

**Draft**

**Environment and Social Management Framework**

**The National Cyclone Risk Management Project  
(NCRMP)**



**National Disaster Management Authority**

**March 3, 2009**



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## Abbreviations

AF	Affected Family
ASI	Archaeological Survey of India
BP	Bank Procedure
CPCB	Central Pollution Control Board
CRZ	Coastal Regulatory Zone
CS	Cyclone Shelters
EA	Environmental Assessment
EAC	Expert Appraisal Committee
EC	Environmental Clearance
EIA	Environment Impact Assessment
EMP	Environment Management Plan
ENVIS	Environmental Information System
EPTRI	Environment Protection, Training, and Research Institute
ESMF	Environment and Social Management Framework
DPR	Detailed Project Report
GoI	Government of India
HTL	High Tide Line
IA	Implementing Agency
IBA	Important Bird Areas
ILO	International Labour Organization
IP	Investment Proposal
INR	Indian Rupees
IS	Indian Standards
JRY	Jawahar Rozgar Yojna
LA	Land Acquisition
LTL	Low Tide Line
MHA	Ministry of Home Affairs
MoU	Memorandum of Understanding
MoEF	Ministry of Environment and Forest
MSW	Municipal Solid Waste
NCRMP	National Cyclone Risk Mitigation Project
NDMA	National Disaster Management Authority
NGO	Non Governmental Organisation
NIDM	National Institute of Disaster Management
NREP	National Rural Employment Programme
OP	Operational Policy
PAF	Project Affected Family
PAP	Project Affected Person
PMU	Project Management Unit
PIU	Project Implementation Unit



PMGSY	Pradhan Mantri Gram Sadak Yojna
PPE	Personal Protection Equipment
PWD	Public Works Department
R&R	Resettlement & Rehabilitation
RLEGP	Rural Landless Employment Guarantee Programme
RAP	Resettlement Action Plan
RP	Resettlement Plan
RPDAC	Rehabilitation & Periphery Development Advisory Committee
SM	Social Management
SDM	Sub-Divisional Magistrate
SMP	Social Management Plan
SIA	Social Impact Assessment
SDMA	State Disaster Management Authority
SC	Scheduled Castes
SEIAA	State Level Environment Impact Assessment Authority
SEAC	State Expert Appraisal Committee
SPCB	State Pollution Control Board
ST	Scheduled Tribes
TOR	Terms of Reference
UT	Union Territory
UNDP	United Nations Development Program
VHF	Very High Frequency
WB	World Bank



## Chapter 1: Introduction

### 1.1 About the NCRMP

The National Cyclone Risk Mitigation Project ('NCRMP') is a pioneer project drawn up by Ministry of Home Affairs ('MHA'), Government of India ('GoI') with the purpose of creating suitable infrastructure to mitigate the effects of cyclones in the coastal states of India in a sustainable way. The project was transferred to National Disaster Management Authority (NDMA) in September 2006. The project has identified 13 cyclone prone States and Union Territories ('UTs'), with varying levels of vulnerability. These States/UTs have further been classified into two categories; based on the frequency of occurrence of cyclones, size of population and the existing institutional mechanism for disaster management. These categories are:

- ➔ **Category I:** Higher vulnerability States i.e. Andhra Pradesh, Gujarat, Orissa, Tamil Nadu and West Bengal.
- ➔ **Category II:** Lower vulnerability States i.e. Maharashtra, Goa, Karnataka, Kerala, Daman & Diu, Pondicherry, Lakshadweep and Andaman & Nicobar Islands.

The key objectives of the project are:

- ➔ Reduction in vulnerability of coastal states through creation of appropriate infrastructure which can help mitigate the adverse impacts of cyclones, while preserving the ecological balance of a coastal region.
- ➔ Strengthening of cyclone warning systems enabling quick and effective dissemination of warning and advisories from source/district/sub-district level to the relevant communities.

### 1.2 Project Components

Based on the above objectives, the project has been divided into four components, namely:

<b>Component A</b>	Last Mile Connectivity for the dissemination of cyclone warnings and advisories from district/sub-district level to communities, to be implemented by NDMA in consultation with participating States/UTs	<b>Nodal Agency:</b> NDMA <b>Implementation Partners:</b> NDMA, State Governments of 13 states/UTs
<b>Component B</b>	Construction of physical infrastructure for cyclone risk mitigation to be implemented by the States/UTs	<b>Nodal Agency:</b> NDMA <b>Implementation Partners:</b> State Governments, along with identified Line Departments
<b>Component C</b>	Technical assistance for capacity building on hazard risk management to be implemented by NDMA and NIDM in consultation with States/UTs	<b>Nodal Agency:</b> NDMA <b>Implementation Partners:</b> NDMA and NIDM
<b>Component D</b>	Project management & monitoring applicable to all implementing agencies	<b>Nodal Agency:</b> NDMA, State PIU <b>Implementation Partners:</b> NA



### ***Component A: Last Mile Connectivity***

The last mile connectivity aims at information dissemination from the district/sub-district level to communities and vice-versa, ensuring that the last man living nearest to the sea is well informed of actions to take, in case of an upcoming cyclone.

This component entails two tasks:

- ➔ Selection, purchase and installation of the communication networks (Very High Frequency (VHF) sets, towers and support equipment) - to strengthen the system of disseminating the warnings about the impending cyclones, to the coastal communities of the participating states, in an effective manner, by augmenting the last mile connectivity which is a weak link in the system currently.
- ➔ Capacity building of the communities - Building the capacity of the coastal communities and state machinery to function efficiently to reduce the disaster risks. This is a critical component as the success of any early warning system depends largely on the ability to disseminate the relevant information to the vulnerable communities, which are likely to be affected.

### ***Component B: Creation of physical infrastructure for mitigating impact of cyclones in States and Union Territories***

Component B aims at creating physical infrastructure for cyclone risk mitigation. Following a need based approach, participating States and UTs were asked to prepare Investment Proposals ('IPs'), based on the local needs and priority investment areas, which are most crucial for effective mitigation. A set of guidelines, in compliance with World Bank ('WB') norms and standards, have been circulated by MHA for the purpose. Investments are to be proposed for either one or all of the following categories:

- ➔ Construction of cyclone shelters
- ➔ Construction of missing road links and bridges
- ➔ Construction of saline embankments and costal canals to stop saline ingress to coastal land
- ➔ Shelter belt plantations and mangrove plantation/regeneration
- ➔ Towers for communication

### ***Component C: Technical assistance for capacity building on hazard risk management***

The objective of Component C is to help undertake risk and damage assessment studies, and assess institutional capacities of the various stakeholders involved. The following activities have been identified as part of this component:

- ➔ Risk assessment
- ➔ Technical assistance to States for preparing high priority risk mitigation investments
- ➔ Preparation of long term training and capacity building strategy (13 States/UTs),
- ➔ Implementation of high priority training and capacity building programs
- ➔ Strengthen capacity for damage and loss assessment

### ***Component D: Project Management and Monitoring***





This Component aims to provide management and institutional support for project management and monitoring.

The activities to be included for funding under the component are

- i. Funds for setting up and regular operation of the Project Management Unit including staffing, establishment costs, administrative costs, and cost of consultant for providing implementation support.
- ii. Funds for setting up and regular operation of the Project Implementation Units including staffing, establishment costs, administrative costs, and cost of consultant for providing implementation support.

This component will support project implementation through provision of necessary office equipment and financing of associated incremental cost of project management teams with NDMA, NIDM and State PIU's. This component would also finance the cost of related consulting services for design, planning, implementation support and monitoring.

### **1.3 Sub-Project Activities**

The sub-project activities described below are specific to Component A and Component B of the NCRMP. Other components have not been considered in developing this ESMF.

#### ***Construction of cyclone shelters***

The highly vulnerable rural coastal areas of the country are affected by non-availability of pucca constructions. There is a great need for safe structures like Cyclone Shelters ('CS') which can help protect human lives as well as livestock during the 'Zero' hour of calamities. The cyclone shelters are proposed to be multi purpose buildings, integrated with day-to-day uses like schools, godowns, health centre, training centre etc so as to ensure regular use and maintenance.

#### ***Construction of missing road links and bridges***

There is a need for development of a reliable road network to ensure speedy evacuation of people to safer places during an impending disaster threat and also to ensure measures for relief in the event of a cyclonic storm surge attack. This sub-project activity therefore aims to create road links to

- ➔ Public cyclone shelters and/or to the existing private storm / storm surge resistant buildings
- ➔ National/State highways from where the people can have access to safer localities

Considerable length of rural roads have been planned / executed or are under execution through a host of community development programs for rural roads, such as Food for Work Programme, Minimum Needs Program, National Rural Employment Program (NREP), Rural Landless Employment Guarantee Programme (RLEGP), Jawahar Rojgar Yojna (JRY), Pradhan Mantri Gram Sadak Yojana (PMGSY) etc. The states therefore need to ensure that the proposed roads under NCRMP complement other activities underway in the State, and in no way overlap with the projects already being funded by other state programs. The proposals could include,

- ➔ New roads;
- ➔ Upgradation of damaged roads and completion of missing links;



- Restoration of damaged roads;
- Drainage, independent of existing roads;
- Bridging the missing links;
- Mounds (for cattle), if included in the original investment proposal; and
- Retrofitting of the existing cross drainage works, after assessing the present status of road links to villages in the cyclone prone areas.

When hamlets are suggested for inclusion, the State will assess their status i.e. (a) if these are temporary settlements (for seasonal migrants involved in some work with the sea or (b) if these would develop into permanent settlements (villages). It is quite possible that such hamlets are encroachments into the coastal zone, and providing a road link to such settlement would only defeat the very purpose for which the NCRMP has been planned. Therefore this problem would need a careful evaluation by the nodal agency of the State.

### ***Construction of saline embankments and coastal canals to stop saline ingress to coastal land***

In the deltaic areas, surface communication is a major handicap for response activities. In the flat terrains, intertwining of rivers and rivulets is quite common. The widths of the tidal rivers are linked to the sea tide and may not have a stable embankment. This makes it difficult to construct bridges on these. An alternative to road communication could be a coastal canal system. A canal network in the coast would also be an effective tool of water management. In the deltaic area in some of the States such a canal system existed, but is now in a derelict state. Renovation of such canals may also be considered under the project.

Besides, the States/UTs may also consider improvement to minor drains in the coastal areas for effective drainage of water and flood embankment works, which may include repair and reconstruction of damaged and other vulnerable flood embankments. During cyclones the saline water from the sea due to storm surge inundates villages and agricultural fields. The most vulnerable reaches along the coastline are to be identified and these areas (people, livestock and agricultural fields) are to be protected against the vagaries of the cyclonic action. Saline embankments are one such mitigation measure to protect people, livestock and agricultural fields from saline water inundation/storm surge. The NCRMP includes the renovation of existing damaged embankments as well as construction of new embankments at vulnerable coastal areas.

In addition, during the cyclone period, due to heavy rain in coastal areas, the coastal rivers cause high floods, far more exceeding the carrying capacity of the channels. Normally such floods cause numerous breaches in the banks of the river resulting inundation to vast agriculture lands and villages causing loss of human life, livestock, infrastructure and crops. The stream spreads over a large area during floods, damaging the standing crops worth crores of rupees. Coastal canals /drains are constructed to drain the flood waters into the nearby sea in a controlled manner. At times these canals/drains are damaged due to increased pressure of floodwaters as well as damages to the embankments. Increasing the carrying capacity of the canals/drains along with the outlet structures would ensure the expected functionality in acting as shock absorber for flood water. This would diminish the scope of inundation at least to a manageable level. By adopting the state-of-the-art technology, for design and construction of the works, the drain would be expected to function more efficiently even in case of severe cyclones reducing the scope of coastal inundation.



### ***Shelter belt plantations and mangrove plantation/regeneration***

The cyclone impact can be minimized to a considerable extent by maintaining a shelterbelt of trees and mangroves that often serve as a wind breaker. The shelterbelt trees can protect a patch of landward area of a width 20 times their height. The landward border of shelterbelt is often fit for raising cashew plants and often cashew orchards are located in the coastal regions as a great source of socio economic inputs.

Constraints of shelterbelt plantation include the need for watering of saplings during dry seasons and protection from grazing. On the other hand, the threat to mangrove vegetation is conversion of mangrove areas to coastal aquaculture in eastern coast and camel browsing in western coast. Gujarat state having the second largest mangrove cover suffers from extensive use of mangroves as cattle fodder, which is believed to increase the milk production.

Sheltered intertidal mudflats often turn hypersaline. In such cases it has been found that digging or redigging of canals can bring the tidal action for the mangroves and induce better growth and also support natural regeneration. Participatory management with local folk for both shelterbelt and mangrove regeneration had been successful in West Bengal. Co-management with NGOs had been successful in raising mangrove regeneration by the Gujarat Ecology Commission.

Thus the proposals would include the following:

- ➔ Raising shelterbelt plantations with Casuarina, Keya (Pandanus), Cashew (where possible) on eastern coasts;
- ➔ Raising shelterbelt plantations with Casuarina, Prosopis, Tamarix on the western coast;
- ➔ Raising mangrove plantation on sheltered intertidal areas; and
- ➔ Raising mangrove regenerations in hypersaline mudflats.

### ***Construction of communication tower***

This activity involves selection, purchase and installation of the communication networks (VHF sets, towers and support equipment) - to strengthen the system of disseminating the warnings about the impending cyclones, to the coastal communities of the participating states, in an effective manner. The main activity covered under the ESMF would be the construction of the communication tower which is expected to be a maximum of 150 feet. There may however be a few exceptions.

## **1.4 Environmental and Social Management Framework (ESMF)**

The NCRMP the project implementation would require construction, regeneration, repair and modification work to be undertaken at multiple locations. It is possible that such work would involve environmental assessment, land acquisition and involuntary resettlement. The ESMF describes the principles, objectives and approach to be followed to minimize or mitigate the adverse environmental and social impacts resulting from the implementation of the NCRMP project.



#### **1.4.1 Objective of ESMF**

The ESMF provides the framework (policies, guidelines, and procedures) for the management of environmental and social issues which are likely to arise due to the implementation of the sub-project activities in the states of Gujarat, Maharashtra, Orissa, West Bengal and Andhra Pradesh. The same components may be implemented in the other coastal states/UT based on need and availability of funding. The ESMF framework has to be integrated during the implementation of the project.

The broad objective of the ESMF is to ensure equitable and sustainable development during the implementation (planning, construction and post construction phases) of the sub-project activities discussed in Section 1.3 of this chapter. The key objectives of the ESMF are:

- ➔ Provide a framework for the integration of social and environmental aspects, at all stages of planning, design, execution, and operation of various sub-projects.
- ➔ Enhance positive social and environmental outcomes and avoid or minimize adverse social and environmental impacts,
- ➔ Protect human health and
- ➔ Support compliance with applicable laws, regulations, and policies.

In line with the requirements of the World Bank, the Bank's environmental and social safeguards policies shall be applied to all the major sub-project activities mentioned in Section 1.3 of this chapter. The ESMF identifies the potential impacts of various sub-project activities and outlines the indicative management measures required to effectively address the same. Appropriate institutional arrangements towards implementing the indicative measures have been detailed in the framework.

#### **1.4.2 Principles and Considerations**

The ESMF was prepared for the management of environmental and social issues which are likely to arise due to the implementation of the sub-project activities while incorporating the principles of due diligence in managing potential environmental and social risks. Key ESMF principles, in the context of responding to the external and internal requirements, have therefore been considered:

- ➔ The proposed project will support multiple subprojects, the detailed designs of which will not be known at appraisal, although the general thrust is understood by the nature of the sectors. To ensure effective implementation of environmental and social criteria, the ESMF provides guidance on the approach to be taken during implementation for the selection and design of subprojects and the planning of mitigation measures;
- ➔ Draft Resettlement Plans (RP) for any sub-project activity involving land acquisition and associated impacts or involuntary relocation of people affected have been proposed, to ensure that proper planning has been made to deliver the resettlement benefits to the affected persons. The voluntary donation or compensated contribution of land for sub-project activities has also been captured in the ESMF;
- ➔ In the event that more than 200 people are physically or economically affected by sub project activities, appropriate social studies, in accordance with GoI, state policies and the Bank's policies will be prepared; and



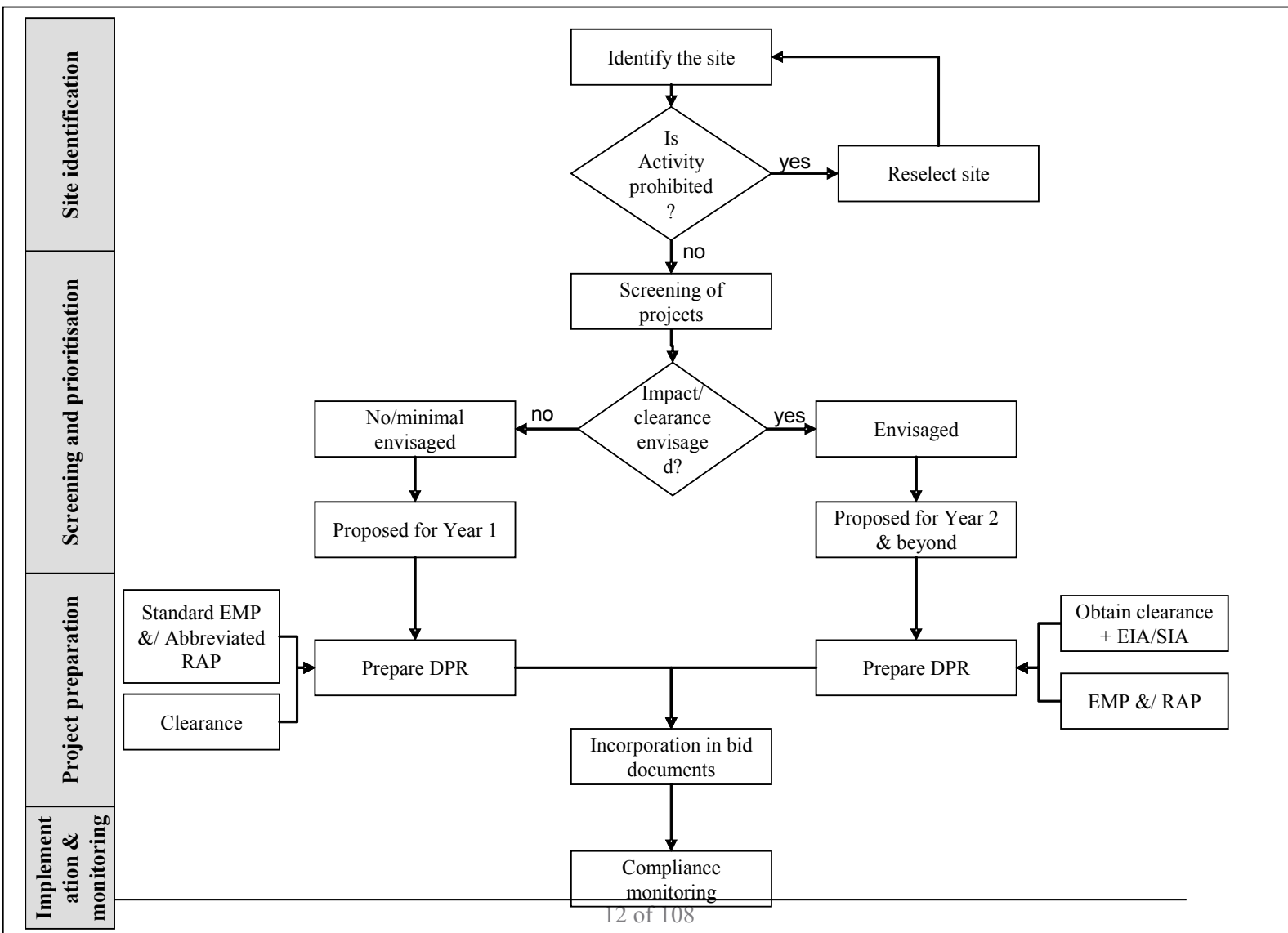
- ➔ Consultation and disclosure requirements will be adapted to seek response from stakeholders during the planning and implementation phase of the sub project activity.

**1.4.3 Application of the ESMF**

Site identification, screening and review, implementation, and monitoring are the essential elements of a sub-project. The ESMF should be integrated into all these phases of a sub-project. The key process steps would be:

- ➔ Site screening for potential environmental and social impacts
- ➔ Further assessment, as required, of significant environmental and social impacts and the development of environmental and social management plans with appropriate mitigation measures
- ➔ Integration of the management plans with contract documents so that the mitigation measures will be put into practice during the implementation phase
- ➔ Facilitation in carrying out periodic monitoring through the proposed online monitoring tool.

The overall applicability and process of the ESMF has been depicted in the flow chart below.



#### ***1.4.4 Limitation of the ESMF***

This ESMF has been developed based on the state and central laws, regulations and World Bank guidelines, as applicable as on the date of this document. Any proposed laws & regulations or guidelines that were notified as 'draft' at the time of preparation of this document have not been considered while developing this document.

## Chapter 2: Laws, Rules, Regulations & Policies

The implementation of all sub-project activities proposed under the NCRMP project must be consistent with all applicable laws, regulations, notifications that are judged to be relevant in the context of the implementation of the sub-project activities. It is the responsibility of the Implementing Agency to ensure that project activities are consistent with the national, state or municipal/local regulatory/legal framework. This section is not a legal opinion on the applicability of the law but serves as guidance in the application of the law to the current project context.

### 2.1 National Laws, Rules and Regulation

#### 1. Environment (Protection) Act, 1986 & EIA Notification S.O. 1533 dated 14<sup>th</sup> September 2006

The Environment (Protection) Act, 1986 was introduced as an umbrella legislation that provides a holistic framework for the protection and improvement to the environment. In terms of responsibilities, the Act and the associated Rules requires environmental clearances for specific types of new / expansion projects (addressed under Environmental Impact Assessment Notification) and for submission of an environmental statement to the State Pollution Control Board annually.

As per section 3 of EIA Notification S.O. 1533 dated 14th September 2006, the Central Government forms a State Level Environment Impact Assessment Authority (SEIAA). All projects and activities are broadly categorized into two categories as Category A and B. The projects which have been classified as Category 'A' project are those having potential impacts on human health, natural and manmade resources. Those projects require prior environmental clearance from the central government - the Ministry of Environment and Forests (MoEF). The projects categorized as Category 'B' projects require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA's decisions are based on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC).

#### **Cyclone Shelters:**

Cyclone shelters being proposed under the project are less than 20,000 sqm in size. If there is a Cyclone shelter/ building or a construction projects with  $\geq 20,000$  sq. m and  $< 150,000$  sq. m of built-up area, it will require prior Environmental Clearance as per the EIA notification of 2006.

#### **Saline Embankments:**

Considering the saline embankment as an open construction, if the area (base x width) is  $\geq 20,000$  sq. m and  $< 150,000$  sq. m, then prior Environmental Clearance as per the EIA notification of 2006 is required.

#### **Road/Culverts/Bridges, Plantation Shelter, Mangroves, Coastal Canal and Transmission Tower:**

Not applicable

#### 2. Coastal Regulation Zone Notification (CRZ)

Issued under the Environment (Protection) Act, 1986, coastal stretches have been defined in Coastal Regulation Zone (CRZ) and restrictions have been imposed on industries, operations and processes within the CRZ. For regulating development activities, the coastal stretches within 500 metres of High Tide Line on the landward side are classified into four categories, namely:

- CRZ-I:
  - (i) Areas that are ecologically sensitive and important, such as national

## **2. Coastal Regulation Zone Notification (CRZ)**

parks/marine parks, sanctuaries, reserve forests, wildlife habitats, mangroves, corals/coral reefs, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty/historically/heritage areas, areas rich in genetic diversity, areas likely to be inundated due to rise in sea level consequent upon global warming and such other areas, and

(ii) Area between low tide line and the high tide line.

- CRZ-II: The areas that have already been developed upto or close to the shoreline. For this purpose, “developed area” is referred to as that area within the municipal limits or in other legally designated urban areas which are already substantially built up and which have been provided with drainage and approach roads and other infrastructural facilities, such as water supply and sewerage mains.
- CRZ-III: Areas that are relatively undisturbed and those which do not belong to either CRZ-I or CRZ-II. These will include coastal zone in the rural areas (developed and undeveloped) and also areas within Municipal limits or in other legally designated urban areas which are not substantially built up.
- CRZ-IV: Coastal stretches in the Andaman & Nicobar, Lakshadweep and small islands, except those designated as CRZ-I, CRZ-II or CRZ-III.

The development or construction activities in different categories of CRZ area shall be regulated by the concerned authorities at the State/Union Territory level, in accordance with norms stipulated in the CRZ regulation and in the state / UT coastal zone management plan.

### **Relevance to Cyclone shelters/Saline embankments/Coastal canals/Roads/Culverts/Bridges:**

- No new construction is permitted in CRZ-I.
- In CRZ-II areas, new buildings are permitted only on the landward side of the existing (or approved) road or authorized structures.
- In CRZ-III areas:
  - The area from 0-200 mt from the HTL is the ‘No Development Zone’. The sub-projects of the NCRMP are permissible in this zone subject to approvals from the Coastal Zone Management Authority or the Central Government, as the case may be.
  - In CRZ-III areas, construction or reconstruction of dwelling units between 200m and 500m is permitted subject to certain restrictions on the number of dwelling units, height of structure etc

## **3. Forest (Conservation) Act, 1980**

Forest (Conservation) Act, 1980 pertains to the cases of diversion of forest area and felling of roadside plantation. Depending on the size of the tract to be cleared, clearances are applied for at the following levels of government:

- If the area of forests to be cleared or diverted exceeds 20 Ha (or, 10 Ha in hilly area) then prior permission of Central Government is required;
- If the area of forest to be cleared or diverted is between 5 to 20 Ha, the Regional Office of Chief Conservator of Forests is empowered to approve;
- If the area of forest to be cleared or diverted is below or equal to 5 HA, the State Government can give permission; and,
- If the area to be clear-felled has a forest density of more than 40%, permission to undertake any work



### **3. Forest (Conservation) Act, 1980**

is needed from the Central Government, irrespective of the area to be cleared.

Restrictions and clearance procedure proposed in the Forest (Conservation) Act applies wholly to the natural forest areas, even in case the protected/designated forest area does not have any vegetation cover.

#### **Cyclone shelters/Saline embankments/Coastal canals/Roads/Culverts/Bridge/Transmission tower:**

If the activities are going to necessitate the use of forest area, then the respective line departments have to take the necessary clearances from the Forest Department / MoEF.

### **4. Water and Air (Prevention & Control of Pollution) Acts**

Water (Prevention and Control of Pollution) Act, 1974 resulted in the establishment of the Central and State Pollution Control Boards (SPCBs) whose responsibilities include managing water quality and effluent standards, as well as monitoring water quality, prosecuting offenders and issuing licenses for construction and operation of certain facilities. The SPCB is empowered to set air quality standards and monitor and prosecute offenders under the Air (Prevention and Control of Pollution) Act, 1981.

#### **Cyclone shelters/Saline embankments/Coastal canals/Roads/Culverts/Bridges/ Transmission Tower:**

All construction contractors need to obtain the consent-to-establish and consent-to-operate for the various plants - concrete batching, stone crushing and other plants that they may erect for the purpose of construction. This should be obtained from the nearest regional offices of the SPCB. If existing plants are to be used, then these should have the required consents.

### **5. The Land Acquisition Act (LA) of 1894 amended in 1985**

The private land acquisition will be guided by the provisions and procedures outlined in this Act. As per the LA Act, the District Collector or any other officer designated will function as the Land Acquisition Officer on behalf of the Government. There is a provision for consent award to reduce the time for processing if the land owners are willing to agree for the price fixed by the Land Acquisition Officer. The option of acquiring lands through private negotiations is also available.

#### **Cyclone shelters/Saline embankments/Coastal canals/Roads/Culverts/Bridges/Transmission Tower:**

Any land acquisition required for the activity should be in compliance with the aforesaid Act, and the policy that is adopted by the respective state government.

### **6. Ancient Monuments and Archaeological Sites and Remains Rule 1959**

According to this Act, area within radii of 100m and 300m from the “protected property” are designated as “protected area” and “controlled area” respectively. No development activity (including mining operations and construction) is permitted in the “protected area” and development activities likely to damage the protected property are not permitted in the “controlled area” without prior permission of the Archaeological Survey of India (ASI) if the site/remains/ monuments are protected by ASI or the State Department of Archaeology.

#### **Cyclone shelters/Saline embankments/Coastal canals/Roads/Culverts/Bridges/Transmission Tower:**

Activities in protected areas should not be undertaken. If activities are to be done in the controlled area of protected properties, then the respective line department should take the necessary permissions from the ASI.

### **7. National Rehabilitation and Resettlement Policy, 2007**

This policy strikes a balance between the need for land for developmental activities & protecting the interests of land owners and others. The benefits under the new policy are available to all Project Affected Persons (PAP) & families whose land, property or livelihood is adversely affected by land acquisition, involuntary displacement due to natural calamities, etc.

#### **Cyclone shelters/Saline embankments/Coastal canals/Roads/Culverts/Bridges/Transmission Tower:**

All PAPs for the sub-projects should be compensated accordingly. State specific Rehabilitation & Resettlement Policies also apply based on the Entitlement Matrix adopted for the project.

### **8. The Ramsar Convention on Wetlands of International Importance 1971**

The Ramsar Convention is an international treaty for the conservation and sustainable utilization of wetlands i.e. to stem the progressive encroachment on and loss of wetlands now and in the future, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational value.

#### **Cyclone shelters/Saline embankments/Coastal canals/Roads/Culverts/Bridges/Transmission Tower:**

According to the Ramsar list of Wetlands of International Importance, there are 25 designated wetlands in the country which are required to be protected. Activities undertaken in the proximity of these wetlands should follow the guidelines of the convention.

## **2.2 World Bank Policies**

The World Bank's environmental and social safeguard policies (ten of them) are a cornerstone of its support to sustainable poverty reduction. The objective of these policies is to prevent and mitigate undue harm to people and their environment in the development process. These policies provide guidelines for bank and borrower staffs in the identification, preparation, and implementation of programs and projects. The following three out of the ten are relevant for considerations under this ESMF.

### **9. Environmental Assessment (OP 4.01)**

Environmental Assessment is used in the World Bank to identify, avoid, and mitigate the potential negative environmental impacts associated with Bank lending operations. In World Bank operations, the purpose of Environmental Assessment is to improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted. The World Bank's environmental assessment policy and recommended processing are described in Operational Policy (OP)/Bank Procedure (BP) 4.01: Environmental Assessment.

### **10. Involuntary Resettlement (OP 4.12)**

The Bank's Operational Policy 4.12: Involuntary Resettlement is triggered in situations involving involuntary taking of land and involuntary restrictions of access to legally designated parks and protected areas. The policy aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts. It promotes participation of displaced people in resettlement planning and implementation, and its key economic objective is to assist displaced persons in their efforts to improve or at least restore their incomes and standards of living after displacement. The policy prescribes compensation

and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments prior to Bank appraisal of proposed projects.

#### **11. Indigenous Peoples (OP 4.10)**

The World Bank policy on indigenous peoples, OP/BP 4.10, Indigenous Peoples, underscores the need for borrowers and Bank staff to identify indigenous peoples, consult with them, ensure that they participate in, and benefit from Bank-funded operations in a culturally appropriate way - and that adverse impacts on them are avoided, or where not feasible, minimized or mitigated.

## Chapter 3: Project Screening

### 3.1 Screening

Screening is the first step in the ESMF process. The object of screening is to identify those sub-projects that have minimal/no environmental or social concerns. Work on these sub-projects can be initiated immediately with use of standard codes or standard EMPs. Detailed studies and analysis may need to be conducted for projects with environment and social concerns.

### 3.2 Steps in project screening

The steps involved in the screening process are outlined below.

Step 1: Confirm that none of the sub-projects is prohibited as per the existing notifications.

Step 2: Appoint Environment and Social Management Consultants as per the TOR's finalized by NDMA.

Step 3: Undertake the detailed screening process for all the investments in consultation with the Line Departments.

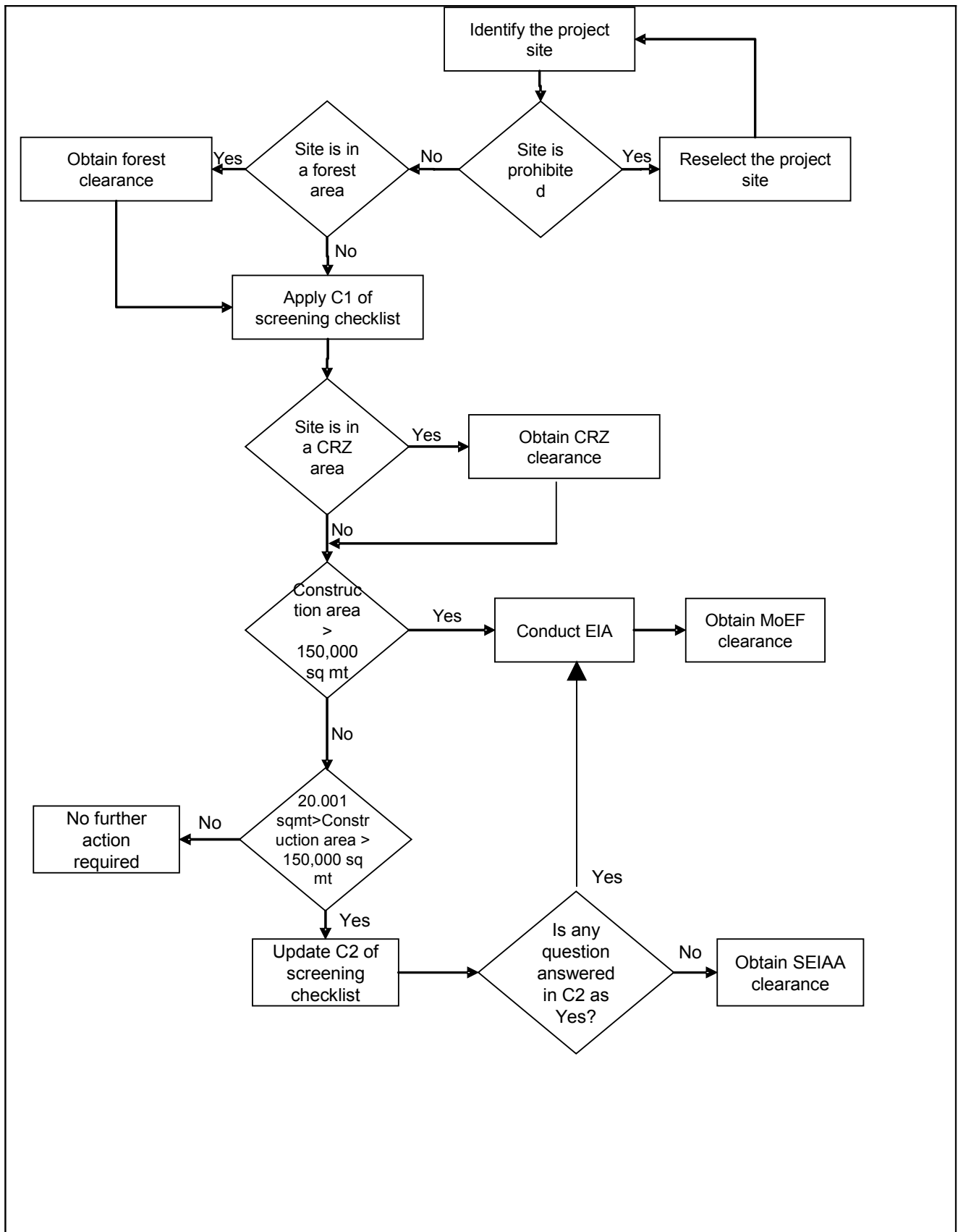
- *Note 1: It is necessary that the PIU and Line Departments have clear maps of all the sites with CRZ zones identified along with details of Reserve Forest, Wildlife Sanctuary etc.*
- *Note 2: It is advisable to have a meeting with all the Line Departments and the concerned officials of the State Environment & Forest Department and agencies like the Pollution Control Board before starting the process to gain a better understanding of the clearance process.*

The objective of this screening is to quickly freeze the Year 1 investments and start the clearance process for the difficult sites. The necessity of the investment for disaster mitigation is the main concern and no activity needs to be dropped merely because of the clearances required.

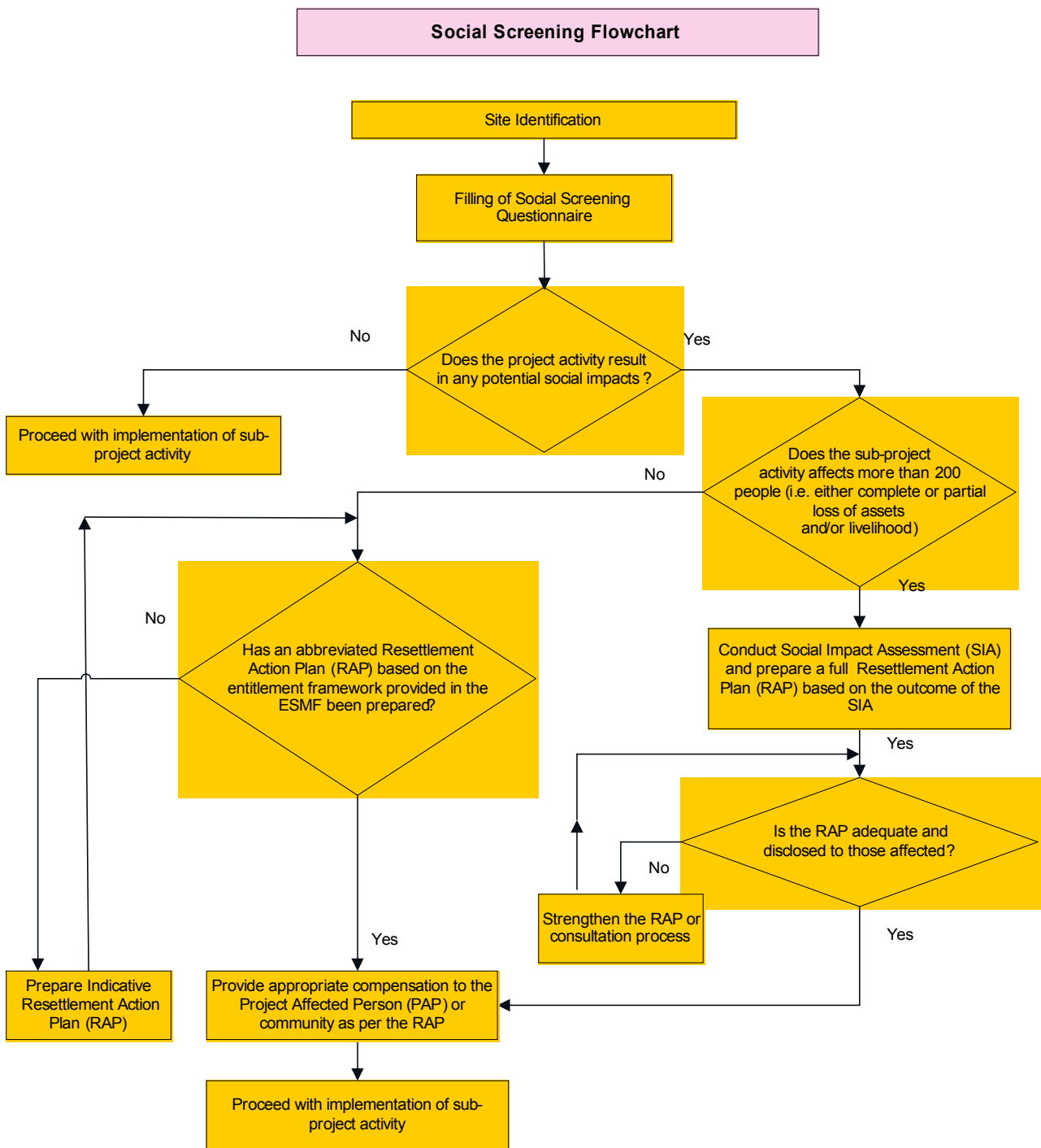
The environmental and social screening flowcharts have provided below show the overall screening process flow.

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### Diagrammatic representation of steps for environmental screening



# Diagrammatic representation of steps in social screening



### 3.3 List of prohibited activities

Prior to finalising a site, the PIU team would evaluate whether the site falls in a prohibited area. If it does, then it would need to select an alternate site. The list of prohibited activities is enclosed in Annexure 2.

### 3.4 Environment and Social Screening Form

The environment and social screening form is enclosed as Annexure 3. This form needs to be updated for every sub-project.

### 3.5 Criteria for evaluating the results of screening

#### *Coastal Regulatory Zone*

If any question under PART C1 of the Environmental Screening checklist is answered 'Yes', then the Coastal Regulation Zone restrictions are applicable. Refer to CRZ notification for more information. (<http://envfor.nic.in/divisions/iass/notif/crz.htm>).

#### *Forest Clearance*

If any forest land has been proposed for the sub-project activity, then relevant clearances must be sought from the Forest department.

#### *Environmental clearance required from the Ministry of Environment & Forest (MoEF)*

If the sub-project is a saline embankment or a cyclone shelter with a built-up area of more than 20,000 m<sup>2</sup> **and if any** of the questions in PART C2 of the Environmental Screening checklist is answered 'Yes', then the sub-project requires Environmental Clearance from Expert Appraisal Committee (EAC) at the Ministry of Environment and Forest (MoEF).

Other sub-project activities planned under the NCRMP project such as coastal canals, roads, bridges, culverts, plantation of mangroves, shelter belt plantation, and communication towers would not trigger an EIA and environmental clearance may not be required for these subprojects **except where they are actually within the ecologically sensitive areas**. Refer to EIA notification 2006 for more information. (<http://envfor.nic.in/legis/ia/so1533.pdf>)

#### *Environmental clearance required from the state (SEIAA)*

If the sub-project is a saline embankment or a cyclone shelter with a built-up area of more than 20,000 m<sup>2</sup> and **if none** of the questions in PART C2 of the Environmental Screening checklist is answered 'Yes', then the sub-project requires Environmental Clearance from the State Level Environment Impact Assessment Authority (SEIAA).

Other sub-project activities planned under the NCRMP project such as coastal canals, roads, bridges, culverts, plantation of mangroves, shelter belt plantation, and communication towers would not trigger an EIA and environmental clearance may not be required for these subprojects. Refer to EIA notification 2006 for more information. (<http://envfor.nic.in/legis/ia/so1533.pdf>)

The general EMP provided in this ESMF document should be adopted during the various phases of the project activity to mitigate or reduce any potential impact that may occur.

***Social Impact Assessment (SIA) required***

If the sub-project activity affects more than 200 people (i.e. either complete or partial loss of assets and/or livelihood) then an SIA is required to be carried out and an appropriate full resettlement action plan prepared and applicable laws and regulations need to be adopted before initiation of any construction activity.

***No SIA required, Abbreviated Resettlement Action Plan (RAP) to be prepared***

If the sub-project activity affects less than 200 people (i.e. either complete or partial loss of assets and/or livelihood) then an SIA may not have to be conducted and the abbreviated resettlement plan would have to be arrived at based on the entitlement framework provided in the ESMF. This needs to be adopted before initiation of any construction activity.

***No SIA required***

If all the answers to questions listed under the social screening are 'No' or if forest land is being acquired and the answer to all the remaining answers is 'No', then SIA is not required.



## Chapter 4: Potential Environment Impacts and Measures

### 4.1 Environmental impacts of project activities

#### 4.1.1 General environmental impacts

This section lists the potential environmental impacts, both positive and adverse, due the implementation of the sub-project activities proposed under the NCRMP project. The EMP for these sub-projects shall consider the potential adverse environment impacts listed below.

The environmental impacts identified at this stage are preliminary in nature. Any other potential environmental impact, not captured below that may arise at any stage of a sub-project activity must be assessed for its significance and appropriate management measures must be incorporated into the EMP.

#### *Roads/Bridges/Culverts*

Aspects	Potential Negative Impacts	Positive Impacts
<b>Planning &amp; Design Phase</b>		
Initiation of construction prior to receipt of all clearances	<ul style="list-style-type: none"> <li>➤ Legal non compliance</li> </ul>	
Siting	<ul style="list-style-type: none"> <li>➤ Land acquisition</li> <li>➤ Tree felling</li> <li>➤ Noise and air pollution can affect adjoining human settlements</li> <li>➤ Destruction of, or disturbance to wildlife habitat</li> <li>➤ Flooding or water logging in the project area</li> <li>➤ Water contamination</li> </ul>	<ul style="list-style-type: none"> <li>➤ Improves access and connectivity</li> <li>➤ Reduce flooding or water logging in the project area (culverts)</li> </ul>
<b>Construction phase</b>		
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of and disturbance to habitat</li> <li>➤ Loss of canopy</li> <li>➤ Global warming</li> </ul>	
Construction	<ul style="list-style-type: none"> <li>➤ Top soil erosion</li> <li>➤ Dust during construction, and due to transport</li> <li>➤ Noise pollution</li> <li>➤ Clogging of drainage by soil run-off, increasing the chances of flooding</li> <li>➤ Water-logging and creation of mosquito breeding grounds</li> <li>➤ Surface water contamination from soil run-off</li> <li>➤ Possible ground water contamination (by oil and</li> </ul>	<ul style="list-style-type: none"> <li>➤ Employment opportunity</li> </ul>

Aspects	Potential Negative Impacts	Positive Impacts
	<ul style="list-style-type: none"> <li>grease)</li> <li>➤ Air pollution</li> <li>➤ Increase in sedimentation in streams affecting fish habitat and movement.</li> <li>➤ Odour due to use of bitumen</li> <li>➤ Exploitation of potable water sources due to construction activities</li> <li>➤ Non compliance with regulations</li> <li>➤ Quarrying for materials</li> </ul>	
Labour camps	<ul style="list-style-type: none"> <li>➤ Soil contamination.</li> <li>➤ Pollution of drinking water sources.</li> <li>➤ Stress on water sources</li> <li>➤ Surface water contamination from washing, bathing, and waste disposal</li> <li>➤ Tree felling for firewood and tents</li> <li>➤ Air pollution from burning of toxic materials like tyres and plastic waste</li> <li>➤ Unhygienic work environment.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Human health and safety</li> </ul>
Working condition	<ul style="list-style-type: none"> <li>➤ Impact on workers health and safety</li> <li>➤ Impact on public safety</li> </ul>	<ul style="list-style-type: none"> <li>➤ Safe working conditions for the workers.</li> <li>➤ Protect public from construction hazards</li> </ul>
<b>Post construction/operation phase</b>		
Maintenance	<ul style="list-style-type: none"> <li>➤ Poor drainage or flooding</li> <li>➤ Water logging</li> <li>➤ Deterioration of the sub-project</li> <li>➤ Soil erosion</li> </ul>	<ul style="list-style-type: none"> <li>➤ Long term sustainability</li> <li>➤ Improved drainage due to better engineering practices</li> </ul>
Waste disposal and site restoration	<ul style="list-style-type: none"> <li>➤ Soil contamination</li> <li>➤ Soil erosion</li> <li>➤ Water contamination</li> <li>➤ Injury to personnel</li> </ul>	<ul style="list-style-type: none"> <li>➤ Tree planting and green belts</li> <li>➤ Landscaping and beautification</li> <li>➤ Creation of habitat</li> </ul>
Tree planting/retaining	<ul style="list-style-type: none"> <li>➤ Obstruction of view of signs</li> <li>➤ Obstruction of movement</li> </ul>	<ul style="list-style-type: none"> <li>➤ Tree planting and green belts</li> <li>➤ Creation of habitat and food for birds/wildlife</li> </ul>

### *Saline Embankments and Coastal Canals*

Potential Issues	Potential Negative Impacts	Positive Impacts
<b>Planning &amp; Design Phase</b>		
Initiation of construction prior to	<ul style="list-style-type: none"> <li>➤ Legal non compliance</li> </ul>	

Potential Issues	Potential Negative Impacts	Positive Impacts
receipt of all clearances		
Siting and designing	<ul style="list-style-type: none"> <li>➤ Flooding or water logging in the project area</li> <li>➤ Siltation during construction</li> <li>➤ Saltwater intrusion</li> <li>➤ Flooding of low lying areas</li> <li>➤ Erosion and soil run-off</li> <li>➤ Tree felling</li> <li>➤ Destruction of, or disturbance to habitats</li> </ul>	<ul style="list-style-type: none"> <li>➤ Protection of freshwater environments</li> <li>➤ Protection of habitats and sensitive areas</li> </ul>
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of and disturbance to habitat</li> <li>➤ Loss of canopy</li> <li>➤ Global warming</li> </ul>	
Construction schedule	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Flooding</li> <li>➤ Saline water intrusion</li> </ul>	
<b>Construction phase</b>		
Construction	<ul style="list-style-type: none"> <li>➤ Top soil erosion</li> <li>➤ Dust during construction, and due to transport</li> <li>➤ Noise pollution</li> <li>➤ Clogging of drainage by soil run-off, increasing the chances of flooding</li> <li>➤ Water-logging in borrow areas</li> <li>➤ Water-logging and creation of mosquito breeding grounds</li> <li>➤ Possible ground water contamination (by oil and grease), especially during the construction phase</li> <li>➤ Improper siting and rehabilitation of borrow areas.</li> <li>➤ Air pollution</li> <li>➤ Human health and safety</li> <li>➤ Loss of vegetation in the borrow areas</li> <li>➤ Exploitation of potable water sources due to construction activities</li> <li>➤ Quarrying for materials</li> </ul>	<ul style="list-style-type: none"> <li>➤ Employment opportunity</li> </ul>
Labour camps.	<ul style="list-style-type: none"> <li>➤ Soil contamination.</li> <li>➤ Pollution of drinking water sources.</li> <li>➤ Stress on water sources</li> </ul>	<ul style="list-style-type: none"> <li>➤ Human health and safety</li> </ul>

Potential Issues	Potential Negative Impacts	Positive Impacts
	<ul style="list-style-type: none"> <li>➤ Surface water contamination from washing, bathing, and waste disposal</li> <li>➤ Tree felling for firewood and tents</li> <li>➤ Air pollution from burning of toxic materials like tyres and plastic waste.</li> </ul>	
Working condition	<ul style="list-style-type: none"> <li>➤ Impact on workers health and safety</li> <li>➤ Impact on public safety</li> </ul>	<ul style="list-style-type: none"> <li>➤ Safe working conditions for the workers.</li> <li>➤ Protect public form construction zone</li> </ul>
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of and disturbance to habitat</li> <li>➤ Global warming</li> </ul>	
<b>Post construction/Operation phase</b>		
Maintenance	<ul style="list-style-type: none"> <li>➤ Poor drainage or flooding due to clogging</li> <li>➤ Water logging and creation of mosquito breeding grounds</li> <li>➤ Flooding</li> <li>➤ Deterioration of the sub-project</li> </ul>	<ul style="list-style-type: none"> <li>➤ Long term sustainability</li> <li>➤ Improved drainage due to better engineering practices</li> </ul>
Waste disposal and site restoration	<ul style="list-style-type: none"> <li>➤ Soil contamination</li> <li>➤ Soil erosion</li> <li>➤ Water contamination</li> </ul>	<ul style="list-style-type: none"> <li>➤ Tree planting and green belts</li> <li>➤ Landscaping and beautification</li> <li>➤ Creation of habitat</li> </ul>

***Plantation/regeneration of Mangroves and Shelter Belts***

<b>Aspects</b>	<b>Potential Negative Impacts</b>	<b>Positive Impacts</b>
<b>Planning &amp; Design Phase</b>		
Initiation of construction prior to receipt of all clearances	<ul style="list-style-type: none"> <li>➤ Legal non compliance</li> </ul>	
Siting	<ul style="list-style-type: none"> <li>➤ Biodiversity impacts/ impact on rare, endangered and threatened species of flora and fauna as well as nesting and breeding grounds of turtles/horse shoe crabs</li> <li>➤ Impact of change of drainage pattern and diversion of freshwater/marine water supply</li> </ul>	<ul style="list-style-type: none"> <li>➤ Protection of habitats and sensitive areas</li> </ul>
Species selection	<ul style="list-style-type: none"> <li>➤ Poor survival rate</li> <li>➤ Unsuccessful mangrove generation</li> <li>➤ Susceptibility to insect breeding</li> </ul>	<ul style="list-style-type: none"> <li>➤ Healthy mangrove and shelter belt</li> <li>➤ Food source for fish/Increase in fish population</li> <li>➤ Creation of habitat</li> <li>➤ Food source for birds/land animals</li> </ul>
<b>Plantation/Regeneration Phase</b>		
Use of chemical fertilizers and pesticides	<ul style="list-style-type: none"> <li>➤ Water pollution</li> <li>➤ Soil contamination</li> <li>➤ Air pollution</li> <li>➤ Contamination of habitats/nesting grounds</li> <li>➤ Eutrophication</li> <li>➤ Soil erosion</li> </ul>	<ul style="list-style-type: none"> <li>➤ Healthy mangrove and shelter belt</li> </ul>
Management	<ul style="list-style-type: none"> <li>➤ Poor growth of shelter belt/mangrove</li> <li>➤ Impact on grazing by cattle</li> </ul>	<ul style="list-style-type: none"> <li>➤ Healthy mangrove and shelter belt</li> </ul>
<b>Post plantation/Regeneration phase</b>		
<b>Planting</b>	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of or disturbance to habitat</li> <li>➤ Soil contamination</li> </ul>	<ul style="list-style-type: none"> <li>➤ Creation shelter belt/mangrove</li> </ul>
Use of chemical fertilizers and pesticides	<ul style="list-style-type: none"> <li>➤ Water pollution</li> <li>➤ Soil contamination</li> <li>➤ Air pollution</li> <li>➤ Contamination of habitats /nesting grounds</li> <li>➤ Eutrophication</li> </ul>	<ul style="list-style-type: none"> <li>➤ Healthy mangrove and shelter belt</li> </ul>
Maintenance/ Management	<ul style="list-style-type: none"> <li>➤ Poor growth of shelter belt/mangrove</li> <li>➤ Soil erosion</li> <li>➤ Impact on grazing by cattle</li> </ul>	<ul style="list-style-type: none"> <li>➤ Healthy mangrove and shelter belt</li> </ul>

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## Cyclone Shelters

Aspects	Potential Negative Impacts	Positive Impacts
<b>Planning &amp; Design Phase</b>		
Initiation of construction prior to receipt of all clearances	<ul style="list-style-type: none"> <li>➤ Legal non compliance</li> </ul>	
Siting and design	<ul style="list-style-type: none"> <li>➤ Land acquisition</li> <li>➤ Destruction of disturbance to wildlife habitat</li> <li>➤ Flooding and water logging</li> </ul>	
<b>Construction phase</b>		
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of, or disturbance to habitat</li> <li>➤ Loss of canopy</li> <li>➤ Global warming</li> </ul>	
Construction	<ul style="list-style-type: none"> <li>➤ Top soil erosion</li> <li>➤ Dust during construction, and due to transport</li> <li>➤ Noise pollution</li> <li>➤ Clogging of drainage by soil run-off, increasing the chances of flooding</li> <li>➤ Water-logging and creation of mosquito breeding grounds</li> <li>➤ Possible ground water contamination (by oil and grease), especially during the construction phase</li> <li>➤ Air pollution</li> <li>➤ Exploitation of potable water sources due to construction activities</li> <li>➤ Non compliance with regulations</li> <li>➤ Quarrying for materials</li> </ul>	<ul style="list-style-type: none"> <li>➤ Employment opportunity</li> </ul>
Labour camps.	<ul style="list-style-type: none"> <li>➤ Soil contamination.</li> <li>➤ Pollution of drinking water sources.</li> <li>➤ Stress on water sources</li> <li>➤ Surface water contamination from washing, bathing, and waste disposal</li> <li>➤ Tree felling for firewood and tents</li> <li>➤ Air pollution from burning of toxic materials like tyres and plastic waste</li> </ul>	<ul style="list-style-type: none"> <li>➤ Human health and safety</li> </ul>

Aspects	Potential Negative Impacts	Positive Impacts
Working condition	<ul style="list-style-type: none"> <li>➤ Unhygienic work environment.</li> <li>➤ Impact on workers health and safety</li> <li>➤ Impact on public safety</li> </ul>	<ul style="list-style-type: none"> <li>➤ Safe working conditions for the workers.</li> <li>➤ Protect public form construction zone</li> </ul>
<b>Post construction phase/Operation Phase</b>		
Site restoration	<ul style="list-style-type: none"> <li>➤ Soil contamination</li> <li>➤ Soil erosion</li> <li>➤ Water contamination</li> <li>➤ Injury to personnel</li> </ul>	<ul style="list-style-type: none"> <li>➤ Tree planting and green belts</li> <li>➤ Landscaping and beautification</li> <li>➤ Creation of habitat</li> </ul>
Sewerage and sanitation	<ul style="list-style-type: none"> <li>➤ Water contamination</li> <li>➤ Soil contamination</li> <li>➤ Adverse effect on human health</li> </ul>	<ul style="list-style-type: none"> <li>➤ Protection of human health</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>➤ Flooding</li> <li>➤ Soil erosion</li> <li>➤ Water logging and creation of mosquito breeding grounds</li> <li>➤ Deterioration of the sub-project</li> </ul>	<ul style="list-style-type: none"> <li>➤ Long term sustainability</li> </ul>



## Communication Towers

Aspects	Potential Negative Impacts	Positive Impacts
<b>Planning &amp; Design Phase</b>		
Initiation of construction prior to receipt of all clearances	<ul style="list-style-type: none"> <li>➤ Legal non compliance</li> </ul>	
Siting and design	<ul style="list-style-type: none"> <li>➤ Land acquisition</li> <li>➤ Destruction of disturbance to wildlife habitat</li> <li>➤ Flooding and water logging</li> </ul>	
<b>Construction phase</b>		
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of, or disturbance to habitat</li> <li>➤ Global warming</li> </ul>	
Construction	<ul style="list-style-type: none"> <li>➤ Top soil erosion</li> <li>➤ Dust during construction, and due to transport</li> <li>➤ Noise pollution</li> <li>➤ Clogging of drainage by soil run-off, increasing the chances of flooding</li> <li>➤ Water-logging and creation of mosquito breeding grounds</li> <li>➤ Possible ground water contamination (by oil and grease), especially during the construction phase</li> <li>➤ Air pollution</li> <li>➤ Exploitation of potable water sources due to construction activities</li> </ul>	Employment opportunity
Labour camps.	<ul style="list-style-type: none"> <li>➤ Soil contamination.</li> <li>➤ Pollution of drinking water sources.</li> <li>➤ Stress on water sources</li> <li>➤ Surface water contamination from washing, bathing, and waste disposal</li> <li>➤ Tree felling for firewood and tents</li> <li>➤ Air pollution from burning of toxic materials like tyres and plastic waste</li> <li>➤ Unhygienic work environment.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Human health and safety</li> </ul>
Working condition	<ul style="list-style-type: none"> <li>➤ Impact on workers health and safety</li> </ul>	<ul style="list-style-type: none"> <li>➤ Safe working conditions for the workers.</li> </ul>

Aspects	Potential Negative Impacts	Positive Impacts
	➤ Impact on public safety	➤ Protect public form construction zone
<b>Post construction phase/Operation Phase</b>		
Site restoration	<ul style="list-style-type: none"> <li>➤ Soil contamination</li> <li>➤ Soil erosion</li> <li>➤ Water contamination</li> <li>➤ Injury to personnel</li> </ul>	<ul style="list-style-type: none"> <li>➤ Tree planting and green belts</li> <li>➤ Landscaping and beautification</li> <li>➤ Creation of habitat</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>➤ Water logging and creation of mosquito breeding grounds</li> <li>➤ Deterioration of the sub-project</li> </ul>	➤ Long term sustainability

#### 4.1.2 Adverse environmental impacts

As a result of the application of the environment screening checklist (refer annexure 3), certain sites may be identified that have a potential for adverse environmental impacts. The impact at such sites shall be assessed by performing a more detailed study. For these areas, an EIA may need to be conducted - refer Annexure 4 for steps to conducting an EIA.

## 4.2 Environmental Management Plan (EMP)

### 4.2.1 Sites that do not have adverse environmental impacts

The indicative environmental management plan (EMP) (refer Annexure 5) identifies foreseeable potential environmental impacts of the sub-project activities and recommends the appropriate management measures to eliminate, minimize, or manage these environmental impact. The indicative EMP is not an exhaustive list of potential environmental impacts and management measures. When a potential environmental impact that is not listed in the indicative EMP is identified, it should be assessed and the appropriate management measures adopted. The indicative EMPs across the different sub-projects are indicated as follows:

Sub-component	Reference
Roads/bridges/culverts	Annexure 5, Section 5.1
Canals and embankments	Annexure 5, Section 5.2
Mangroves/Shelter belt	Annexure 5, Section 5.3
Cyclone Shelters	Annexure 5, Section 5.4
Communication Towers	Annexure 5, Section 5.5

### 4.2.2 Sites with potential for adverse environmental impacts

Significant adverse environmental impacts identified during the environmental screening and review process outlined in Chapter 4 may require further environmental assessment. When such assessments are carried out, site-specific EMP may be developed, based on the assessment, to address those significant environmental impacts.

### **4.3            Incorporation of the EMP in the DPR, bid documents and contract**

All EMPs identified for a sub-activity need to be incorporated into the DPR, the bid document and the contract documents.

## Chapter 5: Potential Social Issues and Resettlement Plans

### 5.1 Potential social issues

The sub-project activities of NCRMP as explained in Chapter 1 are in 6 categories namely

- Construction of cyclone shelter
- Construction of link roads/bridges and culverts
- Construction of saline embankments
- Regeneration of mangroves
- Shelterbelt plantations
- Towers for communication

A description of the activities (provided in Chapter 1) clearly indicates that the implementation of these sub-projects is not expected to lead to adverse social concerns. The activities are small civil works which do not require extensive manpower or machinery and can be well executed with locally available resources. The impacts, if any, are expected to be minor, localized and readily managed. The aim of undertaking these sub-project activities is to directly or indirectly protect the communities from cyclones. The adverse social concerns as well as other positive impacts likely to arise due to execution of one of the sub project activities are:

Sub-project activity	Possible social concerns	Positive impacts
Construction of cyclone shelter	<ul style="list-style-type: none"> <li>• Acquisition of small amount of private lands</li> <li>• Use of public lands</li> <li>• Impacts to non title holders on public lands</li> <li>• Damages to standing crops and plantations.</li> <li>• Loss of livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>• Safe shelter in case of a cyclone</li> <li>• Building of social infrastructure for community use (school, health centre etc)</li> </ul>
Construction of link roads/bridges and culverts	<ul style="list-style-type: none"> <li>• Acquisition of small amount / linear strips of private lands</li> <li>• Use of public lands</li> <li>• Resettlement of families</li> <li>• Impacts to non title holders on public lands</li> <li>• Damages to standing crops and plantations</li> <li>• Loss of existing structures and community property.</li> <li>• Loss of livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>• Connectivity to main roads or shelters</li> <li>• Evacuation route during the times of a disaster</li> <li>• Connectivity to major business centers in the locality</li> </ul>
Construction of saline embankments	<ul style="list-style-type: none"> <li>• Private land acquisition</li> <li>• Use of public lands</li> </ul>	<ul style="list-style-type: none"> <li>• Protection of agriculture lands from saline water intrusion, surge and inundation</li> </ul>

Sub-project activity	Possible social concerns	Positive impacts
	<ul style="list-style-type: none"> <li>• Impacts to non title holders on public lands</li> <li>• Resettlement of families</li> <li>• Damages to standing crops and plantations</li> <li>• Temporary influx of labour</li> <li>• Loss of mangrove ecosystem/community forest on which near by residents/local population are dependent for fuel wood/grazing etc</li> </ul>	<ul style="list-style-type: none"> <li>• Protection of habitation from surge and inundation</li> <li>• Connectivity to main roads and evacuation routes</li> </ul>
Regeneration of mangroves	<ul style="list-style-type: none"> <li>• Loss of livelihood</li> <li>• Small amount of land requirement for plantations</li> </ul>	<ul style="list-style-type: none"> <li>• Protection from surge in event of a cyclone disaster</li> <li>• Increase in vegetative cover</li> </ul>
Shelterbelt plantations	<ul style="list-style-type: none"> <li>• Small amount of land requirement for plantations (land acquisition)</li> </ul>	<ul style="list-style-type: none"> <li>• Protection from cyclonic winds</li> <li>• Protection of agricultural lands from saline winds, which boasts agriculture</li> </ul>
Towers for communication	<ul style="list-style-type: none"> <li>• Acquisition of land.</li> <li>• Loss of livelihoods</li> </ul>	<ul style="list-style-type: none"> <li>• Ensuring connectivity through VHF</li> </ul>

*Note: The above list is only illustrative and any additional activities that may be considered will be mitigated in accordance with requirements and needs.*

Over and above these impacts there may be some proposal for development of infrastructure in regions inhabited by indigenous communities. In such cases, mitigation measures will be proposed in accordance with World Bank's safeguard policy of Involuntary Resettlement OP/BP 4.12.

## 5.2 Guiding Principles for Addressing Social Issues

### 5.2.1 Land Acquisition and Involuntary Resettlement

#### 5.2.1.1 *Involuntary Resettlement*

Location of facilities has to be planned so as to have least impact on the community. If a particular location is suitable for all factors except for limited resettlement, necessary compensatory measures as per the resettlement framework needs to be worked out. Resettlement impacts due to these interventions would be managed through appropriate compensation and rehabilitation measures as per the entitlements of the PAP. A resettlement action plan to this effect would be prepared to address the impacts. Compensation and rehabilitation measures will be carried out in accordance with the entitlement framework for the sub-project activity.

It needs to be ensured that all R&R activities are to be completed before the construction activity starts. If any resettlement is required for project interventions, resettlement sites required are to be taken up for construction prior to the contractor mobilization at site. Suitable locations for resettlement sites are to be identified in consultation with the PAPs to be relocated.

The participating states have experience of implementing World Bank projects under different initiatives but a Resettlement policy is already in place along with an Entitlement Matrix. The entitlement matrix needs to be adapted to the project initiatives to arrive at appropriate entitlements for identified impacts. These entitlements should have special privileges to vulnerable people affected by the project. As resettlement impacts in the NCRMP may also be on encroachers and squatters, they need to be rehabilitated at appropriate locations and provided with training for livelihood support.

#### 5.2.1.2 *Eligibility for Benefits*

Project Affected Persons (PAPs) are defined as persons whose livelihood or shelter is directly affected by the project activities due to acquisition of the land owned or used by them. PAPs deemed eligible for compensation are:

- Those who have formal legal rights to land, water resources or structures/buildings, including recognized customary and traditional rights;
- Those who do not have such formal legal rights but have a claim to usufruct rights rooted in customary law; and
- Those whose claim to land and water resources or building/structures do not fall within (a) and (b) above, are eligible to resettlement assistance to restore their livelihood.

#### 5.2.1.3 *Entitlement Matrix*

Table below represents the Entitlement framework for the proposed project. State level variations and details wherever, have been recorded in Annexure 6. In case of need of any particular reference, the annexure may be consulted.

	Category	Type of loss	Entitlement	Compensation
1A	Private property	Land and assets (non	Compensation at “replacement	<b>Compensation</b> <ul style="list-style-type: none"><li>• Cash compensation for the land and structure</li></ul>

	Category	Type of loss	Entitlement	Compensation
		agricultural)	cost” or “actual market value”.	<p>at replacement cost shall be given to the titleholder as decided by the Competent Authority.</p> <ul style="list-style-type: none"> <li>If the replacement cost is more than the compensation (at “market price” as determined by the land acquisition authority), then the difference is to be paid by the ‘<i>requiring body</i>’ in the form of “assistance”.</li> <li>Stamp duty and other fees payable for registration shall be borne by ‘<i>requiring body</i>’.</li> <li>In the case of loss of house, a house may also be offered in lieu of the acquired house<sup>1</sup>.</li> <li>In case of linear acquisitions, an ex-grata amount will be paid as decided by the competent authority at the time of acquisition<sup>2</sup></li> </ul> <p><b>Assistance</b></p> <ul style="list-style-type: none"> <li>Each PAF shall get financial assistance as transportation cost for shifting of building materials, belongings etc<sup>3</sup>.</li> <li>For partially affected structures, compensation at replacement cost for loss of affected area shall be provided. PAF whose structures are partially affected shall be eligible for assistance for repairing/ strengthening cost of remaining structure.</li> <li>A 2 months notice shall be given for the removal of structures. The owner/tenant (in cases where a tenant occupies the structure) shall be given the right to salvage material from the structure.</li> </ul>
1B	Private property	Agricultural land and any standing crops/trees etc on it	Compensation at “replacement cost” or “actual market value”.	<p><b>Compensation</b></p> <ul style="list-style-type: none"> <li>The compensation for the land shall be given to the titleholder as decided by the Competent Authority. If the value is not updated/less than the prevailing market value (for the year of payment of compensation), then it should be increased by the prevailing inflation rate for each year up-to the year of acquisition. For delayed payments, an additional interest (as per the bank interest rate of the year) shall</li> </ul>

<sup>1</sup> The decision for this will lie with the competent state authority. The area of land allotted for the house may not exceed 250 sq.mt. in rural area and 150 sq.mt. in urban area.

<sup>2</sup> Ex-gratia is subject to a min of Rs 20,000 (as specified by National R&R policy). If a different amount is specified by the State R&R policy, the same may be given. In case of no such specifications, the national policy will apply.

<sup>3</sup> For the amounts of assistance, please refer to the respective state policies or the National R&R Policy 2007, in case the state does not specify an R&R policy .

	Category	Type of loss	Entitlement	Compensation
				<p>be paid.</p> <ul style="list-style-type: none"> <li>• If the replacement cost is more than the compensation (at “market price” as determined by the land acquisition authority), then the difference is to be paid by the project in the form of “assistance”.</li> <li>• In case of partial acquisition of land or severance, where the farmer becomes a marginal or small farmer due to the acquisition, then an additional grant shall be given<sup>4</sup>.</li> <li>• Stamp duty and other fees payable for registration shall be borne by the ‘<i>requiring body</i>’.</li> <li>• In case of linear acquisitions, an ex-gratia amount will be paid as decided by the competent authority at the time of acquisition<sup>2</sup></li> </ul> <p><b>Assistance</b></p> <ul style="list-style-type: none"> <li>• Each PAF shall get financial assistance as transportation cost for shifting of building materials, belongings etc<sup>5</sup>.</li> <li>• A four months advance notice shall be given to salvage crops.</li> </ul>
1C	Landless	Not having homestead land, agricultural land or either of them (but residing continuously for a period of not less than three years in the affected area preceding the date of declaration of the	Provision for house	<p><b>Assistance</b></p> <ul style="list-style-type: none"> <li>• A house may be offered in lieu of the house being removed<sup>6</sup></li> <li>• Affected families which opt not to take the house offered shall get a suitable one-time financial assistance for house construction, and the amount shall not be less than what is given under any program of house construction by the Government of India.</li> </ul>

<sup>4</sup> The amount of additional grant will be decided based on the state R&R policy or by the competent authority in the respective state in consultation with the community.

<sup>5</sup> For the amounts of assistance, please refer to the respective state policies or the National R&R Policy 2007, in case the state does not specify an R&R policy.

<sup>6</sup> The maximum area of land to be allotted in such a case will be decided at the time of preparation of R&R plan in consultation with the local community.



	Category	Type of loss	Entitlement	Compensation
		affected area)		
2A	Livelihood	Wage earning	Income restoration	<b>Assistance</b> <ul style="list-style-type: none"> <li>Financial assistance for loss of livelihood.</li> <li>If affected person is an agricultural labourer (not applicable if the labourer is a family member) he/she shall get a monthly subsistence allowance equivalent to 20 days minimum agricultural wages per month for a reasonable period not less than six months.</li> </ul>
3A	Non title holders	Encroachers/squatters	Assistance/rehabilitation	<ul style="list-style-type: none"> <li>Will receive no compensation for land but one time financial assistance for shifting assets to the vulnerable groups (SC, ST, Women Headed Households and poor). Such assistance shall be given only to residential and commercial properties;</li> <li>Encroachers will be notified a time in which to remove their assets;</li> <li>Right to salvage materials from the demolished structure.</li> </ul>
4C	Special category	Vulnerable/S C/ST/Tribal communities	Assistance	<ul style="list-style-type: none"> <li>Additional assistance for vulnerable groups will be provided as per the provisions of State R&amp;R policy</li> </ul>

For details on the National R&R policy and State specific R&R policy, refer Annexure 6

### 5.2.2 Cultural Property Resources

All utilities and common property resources likely to be affected due to the project will be relocated with prior approval of the concerned agencies before start of construction. Similarly, cultural properties whose structure is likely to get affected, will be relocated at suitable locations, as desired by the community before construction starts. Local community need to be contacted and discuss relocation aspects, siting as well as their maintenance.

All necessary and adequate care shall be taken to minimize impact on cultural properties (which includes cultural sites and remains, places of worship including temples, mosques, churches and shrines, etc., graveyards, monuments and any other important structures as identified during design and all properties/sites/remains notified under the Ancient Sites and Remains Act. No work shall spillover to these properties, premises and precincts.

### 5.2.3 Indigenous People

“Indigenous Peoples” as defined for the purposes of the OP 4.10, are members of distinct indigenous cultural group, collective attachment to geographically distinct habitats or ancestral territories, customary cultural,

economic, social or political institutions that are separate from those of dominant society and culture and have an indigenous language different from the official language of the country or the region. Under Article 342 of the Indian Constitution, the following characteristics define indigenous peoples [Scheduled Tribes (STs)], (i) tribes' primitive traits; (ii) distinctive culture; (iii) shyness with the public at large; (iv) geographical isolation; and (v) social and economic backwardness before notifying them as an ST. IPs have a social and cultural identity distinct from the 'mainstream' society that makes them vulnerable to being overlooked or marginalized in the development processes.

All sub-projects are being implemented in the rural areas which consist of SC / ST population. Impacts on these groups would be addressed through the entitlement framework specified for the project inline with the ESMF requirements.

## **5.2.4 Acquisition of land and payment of compensation**

### **5.2.4.1 *Voluntary land donation***

Land acquisition is likely to take place through a combination of several methods. Identification of available vacant government lands will be the most preferred method. In addition, the lands belonging to temples trusts, Gram Panchayats, etc. will also be explored. In some cases the land owners or Gram Panchayats or temples may come forward for voluntary donation of lands.

Individuals may also elect to voluntarily contribute land or assets, provided the persons making such contributions do so willingly and are informed that they have the right to refuse such contributions.

Procedures will be in place to ensure that all donations are voluntary and freely given; that the donor is the legitimate owner of the land; and that the donor is fully informed of the nature of the project, the implications of donating the property, and his entitlements as provided for in the land acquisition and resettlement policy being adopted by the project.. The following measures will have to be applied in dealing with land donations, based on their relevance to the cases being encountered:

- i. An assessment that the affected person does not suffer a substantial loss affecting his/her economic viability as a result of the donation;
- ii. Proof of meeting where the land acquisition and resettlement policy has been discussed with the affected person and acknowledgement by the affected person of his knowledge of the land acquisition and resettlement policy.
- iii. Certification from the government body that the land is free of claims or encroachments from any third party;
- iv. Deed of donation to the proponent concerned, as witnessed by the government officials, duly registered and Declaration of ownership with waiver of claims for affected assets;
- v. Waiver of rights/quit claim (for plants, trees, houses, structures claimed by tenants, informal settlers)

### **5.2.4.2 *Land acquisition/private purchase***

The private land acquisition will be made through private negotiations or using the land acquisition process. Based on the above support principles, the individual entitlements will be proposed and included in the RP. In case of acquisition of private lands, the compensation rates will be decided by the Land Acquisition Officer in accordance with the prevailing market rates.

In case of losses to structures, the compensation will be determined in accordance with the Public Works Department's current Schedule of Rates for new construction of similar quality without depreciation.

### **5.2.5 Consultation and information disclosure proposed**

The ESMF envisages involvement of all the stakeholders' at each stage of the project planning and implementation. The PIU/state level nodal agency will be responsible for ensuring participation of the community at sub-project level. Involvement of the community includes interactions with the community and disclosing relevant information pertaining to the project tasks. Community participation shall be undertaken at the following stages:

- **Planning Stage:**
  - To sensitize the community about the project and their role
  - Disseminate information about the project, work schedule and the procedures involved; finalisation of project components with identification of impacts, entitled persons, mitigation measures; and grievance redressal.
- **Implementation Stage:** Informing the stakeholders about the impacts during construction and monitoring the transparency in project implementation.

#### **5.2.5.1 Planning**

Dissemination of project information to the community and relevant stakeholders is to be carried out by the PIU at this stage of the project initiative. The community at large shall be made aware of the project alternatives and necessary feedback is to be obtained. This should include the process being followed for prioritisation of the identified sub-projects and the proposed benefits. Community and other stakeholders should be involved in the decision making to the extent possible.

Sub-project information is to be distributed amongst the community towards increasing their awareness and their roles and responsibilities. Consultations with Project Affected Persons and their profiling are mandatory requirements of preparing RAP.

#### **5.2.5.2 Implementation stage**

Consultations as part of the implementation stage would be direct interactions of the implementation agency with the Project Affected Persons. These would comprise of consultations towards relocation of the PAPs, relocation of cultural properties, and towards address of impacts on environmental resources as water bodies, trees etc. With the implementation of R&R provisions in progress, consultations and information dissemination is to be undertaken to let the affected persons be informed of the progress. Implementation stage also involves redressal of grievances in case of R&R aspects.

#### **5.2.5.3 Information Disclosure**

The mechanism of information dissemination should be simple and be accessible to all. The means that may be explored include briefing material and organization of community consultation sessions. The briefing material (to be prepared in local language) can be in the form of a) brochures (including project information, land acquisition and details of entitlements including compensation and assistance to be given to the PAPs) that can be kept in the local Government office; b) posters to be displayed at prominent locations and c)

leaflets that can be distributed throughout the length of the project corridors. Consultation meetings should also be organized at regular intervals by the PIU to acquaint the PAPs of the following:

- Timeline and progress of the project;
- Information on compensation and entitlements;
- Information on land acquisition and market valuations of property;
- Time line for acquisition.

Also, opinion and consensus of the community needs to be sought for common and cultural property relocation.

### **5.2.6 Grievance redressal**

In the NCRM project all efforts will be made so that the compensation package for PAF's is decided in consultation with the community so as to avoid any dispute. In case of a potential dispute the matter will be brought to the notice of local tehsildar/Sub Divisional Magistrate (SDM). He shall hear the case in presence of (a) the affected party, (b) the incharge of line department who is acquiring the land/ incharge of the sub-project activity and (c) sarpanch of the village where the sub-project is being implemented. He will try to reach an amicable solution to the issue.

However, in case of non-satisfactory solution, the matter will be brought to the notice of the District Collector and he is the final authority to decide the case. The hearing will be attended by all members present for hearing with the SDM as well as the Social Management Specialist of the PIU. The Social Management Specialist will be responsible for maintaining a record of the proceedings and the final decisions.

### **5.2.7 Subproject approval**

In the event that a subproject involves land acquisition against compensation or loss of livelihood or shelter, the implementing agency shall:

- Not approve the subproject until a satisfactory RP has been prepared and shared with the affected person and the local community; and
- Not allow works to start until the compensation and assistance has been made available in accordance with the framework.

### **5.3 Identification of impacts through social screening**

Though it is envisaged that the subproject activities will have very generic social issues that are manageable through standards and codes of practice, there might be some sub-project activities proposed in due course, that carry a higher risk social disruptions and/or impacts. The possibility of such an issue arising in the sub-project site will be identified during the screening process. The screening check list for the NCRMP (refer Annexure 3, Chapter 3) has been designed to identify sub-projects with potential social issues that may need to be addressed at the project planning stage.

### **5.4 Preparation of Resettlement Plans**

Having identified the potential impacts of the relevant sub-projects, the next step is to develop action plans to mitigate the impacts. The RPs provides a link between the impacts identified and proposed mitigation measures to realize the objectives of involuntary resettlement. The RPs will take into account magnitude of impacts and accordingly prepare a resettlement plan that is consistent with this framework for Bank approval before the sub-project is accepted for Bank financing.

- Sub-projects that will affect more than 200 people due to land acquisition and/or physical relocation would require an SIA and a full Resettlement Plan (RP).
- Sub-projects that will affect less than 200 people will require an abbreviated RP;

Such plans will be prepared as soon as the sub-project is finalized and cleared prior to approval of the bid documents.

- Projects that are not expected to have any land acquisition or any other significant adverse social impacts are exempted from any further social intervention.

The terms of reference for conducting an SIA are indicated as Annexure7. The indicative outline of Resettlement Plans is provided in Annexure 8

# Chapter 6: ESMF Implementation and Management Arrangements

## 6.1 Process Description

The project cycle for ESMF implementation and management comprises of the following stages.

1. Identification of the project
2. Project screening
3. Implementation &
4. Monitoring

As a first step, a site is proposed for investment in the relevant sector. If the sub-activity at the site is not prohibited, the site shall be taken up for screening of potential environment and social impacts.

The site is then screened on the basis of screening checklist provided in Chapter 3 of this ESMF document for potential environment and social impacts. This would help identify whether implementing the sub-project at the selected site would result in potential adverse social/ and environment impact. The sub-projects that have minimal or no impacts may thus be considered in Year I of the project as documentation and clearance requirements can be fulfilled with the project preparation duration for these projects while the sub-projects that require more rigorous environmental or social assessments could be placed for execution beyond Year 1 as these documents need time for preparation.

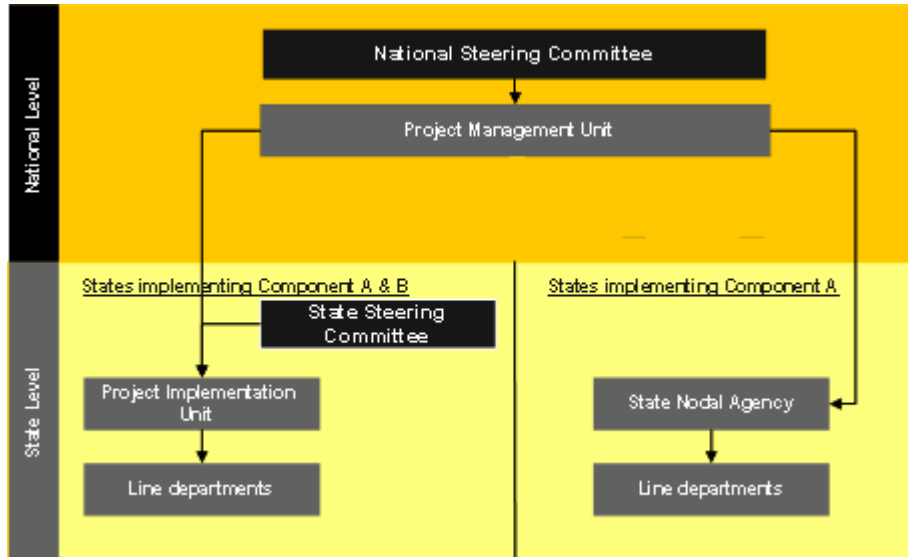
Based on the results of the screening process, an Environmental Impact Assessment (EIA) or a Social Impact Assessment (SIA) may be conducted as required. The EIA and/or SIA should recommend appropriate mitigation measures to address the adverse environmental and/or social impacts respectively. These mitigation measures will form part of an Environmental Management Plan (EMP) or a Resettlement Action Plan (RAP) respectively. Should the project activity not require an EIA based on the outcome of the screening process, the indicative EMP provided in Annexure 5 of the ESMF document can be adopted. As far as SIA is concerned, no SIA would be required if the implementation of the sub-project activity affects less than 200 people (i.e. either complete or partial loss of assets and/or livelihood) and an abbreviated RAP can be prepared based on the entitlement framework provided in this ESMF document.

The EMPs and/or RAPs would be integrated into contract documents so that the mitigation measures will be put into practice during the implementation phase.

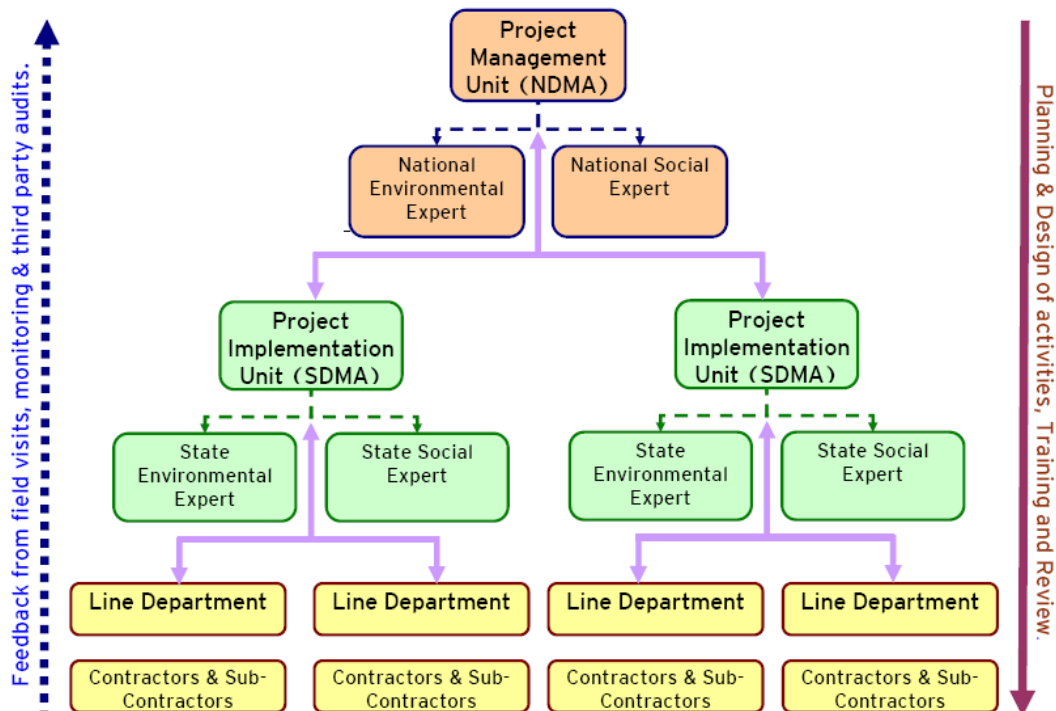
The progress of the implementation of EMP and RAP during the project implementation should be monitored on a regular basis. The continued deployment of EMPs and RAPs post-implementation would also be monitored. Necessary budgetary provisions for these measures shall be included as part of the Investment Proposals/DPR for each sub-project activity.

## 6.2 Institutional arrangements:

The delivery of the NCRMP is overseen by a National Steering Committee that is supported by a Project Management Unit (PMU). The PMU will be established at the NDMA for active oversight on the different components across the states. Each state in turn has State Steering Committee and a Project Implementation Unit (PIU) for coordinating the day to day activities with the relevant line departments. The overall implementation structure is as follows:



Both the PIU and the PMU have functional and management teams comprising of the Project Managers, Engineers, Procurement specialists, Financial specialists, Environment & Social specialists and support staff. The role of the different agencies for the social and environment management is as follows:



### **6.2.1 Project Management Unit**

Two members of the PMU will be designated as Environmental & Social Officers to oversee the implementation of ESMF as well as any other environmental and social provisions as deemed fit for project implementation as per the regulations of the World Bank and the Government of India. The role of these specialists is indicated as follows:

#### **6.2.1.1 PMU'S Environmental and Social Experts - Roles & Responsibilities**

- Preparation and updating of the ESMF
- Training and orientation of the PIU teams on the requirement of the ESMF
- Reviewing the monitoring reports submitted by the States for compliance with the EMP and the RAP from the States
- Visit a sample of environmentally sensitive sites, across the implementing states, to review compliance with the EMP and the RAP
- Provide guidance and inputs to the State PIU on environment and social management aspects
- Act as a single point of contact for resolving queries by the Bank

**Qualification and Experience (Environment Expert):** A Master's Degree in Environment/Natural Resources or related areas with experience on the environmental safeguard policies of agencies like World Bank and Asian Development Bank. The candidate must possess good writing, reporting and communication skills.

**Qualification and Experience (Social Expert):** A Master's Degree in social sciences with experience of the social safeguard policies of multilateral aided projects. Should have good knowledge of the prevailing R&R regulations/laws of the country, States, and World Bank. The candidate must possess good writing, reporting and communication skills.

### **6.2.2 Project Implementation Unit**

The Environmental & Social Officer shall oversee the implementation of ESMF as well as any other environmental and social provisions as deemed fit for project implementation as per the regulations of the World Bank and the Government of India.

#### **6.2.2.1 PIU'S Environment Specialists– Roles & Responsibilities**

The primary scope of work of the Environmental Specialist is to help the State Project Implementation Unit in preparing and implementing the approved Environmental and Social Management Framework (ESMF). Other duties/works include but not limited to the following

- Coordinate the preparation of environmental screening report of project sites assessments,
- Preparation of site specific environment management plans (EMP) for selected subprojects;
- Capacity building of staff, contractors, stakeholders and consultants (wherever detailed Environmental Impact Assessments (EIAs) are taken up) on environmental safeguard issues, practices and procedures to be followed;
- Organizing training for line departments on ESMF / EMP implementation
- Ensuring appropriate application of the ESMF to all components and sub-projects.



- Identifying and providing oversight to other consultants who may be deployed to carry out sub-project specific EAs and EMPs of sub-projects (wherever required);
- Prepare information, communication, and education strategy to enable proper conduct of stakeholder consultations and documenting the implementation of EMPs;
- Detailing all the environmental laws and regulations of the state and national government which will apply to specific sub project activities;
- Liaising with various State line departments & other implementing agencies to provide necessary advice on environmental matters;
- Coordinating with MoEF and State-level regulatory authorities for obtaining environment clearances in a timely manner;
- Periodic site visits to ensure that environmental requirements in the ESMF are being followed during implementation of projects activities by the Line departments and contractors, identify shortcomings and advise on the remedial measures.
- Preparing and / or providing necessary inputs to project quarterly progress reports on environmental matters pertaining to ESMF implementation;
- Supporting hiring of external environmental auditors where appointed by the PIU's and coordinating the conduct of these audits as per the ESMF requirements. Oversee the working of the third party auditors for social and environment compliance, including review of:
  - the audit plan,
  - the results and the exceptions of the audits and recommended corrective action

**Qualification and Experience:** A Master's Degree in Environment/Natural Resources or related areas. Good and demonstrated understanding of the environmental safeguard policies of agencies like World Bank and Asian Development Bank is a prerequisite for this position. The person shall have hands on experience in projects funded by the WB and/or other multilateral agencies in India and the State (preferably). Must possess good writing, reporting and communication skills.

#### **6.2.2.2 PIU'S Social Expert – Roles & Responsibilities**

The primary scope of work of the Social Development and Resettlement Specialist is to help the State Project Implementation Unit in preparing and implementing the approved social aspects of the Environmental and Social Management Framework (ESMF). Other duties/works include but not limited to the following:

- The consultant will assist the state level PIUs, their line departments, Implementing Agencies (IAs) and non governmental organizations (NGOs) engaged in the project in community mobilization, preparation, and implementation of resettlement plans in accordance with the agreed ESMF;
- Assist the above stakeholders in the preparation and implementation of RAP for sub-projects which trigger adverse social concerns for the Project Affected People (PAPs);
- Carry out wherever required an initial poverty and social assessment, sample socio-economic survey, and detailed inventory of affected assets and losses and disclosure of the sub-project Resettlement Plan to the affected persons;
- Provide guidance to line departments/implementing NGOs in preparation of information materials related to resettlement, consultation with PAPs on resettlement/relocation options and finalization of

individual entitlements, verification, and delivery of compensation and allowances, house reconstruction (if required) prior to dispossession or displacement;

- Wherever land acquisition issues are involved, liaise with District Collectors and relevant authorities to expedite land acquisition process and assist in finalizing estimates of compensation, extend assistance to PIU and line departments in effectively addressing the grievances of the PAPs in consultation with Grievance Redressal mechanisms;
- Monitor all land acquisition and resettlement related activities;
- Prepare monthly progress reports highlighting implementation progress, issues/constraints that require decisions by the PIUs and other agencies involved.

**Qualification and Experience:** A Master's Degree in social sciences with good knowledge of the prevailing R&R regulations/laws of the country, state, and World Bank. The person shall have hands on experience in projects funded by the WB and/or other multilateral agencies in India and the State (preferably). Must possess good writing, reporting and communication skills.

### **6.2.3 Line department**

The line department has the overall responsibility for execution of the contracted work through the contractors/department itself. The line department is responsible for ensuring that the EMPs and the RAPs are implemented for their respective sub-projects.

#### **Roles & Responsibilities:**

- Leading the social and environment screening for the sub-project site
- Onsite review for compliance with the EMP and the RAP

### **6.2.4 Third Party Auditors**

Third party auditors may be appointed by the PIU to provide independent assurance on compliance with the EMPs and the RAPs across project sites.

#### **Roles & Responsibilities:**

- Support the PIU in preparing the audit plan
- Prepare compliance report for sub-project activities with ESMF guidelines and other statutory requirements as applicable through scheduled or unscheduled audits
- Conducting random field visits especially at the environmentally or socially sensitive areas
- Review the performance of the project through an assessment of periodical monitoring reports submitted by the line department/PIUs.
- Share audit findings with the PIU to aid in timely decision making and adopting appropriate mitigation action if necessary.

## **6.3 Project Monitoring and reporting**

Each PIU shall have a designated Environment & Social Sector Specialists. They shall be responsible for overseeing compliance of the sub-projects with the safeguards as well as reviewing the timely

implementation of environment and social provisions as per the ESMF, EMP and RAP where applicable. The objectives of Environment & Social monitoring includes:

- Successful completion of environmental management, R&R activities identified in the EMP and R&R plan as per the implementation schedule
- Compliance with the environmental policy, R&R policy and entitlement framework.

The Environment and Social Sector specialists shall play a key role in reporting the progress of implementation as well as compliance to the PIU, PMU and the World Bank.

The following set of MIS shall be made available for review:

No	Particulars	Frequency of updation	Reporting Responsibility	Monitoring responsibility
1	Compliance Status report: <i>'Environmentally &amp; socially sensitive sites, status of conduct of EIA/SIA, and status of compliance at these sites</i>	Monthly  Quarterly	PIU – Environmental and Social Expert  PIU – Environmental and Social Expert	PIU - Project Director  PMU – Environmental and Social
2	Environment and social site visit report encapsulating– a. plan vs actual b. exceptions noted in visit	Quarterly	PIU – Environmental and Social Expert	PIU - Project Director  PMU – Environmental and Social
3	Verification of land to be acquired and status of land acquisition	Monthly	PIU – Social Expert	PIU – Project Director
4	Distribution of entitlements and assistances	Monthly	PIU – Social Expert	PIU – Social Expert
5	Community consultations	Quarterly	PIU – Social Expert	PIU - Project Director  PMU – Environmental and Social
6	Progress of grievance redressal	Monthly  Quarterly	PIU – Social Expert  PIU – Social Expert	PIU - Project Director  PMU – Environmental and Social

## 6.4 Budget for the ESMF

To effectively implement the environmental and social management measures suggested as part of the ESMF, necessary budgetary provisions should be made in the DPRs for the individual sub-projects. Tentative budget for each of the project should include the environmental management costs other than the good engineering practices, cost of environmental and resettlement monitoring. All administrative costs for implementing the ESMF shall be budgeted for as part of the PIU and PMU costing.

## **6.5 Updating and revisions to the ESMF**

The ESMF will be utilized for screening of projects as well as the implementation of the specified environmental and social management plans in the sub-project activities. The ESMF should be an 'up to date' or a 'live document' enabling revision where necessary. It is possible that certain aspects that are not included in this ESMF may arise in the future. Those aspects should be assessed and the appropriate management measures needs to be incorporated in to the ESMF.

The first review of the ESMF for changes shall be performed at the end of the first year of implementation followed by a mid term review.

# Annexure 1 - References

## Accessing Information

### **Baseline Data:**

The baseline data for the different states can be obtained from various sources such as:

1. Official State Government Website
  - a. [www.aponline.gov.in](http://www.aponline.gov.in)
  - b. [www.gujaratindia.com](http://www.gujaratindia.com)
  - c. [www.maharashtra.gov.in](http://www.maharashtra.gov.in)
  - d. [www.orissa.gov.in](http://www.orissa.gov.in)
2. State of Environment Reports published by Environmental Information System (ENVIS) of Environment Protection Training and Research Institute (EPTRI)
3. State Disaster Management Authorities
4. Orissa Environmental Society – [www.orissaenvironment.com/](http://www.orissaenvironment.com/)
5. Gujarat Ecology Commission – [www.gec.gov.in/](http://www.gec.gov.in/)
6. Andhra Pradesh Information Commission – [www.apic.gov.in/](http://www.apic.gov.in/)
7. Environmental Information System (ENVIS) Orissa – [www.orienvis.nic.in](http://www.orienvis.nic.in)
8. Building Materials & Technology Promotion Council – [www.bmtpc.org](http://www.bmtpc.org)
9. Maps of India – [www.mapsofindia.com](http://www.mapsofindia.com)
10. National Disaster Management Authority Website – <http://ndma.gov.in/wps/poratl/NDMAPortal>
11. State disaster Management Authority Website
  - a. [www.disastermanagement.ap.gov.in](http://www.disastermanagement.ap.gov.in)
  - b. [www.gsdma.org](http://www.gsdma.org)
  - c. [www.mdmu.maharashtra.gov.in](http://www.mdmu.maharashtra.gov.in)
  - d. [www.osdma.org](http://www.osdma.org)

### **Legislations:**

The legislations applicable to the different sub-project activities can be obtained from

1. Ministry of Environment & Forests - <http://envfor.nic.in/legis/legis.html> Contains legislations on:
  - a. Water Pollution
  - b. Air Pollution
  - c. Environment Protection
  - d. Coastal Regulation
  - e. Environmental Clearance
  - f. Hazardous Substances Management
  - g. Loss of Ecology
  - h. Noise Pollution
  - i. Animal Welfare
  - j. Wildlife
  - k. Forest Conservation
  - l. Biodiversity
2. Department of Environment & Forests – <http://forest.and.nic.in/>
  - a. CRZ Notification
  - b. Forest Conservation Act

3. Department of Land Resources, Ministry of Rural Development – <http://dolr.nic.in/>
  - a. The Land Acquisition Act (LA)
  - b. National Rehabilitation and Resettlement Policy, 2007
4. National Disaster Management, Ministry of Home Affairs – <http://www.ndmindia.nic.in/>
  - a. World Bank Guidelines for preparing Cyclone Risk Mitigation investments in States/UTs
5. World Bank Environmental Standards and Guidelines - <http://www.worldbank.org/html/fpd/em/power/standards/standards.stm>
6. India's international obligations - <http://coe.mse.ac.in/iio.asp>
7. Government of Orissa - [www.orissa.gov.in/revenue/R&RPOLICIES/Relief%20and%20Rehabilitation/R&R\\_2006/r&R1.html](http://www.orissa.gov.in/revenue/R&RPOLICIES/Relief%20and%20Rehabilitation/R&R_2006/r&R1.html)

### **Environment Management Plan:**

The environment management plan for the various sub-project activities is based on different standards laid down by the Government of India. They can be accessed from the following sources:

1. National Building Code of India 2005 – <http://bis.org.in/sf/nbc.htm>
2. Indian Standards on Earthquake Engineering – <http://bis.org.in/other/quake.htm>
3. Indian Road Congress – <http://irc.org.in/>
4. Mandate (Mangrove Database) – [www.mangroveindia.org](http://www.mangroveindia.org)
5. Wildlife Institute of India – List of threatened plants
  - a. [http://www.wii.gov.in/nwdc/threatened\\_plants\\_andhra\\_pradesh.pdf](http://www.wii.gov.in/nwdc/threatened_plants_andhra_pradesh.pdf)
  - b. [http://www.wii.gov.in/nwdc/threatened\\_plants\\_gujarat.pdf](http://www.wii.gov.in/nwdc/threatened_plants_gujarat.pdf)
  - c. [http://www.wii.gov.in/nwdc/threatened\\_plants\\_maharashtra.pdf](http://www.wii.gov.in/nwdc/threatened_plants_maharashtra.pdf)
  - d. [http://www.wii.gov.in/nwdc/threatened\\_plants\\_orissa.pdf](http://www.wii.gov.in/nwdc/threatened_plants_orissa.pdf)

## Annexure 2 - List of prohibited activities

Sub-projects with any of the attributes listed below will be ineligible for support under the proposed project. The following is a list of sites that is prohibited:

### As per EPA Act and EIA Notification 2006

(<http://envfor.nic.in/divisions/iass/eia/Cover.htm>)

(<http://envfor.nic.in/legis/eia/so1533.pdf>)

- a) Any new construction within a biosphere reserve, national park wildlife/bird sanctuary, game reserve, tiger reserve/elephant reserve, wetland, important bird areas, coastal area with corals, mangrove area, estuary with mangroves, turtle nesting grounds, swamps/mudflats, notified sensitive eco zones.
- b) Any activity within the High Tide Line and the Low Tide Line
- c) Any activity within a distance of:
  - i. 200 meters from the estuary boundaries.
  - ii. 500 meters from flood plain or modified flood plain or by flood control systems of a riverine system.
  - iii. 500 meters from railway line.

### As per the Ancient Monuments and Archaeological Sites and Remains Rules 1959

([http://asi.nic.in/asi\\_legislations.asp](http://asi.nic.in/asi_legislations.asp) )

- a) Any sub-project activity within 100 meters from the protected limits of notified archaeological sites or monuments

## Annexure 3 - Environment and Social Screening Form

### National Cyclone Risk Mitigation Project

#### Environment and Social Screening Form

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This screening form is in 3 parts – Part A provides general information about the site. Part B helps assess whether the site selected for the project is prohibited or not. Part C and D provide details on environment and social screening respectively.

#### Part A: General Information about the sub-project

Sub Project ID:

1. Name of the State	
<b>Type of proposed sub-project activity (tick the applicable option)</b>	
2. Cyclone Shelter	
3. Cyclone Shelter with Access Road/Culverts	
4. Plantation of Mangroves	
5. Roads/Bridges/Culverts	
6. Shelter Belt Plantation	
7. Saline Embankment	
8. Coastal canal	
9. Communication Tower	
10. Any Other (Please Specify)	

<b>Location of the sub project activity:</b>	
1. Village	
2. Taluka	
3. District, State	
4. Size of the sub-project:	
a. Cyclone Shelter – approx. built up area (m <sup>2</sup> )	
b. Saline embankments – approx. length (m)x width (m) x height (m)	
c. Plantation of Mangroves and Shelter Belt Plantation -approx. length along coastline (m) x width (m)	
d. Coastal Canal, and Roads/ Bridges/ Culverts – approx. length (m) x width (m)	
e. Communication Tower – height (m)	

<b>Land requirement for the sub project (in Ha or m<sup>2</sup>)</b>	
1. Total Requirement	



a. Private Land	
b. Govt. Land	
c. Forest Land	
<b>Note:</b> <i>If any forest land has been proposed for the sub-project activity, then relevant clearances must be obtained from the Forest department.</i>	

<b>Implementing Agency Details (sub-project level)</b>	
1. Name of the Department/Agency	
2. Name of the designated contact person	
3. Designation	
4. Contact Number	
5. E-mail Id	

<b>Details about the Screening Exercise</b>	
1. Date	
2. Name of the Person	
3. Name of the Agency/Department	
4. Contact Number	
5. E-mail Id	

## Part B: Ascertaining whether the site is a prohibited site

<b>Objective</b>	On updating this section, the user would be able to ascertain if the activity is permissible at the selected site
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### PART B1: List of sites where sub-projects are prohibited

List of prohibited areas:	Yes	No	Provide details
1. Is the construction being proposed in whole or in part <b>within</b> a biosphere reserve, national park wildlife/bird sanctuary, game reserve, tiger reserve/elephant reserve, wetland, important bird areas, coastal area with corals, mangrove area, estuary with mangroves, turtle nesting grounds, swamps/mudflats, notified sensitive eco zones.			If yes, mention area
2. Is the sub-project located in whole or in part between the HTL and the LTL?			
3. Is the sub-project located in whole or in part 200 metres from an estuary boundary?			If yes, mention name & distance.
4. Is the sub-project located in whole or in part 500 meters from flood plain or modified flood plain or by flood control systems of a riverine system?			If yes, mention name & distance.
5. Is the sub-project located in whole or in part 500 meters from railway line?			If yes, mention details
6. Is the sub-project located in whole or in part within 100 meters from the protected limits of notified archaeological sites or monuments?			If yes, mention name

### PART B2: Results and outcome

No	Output	Outcome
1.	Answer to all the question is 'No'	<input type="checkbox"/> Proceed to PART C & PART D
2.	Answer to any question is 'Yes'	<input type="checkbox"/> Select a new site and re-initiate screening

### **PART C: Environmental Screening Form**

<b>Objective</b>	On updating this section, the user would be able to ascertain the nature of clearances required for the site
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#### **PART C1: Proximity to Coastal Regulatory Zone:**

<b>Applicability of this section</b>	This section is to be updated for all sub-projects
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<b>Proximity to the Coastal Regulatory Zone:</b>	<b>Yes</b>	<b>No</b>	<b>Provide details</b>
1. Is the sub-project located in whole or part within the Coastal Regulation Zone?			Refer to clause 1 of CRZ notification. ( <a href="http://envfor.nic.in/divisions/iass/notif/crz.htm">http://envfor.nic.in/divisions/iass/notif/crz.htm</a> )  If yes, mention the zoning classification and the approximate distance from HTL.

#### **PART C2: Proximity to environmentally sensitive areas:**

<b>Applicability of this section</b>	This section is to be updated only for activities where the <b>construction area is more than 20,000 sqmt but less than 150,000 sqmt. This shall include:</b> <ul style="list-style-type: none"><li>• Embankments</li><li>• Canals</li><li>• Any other activity</li></ul>
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<b>Is the sub-project located in whole or part within a radius of 10 km from any of the following?</b>	<b>Yes</b>	<b>No</b>	<b>Provide details</b>
1. Biosphere Reserve			If yes, mention name & distance.
2. National Park			If yes, mention name & distance.
3. Wildlife/Bird Sanctuary			If yes, mention name & distance.
4. Game Reserve			If yes, mention name & distance.
5. Tiger Reserve/Elephant Reserve			If yes, mention name & distance.
6. Turtle nesting grounds			If yes, mention name & distance.
7. Wetlands			If yes, mention name & distance.
8. Important Bird Areas (IBAs)			If yes, mention name & distance.
9. Coastal area with corals			If yes, mention name & distance.
10. Mangrove area			If yes, mention name & distance.
11. Estuary with mangroves			If yes, mention name & distance.
12. Natural Lakes			If yes, mention name & distance.
13. Swamps/mudflats			If yes, mention name & distance.
14. Interstate boundaries			If yes, mention name & distance.

#### **PART C3: Environmental screening – results and outcome**

<b>Purpose this section</b>	<ul style="list-style-type: none"> <li>Based on the answers provided in Section C1 and C2, this section would help the user ascertain the nature of clearances required</li> <li>All questions provided in the appended list need to be updated</li> </ul>
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Screening results	Yes
(a) Is the sub-project/any part thereof in forest land?	<input type="checkbox"/> Forest clearance is required
(b) Is the screening question in PART C1 answered 'yes'?	<input type="checkbox"/> CRZ clearance is required
(c) Is the area of the sub-project construction activity >150,000 square metres?	<input type="checkbox"/> EC is required from the MoEF
(d) PART C2 is applicable (i.e. the area of the sub-project construction activity is >20,000 square metres but < 150,000 square metres)  AND  At least one of the questions in PART C2 is answered 'Yes'	<input type="checkbox"/> EC is required from the MoEF
(e) PART C2 is applicable (i.e. the area of the sub-project construction activity is >20,000 square metres but < 150,000 square metres)  AND  None of the questions in PART C2 is answered 'Yes'	<input type="checkbox"/> EC is required from the SEIAA

Screening outcome
Based on the updating of the screening results, the following clearances are required:

Signed and Approved by the PIU Environmental Expert	
	Date:
	Name:

	Designation:
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## **PART D: Social Screening**

### **PART D1: Identification of potential social concerns**

<b>1. Does the proposed sub-project activity require any land?</b>			
<b>Yes</b>		<b>No</b>	
If yes, give the following details	Private Land (m <sup>2</sup> or Ha)		
	Govt. Revenue Land (including land at present used for grazing or leased for cultivation) (m <sup>2</sup> or Ha)		
	Forest Land (m <sup>2</sup> or Ha)		
<b>2. Does the proposed sub-project activity result in demolition/removal of existing structures?</b>			
<b>Yes</b>		<b>No</b>	
If so, give the following details:			
▪ Number of public structures/buildings			
▪ Number of common property resources (such as religious/cultural/ drinking water/wells/etc)			
▪ Number of private structures (located on private or public land)			
<b>3. Does the proposed Project activity result in loss of crops/trees which is not Government property?</b>			
<b>Yes</b>		<b>No</b>	
<b>4. Does the proposed Project activity result in loss of direct livelihood/ employment?</b>			
<b>Yes</b>		<b>No</b>	
<b>5. Does the proposed activity result in loss of mangrove ecosystem/social forest on which near by residents/local population are dependent for fuel wood/grazing etc.?</b>			
<b>Yes</b>		<b>No</b>	
If yes, give the details of the extent of area to be lost in m <sup>2</sup> or Ha			
<b>6. Does the proposed Project activity affect scheduled tribe/caste communities?</b>			
<b>Yes</b>		<b>No</b>	

<b>Part D (2) : Result/Outcome of Social Screening Exercise</b>		
	<b>Output</b>	<b>Outcome</b>
1.	Answer to all the question is 'No' and only forest land is being acquired	<input type="checkbox"/> No SIA/RAP required
2.	Answer to any question is 'Yes' and the sub-project does not affect more than 200 people (i.e. either complete or partial loss of assets and/or livelihood)	<input type="checkbox"/> Abbreviated RAP is required
3.	Answer to any question is 'Yes' and the sub-project affects more than 200 people ( <i>i.e. either complete or partial loss of assets and/or livelihood</i> )	<input type="checkbox"/> SIA/RAP Required

<b>Signed and Approved by the PIU Social Expert</b>	
	Date:
	Name:
	Designation:

## **Annexure 4 – Procedure for conducting an EIA**

The following process is to be followed for sub-project activities, wherein the requirement for further assessment has been determined.

### ***Step 1: Scoping***

Scoping is a process of detailing the terms of reference of EIA. The results of the screening checklist may also be utilized for drawing up the terms of reference. Quantifiable impacts are to be assessed on the basis of magnitude, prevalence, frequency and duration. Non-quantifiable impacts (such as aesthetic or recreational value) are commonly determined through the socio-economic criteria.

### ***Step 2: Baseline Data Collection***

After identification of the areas, where the sub-project activity could have significant impacts, the baseline status of these areas needs to be monitored. The likely changes on account of both the construction and operation of the proposed sub-project should be predicted. The base line data would provide a description of the existing environmental status of the identified study area. The site-specific primary data should be collected for the identified parameters and supplemented by secondary data if available.

### ***Step 3: Impact Assessment and Assessment of Alternatives***

Impact prediction is a way of mapping the environmental consequences of the significant aspects of the sub-project and its alternatives. For every sub-project, possible alternatives should be identified and their environmental attributes compared. Alternatives may be covered with respect to siting of the sub-project as well as technologies. These alternatives can then be ranked for identification of the options that aid in minimizing the adverse environmental impacts of the sub-project. After the identification of the alternatives, a mitigation plan should be drawn up for the selected option and should be supplemented with an Environmental Management Plan (EMP). The EMP guides the proponent towards environmental improvements and acts as a crucial input in monitoring the environmental clearance conditions. Hence it is essential that the details of monitoring should be included in the EMP.

### ***Step 4: Preparation of the Draft EIA Report***

An EIA report should provide clear information about the different environmental scenarios without the sub-project, with the sub-project and with sub-project alternatives. The proponent should prepare the Detailed Project Report and provide the information in a logical and transparent manner.

### ***Step 5: Public Consultation***

Public consultation can ideally occur at various stages of the EIA. However, it is essential that the public consultation is done after the preparation of the draft EIA Report. All Project Affected People (PAPs) are entitled to have access to the summary of the impact assessment statement. The affected persons may include bonafide local residents, local associations, environmental groups active in the area, and any other person located at the sub-project site / sites of displacement. All PAPs should be given an opportunity to make oral/written suggestions and comments on the impact assessment report.

### ***Step 6: Decision Making***



Decision making process involves consultation between the project proponent (assisted by a consultant) and the impact assessment authority (assisted by an expert group if necessary). The decision on environmental clearance is arrived at through a number of steps including the evaluation of EIA and EMP.

***Step 7: Monitoring***

Monitoring has to be done during both construction and operation phases of a sub-project. It is done to ensure that the commitments made are complied and also to observe whether the predictions made in the EIA reports are correct or not. It may be noted that the predictions made may differ from the actual outcomes as a result of the adoption of mitigation measures. If the impacts, however, exceed the predicted levels, corrective action should be taken.

## Annexure 5 – Indicative Management Plans

Note- the EMP's to be prepared by the line departments will have the columns of responsibility, timeline and budget provided with each aspect

### 5.1 Indicative EMP for Roads/Bridges/Culverts

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
<b>PLANNING &amp; DESIGN PHASE:</b>		
Measures that should be considered by the respective Line Departments while preparing the Detailed Project Report (DPR)		
Initiation of construction prior to receipt of all clearances	➤ Legal non compliance	1. All clearance / approvals required for Environmental aspects during construction shall be ensured and made available before start of work.
Siting	<ul style="list-style-type: none"> <li>➤ Use of an unproved site</li> <li>➤ Land acquisition</li> <li>➤ Tree felling</li> <li>➤ Noise and air pollution can affect adjoining human settlements</li> <li>➤ Destruction of, or disturbance to wildlife habitat</li> <li>➤ Flooding or water logging in the project area</li> <li>➤ Water contamination</li> </ul>	<ol style="list-style-type: none"> <li>1. Ensure that the designated Environmental and Social Experts of the State has authorized and approved the screening checklist for the concerned activity at each proposed site.</li> <li>2. Apply siting criteria               <ol style="list-style-type: none"> <li>a) Avoid unfavorable hydro-geologic conditions</li> <li>b) Utilize existing revenue tracts wherever possible</li> <li>c) Avoid construction of roads which pass through forests, wild life parks/habitats, fisheries, aquatic habitats, breeding grounds, wetlands, common properties and within or adjacent to archaeological site or monuments.</li> <li>d) Avoid construction of roads which pass through sensitive areas like schools, health centers, residential location, cultural areas and historical places.</li> <li>e) In case the proposed site is flood prone and/or has a very flat slope, carry out hydrological surveys before alignment finalization (need for provision of culverts/bridges or cross/roadside drainage structures)</li> <li>f) Site should be selected in consultation with local communities/ tribes to check for socially sensitive, conflict prone areas and usage of such sites for the construction of roads should be avoided</li> </ol> </li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		g) Avoid/minimize tree felling
<b>CONSTRUCTION PHASE:</b> The following section contains instructions to the contractors, which should be adhered to while carrying out the construction activity. This section should be appended into the relevant bid document.		
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of and disturbance to habitat</li> <li>➤ Global warming</li> </ul>	<ol style="list-style-type: none"> <li>1. Tree felling shall be minimized;               <ol style="list-style-type: none"> <li>a) Cutting of trees with specific medicinal, religious, archaeological, environmental importance should be avoided.</li> <li>b) Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area.</li> <li>c) Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department.</li> </ol> </li> </ol>
Construction	<ul style="list-style-type: none"> <li>➤ Top soil erosion</li> <li>➤ Dust during construction, and due to transport</li> <li>➤ Noise pollution</li> <li>➤ Clogging of drainage by soil run-off, increasing the chances of flooding</li> <li>➤ Water-logging and creation of mosquito breeding grounds</li> <li>➤ Surface water contamination from soil run-off</li> <li>➤ Possible ground water contamination (by oil and grease)</li> <li>➤ Air pollution</li> <li>➤ Increase in sedimentation in streams affecting fish habitat and movement.</li> </ul>	<ol style="list-style-type: none"> <li>1. Prior to ground breaking, the Line Department shall take an authorization from the designated Environmental Expert that the outcome of the screening process holds good at the time of construction.</li> <li>2. The activities of construction shall be scheduled taking into consideration factors such as sowing of crops, harvesting, availability of labor during particular periods and other site specific conditions.</li> <li>3. In slopes and suitable places along the road side, bush grass should be planted, and retaining walls, water intercepting ditches, and masonry rubbles will be built to prevent soil erosion.</li> <li>4. Deploy silt fences to avoid/reduce soil erosion and run-off.</li> <li>5. Temporary and permanent drainage systems are to be designed to minimize soil erosion.</li> <li>6. Vegetation /green belt should be developed along the road side.</li> <li>7. Vehicles delivering materials should be covered to reduce spills.</li> <li>8. Locally available materials should be used as much as possible so as to avoid long distance transportation, especially that of earth and stone.</li> <li>9. Avoid developing new quarries, use existing quarries.</li> <li>10. Mixing equipment should be well sealed, and vibrating equipment should be equipped with dust-remove device. Residences should be 500 meters from downward wind direction of asphalt mixing sites.</li> <li>11. Maintenance of machinery and vehicles should be enhanced to keep their noise at a minimum. It shall be ensured that all machinery, equipment and vehicles</li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
	<ul style="list-style-type: none"> <li>➤ Odour due to use of bitumen</li> <li>➤ Exploitation of potable water sources due to construction activities</li> <li>➤ Non compliance with regulations</li> <li>➤ Quarrying for materials</li> </ul>	<p>comply with existing Central Pollution Control Board emission norms</p> <ol style="list-style-type: none"> <li>12. Water should be sprayed during construction phase, at the mixing sites, and temporary roads.</li> <li>13. Storage of petrol, oil or lubricants – brick on edge flooring or sand flooring should be provided at the storage sites to avoid soil and/or water contamination due to spillage</li> <li>14. Proper waste management and disposal of oil, bitumen and other hazardous wastes should be adopted as per Hazardous Wastes (Management and Handling) Rules, 1989.</li> <li>15. Solid/ liquid/ construction/ domestic waste, contaminants (oil/ grease etc.) shall not be disposed in water bodies/ open lands.</li> <li>16. Construction debris shall be disposed separately and properly.</li> <li>17. Avoid burning bitumen</li> <li>18. In case of bituminous waste, dumping should be carried out over a 60mm thick layer of rammed clay so as to eliminate any chances of leaching.</li> <li>19. Use brackish water for construction activities wherever possible</li> <li>20. Use water resources without conflict</li> </ol>
Labour camps.	<ul style="list-style-type: none"> <li>➤ Soil contamination.</li> <li>➤ Pollution of drinking water sources.</li> <li>➤ Stress on water sources</li> <li>➤ Surface water contamination from washing, bathing, and waste disposal</li> <li>➤ Tree felling for firewood and tents</li> <li>➤ Air pollution from burning of toxic materials like tyres and plastic waste</li> <li>➤ Unhygienic work environment.</li> </ul>	<ol style="list-style-type: none"> <li>1. All relevant provisions of the Factories Act, 1948 and the Building and the other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 shall be followed for construction and maintenance of labour camp. <ol style="list-style-type: none"> <li>a) Avoid Irrigated agricultural lands/forest land/grazing land</li> <li>b) Avoid Lands within 100m of community water bodies &amp; water sources as rivers</li> </ol> </li> <li>2. The contractor shall also guarantee the following: <ol style="list-style-type: none"> <li>a) The Contractor shall construct and maintain all labour accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing.</li> <li>b) Supply of sufficient quantity of potable water (as per IS) in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such facilities.</li> <li>c) The sewage system for the camp are designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place.</li> </ol> </li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<ul style="list-style-type: none"> <li>d) Separate latrines and urinals with roof and proper door and fastenings should be provided for male and female workers. Signboard displays outside latrines and urinals reading “For Men Only” and “For Women Only” as the case may be.</li> <li>e) Latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times with adequate water supply.</li> <li>f) Regular collection and proper disposal of Municipal Solid Waste (MSW) (according to MSW Rules 2000).</li> <li>g) Toxic materials like tyres and plastic are not burnt by the labour for any purpose.</li> <li>h) Trees are not cut for firewood or tents.</li> </ul>
Working conditions	<ul style="list-style-type: none"> <li>➤ Impact on workers health and safety</li> <li>➤ Impact on public safety</li> </ul>	<ol style="list-style-type: none"> <li>1. The contractor will make sure that during the construction work all relevant provisions of the Factories Act, 1948 and the Building and other Construction Workers (regulation of Employment and Conditions of Services) Act, 1996 are adhered to.</li> <li>2. The contractor will comply with all the precautions as required for ensuring the safety of the workmen as per the International Labor Organization (ILO) Convention No. 62 as far as those are applicable to this contract.</li> <li>3. All machines to be used in the construction will conform to the relevant Indian Standards (IS) codes, will be free from patent defect, will be kept in good working order, will be regularly inspected and properly maintained as per IS provision and to the satisfaction of the Engineer.</li> <li>4. Where loose soil is met with, shoring and strutting shall be provided to avoid collapse of soil.</li> <li>5. The contractor shall supply all necessary Personal Protective Equipment (PPE) such as safety goggles, helmets, safety belts, ear plugs, mask etc to workers and staff.</li> <li>6. The contractor shall arrange for: <ul style="list-style-type: none"> <li>a) A readily available first aid unit with a person adequately trained in administering first aid in every work zone.</li> <li>b) The first aid unit must have an adequate supply of sterilized dressing materials and appliances as per the Factories Rules.</li> <li>c) Availability of suitable transport at all times to take injured or sick</li> </ul> </li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<p>person(s) to the nearest hospital</p> <ol style="list-style-type: none"> <li>7. Fire fighting arrangement:               <ol style="list-style-type: none"> <li>a) Demarcation of area susceptible to fires should be provided, along with cautionary signage</li> <li>b) Portable fire exchangers and/or sand baskets shall be provided at easily accessible locations in the event of fire</li> <li>c) The workers should be educated on the usage of these equipments in case of emergency</li> </ol> </li> <li>8. The contractor shall not employ any person below the age of 14 years for any work and no woman will be employed on the work of painting with products containing lead in any form.</li> <li>9. No material will be so stacked or placed as to cause danger or inconvenience to any person or the public.</li> <li>10. All necessary fencing and lights will be provided to protect the public in construction zones.</li> </ol>
<p><b>POST CONSTRUCTION/OPERATION PHASE:</b>            The following section contains instructions to the respective Line Departments / Local community entrusted with the operation and maintenance of the sub-project activity to ensure long term sustainability.</p>		
Maintenance	<ul style="list-style-type: none"> <li>➤ Poor drainage or flooding</li> <li>➤ Soil erosion</li> <li>➤ Water logging</li> <li>➤ Deterioration of the sub-project</li> </ul>	<ol style="list-style-type: none"> <li>1. Regular inspection and periodic maintenance for cleaning of drain to remove any debris or vegetative growth that may interrupt the flow.</li> <li>2. The local communities may be permitted to form groups and participate regular cleaning/sweeping of roads and regular maintenance of the of the project site.</li> <li>3. Deploy silt fences to avoid/reduce soil erosion and run-off.</li> </ol>
Waste disposal and site restoration	<ul style="list-style-type: none"> <li>➤ Soil contamination</li> <li>➤ Soil erosion</li> <li>➤ Water contamination</li> <li>➤ Injury to personnel</li> </ul>	<ol style="list-style-type: none"> <li>1. All the construction camps and facilities shall be dismantled and removed from the site, unless otherwise desired by the local community/Panchayats. The site shall be restored to a condition in no way inferior to the condition prior to the commencement of work. The following activities may be carried out for restoration               <ol style="list-style-type: none"> <li>a) Oil and fuel contaminated soil shall be removed, transported and buried in properly identified waste disposal areas</li> <li>b) At the construction camp site, saplings of plants similar to that of cut trees shall be planted. The maintenance of these saplings should be</li> </ol> </li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<p>delegated to the local community or the land owner</p> <ul style="list-style-type: none"> <li>c) Soak pits and septic tanks should be covered and effectively sealed off</li> <li>d) Solid/ liquid/ construction/ domestic waste, contaminants (oil/ grease etc.) shall not be disposed in water bodies/ open lands.</li> <li>e) Construction debris shall be disposed separately and properly.</li> <li>f) In case of bituminous waste, dumping should be carried out over a 60mm thick layer of rammed clay so as to eliminate any chances of leaching.</li> <li>g) Deploy silt fences to avoid/reduce soil erosion and run-off.</li> <li>h) Follow safety measures while disposing wastes.</li> </ul>
Tree planting/retaining	<ul style="list-style-type: none"> <li>➤ Obstruction of view of signs</li> <li>➤ Obstruction of movement</li> </ul>	<ol style="list-style-type: none"> <li>1. Consider the trees falling and obstructing the roads and bridges during a cyclone event</li> <li>2. Ensure that the branches of trees do not obstruct clear view of the informatory and caution signs.</li> </ol>

## 5.2 Indicative EMP for Saline Embankments and Coastal Canals

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
<b>PLANNING &amp; DESIGN PHASE:</b>		
Measures that should be considered by the respective Line Departments while preparing the Detailed Project Report (DPR)		
Initiation of construction prior to receipt of all clearances	➤ Legal non compliance	1. All clearance / approvals required for Environmental aspects during construction shall be ensured and made available before start of work.
Siting and designing	<ul style="list-style-type: none"> <li>➤ Use of unapproved site</li> <li>➤ Flooding or water logging in the project area</li> <li>➤ Siltation during construction</li> <li>➤ Saltwater intrusion</li> <li>➤ Flooding of low lying areas</li> <li>➤ Erosion and soil run-off</li> <li>➤ Tree felling</li> <li>➤ Destruction of, or disturbance to habitats</li> <li>➤ Tree felling</li> </ul>	<ol style="list-style-type: none"> <li>1. Ensure that the designated Environmental and Social Experts of the State has authorized and approved the screening checklist for the concerned activity at each proposed site.</li> <li>2. Ensure community consultation and participation during the identification of sub-project sites</li> <li>3. Apply siting criteria and design criteria               <ol style="list-style-type: none"> <li>a) Avoid unfavorable geological and hydro geological conditions.</li> <li>b) Drainage patterns should not be altered as this may lead to flooding of low lying areas on the landward side of the embankment.</li> <li>c) Physical provision to improve stability (e.g. turfing/pitching).</li> <li>d) Adequate number of sluices of proper size and design must be provided for better drainage.</li> <li>e) Site should be selected in consultation with local communities/ tribes to check for socially sensitive, conflict prone areas and usage of such sites for the construction should be avoided</li> <li>f) Avoid/minimize tree felling</li> </ol> </li> </ol>
Construction schedule	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Flooding</li> <li>➤ Saline water intrusion</li> </ul>	<ol style="list-style-type: none"> <li>1. Avoid/minimise construction during monsoon</li> <li>2. The activities of construction shall be scheduled taking into consideration factors such as sowing of crops, harvesting, availability of labor during particular periods and other site specific conditions.</li> </ol>
<b>CONSTRUCTION PHASE:</b>		



ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
The following section contains instruction to the contractors, which should be adhered to while carrying out the construction activity. This section should be appended into the relevant bid document.		
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of and disturbance to habitat</li> <li>➤ Loss of canopy</li> <li>➤ Global warming</li> </ul>	<ol style="list-style-type: none"> <li>1. Tree felling shall be minimized;               <ol style="list-style-type: none"> <li>a) Cutting of trees with specific medicinal, religious, archaeological, environmental importance should be avoided.</li> <li>b) Mangrove plants shall not be cut for any purpose</li> <li>c) Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area.</li> <li>d) Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department.</li> </ol> </li> </ol>
Construction	<ul style="list-style-type: none"> <li>➤ Top soil erosion</li> <li>➤ Dust during construction, and due to transport</li> <li>➤ Noise pollution</li> <li>➤ Clogging of drainage by soil run-off, increasing the chances of flooding</li> <li>➤ Water-logging in borrow areas</li> <li>➤ Water-logging and creation of mosquito breeding grounds</li> <li>➤ Possible ground water contamination (by oil and grease), especially during the construction phase</li> <li>➤ Improper siting and rehabilitation of borrow areas.</li> <li>➤ Air pollution</li> <li>➤ Human health and safety</li> <li>➤ Loss of vegetation in the</li> </ul>	<ol style="list-style-type: none"> <li>1. Prior to ground breaking, the Line Department shall take an authorization from the designated Environmental Expert that the outcome of the screening process holds good at the time of construction.</li> <li>2. Vehicles delivering materials should be covered to reduce spills.</li> <li>3. Local available materials should be used as much as possible so as to avoid long distance transportation, especially that of earth and stone.</li> <li>4. Avoid developing new quarries, use existing quarries.</li> <li>5. Maintenance of machinery and vehicles should be enhanced to keep their noise at a minimum. It shall be ensured that all machinery, equipment and vehicles comply with existing Central Pollution control Board emission norms.</li> <li>6. Management of borrow areas.               <ol style="list-style-type: none"> <li>g) Borrow areas must be located at distance of 10h (h is the height of the embankment) or 30 meters which ever is greater.</li> <li>h) The soil used for preparing the embankment should be tested for usability.</li> <li>i) Borrow areas should be selected such that irrigated/ agricultural/ grazing land and land close to settlements are avoided.</li> <li>j) Immediate rehabilitation of borrow areas should be adopted.</li> <li>k) Private land may be used for borrows if the owners volunteer it.</li> </ol> </li> <li>7. Proper waste management and disposal of oil, bitumen and other hazardous wastes should be adopted as per Hazardous Wastes (Management and Handling) Rules,</li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
	borrow areas ➤ Exploitation of potable water sources due to construction activities. ➤ Quarrying for materials	1989. a) Solid/ liquid/ construction/ domestic waste, contaminants (oil/ grease etc.) shall not be disposed in water bodies/ open lands. b) Construction debris shall be disposed separately and properly. c) In case of bituminous waste, dumping should be carried out over a 60mm thick layer of rammed clay so as to eliminate any chances of leaching. 8. Water should be sprayed during construction phase, at the mixing sites, and temporary roads. 9. Storage of petrol/oil/lubricants – brick on edge flooring or sand flooring should be provided at the storage sites to avoid soil and/or water contamination due to spillage 10. Storage of cement (if applicable) – damp proof flooring shall be provided as per IS codes 11. In slopes and other suitable places along the landward side, grass should be planted. 12. Deploy silt fences to avoid/reduce soil erosion and run-off. 13. Strengthening of weaker areas of the embankments by laying stones 14. Adequate number of sluices of proper size and design must be provided for better drainage 15. Use brackish water for construction activities wherever possible 16. Use water resources without conflict
Labour camps.	➤ Soil contamination. ➤ Pollution of drinking water sources. ➤ Stress on water sources ➤ Surface water contamination from washing, bathing, and waste disposal	1. All relevant provisions of the Factories Act, 1948 and the Building and the other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 shall be followed for construction and maintenance of labour camp. a) Avoid Irrigated agricultural lands/forest land/grazing land b) Avoid Lands within 100m of community water bodies & water sources as rivers 2. The contractor shall also guarantee the following:

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
	<ul style="list-style-type: none"> <li>➤ Tree felling for firewood and tents</li> <li>➤ Air pollution from burning of toxic materials like tyres and plastic waste.</li> </ul>	<ul style="list-style-type: none"> <li>a) The location, layout and basic facility provision of each labour camp will be submitted to Engineer prior to their construction.</li> <li>b) The Contractor shall construct and maintain all labour accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing.</li> <li>c) Supply of sufficient quantity of potable water (as per IS) in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such facilities.</li> <li>d) The sewage system for the camp are designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place. Ensure adequate water supply is provided in all toilets and urinals.</li> <li>e) Separate latrines and urinals with roof and proper door and fastenings should be provided for male and female workers. Signboard displays outside latrines and urinals reading “For Men Only” and “For Women Only” as the case may be.</li> <li>f) Latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times with adequate water supply.</li> <li>g) Regular collection and proper disposal of Municipal Solid Waste (MSW) (according to MSW Rules 2000).</li> <li>h) Toxic materials like tyres and plastic are not burnt by the labour for any purpose.</li> <li>i) Trees are not cut for firewood or tents.</li> </ul>
Working condition	<ul style="list-style-type: none"> <li>➤ Impact on workers health and safety</li> <li>➤ Impact on public safety</li> </ul>	<ol style="list-style-type: none"> <li>1. The contractor will make sure that during the construction work all relevant provisions of the Factories Act, 1948 and the Building and other Construction Workers (regulation of Employment and Conditions of Services) Act, 1996 are adhered to.</li> <li>2. The contractor will comply with all the precautions as required for ensuring the</li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<p>safety of the workmen as per the International Labor Organization (ILO) Convention No. 62 as far as those are applicable to this contract.</p> <ol style="list-style-type: none"> <li>3. All machines to be used in the construction will conform to the relevant Indian Standards (IS) codes, will be free from patent defect, will be kept in good working order, will be regularly inspected and properly maintained as per IS provision and to the satisfaction of the Engineer.</li> <li>4. Where loose soil is met with, shoring and strutting shall be provided to avoid collapse of soil.</li> <li>5. The contractor shall supply all necessary Personal Protective Equipment (PPE) such as safety goggles, helmets, safety belts, ear plugs, mask etc to workers and staffs.</li> <li>11. The contractor shall arrange for: <ol style="list-style-type: none"> <li>a) A readily available first aid unit with a person adequately trained in administering first aid in every work zone.</li> <li>b) The first aid unit must have an adequate supply of sterilized dressing materials and appliances as per the Factories Rules.</li> <li>c) Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital</li> </ol> </li> <li>12. Fire fighting arrangement: <ol style="list-style-type: none"> <li>a) Demarcation of area susceptible to fires should be provided, along with cautionary signage</li> <li>b) Portable fire exchangers and/or sand baskets shall be provided at easily accessible locations in the event of fire</li> <li>c) The workers should be educated on the usage of these equipments in case of emergency</li> </ol> </li> <li>6. The contractor shall not employ any person below the age of 14 years for any work and no woman will be employed on the work of painting with products containing lead in any form.</li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		7. No material will be so stacked or placed as to cause danger or inconvenience to any person or the public. 8. All necessary fencing and lights will be provided to protect the public in construction zones.
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of/disturbance to habitat</li> <li>➤ Global warming</li> </ul>	1. Tree felling shall be minimized; <ul style="list-style-type: none"> <li>a) Cutting of trees with specific medicinal, religious, archaeological, environmental importance should be avoided.</li> <li>b) Mangrove plants shall not be cut for any purpose</li> <li>c) Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area.</li> <li>d) Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department.</li> </ul>
<b>POST CONSTRUCTION/OPERATION PHASE:</b> The following section contains instructions to the respective Line Departments / Local community entrusted with the operation and maintenance of the sub-project activity to ensure long term sustainability.		
Maintenance	<ul style="list-style-type: none"> <li>➤ Poor drainage or flooding due to clogging</li> <li>➤ Water logging and creation of mosquito breeding grounds</li> <li>➤ Flooding</li> <li>➤ Deterioration of the sub-project</li> <li>➤ Soil erosion</li> </ul>	1. Inspection and cleaning of sluices shall be done regularly to remove any debris or vegetative growth that may interrupt the flow. 2. The local communities may be permitted to form groups and participate in regular maintenance of the of the project site. 3. Deploy silt fences to avoid/reduce soil erosion and run-off.
Waste disposal and site restoration	<ul style="list-style-type: none"> <li>➤ Soil contamination</li> <li>➤ Soil erosion</li> <li>➤ Water contamination</li> <li>➤ Personnel injury</li> </ul>	1. All the construction camps and facilities shall be dismantled and removed from the site, unless otherwise desired by the local community/Panchayats. The site shall be restored to a condition in no way inferior to the condition prior to the commencement of work. The following activities may be carried out for

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<p>restoration</p> <ul style="list-style-type: none"> <li>a) Oil and fuel contaminated soil shall be removed, transported and buried in properly identified waste disposal areas</li> <li>b) At the construction camp site, saplings of plants similar to that of cut trees shall be planted. The maintenance of these saplings should be delegated to the local community or the land owner</li> <li>c) Soak pits and septic tanks should be covered and effectively sealed off</li> <li>d) Solid/ liquid/ construction/ domestic waste, contaminants (oil/ grease etc.) shall not be disposed in water bodies/ open lands.</li> <li>e) Construction debris shall be disposed separately and properly.</li> <li>f) In case of bituminous waste, dumping should be carried out over a 60mm thick layer of rammed clay so as to eliminate any chances of leaching.</li> <li>g) Deploy silt fences to avoid/reduce soil erosion and run-off.</li> <li>h) Follow safety measures while disposing wastes.</li> </ul>

### 5.3 Indicative EMP for plantation/regeneration of Mangroves and Shelter Belts

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
<b>PLANNING &amp; DESIGN PHASE:</b> Measures that should be considered by the respective Line Departments while preparing the Detailed Project Report (DPR)		
Initiation of construction prior to receipt of all clearances	<ul style="list-style-type: none"> <li>➤ Legal non compliance</li> </ul>	<ol style="list-style-type: none"> <li>1. All clearance / approvals required for Environmental aspects during construction shall be ensured and made available before start of work.</li> </ol>
Siting	<ul style="list-style-type: none"> <li>➤ Use of unapproved site.</li> <li>➤ Biodiversity impacts/ impact on rare, endangered and threatened species of flora and fauna as well as nesting and breeding grounds of turtles/horse shoe crabs</li> <li>➤ Impact of change of drainage pattern and diversion of freshwater/ marine water supply</li> </ul>	<ol style="list-style-type: none"> <li>1. Ensure that the designated Environmental Expert of the State has authorized and approved the screening checklist for the concerned activity at each proposed site.</li> <li>2. Ensure community consultation and participation during identification of the sub-project</li> <li>3. Nesting/breeding grounds of threatened or endangered species must be avoided. Biodiversity impact should be assessed and minimized before initiation of the activities.</li> <li>4. Ensure all stresses to mangroves/shelter belt plantations have been addressed prior to initiation of plantation activity.</li> <li>5. No developmental activities should be permitted in the mangrove areas/ shelter belt plantations.</li> <li>6. Biodiversity impact should be assessed and minimized before initiation of the activities</li> <li>7. Activities leading change in the drainage pattern and diversion of freshwater/marine supply should be avoided to provide healthy growth of mangroves.</li> </ol>
Species selection	<ul style="list-style-type: none"> <li>➤ Poor survival rate</li> <li>➤ Unsuccessful mangrove generation</li> <li>➤ Susceptibility to insect breeding</li> </ul>	<ol style="list-style-type: none"> <li>1. The nursery must be located based on:               <ol style="list-style-type: none"> <li>a) Species</li> <li>b) Extent of water availability</li> <li>c) Drainage pattern of the area</li> <li>d) Size of the area</li> <li>e) The hydrology, depth, duration and frequency of tidal inundation and tidal</li> </ol> </li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		flooding. 2. Species for shelter belts with good foliage cover should be selected for better wind resistance 3. The hydrology, depth, duration and frequency of tidal inundation/tidal flooding, and salinity shall be considered while choosing mangrove species. 4. Local species should be used as far as possible 5. Monoculture and introduction of exotic species shall be avoided.
<b>PLANTATION/REGENERATION PHASE:</b> The following section contains instruction to the contractors, which should be adhered to while carrying out the plantation / regeneration activity. This section should be appended into the relevant bid document.		
Planting	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of or disturbance to habitat</li> <li>➤ Soil contamination</li> </ul>	<ol style="list-style-type: none"> <li>1. Avoid cutting any existing mangroves or plants or trees</li> <li>2. Do not destroy or disturb existing nests or eggs</li> <li>3. Avoid introduction of foreign soil and synthetic materials</li> <li>4. Ensure minimum disturbance to top soil</li> <li>5. Deploy silt fences to avoid/reduce soil erosion and runoff.</li> <li>6. Ensure that activities and movements are restricted to the sub-project area</li> </ol>
Use of chemical fertilizers and pesticides	<ul style="list-style-type: none"> <li>➤ Water pollution</li> <li>➤ Soil contamination</li> <li>➤ Air pollution</li> <li>➤ Contamination of habitats/nesting grounds</li> <li>➤ Eutrophication</li> <li>➤ Soil erosion</li> </ul>	<ol style="list-style-type: none"> <li>1. Minimize the use of pesticides and chemical fertilizers.</li> <li>2. Prefer the use of biological/organics</li> <li>3. Avoid or minimize the run off of pesticides and fertilizers</li> </ol>
Management	<ul style="list-style-type: none"> <li>➤ Poor growth of shelter belt/mangrove</li> <li>➤ Impact on grazing by cattle</li> </ul>	<ol style="list-style-type: none"> <li>1. Adopt appropriate Management techniques in consultation with the Environmental Expert of the state for               <ol style="list-style-type: none"> <li>a) Preparation of soil</li> <li>b) Germination techniques</li> <li>c) Maintenance of seedlings</li> <li>d) Proper shading and watering</li> <li>e) Weeding</li> <li>f) Protection from pests, diseases and stray animals.</li> </ol> </li> </ol>



ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
<b>POST PLANTATION/REGENERATION PHASE:</b> The following section contains instructions to the respective Line Departments / Local community entrusted with the maintenance of the sub-project activity to ensure long term sustainability.		
Use of chemical fertilizers and pesticides	<ul style="list-style-type: none"> <li>➤ Water pollution</li> <li>➤ Soil contamination</li> <li>➤ Air pollution</li> <li>➤ Contamination of habitats /nesting grounds</li> <li>➤ Eutrophication</li> </ul>	<ol style="list-style-type: none"> <li>1. Minimize the use of pesticides and chemical fertilizers.</li> <li>2. Prefer the use of biological/organics to be used</li> <li>3. Avoid or minimize the run off of pesticides and fertilizers</li> </ol>
Maintenance/ Management	<ul style="list-style-type: none"> <li>➤ Poor growth of shelter belt/mangrove</li> <li>➤ Soil erosion</li> <li>➤ Impact on grazing by cattle</li> </ul>	<ol style="list-style-type: none"> <li>1. Remove all foreign materials used for props, support, etc. from the plantation area at the appropriate time</li> <li>2. Deploy silt fences to avoid/reduce soil erosion and runoff.</li> <li>3. Adopt appropriate Management techniques in consultation with the Environmental Expert of the state for               <ol style="list-style-type: none"> <li>a) Proper shading and watering</li> <li>b) Weeding</li> <li>c) Protection from pests, diseases and stray animals.</li> </ol> </li> </ol>

## 5.4 Indicative EMP for Cyclone Shelters

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
<b>PLANNING &amp; DESIGN PHASE:</b> Measures that should be considered by the respective Line Departments while preparing the Detailed Project Report (DPR)		
Initiation of construction prior to receipt of all clearances	➤ Legal non compliance	1. All clearance / approvals required for Environmental aspects during construction shall be ensured and made available before start of work.
Siting and design	➤ Use of unapproved site. ➤ Land acquisition ➤ Destruction of disturbance to wildlife habitat ➤ Flooding and water logging ➤ Tree felling	1. Ensure that the designated Environmental Expert of the State has authorized and approved the screening checklist for the concerned activity at each proposed site. 2. Apply siting criteria <ol style="list-style-type: none"> <li>a) Avoid unfavorable geologic conditions. A site above the likely inundation level should be preferred.</li> <li>b) In case of non-availability of high elevation natural ground, construction should be done on stilts with no masonry or bracings up to maximum surge level, or raised earthen mounds to avoid flooding/ inundation.</li> <li>c) To avoid floods, build at least 250m away from the sea coast</li> </ol> 2. Avoid construction of sites within forests, wild life parks/habitats, breeding grounds, wetlands, common properties and within or adjacent to archaeological sites or monuments. 3. In order to make them cyclone resistant, special engineering/design considerations should be followed. 4. Location of the shelter considering storm tide heights, river or creek flood levels, access and the location of existing significant hazards. 5. Site should be selected in consultation with local communities/ tribes to check for socially sensitive, conflict prone areas and usage of such sites for construction should be avoided 6. Avoid/minimize tree felling
<b>CONSTRUCTION PHASE:</b> The following section contains instruction to the contractors, which should be adhered to while carrying out the construction activity. This section should be appended into the relevant bid document.		

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of, or disturbance to habitat</li> <li>➤ Loss of canopy</li> <li>➤ Global warming</li> </ul>	<ol style="list-style-type: none"> <li>1. Tree felling shall be minimized;               <ol style="list-style-type: none"> <li>a) Cutting of trees with specific medicinal, religious, archaeological, environmental importance should be avoided.</li> <li>b) Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area.</li> <li>c) Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department.</li> </ol> </li> </ol>
Construction	<ul style="list-style-type: none"> <li>➤ Top soil erosion</li> <li>➤ Dust during construction, and due to transport</li> <li>➤ Noise pollution</li> <li>➤ Clogging of drainage by soil run-off, increasing the chances of flooding</li> <li>➤ Water-logging and creation of mosquito breeding grounds</li> <li>➤ Possible ground water contamination (by oil and grease), especially during the construction phase</li> <li>➤ Air pollution</li> <li>➤ Exploitation of potable water sources due to construction activities</li> <li>➤ Non compliance with regulations</li> <li>➤ Quarrying for materials</li> </ul>	<ol style="list-style-type: none"> <li>1. Prior to ground breaking, the Line Department shall take an authorization from the designated Environmental &amp; Social Experts to initiate the construction activity that the outcome of the screening process holds good at the time of construction.</li> <li>2. The activities of construction shall be scheduled taking into consideration factors such as sowing of crops, harvesting, availability of labor during particular periods and other site specific conditions.</li> <li>3. Temporary and permanent drainage systems should be designed to minimize the soil erosion and adverse impact.</li> <li>4. Deploy silt fences to avoid/reduce soil erosion and run-off.</li> <li>5. Vehicles delivering materials should be covered to reduce spills.</li> <li>6. Local available materials should be used as much as possible so as to avoid long distance transportation, especially that of earth and stone.</li> <li>7. Avoid developing new quarries, use existing quarries.</li> <li>8. Mixing equipment should be well sealed, and vibrating equipment should be equipped with dust-remove device.</li> <li>9. Maintenance of machinery and vehicles should be enhanced to keep their noise at a minimum. It shall be ensured that all machinery, equipment and vehicles comply with existing Central Pollution Control Board emission norms.</li> <li>10. Water should be sprayed during construction phase, at the mixing sites, and temporary roads.</li> <li>11. Storage of petrol/oil/lubricants – brick on edge flooring or sand flooring should be provided at the storage sites to avoid soil and/or water contamination due to spillage</li> <li>12. Storage of cement – damp proof flooring shall be provided as per IS codes</li> <li>13. Proper waste management and disposal of oil and other hazardous wastes as per</li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<p>Hazardous Wastes (Management and Handling) Rules, 1989.</p> <ul style="list-style-type: none"> <li>a) Solid/ liquid/ construction/ domestic waste, contaminants (oil/ grease etc.) shall not be disposed in water bodies/ open lands.</li> <li>b) Construction debris shall be disposed separately and properly.</li> </ul> <p>14. Employment opportunities may be provided to the dependents of the project affected families, particularly in the category of workmen &amp; supervisors, subject to vacancies and their meeting the necessary laid down qualifications and experience requirements</p> <p>15. Use brackish water for construction activities wherever possible</p> <p>16. Use water resources without conflict</p>
Labour camps.	<ul style="list-style-type: none"> <li>➤ Soil contamination.</li> <li>➤ Pollution of drinking water sources.</li> <li>➤ Stress on water sources</li> <li>➤ Surface water contamination from washing, bathing, and waste disposal</li> <li>➤ Tree felling for firewood and tents</li> <li>➤ Air pollution from burning of toxic materials like tyres and plastic waste</li> <li>➤ Unhygienic work environment.</li> </ul>	<ol style="list-style-type: none"> <li>1. All relevant provisions of the Factories Act, 1948 and the Building and the other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 shall be followed for construction and maintenance of labour camp. <ul style="list-style-type: none"> <li>a) Avoid Irrigated agricultural lands/forest land/grazing land</li> <li>b) Avoid Lands within 100m of community water bodies &amp; water sources as rivers</li> </ul> </li> <li>2. The contractor shall also guarantee the following: <ul style="list-style-type: none"> <li>a) The location, layout and basic facility provision of each labour camp will be submitted to Engineer prior to their construction.</li> <li>b) The construction will commence only upon the written approval of the Engineer.</li> <li>c) The Contractor shall construct and maintain all labour accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing.</li> <li>d) Supply of sufficient quantity of potable water (as per IS) in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such facilities.</li> <li>e) The sewage system for the camp are designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place.</li> <li>f) Separate latrines and urinals with roof and proper door and fastenings should be provided for male &amp; female workers. Signboard displays</li> </ul> </li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<p>outside latrines and urinals reading “For Men Only” and “For Women Only” as the case may be.</p> <p>g) Latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times with adequate water supply.</p> <p>h) Regular collection and proper disposal of Municipal Solid Waste (MSW) (according to MSW Rules 2000).</p> <p>i) Toxic materials like tyres and plastic are not burnt by the labour for any purpose.</p> <p>j) Trees are not cut for firewood or tents.</p>
Working condition	<ul style="list-style-type: none"> <li>➤ Impact on workers health and safety</li> <li>➤ Impact on public safety</li> </ul>	<ol style="list-style-type: none"> <li>1. The contractor will make sure that during the construction work all relevant provisions of the Factories Act, 1948 and the Building and other Construction Workers (regulation of Employment and Conditions of Services) Act, 1996 are adhered to.</li> <li>2. The contractor will comply with all the precautions as required for ensuring the safety of the workmen as per the International Labor Organization (ILO) Convention No. 62 as far as those are applicable to this contract.</li> <li>3. All machines to be used in the construction will conform to the relevant Indian Standards (IS) codes, will be free from patent defect, will be kept in good working order, will be regularly inspected and properly maintained as per IS provision and to the satisfaction of the Engineer.</li> <li>4. Where loose soil is met with, shoring and strutting shall be provided to avoid collapse of soil.</li> <li>5. The contractor shall supply all necessary Personal Protective Equipment (PPE) such as safety goggles, helmets, safety belts, ear plugs, mask etc to workers and staffs.</li> <li>13. The contractor shall arrange for: <ol style="list-style-type: none"> <li>d) A readily available first aid unit with a person adequately trained in administering first aid in every work zone.</li> <li>e) The first aid unit must have an adequate supply of sterilized dressing materials and appliances as per the Factories Rules.</li> <li>f) Availability of suitable transport at all times to take injured or sick</li> </ol> </li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<p>person(s) to the nearest hospital</p> <p>14. Fire fighting arrangement:</p> <ul style="list-style-type: none"> <li>d) Demarcation of area susceptible to fires should be provided, along with cautionary signage</li> <li>e) Portable fire exchangers and/or sand baskets shall be provided at easily accessible locations in the event of fire</li> <li>f) The workers should be educated on the usage of these equipments in case of emergency</li> </ul> <p>6. The contractor shall not employ any person below the age of 14 years for any work and no woman will be employed on the work of painting with products containing lead in any form.</p> <p>7. No material will be so stacked or placed as to cause danger or inconvenience to any person or the public.</p> <p>8. All necessary fencing and lights will be provided to protect the public in construction zones.</p>
<p><b>POST CONSTRUCTION/OPERATION PHASE:</b></p> <p>The following section contains instructions to the respective Line Departments / Local community entrusted with the operation and maintenance of the sub-project activity to ensure long term sustainability.</p>		
Site restoration	<ul style="list-style-type: none"> <li>➤ Soil contamination</li> <li>➤ Soil erosion</li> <li>➤ Injury to personnel</li> </ul>	<p>2. All the construction camps and facilities shall be dismantled and removed from the site, unless otherwise desired by the local community/Panchayats. The site shall be restored to a condition in no way inferior to the condition prior to the commencement of work. The following activities may be carried out for restoration</p> <ul style="list-style-type: none"> <li>a) Oil, fuel or paint contaminated soil shall be removed, transported and buried in properly identified waste disposal areas</li> <li>b) At the construction camp site, saplings of plants similar to that of cut trees shall be planted. The maintenance of these saplings should be delegated to the local community or the land owner</li> <li>c) Soak pits and septic tanks should be covered and effectively sealed off</li> <li>d) Follow safety measures while disposing wastes.</li> <li>e) Deploy silt fences to avoid/reduce soil erosion and run-off.</li> </ul>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
Sewerage and sanitation	<ul style="list-style-type: none"> <li>➤ Water contamination</li> <li>➤ Soil contamination</li> <li>➤ Adverse effect on human health</li> </ul>	<ol style="list-style-type: none"> <li>1. Proper design and siting of latrines/ septic tanks.</li> <li>2. Proper disposal of liquid waste, construction debris, and other solid wastes.</li> <li>3. Proper containment to avoid rain water runoff carrying wastes and/or materials.</li> <li>4. Adequate provision and connection to existing facilities.</li> </ol>
Maintenance	<ul style="list-style-type: none"> <li>➤ Flooding</li> <li>➤ Soil erosion</li> <li>➤ Water logging and creation of mosquito breeding grounds</li> <li>➤ Deterioration of the sub-project</li> </ul>	<ol style="list-style-type: none"> <li>1. Regular inspection and cleaning of drain to remove any debris or vegetative growth that may interrupt the flow.</li> <li>2. The local communities may be permitted to form groups and participate in the maintenance of cyclone shelters and regular maintenance of the project site</li> <li>3. Deploy silt fences to avoid/reduce soil erosion and run-off.</li> </ol>

## 5.5 Indicative EMP for Communication Towers

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
<b>PLANNING &amp; DESIGN PHASE:</b>		
Measures that should be considered by the respective Line Departments while preparing the Detailed Project Report (DPR)		
Initiation of construction prior to receipt of all clearances	➤ Legal non compliance	1. All clearance / approvals required for Environmental aspects during construction shall be ensured and made available before start of work.
Siting and design	<ul style="list-style-type: none"> <li>➤ Use of unapproved site.</li> <li>➤ Land acquisition</li> <li>➤ Destruction of disturbance to wildlife habitat</li> <li>➤ Flooding and water logging</li> <li>➤ Tree felling</li> </ul>	<ol style="list-style-type: none"> <li>1. Ensure that the designated Environmental and Social Experts of the State has authorized and approved the screening checklist for the concerned activity at each proposed site.</li> <li>2. Avoid construction of sites within forests, wild life parks/habitats, breeding grounds, wetlands, common properties and within or adjacent to archaeological sites or monuments.</li> <li>3. In order to make them cyclone resistant, special engineering/design considerations should be followed.</li> <li>4. Site should be selected in consultation with local communities/ tribes to check for socially sensitive, conflict prone areas and usage of such sites for the construction should be avoided</li> <li>5. Avoid/minimize tree felling</li> </ol>
<b>CONSTRUCTION PHASE:</b>		
The following section contains instruction to the contractors, which would have to be adhered to while carrying out the construction activity. This section should be appended into the relevant bid document.		
Tree felling	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Destruction of/disturbance to habitat</li> <li>➤ Loss of canopy</li> <li>➤ Global warming</li> </ul>	<ol style="list-style-type: none"> <li>1. Tree felling shall be minimized;               <ol style="list-style-type: none"> <li>a) Cutting of trees with specific medicinal, religious, archaeological, environmental importance should be avoided.</li> <li>b) Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area.</li> <li>c) Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department.</li> </ol> </li> </ol>



ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
Construction	<ul style="list-style-type: none"> <li>➤ Top soil erosion</li> <li>➤ Dust during construction, and due to transport</li> <li>➤ Noise pollution</li> <li>➤ Clogging of drainage by soil run-off, increasing the chances of flooding</li> <li>➤ Water-logging and creation of mosquito breeding grounds</li> <li>➤ Possible ground water contamination (by oil and grease), especially during the construction phase</li> <li>➤ Air pollution</li> <li>➤ Non compliance with regulations</li> <li>➤ Quarrying for materials</li> </ul>	<ol style="list-style-type: none"> <li>1. Prior to ground breaking, the Line Department shall take an authorization from the designated Environmental &amp; Social Experts to initiate the construction activity that the outcome of the screening process holds good at the time of construction.</li> <li>2. The activities of construction shall be scheduled taking into consideration factors such as sowing of crops, harvesting, availability of labor during particular periods and other site specific conditions.</li> <li>3. Vehicles delivering materials should be covered to reduce spills.</li> <li>4. Avoid developing new quarries, use existing quarries.</li> <li>5. Local available materials should be used as much as possible so as to avoid long distance transportation, especially that of earth and stone.</li> <li>6. Mixing equipment should be well sealed, and vibrating equipment should be equipped with dust-remove device.</li> <li>7. Maintenance of machinery and vehicles should be enhanced to keep their noise at a minimum. It shall be ensured that all machinery, equipment and vehicles comply with existing Central Pollution Control Board emission norms.</li> <li>8. Water should be sprayed during construction phase, at the mixing sites, and temporary roads.</li> <li>9. Deploy silt fences to avoid/reduce soil erosion and run-off.</li> <li>10. Storage of petrol, oil or lubricants – brick on edge flooring or sand flooring should be provided at the storage sites to avoid soil and/or water contamination due to spillage</li> <li>11. Storage of cement – damp proof flooring shall be provided as per IS codes</li> <li>12. Proper waste management and disposal of oil and other hazardous wastes as per Hazardous Wastes (Management and Handling) Rules, 1989.</li> <li>13. Solid/ liquid/ construction/ domestic waste, contaminants (oil/ grease etc.) shall not be disposed in water bodies/ open lands.</li> <li>14. Construction debris shall be disposed separately and properly.</li> <li>15. Employment opportunities may be provided to the dependents of the project affected families, particularly in the category of workmen &amp; supervisors, subject to vacancies and their meeting the necessary laid down qualifications and experience requirements</li> <li>16. Use brackish water for construction activities wherever possible</li> <li>17. Use water resources without conflict</li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
Labour camps.	<ul style="list-style-type: none"> <li>➤ Soil contamination.</li> <li>➤ Pollution of drinking water sources.</li> <li>➤ Stress on water sources</li> <li>➤ Surface water contamination from washing, bathing, and waste disposal</li> <li>➤ Tree felling for firewood and tents</li> <li>➤ Air pollution from burning of toxic materials like tyres and plastic waste</li> <li>➤ Unhygienic work environment.</li> </ul>	<ol style="list-style-type: none"> <li>1. All relevant provisions of the Factories Act, 1948 and the Building and the other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 shall be followed for construction and maintenance of labour camp.</li> <li>2. Avoid Irrigated agricultural lands/forest land/grazing land</li> <li>3. Avoid Lands within 100m of community water bodies &amp; water sources as rivers</li> <li>4. The contractor shall also guarantee the following:               <ol style="list-style-type: none"> <li>a) The location, layout and basic facility provision of each labour camp will be submitted to Engineer prior to their construction.</li> <li>b) The Contractor shall construct and maintain all labour accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing.</li> <li>c) Supply of sufficient quantity of potable water (as per IS) in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such facilities.</li> <li>d) The sewage system for the camp are designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place.</li> <li>e) Separate latrines and urinals with roof and proper door and fastenings should be provided for male &amp; female workers. Signboard displays outside latrines and urinals reading “For Men Only” and “For Women Only” as the case may be.</li> <li>f) Latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times with adequate water supply.</li> <li>g) Regular collection and proper disposal of Municipal Solid Waste (MSW) (according to MSW Rules 2000).</li> <li>h) Toxic materials like tyres and plastic are not burnt by the labour for any purpose.</li> <li>i) Trees are not cut for firewood or tents</li> </ol> </li> </ol>
Working condition	<ul style="list-style-type: none"> <li>➤ Impact on workers health and safety</li> <li>➤ Impact on public safety</li> </ul>	<ol style="list-style-type: none"> <li>1. The contractor will make sure that during the construction work all relevant provisions of the Factories Act, 1948 and the Building and other Construction Workers (regulation of Employment and Conditions of Services) Act, 1996 are adhered to.</li> <li>2. The contractor will comply with all the precautions as required for ensuring the</li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
		<p>safety of the workmen as per the International Labor Organization (ILO) Convention No. 62 as far as those are applicable to this contract.</p> <ol style="list-style-type: none"> <li>3. All machines to be used in the construction will conform to the relevant Indian Standards (IS) codes, will be free from patent defect, will be kept in good working order, will be regularly inspected and properly maintained as per IS provision and to the satisfaction of the Engineer.</li> <li>4. Where loose soil is met with, shoring and strutting shall be provided to avoid collapse of soil. <ol style="list-style-type: none"> <li>a) Demarcation of area susceptible to fires should be provided, along with cautionary signage</li> <li>b) Portable fire exchangers and/or sand baskets shall be provided at easily accessible locations in the event of fire</li> <li>c) The workers should be educated on the usage of these equipments in case of emergency</li> </ol> </li> <li>5. The contractor shall supply all necessary Personal Protective Equipment (PPE) such as safety goggles, helmets, safety belts, ear plugs, mask etc to workers and staffs.</li> <li>6. The contractor shall arrange for: <ol style="list-style-type: none"> <li>a) A readily available first aid unit with a person adequately trained in administering first aid in every work zone.</li> <li>b) The first aid unit must have an adequate supply of sterilized dressing materials and appliances as per the Factories Rules.</li> <li>c) Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital</li> </ol> </li> <li>7. Fire fighting arrangement:</li> <li>8. The contractor shall not employ any person below the age of 14 years for any work and no woman will be employed on the work of painting with products containing lead in any form.</li> <li>9. No material will be so stacked or placed as to cause danger or inconvenience to any person or the public.</li> <li>10. All necessary fencing and lights will be provided to protect the public in construction zones.</li> </ol>

ASPECTS	POTENTIAL IMPACTS	EMP MEASURES
<p><b>POST CONSTRUCTION/OPERATION PHASE:</b>            The following section contains instructions to the respective Line Departments / Local community entrusted with the operation and maintenance of the sub-project activity to ensure long term sustainability.</p>		
Site restoration	<ul style="list-style-type: none"> <li>➤ Soil contamination</li> <li>➤ Soil erosion</li> <li>➤ Water contamination</li> <li>➤ Injury to personnel</li> </ul>	<ol style="list-style-type: none"> <li>1. All the construction camps and facilities shall be dismantled and removed from the site, unless otherwise desired by the local community/Panchayats. The site shall be restored to a condition in no way inferior to the condition prior to the commencement of work. The following activities may be carried out for restoration               <ol style="list-style-type: none"> <li>a) Oil, fuel and paint contaminated soil shall be removed, transported and buried in properly identified waste disposal areas</li> <li>b) At the construction camp site, saplings of plants similar to that of cut trees shall be planted. The maintenance of these saplings should be delegated to the local community or the land owner</li> <li>c) Soak pits and septic tanks should be covered and effectively sealed off</li> <li>d) Follow safety measures while disposing wastes.</li> <li>e) Deploy silt fences to avoid/reduce soil erosion and run-off.</li> </ol> </li> </ol>
Maintenance	<ul style="list-style-type: none"> <li>➤ Soil erosion</li> <li>➤ Deterioration of the sub-project</li> </ul>	<ol style="list-style-type: none"> <li>1. The local communities may be permitted to form groups and participate in the regular maintenance of the project site</li> <li>2. Deploy silt fences to avoid/reduce soil erosion and run-off.</li> </ol>

## 5.6 Indicative Social Management Plan

Activity	Mitigation measure
<p><b>Civil Works (includes Cyclone shelters, Coastal canals &amp; Embankments and Roads, Bridges and Culverts )</b></p>	<p><b>Planning &amp; Design Phase:</b></p> <ol style="list-style-type: none"> <li>1. Ensure that the designated Social Expert of the State has authorized and approved the screening checklist for the concerned activity at each proposed site.</li> <li>2. Avoid dislocation of vulnerable groups, like indigenous people, female headed families etc.</li> <li>3. Avoid damage to important cultural properties</li> <li>4. Ensure community consultation at the time of identification of sites</li> <li>5. In case of involuntary resettlement, provide adequate compensation. Follow the National Policy on Rehabilitation &amp; Resettlement 2007 or the state specific R&amp;R policies               <ol style="list-style-type: none"> <li>a. Gujarat: Gujarat Resettlement &amp; Rehabilitation Policy</li> <li>b. Maharashtra: The Maharashtra Resettlement of Project Displaced Persons Act, 1976</li> <li>c. Orissa: Orissa Resettlement &amp; Rehabilitation Policy, 2006</li> <li>d. Andhra Pradesh: The Andhra Pradesh Resettlement &amp; Rehabilitation Policy, 2005</li> </ol> </li> </ol> <p><b>Construction Phase:</b></p> <ol style="list-style-type: none"> <li>6. Prior to ground breaking, the Line Department shall take an authorization from the designated Social Expert to initiate the construction activity that the outcome of the screening process holds good at the time of construction.</li> <li>7. Employment opportunities may be provided to the dependents of the project affected families, particularly in the category of workmen &amp; supervisors, subject to vacancies and their meeting the necessary laid down qualifications and experience requirements</li> </ol> <p><b>Post Construction / Monitoring Phase</b></p> <ol style="list-style-type: none"> <li>8. Upon identification of indigenous people, provide appropriate compensation according to the State specific R&amp;R policies or National Policy on Resettlement &amp; Rehabilitation.</li> <li>9. For circumstances where people have lost houses, provide monetary compensation to build a new house (similar to the existing one) or provide for a building/ alternate shelter to compensate.</li> <li>10. The local communities may be permitted to form groups and participate in the maintenance of cyclone shelters, regular cleaning/sweeping of roads, regular maintenance of the constructions in the project site</li> </ol>
<p><b>Plantation Activity (includes shelterbelts and Mangroves)</b></p>	<ol style="list-style-type: none"> <li>1. Ensure that the designated Social Expert of the State has authorized and approved the screening checklist for the concerned activity at each proposed site.</li> <li>2. Ensure consultation and participation during preparation of identification of</li> </ol>

<b>Activity</b>	<b>Mitigation measure</b>
	schemes Make thorough site checks to ensure that any livelihood dependence on the plantation is adequately protected.

## Annexure 6 – Resettlement and Rehabilitation Policies

Definitions of some of the key words used in the Social Entitlement Framework are as follows.

1. **PAP:** People who lose land, livelihood, homesteads, structures and access to resources as a result of project activities.
2. **PAF:** In relation to a affected person, means, such person and his or her spouse, minor sons, unmarried daughters, minor brothers or sisters, father and mother and other members residing with him and dependent on him for their livelihood. All adult married sons in respect of title holder shall be considered as a separate family for consideration/eligibility for rehabilitation assistance ( Need based assistance to widow daughter separated from her family and living with parents and unmarried sons over the age of 40 may also be considered as special cases) having share in the acquired property. However, this will not apply to the category of big farmers who are left with sufficient land holding.
3. **Encroacher:** Persons who have no recognizable legal right or claim to the land they are occupying / using.
4. **Squatter:** A person who settles on public land without title or a person who takes unauthorized possession of unoccupied premises or person who gets right of pasturage from government on easy terms.

Category		Type of Loss	Entitlement as per National R&R Policy 2007
1A	Private Property	Land and assets (non agricultural)	<p><u>Entitlement for PAPs/PAFs belonging to General Categories</u></p> <ul style="list-style-type: none"> <li>• The affected families would be allotted free of cost house site to the extent of the actual loss of area of the acquired house but not more than 250 square meter of land in rural area or 150 square meter of land in urban area</li> <li>• The land or house allotted to the affected families shall be free from all encumbrances.</li> <li>• The affected families which opt not to take the house offered shall get a suitable one time financial assistance for house construction</li> <li>• In case of linear acquisitions wherein only a narrow stretch of land is acquired for the purpose of the project or is utilized for right of way, the affected family shall be offered an ex gratia payment of not less than Rupees Twenty Thousand in addition to the compensation or any other benefits due under the programme</li> <li>• The land or house allotted to the affected families may be in the joint names of wife and husband of the affected family</li> <li>• The affected families that are displaced shall also get a one-time financial assistance of not less than Rupees Ten thousand for shifting of the family, building materials, belongings and cattle</li> <li>• The affected family may also opt to take a one time lump sum</li> </ul>

Category		Type of Loss	Entitlement as per National R&R Policy 2007
			<p>amount in lieu of one or more of the benefits specified herein</p> <p><u>Entitlement for PAPs/PAFs belonging to Scheduled Tribe</u></p> <ul style="list-style-type: none"> <li>Members of the Scheduled Tribe would be provided with the below mentioned additional details over and above the benefits specified for those belonging to the general category</li> <li>The affected scheduled tribes families, who were in possession of forest/lands in the affected area prior to the 13th day of the December 2005 shall be eligible for the rehabilitation and resettlement benefits under this policy</li> <li>Scheduled tribes affected families enjoying reservation benefits in the affected area shall be entitled to get reservation benefits at the resettlement areas</li> <li>The Scheduled Tribes affected families will be re-settled, as far as possible, in the same Schedule Area in a compact block, so that they can retain their ethnic, linguistic and cultural identity. Exceptions would be allowed only in rare cases wherein such land cannot be offered due to reasons beyond the control of the requiring body</li> <li>Affected Scheduled Tribe families would get preference in allotment of land-for-land</li> <li>The resettlement areas predominantly inhabited by the Scheduled Tribes shall get land free of cost for community</li> <li>The Scheduled Tribe families affected families resettled out of the district will get twenty five percent per higher rehabilitation and resettlement benefits as compared to those provided for the PAPs/PAFs belonging to the general category</li> </ul> <p><u>Entitlement for PAPs/PAFs belonging to Scheduled Caste</u></p> <ul style="list-style-type: none"> <li>Scheduled caste affected families enjoying reservation benefits in the affected area shall be entitled to get the reservation benefits at the resettlement areas</li> <li>Affected Scheduled Caste families would get preference in allotment of land-for-land after the Scheduled Tribe PAPs/PAFs</li> </ul>
1B	Private Property	Agricultural Land	<ul style="list-style-type: none"> <li>Affected families whose entire land has been lost or acquired will be allotted agricultural land or cultivable waste land to the extent of actual land loss subject to a maximum of one hectare of irrigated land or two hectare of unirrigated or cultivable wasteland ,</li> <li>Affected families who have as a consequence of the acquisition or loss of land have been reduced to the status of marginal farmers would also be provided the benefits as stated above</li> <li>In case of allotment of wasteland or degraded land in lieu of the acquired land, the affected family would also be provided a one time financial assistance of minimum Rupees Fifteen Thousand per hectare for land development</li> </ul>



Category		Type of Loss	Entitlement as per National R&R Policy 2007
			<ul style="list-style-type: none"> <li>In case of allotment of agricultural land in lieu of the acquired land, the affected family shall be provided a one time assistance of not less than Rupees Ten Thousand for agricultural production</li> <li>In cases where the acquisition of agricultural land or involuntary displacement takes place on account of land development projects, in lieu of land-for-land or employment, such affected families would be given site(s) or apartment(s) within the development project, in proportion to the land lost, but subject to such limits as may be defined by the appropriate Government</li> </ul> <p><u>Entitlement for PAPs/PAFs belonging to Scheduled Tribe</u></p> <ul style="list-style-type: none"> <li>Members of the Scheduled Tribe would be provided with the below mentioned additional details over and above the benefits specified for those belonging to the general category</li> <li>The affected scheduled tribes families, who were in possession of forest/lands in the affected area prior to the 13th day of the December 2005 shall be eligible for the rehabilitation and resettlement benefits under this policy</li> <li>Scheduled tribes affected families enjoying reservation benefits in the affected area shall be entitled to get reservation benefits at the resettlement areas</li> <li>The Scheduled Tribes affected families will be re-settled, as far as possible, in the same Schedule Area in a compact block, so that they can retain their ethnic, linguistic and cultural identity. Exceptions would be allowed only in rare cases wherein such land cannot be offered due to reasons beyond the control of the acquiring body</li> <li>Affected Scheduled Tribe families would get preference in allotment of land-for-land</li> <li>The resettlement areas predominantly inhabited by the Scheduled Tribes shall get land free of cost for community.</li> <li>The Scheduled Tribe affected families resettled out of the district will get twenty five percent per higher rehabilitation and resettlement benefits as compared to those provided for the PAPs/ PAFs belonging to the general category</li> </ul> <p><u>Entitlement for PAPs/PAFs belonging to Scheduled Caste</u></p> <ul style="list-style-type: none"> <li>Affected Scheduled Caste families would get preference in allotment for land-for-land after the Scheduled Tribe PAPs/ PAFs</li> <li>Scheduled caste affected families enjoying reservation benefits in the affected area shall be entitled to get the reservation benefits at the resettlement areas</li> </ul>
1C	Landless	Not having homestead land,	<ul style="list-style-type: none"> <li>A house shall be offered to the affected family in rural area or in urban area, as the case may be, in the resettlement area</li> <li>Affected families which opt not to take the house offered, shall get a suitable one-time financial assistance for house</li> </ul>

Category		Type of Loss	Entitlement as per National R&R Policy 2007
		agricultural land or either of them	construction, and the amount shall not be less than what is given under any programme of house construction by the Government of India
2A	Livelihood	Wage earning	<p><u>Entitlement for PAPs/PAFs belonging to General category</u></p> <ul style="list-style-type: none"> <li>A rural artisan, small trader or self-employed person who has been displaced shall get a one-time financial assistance of such amount as the appropriate Government may decide but not less than twenty-five thousand rupees, for construction of working shed or shop</li> <li>Affected families which is displaced and has cattle will be provided with a minimum assistance of Rupees Fifteen Thousand for the construction of a cattle shed</li> </ul> <p><u>Entitlement for PAPs/PAFs belonging to Scheduled Tribe</u></p> <ul style="list-style-type: none"> <li>Members of the Scheduled Tribe would be provided with the below mentioned additional details over and above the benefits specified for those belonging to the general category</li> <li>Scheduled tribes affected families enjoying reservation benefits in the affected area shall be entitled to get reservation benefits at the resettlement areas</li> <li>The Scheduled Tribe affected families/ persons will get twenty five percent per higher rehabilitation and resettlement benefits as compared to those provided for the PAPs/PAFs belonging to the general category</li> </ul> <p><u>Entitlement for PAPs/PAFs belonging to Scheduled Caste</u></p> <ul style="list-style-type: none"> <li>Scheduled caste affected families enjoying reservation benefits in the affected area shall be entitled to get the reservation benefits at the resettlement areas</li> <li>Affected Scheduled Caste families would get preference in allotment for land-for-land after the Scheduled Tribe PAPs/ PAFs</li> </ul>
3A	Non title holders	Encroachers/squatters	<ul style="list-style-type: none"> <li>If the affected family is below the poverty line, is without homestead land and has been residing in the affected area for a continuous period of at least three years shall be entitled to a house of carpet area of minimum one hundred square metre in rural area or fifty square metre in urban area</li> <li>If the affected family opts not to take the house, it shall get a one time financial assistance for house construction and the amount shall not be less than that given under any programme of house construction by the Government of India</li> </ul>
4C	Special category	Vulnerable persons	<ul style="list-style-type: none"> <li>The project authorities shall, at their cost, arrange for annuity policies that will pay a pension for life as may be prescribed by the appropriate Government subject to a minimum of five hundred rupees per month</li> </ul>

Category		Type of Loss	Entitlement as per Orissa R&R Policy
1A	Private Property	Land and assets (non agricultural)	<ul style="list-style-type: none"> <li>• Homestead Land @ 1/10th of an acre in rural area and @ 1/25th of an acre in urban area or cash equivalent of Rs.50,000/- preferably near growth centers like land by the side of roads and important junctions, land by the side of railway stations etc., subject to availability</li> <li>• Displaced families opting for self relocation elsewhere other than the identified resettlement area shall be given a one time cash grant of Rs 50,000/-</li> <li>• Provision of homestead land near growth centers like land by the side of roads and important junctions, land by the side of railway stations etc., subject to availability</li> <li>• House building assistance to each PAF will be admissible whether settling in a resettlement habitat or elsewhere</li> <li>• If house/homestead land of any landholder is acquired for linear project or if there is total displacement due to acquisition for such project, the project authority shall provide employment to one of the members of such displaced family in the project. Wherever Rehabilitation and Periphery Development Advisory Committee (RPDAC) decides that provision of such employment is not possible, one time cash assistance as decided by the Government will be paid by the project authority</li> <li>• In order to ensure timely vacation, a maintenance allowance per month per displaced family shall be provided on vacation of land/house for a period of one year from the date of vacation as determined by the Collector concerned</li> <li>• An assistance for temporary shed shall be provided to each displaced family</li> <li>• Transportation allowance or free transportation to the resettlement habitat or their new place of inhabitation shall be provided to each displaced family by the Project authority</li> </ul>
1B	Private Property	Agricultural Land	<ul style="list-style-type: none"> <li>• National R&amp;R Policy 2007 to be followed</li> </ul>
1C	Landless	Not having homestead land, agricultural land or either of them	<ul style="list-style-type: none"> <li>• National R&amp;R Policy 2007 to be followed</li> </ul>
2A	Livelihood	Wage earning	<ul style="list-style-type: none"> <li>• Adequate arrangements are required to be made to provide vocational training to at least one member of each displaced family so as to equip him/her to start his/her own enterprise and refine his skill to take advantage of new job opportunities</li> <li>• For those PAPs engaged in traditional</li> </ul>

Category		Type of Loss	Entitlement as per Orissa R&R Policy
			occupations/handicrafts/handlooms, suitable training shall be organized at the cost of the project authority to upgrade their existing skills
	Non title holders	Encroachers/squatters	<ul style="list-style-type: none"> <li>An encroacher family, who is landless as defined in the Orissa Prevention of Land Encroachment Act, 1972, and is in possession of the encroached land at least for a period of ten years continuously will get ex-gratia equal to compensation admissible under the Land Acquisition Act, 1894 for a similar category of land as decided by the competent authority. While determining the extent of land for such compensation the land held by him/her is to be taken into account</li> <li>An encroacher family, who is homestead less as defined in the Orissa Prevention of Land Encroachment Act, 1972 and is in possession of the encroached land at least for a period of ten years continuously, will get ex- gratia, if the encroachment is unobjectionable. While determining the extent of land for such compensation the homestead land held by him/her is to be taken into account. The ex-gratia will be in addition to the actual cost of structures thereon. If the encroachment is found to be objectionable, he/she will be entitled to the cost of structure only</li> </ul>
4A	Special category	Schedule Tribe	<ul style="list-style-type: none"> <li>Special benefits to displaced indigenous families and primitive tribal groups</li> <li>While developing the resettlement plans, the socio-cultural norms of indigenous and primitive tribal groups will be respected</li> <li>Each displaced family of indigenous category shall be given preferential allotment of land</li> <li>As far as practicable, indigenous communities should be resettled in a compact area close to their natural habitat</li> <li>Indigenous displaced families resettled outside the district shall be given higher R&amp;R benefits in monetary terms</li> </ul>
4B	Special category	Schedule caste	<ul style="list-style-type: none"> <li>National R&amp;R Policy 2007 to be followed</li> </ul>
4C	Special category	Vulnerable persons	<ul style="list-style-type: none"> <li>National R&amp;R Policy 2007 to be followed</li> </ul>

Category		Type of Loss	Entitlement as per Andhra Pradesh R&R Policy
1A	Private Property	Land and assets (non agricultural)	<ul style="list-style-type: none"> <li>Free house site shall be provided to the Project Affected Family (PAF)</li> <li>Grant for house construction shall be provided to each PAF as a one-time financial assistance to those who are allotted free house site</li> <li>Each PAF having cattle, at the time of acquiring his house, shall get financial assistance as grant for cattle shed as fixed by</li> </ul>

Category		Type of Loss	Entitlement as per Andhra Pradesh R&R Policy
			<p>Government from time to time for construction of cattle shed in new settlement</p> <ul style="list-style-type: none"> <li>• Each PAF shall get lump sum one time financial assistance as grant for transportation of materials as fixed by the Government from time to time for transportation/shifting of his building materials, belongings and cattle etc. from the affected zone to the resettlement zone.</li> <li>• Each PAF comprising of rural artisan/small trader and self employed person shall get onetime lump sum financial assistance as income generating scheme grant as fixed by the Government from time to time for construction of working shed/shop</li> </ul>
1B	Private Property	Agricultural Land	<ul style="list-style-type: none"> <li>• The compensation to the affected farmer is based on the land acquired and the status of the farmer after the land acquisition</li> <li>• The wages to PAF laborers shall be provided a one time financial assistance as decided by the competent authority</li> <li>• Each PAF who is also a project displaced family shall get a one time subsistence allowance in addition to any other benefit available as PAF</li> <li>• The PAF who were in possession of forest lands prior to 25th October 1980 shall get all the benefits of R&amp;R as given in the policy</li> </ul>
1C	Landless	Not having homestead land, agricultural land or either of them	<ul style="list-style-type: none"> <li>• National R&amp;R Policy 2007 to be followed</li> </ul>
2A	Livelihood	Wage earning	<ul style="list-style-type: none"> <li>• National R&amp;R Policy 2007 to be followed</li> </ul>
3A	Non title holders	Encroachers/squatters	<ul style="list-style-type: none"> <li>• National R&amp;R Policy 2007 to be followed</li> </ul>
4A	Special category	Schedule Tribe	<ul style="list-style-type: none"> <li>• In the allotment of acquired land by Government from the project benefited area to schedule tribe PAFs who become small, or marginal farmers or landless after acquisition, in lieu of acquired land from them, Government may acquire land with in the project benefited area, as per guidelines issued by the Government from time to time such that no person should become small or marginal farmer or land less due to such acquisition, for allotment of such land to ST PAFs.</li> <li>• Each PAF of ST category shall be given preference in allotment of land</li> </ul>

Category		Type of Loss	Entitlement as per Andhra Pradesh R&R Policy
			<ul style="list-style-type: none"> <li>• Each tribal PAF shall get additional financial assistance for loss of customary rights/usages of forest produce</li> <li>• Tribal PAFs will be resettled close to their natural habitat of their choice to the extent possible, in a compact blocks so that they can retain their ethnic, linguistic and cultural identity</li> <li>• Tribal PAFs out of the district or out side tribal area will get higher R&amp;R benefits in monetary terms</li> <li>• The tribal land alienated in violation of the laws and regulations in force on the subject would be treated as null and void and the R&amp;R benefits would be available only to the original tribal landowner</li> <li>• The tribal families residing in the project affected areas having fishing rights in the river/pond/dam shall be given fishing rights in the reservoir area</li> </ul>
4B	Special category	Schedule d caste	<ul style="list-style-type: none"> <li>• National R&amp;R Policy 2007 to be followed</li> </ul>
4C	Special category	Vulnerable persons	<ul style="list-style-type: none"> <li>• National R&amp;R Policy 2007 to be followed</li> </ul>

## Annexure 7- TOR/Scope for Social Impact Assessment

The social assessment document assists managers and leaders take conscious decisions to avoid social and resettlement impacts. SA in this context is seen as an impact assessment tool where the concerns to be addressed would go far beyond only social and resettlement issues. SA so prepared would take into account the policy implications of the central and state governments apart from the resettlement policies and regulation of the World Bank.

### Objectives

The main objective of Social Assessment (SA) is to ensure that the project design and implementation are socially acceptable. Further, the objective of SA shall be to provide inputs for selection of sub-projects, preliminary and detailed design of the project. The Resettlement Action Plans to be developed as part of the SA are to be used during the implementation of the project for executing the resettlement and rehabilitation activities and monitoring measures. In the preparation phase, the SA shall achieve the following objectives:

- Establish the Socio-economic conditions in the study area, and to identify any significant social issues;
- Assess impacts of the project, and provide for measures to address the adverse impacts by the provision of the requisite avoidance and/or compensation measures;
- Integrate the social and resettlement issues in the project planning and design; and
- Develop Resettlement Action Plan for implementing, monitoring and reporting of the social and resettlement compensation measures suggested.

### Scope of Work

The SA shall identify all potential social issues in the project; and shall develop management measures for addressing all these issues. To this end, the SA shall consist of

- (i) Socio economic baseline established through census surveys;
- (ii) Stakeholder Identification & Consultation
- (iii) project and regional level social issues that would need to be considered in the analysis of alternatives, planning and design of the sub-projects and establish their criticality in the context of the proposed project;
- (iv) A Resettlement Action Plan to address the project and regional social issues;
- (v) A training plan for building adequate capacity in the implementing agency (or Client) towards implementation of the plans produced.
- (vi) A Monitoring Plan encompassing the monitoring parameters and schedule for monitoring

**Key tasks** in this part of the assignment include:

Define likely project impact zone (direct/indirect) based on project proposal

- Collect information through desk review and field visits on existing baseline conditions, include all land uses, structures and people (e.g., demography, socio-economic status, vulnerability, status of infrastructure and access to people, livelihood programs, market rate of assets, medical support for sexually transmitted diseases, its prevalence, awareness on HIV/AIDS, legal status of land through revenue records.) within the likely project impact zone.
- Identification of key stakeholders involved in various aspects of the project (project implementing and executing agencies and groups from civil society; description of socio-economic organizations of local communities that may affect project outcomes; carry out public consultation with the likely affected groups, NGOs, district administration and other stakeholders and document the issues raised and outcomes; and assessment of local capacities in terms of participation in planning, implementation and supervision, and evaluation
- Explore viable alternative project designs to avoid, where feasible, or minimize social impacts (displacement, impact on vulnerable community, cultural properties etc.)
- Identify major and minor social impact issues including loss of assets, livelihood, poverty, gender and health issues and estimate the economic and social impacts on people and land.
- A resettlement plan would be drafted based on the outcome of the SIA to aid minimize, mitigate, or compensate for adverse impacts on the affected communities. The mitigation or management plans developed should be consistent with the nature of the development and the nature of the impacts



## Annexure 8 - Format for Resettlement Action Plan

### 7A. Abbreviated Resettlement Action Plan

*(Population affected is < 200)*

An abbreviated plan covers the following minimum elements

- a. a census survey of displaced persons and valuation of assets;
- b. description of compensation and other resettlement assistance to be provided;
- c. consultations with displaced people about acceptable alternatives;
- d. institutional responsibility for implementation and procedures for grievance redress;
- e. arrangements for monitoring and implementation; and
- f. a timetable and budget.

### 7B (Complete) Resettlement Action Plan

*(Population affected is > 200)*

The scope and level of detail of the resettlement plan vary with the magnitude of land acquisition and complexity of resettlement. The plan is based on up-to-date and reliable information about (a) the proposed compensation payment and resettlement of adversely affected groups, and (b) the legal issues involved in resettlement. The resettlement plan covers the elements below, as relevant. When any element is not relevant to project circumstances, it should be noted in the resettlement plan.

- i. **Description of the sub- project.** General description of the project and identification of the project area.
- ii. **Potential impacts.** Identification of: (a) the project component or activities that give rise to land acquisition and resettlement (b) the alternatives considered avoiding or minimizing land acquisition and resettlement; and (c) the mechanisms established to minimize resettlement, to the extent possible, during project implementation.
- iii. **Objectives.** The main objectives of the resettlement program.
- iv. **Results of census socioeconomic surveys.** The findings of surveys to be conducted in the early stages of project preparation and with the involvement of potentially affected people, including: (a) the results of a census survey covering; (b) current occupants of the affected area to establish a basis for the design of the compensation payment and resettlement program and to exclude subsequent inflows of people from eligibility for compensation and resettlement assistance; (c) standard demographic and socio-economic characteristics of affected households; (d) the magnitude of the expected loss—total or partial—of assets, and the extent of impacts, physical or economic; (e) public infrastructure and social services that will be affected; and (f) social and cultural characteristics of affected communities, including a description of formal and informal institutions (e.g., community organizations, ritual groups, nongovernmental organizations (NGOs) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.
- v. **Eligibility.** Definition of affected persons and criteria for determining their eligibility for compensation and other resettlement assistance, including relevant cut-off dates.

- vi. **Valuation of and compensation for losses.** The methodology to be used in valuing losses to determine their replacement cost; and a description of the proposed types and levels of compensation under local law and such supplementary measures as are necessary to achieve replacement cost for lost assets
- vii. **Resettlement measures.** A description of the packages of compensation and other resettlement measures that will assist each category of eligible affected persons to achieve the objectives of the policy. In addition to being technically and economically feasible, the resettlement packages should be compatible with the cultural preferences of the displaced persons, and prepared in consultation with them. Any measures necessary to prevent land speculation or influx of ineligible persons at the selected sites. The provisions of housing, infrastructure (e.g., water supply, feeder roads), and social services (e.g., schools, health services); plans to ensure comparable services to host populations. Additional measures to ensure that such vulnerable groups as indigenous people, ethnic minorities, the landless, and women are adequately represented.
- viii. **Income Restoration Measures.** Wherever the livelihoods are affected, appropriate measure for improvement or restoring of livelihoods including assistance during the transition period will be proposed which should be compatible with the cultural preference and skill of the affected people.
- ix. **Community participation.** Involvement of affected people for consultation with and participation in the preparation and implementation;(b)a summary of the views expressed and how these views were taken into account in preparing the resettlement plan;(c) a review of the alternatives presented and the choices made by affected persons wherever options available to them, including choices related to forms of compensation and resettlement assistance.
- x. **Integration with host populations.** Measures to mitigate the impact of resettlement on any host communities, including: (a)consultations with host communities and local governments;(b)arrangements for prompt tendering of any payment due the hosts for land or other assets provided to resettlers; (c)arrangements for addressing any conflict that may arise between resettlers and host communities; and (d) any measures necessary to augment services (e.g., education, water, health, and production services) in host communities to make them at least comparable to services available to resettlers.
- xi. **Implementation Arrangements:** The description of agencies responsible for implementation of compensation payment and resettlement activities should be outlined and an assessment of the institutional capacity of such agencies and NGOs; and any steps that are proposed to enhance the institutional capacity of agencies and NGOs responsible for resettlement implementation.
- xii. **Grievance procedures.** Affordable and accessible procedures for redressal of disputes arising from resettlement; such grievance mechanisms should take into account the availability of judicial recourse.
- xiii. **Implementation schedule.** An implementation schedule covering all payments of compensation and other applicable resettlement activities from preparation through implementation, including target dates for the achievement of expected benefits to resettlers and hosts and terminating the various forms of assistance. The schedule should indicate how the resettlement activities are linked to the implementation of the overall project.
- xiv. **Costs and budget.** Tables showing itemized cost estimates for all compensation payments and associated resettlement activities other contingencies; timetables for expenditures; sources of funds; and

arrangements for timely flow of funds, and funding for land acquisition and resettlement should be described.

- xv. **Monitoring and evaluation.** Arrangements for monitoring of compensation payments and resettlement activities by the implementing agency, supplemented by independent monitors as considered appropriate by the Bank, to ensure complete and objective information; performance monitoring indicators to measure inputs, outputs, and outcomes for resettlement activities; evaluation of the impact of resettlement for a reasonable period after all resettlement and related development activities have been completed; using the results of resettlement monitoring to guide subsequent implementation