai Trans Harbor Sea Link by M/s Mumbai Metropolitan Region Development Authority (MMRDA)	<p>i. MMRDA was to ensure that fishing activity is not hampered during construction and operation of the project and assess loss of business to the project affected fishermen due to the project.</p> <p>ii. The MoEF&amp;CC approved (January 2016) for diversion of 47.41 ha of forest land for MTHL provided MMRDA in consultation with the State Government shall create and maintain alternate habitat/home for the avifauna whose nesting trees are to be cleared in this project. Bird nests artificially made out of the eco-friendly material shall be used in the area including forest area and human settlements adjoining the forest area being diverted for the project. Chief Conservator of Forest (T), Thane permitted (May 2017) cutting of trees before the commencement of construction work of MTHL.</p> <p>It was noticed that although a total of 669 no of trees were removed for the project no alternate habitat /home for the affected avifauna was created. MMRDA stated (September 2021) that based on the estimation of Rs 1.50 lakh for the purpose of artificial nests along with Rs 61 lakh for soil and moisture conservation work by the Deputy Conservator of Forest, Alibag it had deposited (November 2016) Rs 62.50 lakh with the forest department.</p>

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S. No.	State	Project Name	Observation
14.	Tamil Nadu	Integrated Cooum River Eco-Restoration Project by M/s Chennai Rivers Restoration Trust	i. Desiltation of the Cooum River in CRZ area was permitted for a quantity of 5,08,177 cu.m only. Against this, PWD had carried out desiltation of the river for a quantity of 8,94,757 cu.m, (i.e.) 3,86,580 cu.m. in excess of the quantity permitted by TNSCZMA in its recommendation.
			ii. Silt generated through dredging was to be scientifically disposed outside the CRZ area. Bunding and landscaping changes were prohibited activities. Public Works Department removed only 40% of the silt generated to dump yards, and the remaining silt was deposited on the riverbank, which led to formation of bunds that affected the landscape. The above violations were neither detected by the TNSCZMA nor by the DCZMA, Chennai region. Thus no action was taken by the authorities against the above violations. Further, due to unauthorized dumping of excessive silt and raising of bund height by PWD, the Greater Chennai Corporation had abandoned its ambitious Cooum River Front Development Project of construction/development of Parks, Walkways, Nature Trail Park etc at a cost of Rs.32.17 crore and terminated all contracts related to the project.
15.	Maharashtra	Rerouting of Mumbai Manmad Pipeline	<p>The clearance letter stipulated that in all the major water bodies, the Horizontal Directional Drilling (HDD) method should be used to avoid damage to the mangroves. The Regional office, MoEF&amp;CC, Nagpur was required to monitor the implementation of environment safeguard through inspection and the BPCL was required to submit half-yearly compliance reports.</p> <p>The Regional office has not monitored the project and BPCL had not submitted the mandatory half-yearly compliance reports to the regional office.</p> <p>Regional office, MoEF&amp;CC, Nagpur stated (January 2021) that BPCL had not submitted any information pertaining to HDD. It was further cited deficient manpower for non monitoring.</p>
16.	Tamil Nadu	Alignment of conveying main to Buckingham Canal for the discharge of treated sewage from the proposed 36 MLD Sewage Treatment Plant (STP) by M/s Chennai Metro Water Supply And Sewerage Board Sholinganallur	i. Allocation of 2% of the project cost towards fulfilling its Corporate Environment Responsibility (CER) during the currency of the project. Account of measures taken should be maintained and should also be submitted to the CZMA every six months. This condition was not complied with.
			ii. Regular soil and ground water test in and around the project site to ensure monitoring ground water quality / leaching of heavy metals and other toxic contaminants. This condition was not complied with.
			iii. Time bound action plan for treating the sewage and usage of resultant effluent for industrial and other applications was to be made. This condition was not complied with.
			iv. Uploading compliance report on the stipulated conditions on the website of the PP was not done

S. No.	State	Project Name	Observation
			v. Submission of report on year wise expenditure from the funds earmarked for environment protection to the ministry and its regional office was not done
17.	Tamil Nadu	Relaying of Pipeline & Redevelopment of Edible Oil Transit Terminal at Chennai by M/s Ruchi Infrastructure Limited	i. Allocation of 2% of the project cost towards fulfilling its Corporate Environment Responsibility (CER) during the currency of the project was to be made. Account of measures taken were to be maintained and were also to be submitted to the SCZMA every six months. This condition was not complied with.
			ii. Uploading compliance report on the stipulated conditions on the website of the PP was required. This condition was not complied with.
			iii. Submission of report on year wise expenditure from the funds earmarked for environment protection to the ministry and its regional office was required. This condition was not complied with.
18.	Tamil Nadu	2X800 MW Uppur Supercritical Thermal Power Plant at District Ramanathapuram by TANGEDCO	i. Allocation of 2% of the project cost towards fulfilling its Corporate Environment Responsibility (CER) during the currency of the project was to be made. Account of measures taken were to be maintained and were also to be submitted to the SCZMA every six months. This condition was not complied with.
			ii. Uploading compliance report on the stipulated conditions on the website of the PP was required. This condition was not complied with.
			iii. Submission of report on year wise expenditure from the funds earmarked for environment protection to the ministry and its regional office was stipulated. This condition was not complied with.

**Annexure 12: Cases where PPs did not submit any half yearly compliance report**

(Reference: Para 4.1.2 (i) of the report)

State	Name of the Project
<b>Goa</b>	Deepening of approach channel for capesize vessels at Mormugao Port by M/s Mormugao Port Trust
<b>Gujarat</b>	i. Widening and improvement of the existing highway to 2-lanes paved shoulder/ 4 lane/ 6 lane of Bhavnagar- Pipavav- Porbandar-Dwarka Section of NH-8E by National Highway Authority Limited
	ii. Development of Greenfield Beach Resort at Mandvi, District Kutch by M/s Tourism Corporation of Gujarat Ltd.
	iii. Common treated effluent disposal pipeline project along river Kolakupto deep sea via Kolak Estuary, Vapi by M/s Weltreat Enviro Management Limited
<b>Karnataka</b>	Construction of Petroleum Products Storage Terminal at Karwar, Karnataka Port by M/s Tropicana Liquid Storage (P) Ltd.
<b>Kerala</b>	i. Cochin Residential Development Project by M/s TRIF Kochi Projects Private Ltd, Ernakulam: As compared to 8 half yearly reports, only 3 compliance reports were submitted to KSPCB.
	ii. Construction of Star Hotel at Alappuzha West Village, District Alappuzha by M/s East Venice Hotels and Resorts Pvt Ltd
<b>Tamil Nadu</b>	i. Integrated Cooum River Eco-Restoration Project by M/s Chennai Rivers Restoration Trust
	ii. Intake and outfall facility of Marine Algae in District Ramanathapuram by M/s EID Parry (India) Ltd
	iii. Eco-restoration of Adyar River (2000 m – 4000 m chainage) from Thiruvika Bridge to 400 m upstream to Kotturpuram Bridge
	iv. Alignment of conveying main to Buckingham Canal for the discharge of treated sewage from the proposed 36 MLD Sewage Treatment Plant (STP) by M/s Chennai Metro Water Supply And Sewerage Board Sholinganallur
	v. Relaying of Pipeline & Redevelopment of Edible Oil Transit Terminal at Chennai by M/s Ruchi Infrastructure Limited
	vi. 2X800 MW Uppur Supercritical Thermal Power Plant at District Ramanathapuram by TANGEDCO



**Annexure 13: Non- submission of Environmental Statement by the PP**

(Reference: Para 4.1.2 (ii) of the report)

S. No.	Name of the project
1.	Alignment of conveying main to Buckingham Canal for the discharge of treated sewage from the proposed 36 MLD Sewage Treatment Plant (STP) by M/s Chennai Metro Water Supply And Sewerage Board Sholinganallur, Tamil Nadu
2.	Relaying of Pipeline & Redevelopment of Edible Oil Transit Terminal at Chennai by M/s Ruchi Infrastructure Limited, Tamil Nadu
3.	2X800 MW Uppur Supercritical Thermal Power Plant at District Ramanathapuram by TANGEDCO, Tamil Nadu
4.	Cochin Residential Development Project by M/s TRIF Kochi Projects Private Ltd, Ernakulam, Kerala
5.	Construction of Petroleum Products Storage Terminal at Karwar, Karnataka Port by M/s Tropicana Liquid Storage (P) Ltd., Karnataka
6.	MMPL rerouting project, Maharashtra
7.	Mumbai Trans Harbor Sea Link by M/s Mumbai Metropolitan Region Development Authority, Maharashtra
8.	Mumbai Coastal Road Project (South) - Princess Flyover to Worli end of Sea Link by M/s Municipal Corporation of Greater Mumbai, Maharashtra
9.	Malad sewage treatment plant by M/s Municipal Corporation of Greater Mumbai, Maharashtra
10.	Construction of Holiday Resort at Alibag, Dist. Raigarh by M/s Savitri Nandkishor Dube, Maharashtra
11.	Proposal for Transportation and Distribution of Natural Gas from Uran to Navi Mumbai Municipal Corporation, Mumbai, Maharashtra, Maharashtra
12.	Construction of Resort on Plot at Mauje Chandranagar, Tal: Dapoli, District Ratnagiri, Maharashtra
13.	Construction of Resort on Plot at Mauje Karde, Tal. Dapoli, District Ratnagiri, Maharashtra
14.	Construction of Resort on Plot at Mauje Chandranagar, Tal. Dapoli, District Ratnagiri, Maharashtra
15.	High Speed Railway Project across CRZ areas in Mumbai, Mumbai Sub-urban, Thane and Palghar District (PH) by M/s National High Speed Rail Corporation Ltd, Maharashtra
16.	All weather Greenfield Jetty' at Nandgaon of Taluka Palghar, District Thane, Maharashtra by M/s JSW Infrastructure Ltd. , Maharashtra
17.	Expansion of facilities at port Redi, Sindhudurg by M/s Redi Port Ltd, Maharashtra

**Annexure 14: SCZMAs granted recommendations in the absence of CTE/CTO certificate from the concerned State Pollution Control Board (SPCB)**

(Reference: Para 4.1.2 (iii) of the report)

Central Sampled Projects	
<b>Tamil Nadu</b>	i. Integrated Cooum River Eco-Restoration Project by M/s Chennai Rivers Restoration Trust
	ii. Intake and outfall facility of Marine Algae in District Ramanathapuram by M/s EID Parry (India) Ltd
	iii. Eco-restoration of Adyar River (2000 m – 4000 m chainage) from Thiruvika Bridge to 400 m upstream to Kotturpuram Bridge
<b>Maharashtra</b>	Rerouting of Mumbai Manmad pipeline by BPCL
State sampled Projects	
<b>Tamil Nadu</b>	i. Construction of Tuna Fishing Harbour, Thiruvottiyur
	ii. Construction of residential buildings at Kottivakkam Village, Sholinganallur Taluk, Kanchipuram District by M/s. Perungudi Developers Pvt. Ltd
	iii. Proposed development of Fishing Harbour at Vellapallam, Nagapattinam by Asst. Director, Fisheries department, Nagapattinam (South)
	iv. Renovation of Fishing Harbour at Mudhunagar, Cuddalore by Asst. Director, Fisheries department, Cuddalore
	v. Proposed widening of North Chennai Thermal Power station Road and Ennore Port Road by M/s. TN Road Development Company Ltd (TNRDCL)
<b>Maharashtra</b>	Redevelopment on property in Mazgaon, Mumbai, renamed as "Harbour Heights" by M/s. Sumer Buildcorp Pvt.
<b>Goa</b>	i. Construction of 20 MLD STP at Baina
	ii. Construction of 20 MLD STP at Margao
	iii. Construction of 1 MLD STP at Durbhat

Abbreviations		
1.	BENFISH	West Bengal State Co-operative Federation Ltd.
2.	BIS	Bureau of Indian Standards
3.	BOD	Biochemical Oxygen Demand
4.	CAA	Coastal Aquaculture Authority
5.	CCA	Composite Consent and Authorisation
6.	CDA	Chilka Development Authority
7.	COD	Chemical Oxygen Demand
8.	CRZ	Coastal Regulation Zone
9.	CTE	Consent to Establish
10.	CTO	Consent to Operate
11.	CVCA	Critically Vulnerable Coastal Areas
12.	CWLS	Coringa Wildlife Sanctuary
13.	CWQI	Coastal Water Quality Index
14.	CZMP	Coastal Zone Management Plans
15.	DIF	District Indicator Framework
16.	DLC	District Level Committees
17.	DMP	Disaster Management Plan
18.	DoFE	Department of Forest & Environment (State body)
19.	DPR	Detailed Project Report
20.	DPT	Deendayal Port Trust
21.	DSDA	Digha Shankarpur Development Authority
22.	EAC	Expert Appraisal Committee
23.	EIA	Environment Impact Assessment
24.	EMP	Environment Management Plan
25.	EP Act	The Environment (Protection) Act, 1986
26.	ESA	Ecologically Sensitive Areas
27.	F&ARD	Fisheries & Animal Resources Development ...
28.	GEER	Gujarat Ecological Education and Research Foundation
29.	GIS	Geographic Information System
30.	GoMMNP	Gulf of Mannar Marine National Park
31.	HTL	High Tide Line
32.	ICZMP	Integrated Coastal Zone Management Programme
33.	IMP	Integrated Management Plans
34.	IUCN	International Union for Conservation of Nature
35.	IWAI	Inland Waterways Authority of India
36.	JPV	Joint Physical Verification
37.	JTC	Joint Technical Committee
38.	KCBA	Kachchh Camel Breeders Association
39.	LTL	Low Tide Line

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40.	MCGM	Municipal Corporation of Greater Mumbai
41.	MCs	Municipal Corporations
42.	MLD	Millions of Liters Per Day
43.	MoEF&CC	Ministry of Environment, Forest and Climate Change
44.	MoES	Ministry of Earth Sciences
45.	MoSPI	Ministry of Statistics and Programme Implementation
46.	MPCB	Maharashtra Pollution Control Board
47.	MT	Metric Ton
48.	NABET	National Accreditation Board of Education & Training
49.	NBWL	National Board of Wildlife
50.	NCSCM	National Centre for Sustainable Coastal Management
51.	NCZMA	National Coastal Zone Management Authority
52.	NDZ	No Development Zone
53.	NGT	National Green Tribunal
54.	NIF	National Indicator Framework
55.	NIO	National Institute of Oceanography
56.	NPMU	National Project Management Unit
57.	NW	National Waterway
58.	PCB	Pollution Control Board
59.	PDO	Programme Development Office
60.	PHED	Public Health Engineering Directorate
61.	PP	Project Proponent
62.	QCI	Quality Council of India
63.	SCADA	Supervisory Control and Data Automation
64.	SDG	Sustainable Development Goals
65.	SCZMA	State Coastal Zone Management Authorities
66.	SEIAA	State Environmental Impact Assessment Authorities
67.	SICOM	Society of Integrated Coastal Management
68.	SIF	State Indicator Framework
69.	SPMU	State Project Management Unit
70.	STP	Sewage Treatment Plant
71.	ToR	Terms of Reference
72.	TPD	Tonnes Per Day
73.	TS Canal	Trivandrum- Shornur Canal
74.	UNDP-GEP	United Nations Development Program Global Environmental Facility
75.	WBFL	West Bengal Fisheries Corporation Limited
76.	WQMBS	Water Quality Monitoring Buoy System
77.	WQMS	Water Quality Monitoring System
78.	WWF	World Wildlife Fund



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