

Andhra Pradesh Disaster Recovery Project



Environment and Social Management Framework Executive Summary



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Acronyms

AP	Andhra Pradesh
APSDMA	Andhra Pradesh State Disaster Management Authority
CRZ	Coastal Regulation Zone
CSMMC	Cyclone Shelter Management and Maintenance Committee
CBDRM	Community Based Disaster Risk Management
CDRRP	Coastal Disaster Risk Reduction Project
DEA	Department of Economic Affairs, Govt. of India
DPR	Detailed Project Report
DRM	Disaster Risk Management
DoRD	Department of Rural Development
EA	Environmental Assessment
EC	Empowered Committee
ESMF	Environment and Social Management Framework
EDC	Eco Development Committee
EHSIA	Environment Social and Health Impact Assessment
EPDCL	Eastern Power Distribution Company of Andhra Pradesh Ltd
GIS	Geographic Information System
GoI	Government of India
GoAP	Government of Andhra Pradesh
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GVMC	Greater Visakhapatnam Municipal Corporation
HTL	High Tide Line
IA	Implementing Agency
IBRD	International Bank for Reconstruction and Development
ICZM	Integrated Coastal Zone Management
IDA	International Development Association
IMD	India Meteorological Department
INCOIS	Indian National Centre for Ocean Information Services
ISRO	Indian Space Research Organization
LARRA	Land Acquisition, Resettlement and Rehabilitation Act
M&E	Monitoring & Evaluation
MHA	Ministry of Home Affairs, Govt. of India
MIS	Management Information System
NCRMP	National Cyclone Risk Mitigation Project
NDMA	National Disaster Management Authority
NIDM	National Institute of Disaster Management
PRD	Panchayati Raj Department
RAP	Resettlement Action Plan
RDNA	Rapid Damage and Needs Assessment
R&BD	Road and Building Department
SDMA	State Disaster Management Authority
SPMU	State Project Management Unit
SBD	Standard Bidding Document
ToR	Terms of Reference
TPQA	Third Party Quality Audit
UN	United Nations
VSCS	Very Severe Cyclonic Storm
VSS	Vana Suraksha Samiti
VUDA	Visakhapatnam Urban Development Authority
WB	The World Bank

E.1 Introduction

India is highly vulnerable to natural hazards such as earthquakes, floods, drought, cyclones and landslides. Studies indicate that natural disaster losses equate to 2% of India's Gross Domestic Product (GDP) and upto 12% of Central Government's Revenue. A long mainland coastline of more than 7500 km, flat coastal terrain, high population density and its geographical location make India extremely vulnerable to cyclones and its associated hazards like storm surge, high winds and heavy rainfall. Of this, about 5700 kms of the country's coast line is susceptible to severe cyclones. Recurrent cyclones account for a large number of deaths; loss of livelihoods; and cause severe damage to infrastructure and property, both public and private, thus reversing developmental gains.

India's commitment to disaster preparedness and risk reduction at the national and state levels prompted the enactment of the Disaster Management Act in 2005, establishing the National Disaster Management Authority (NDMA) and State Disaster Management Authorities (SDMAs). NDMA has proactively formulated guidelines and procedures for dealing with specific natural disasters and is mandated with framing policies, plans and guidelines for Disaster Management in the country. For more than a decade, the World Bank (WB) has been assisting Govt. of India (GoI) in effectively responding to disasters. This partnership is leading to an increased focus towards future oriented risk mitigation programs and strategies that will ultimately benefit millions of people vulnerable to natural disaster risks at the national, state and district - including village level in India.

E.2 Cyclone Hudhud

On October 12, 2014, a Very Severe Cyclonic Storm 'Hudhud' made landfall on the coast of Andhra Pradesh (AP), near the city of Visakhapatnam. At the time of landfall, the estimated maximum sustained surface wind speed associated with the cyclone was about 180 kmph and height of the waves was upto 3 meters. The tide gauge at Visakhapatnam reported maximum storm surge of 1.4 meters above the astronomical tide. By October 14, Hudhud drifted northwards toward Uttar Pradesh and weakened into a well-marked low-pressure area over eastern Uttar Pradesh and its neighbouring areas.

The Government of Andhra Pradesh (GoAP) was proactive in preparing for cyclone Hudhud. In addition to the updates from India Meteorological Department (IMD), the intensity and magnitude of the cyclone were continuously tracked at AP State Disaster Management Authority (APSDMA) and a range of preparatory measures were launched. Relief and rescue teams were deployed in the coastal districts most likely to be impacted and regular warnings to vulnerable population were issued through various channels. This, supplemented by the evacuation of close to 250,000 persons, mostly living in vulnerable *kutcha* houses or in the low-lying areas, helped limit the death toll from the cyclone to 61. Cyclone Hudhud and the floods that followed the associated heavy rainfall caused extensive devastation in the affected areas, uprooting vast number of trees, damaging roads, public buildings, livelihoods and disrupting telecommunications and power infrastructure.

E.3 Joint Rapid Damage and Needs Assessment

Cyclone Hudhud caused major damage in 26 cities and towns, in Visakhapatnam, Vizianagaram, Srikakulam, and East Godavari districts of Andhra Pradesh and affected about 9.2 million persons, including three million urban population. The World Bank (WB) and the Asian Development Bank (ADB), upon receiving a request from the Department of Economic Affairs (DEA), Govt. of India, carried out a Joint Rapid Damage and Needs Assessment (JRDNA) in December 2014. The JRDNA report estimated the cost of reconstruction to be about US\$2.16 billion, of which the livelihoods sector was the most severely hit with recovery needs estimated to be around US\$ 443 million, followed by housing sector (US\$ 439 million) and the roads sector (US\$ 375 million). Based on the findings of the JRDNA, the GoI and the World Bank agreed on providing assistance for disaster recovery and future risk reduction to the state of Andhra Pradesh.

E.4 Rationale for the Bank's Involvement and Recovery Strategy

1. The World Bank is a key partner of the GoI in general and of the GoAP in particular, in their risk mitigation and management efforts. The on-going National Cyclone Risk Mitigation Project I (NCRMP-I) has been supporting the Governments of Andhra Pradesh and Odisha since 2010 with improving their capacity to manage hydro-meteorological hazards.

This contributed to the limited impact of Cyclone Phailin's damage in comparison to earlier events of comparable magnitude. The Bank is also supporting the reconstruction and risk mitigation efforts in the states of Bihar, Tamil Nadu, Uttarakhand and Odisha apart from the government at the national level in its disaster risk management efforts – thus being well positioned to incorporate its global and regional experience in post-disaster projects in varying country and socio-economic contexts.

E.5 Project Development Objective

The Project Development Objective (PDO) for 'Andhra Pradesh Disaster Recovery Project' (APDRP), is to restore, improve and enhance resilience of public services, environmental facilities, and livelihoods in Targeted Communities of Andhra Pradesh, and increase the capacity of the State to respond promptly and effectively to an eligible crisis or emergency.

E.6 Project Coverage and Components

The proposed project, APDRP, takes into account the lessons from other disaster events in the country, on-going NCRMP I and the multi-sectoral needs assessment undertaken during the Joint Rapid Damage and Needs Assessment (JRDNA) in Andhra Pradesh. While restoring the damages the project also aims to improve the resilience of the state's infrastructure and its communities from impacts of future disasters and climate change.

The project, through its different components, will provide both direct and indirect benefits to the State of Andhra Pradesh and its 49.4 million inhabitants. Direct beneficiaries is the population of the coastal areas affected by the cyclone, specifically the four heavily impacted districts of **Srikakulam, Vizianagaram, Visakhapatnam and East Godavari** with a total approximate population of 13.3 million residents.

The Project will have the following key components:

Component 1 - Resilient Electrical Network: Visakhapatnam, which is a port city and the largest in the state of Andhra Pradesh, was severely hit by cyclone Hudhud. In particular, power distribution system, which is over ground and thus prone to high winds, rains, thunderstorms, storm surges and flooding, was heavily damaged. The objective of this component is to reduce the vulnerability of city's electrical network by laying the power distribution system underground. The component will be implemented by Eastern Power Distribution Company Limited (EPDCL) of Andhra Pradesh.

Component 2 - Restoration of Connectivity and Shelter Infrastructure: This component will finance investments to restore/upgrade roads and cyclone shelters towards increasing their resilience from future disasters. The line department for implementation of the rural roads and cyclone shelter sub-component will be Panchayati Raj Department (PRD) and for the improvement of Major District Roads (MDRs), Roads and Building Department (R&BD) will be the responsible agency.

Component 3 - Restoration and Protection of Beach Front: This component will support priority investments on/along beachfront Visakhapatnam city. The Greater Visakhapatnam Municipal Corporation (GVMC) and the Visakhapatnam Urban Development Authority (VUDA) will be responsible for the implementation of this component.

Sub-component 3.1 - Shore Protection Works: Large sections along the Visakhapatnam coast have seen significant erosion in the recent past exposing the beach to direct waves and is in urgent need of protection. There has also been significant erosion of the beachfront during the recent storm incident in January 2015. A detailed joint study by the National Institute of Ocean Technology; National Institute of Oceanography; Indian Institute of Technology, Madras and; Andhra University has been commissioned by GVMC and is currently underway for a stretch of 8 km. This intervention will be planned taking into account the outcome/recommendations of the said high level study and the impact any proposed intervention may have on the natural/coastal environment.

Sub-component 3.2 - Beach Front Restoration: This will finance enhancement of urban public spaces and upgrading of the beachfront and is likely to include pedestrian walkways, street furniture, street and beach lighting and landscaping activities. The component will also support rehabilitation of key damaged urban infrastructure including drainage and sewage treatment plants, selected historic buildings and landmarks; and some coastal city roads.

Component 4: Restoration of Environmental Services/Facilities and Livelihood Support:

This component will finance the reconstruction of the severely damaged zoological park at Visakhapatnam and Eco Tourism Park at Kambalakonda Wildlife Sanctuary and help restore the lost shelterbelts, windbreaks and mangroves along the coast to build disaster resilience and support livelihoods opportunities by supporting nurseries supporting farm forestry. The Andhra Pradesh Forest Department with its partner agencies will be responsible for implementation.

Sub-component 4.1: Restoration of environmental services and facilities: To restore damaged environmental services facilities including: a) the Indira Gandhi Zoological Park and b) the Eco tourism park at Kambalakonda Wildlife Sanctuary.

Indira Gandhi Zoological Park at Visakhapatnam: The objective is to restore and enhance the damaged infrastructure and facilities in the Zoological park and augment the facilities to international standards, including adhering to IUCN's ex-situ conservation guidelines in addition to the Guidelines and Strategy laid out by Central Zoo Authority, a statutory body under MoEFCC, Govt. of India. The Zoological Park, spread over 625 acres is one of the two Zoological Parks in Andhra Pradesh and has been designated as the nodal centre by the Central Zoo Authority (CZA) for ex-situ conservation of the Indian Wild Dog. It has also seen successful breeding of tigers, hog deer, black buck and other animals in its ex-situ conservation efforts. It also has an interpretation centre, which is used for creating awareness on environmental education and conservation of biodiversity of Eastern Ghats, including its wildlife, which now stands badly damaged.

The very severe cyclonic storm Hudhud on October 12, 2014 substantially damaged the fabric and structure of the vegetation and other property/infrastructure developed in the last four decades. Apart from loss of life of certain animals and birds, the losses include complete to substantial damage to permanent office buildings, vegetation, compound wall, bird aviaries, tiger enclosures, main gate, sagar gate, visitors facilities, Animal Rescue Centre, stand-off barriers, vehicles, vehicle sheds, rescue shed, canteen, zoo workshop, booking counter, zoo hospital, post-mortem room, incinerator room, in-patient ward, quarantine block, zoo staff quarters, fodder plot and fencing, pump sheds, signage and hoardings, electrical system, communication system, CCTV and security system, water supply, roads, etc. The proposal considers restoring and rebuilding all the damaged facilities to international standards with a focus on education, nature interpretation and conservation. The selected implementation approach involves building a partnership with recognized international organizations/NGOs to ensure knowledge sharing and promote implementation of best practice.

Eco Tourism Park at Kambalakonda Wildlife Sanctuary: The objective of this is to rebuild the damaged infrastructure at the Kamabalakonda Eco-park and Wildlife Sanctuary and to make it disaster resilient. The Wildlife Sanctuary, spread across 7,139 hectares was established in 2002 to protect the flora and fauna of the region. An eco-tourism park covering about 100 hectares was established at a later date with the Eco-Development Committee (EDC) of villages located within the Wildlife Sanctuary running it and benefitting from it.

Sub-component 4.2: Livelihoods Support: To support livelihoods through reviving nurseries feeding to farm forestry and restoration of shelter belts along the coast and mangroves.

Nurseries and Farm Forestry: The objective is to rehabilitate the damaged nurseries and to develop four high-tech nurseries to support farm forestry to promote horticulture and plantations that were badly hit due to the cyclone. It is proposed that 60 damaged nurseries will be made functional through provision of infrastructure such as buildings/sheds, water supply, fencing and implements. Apart from this, four high-tech nurseries will be developed in each of the affected districts for supply of saplings and for demonstrations. Through the rehabilitated and new nurseries about 5 million saplings of various varieties will be supplied annually to the horticulture and farm forestry sector.

Plantations: The objective of this sub-component is to restore lost shelter belts and Palmyra brakes and mangroves along the coast, as they absorb wind speeds, reduce damage and loss and augment livelihoods. Demonstration plantations with mixed species resilient to cyclonic conditions will be taken up. An area of 4,000 hectares will be covered under these shelter belt plantations primarily in the four affected districts. The plantations will be raised with full engagement of *Vana Samrakshana Samithis* (VSS).

Component 5 - Capacity Building and Technical Assistance for Disaster Risk Management: This component will support investments to enhance the capabilities of GoAP entities in managing disaster risks, enhancing preparedness, and achieving resilient recovery. This component will entail the following interventions:

Sub-component 5.1: Capacity Augmentation for Disaster Management: This component will include strengthening the state’s disaster response systems and mechanisms, as well as the capacity of the APSDMA in performing its core functions. This will entail the following: setting-up the State Advisory Committee and State Resource Centre for Disaster Management; strengthening emergency response capabilities and communication system of the state agencies such as fire department, the State Disaster Response Force and other key agencies in responding adequately to disaster situations; curriculum development on disaster risk reduction for schools and training institutions of the government; Community Based Disaster Risk Management Program (CBDRM); Risk and Vulnerability Assessments; Community Mobilization and Capacity Building.

Sub-component 5.2: Technical Assistance for Risk Reduction and Response Preparedness: The component will include activities such as: (i) preparing a detailed vulnerability analysis of the cities and model various risks for effective mitigation planning and disaster response preparedness; (ii) carry out an in-depth assessment of the GoAP’s Apathbandhu Insurance Scheme (Accident Insurance Scheme for Below Poverty Line families), Agriculture Risk Insurance, Social Safety Nets and other such risk transfer mechanisms and develop recommendations for establishing an integrated program for risk transfer for the vulnerable population; (iii) update design guidelines for infrastructure in several key departments by evolving better design standards that factor in expected peak wind speeds and rainfall, including material specifications for infrastructure in the coastal region.

Component 6 - Project Implementation Support: This component will finance establishing and operating the Project Management Unit (PMU) and the Project Implementation Units (PIUs). In addition, this will also finance consultancies required for the preparation and supervision of specific activities, monitoring and evaluation, trainings, exposure visits, knowledge exchange programs, studies on safety net practices in post-disaster situations and inclusive practices in disaster mitigation planning and preparedness.

Component 7 - Contingency Emergency Response: Following an adverse natural event that causes a major natural disaster, the government may request the Bank to re-allocate project funds to support response and reconstruction. This component would draw resources from the unallocated expenditure category and/or allow Govt. of Andhra Pradesh to request the Bank to re-categorize and reallocate financing from other project components to partially cover emergency response and recovery costs.

E.7 Project Financing

The total estimated project financing will be to the tune of USD 370 million, of which IDA financing will be USD 250 million. The component-wise break-wise of project financing estimates are provided in the table below.

Table E.1: Project Cost and Financing (in USD million)

Project Components	Total Cost	IDA Financing	Financing
Component 1: Resilient electrical network	120.0	81.0	67.6%
Component 2: Restoration of connectivity and shelter infrastructure	105.0	71.0	
• Sub-component 2.1: Restoration of rural roads and cyclone shelters	60.0	40.5	
• Sub-component 2.2: Restoration of MDR	45.0	30.5	
Component 3: Restoration and protection of beach front	65.0	44.0	
• Sub-component 3.1: Shore protection works	25.0	17.0	
• Sub-component 3.2: Beach front restoration	40.0	27.0	
Component 4: Restoration of environmental services & livelihood support	20.0	14.0	
• Sub-component 4.1: Restoration of environmental services/facilities	8.0	6.0	
• Sub-component 4.2: Livelihoods support	12.0	8.0	
Component 5: Capacity building and technical assistance and for DRM	35.0	24.0	

Project Components	Total Cost	IDA Financing	Financing
• Sub-component 5.1: Capacity augmentation for DRM	25.0	17.0	
• Sub-component 5.3: TA for risk reduction/response preparedness	10.0	7.0	
Component 6: Project Implementation Support	25.0	17.0	
Component 7: Contingency emergency response	0	0	100%
Total	370.0	250.0	
Total Project Costs	370.0		
Total Financing Required	250.0		

Note: Total may not match due to rounding.

The lending instrument will be Investment Project Financing and the implementation period will be five years.

E.8 Need for Environment and Social Management

The APDRP will primarily cater to the four most affected districts, namely Visakhapatnam, Srikakulam, Vizianagaram and East Godavari but certain soft interventions may cover all nine coastal districts of the state. The project will be implemented over a large geographical area and has a large number of direct beneficiaries. The project will be developed under a multi-sector framework with investment activities aimed at reducing risk and enhancing mitigation along coastal Andhra Pradesh through selected structural and non-structural project interventions described above. Since implementation of cyclone risk mitigation interventions (with a varying nature and scale of activities) will be carried out across different topographical and coastal settings of the state, the potential impacts on the environment and people will vary depending on the local geographical and environmental setting, socio-economic characteristics of the area/district in question and the scale of proposed sub-project/activity.

Also, any civil work, if carried out without adequate planning and diligence is likely to cause unwarranted/adverse impacts on environment and people/communities and thereby affect the intended project development outcome/s and influence negatively sustainability of the investments made. Therefore, environmental and social impacts need to be carefully assessed and managed particularly when works are proposed in the areas that have high population density and sensitive or ecologically important features, such as that in the coastal realms of the Andhra Pradesh.

In the light of above facts, a need was felt to prepare a document that will serve as a 'guide' to enable appropriate planning, design and construction of interventions while harmonizing the principles/approaches across varied and large number of sub-projects. In this context, a framework approach has been adopted and an Environment and Social Management Framework has been prepared for the project.

E.9 Objectives of Environment and Social Management Framework

The ESMF as an instrument provides necessary guidance and management process on environmentally sound project planning, preparation and implementation through:

1. Establishment of clear process, procedures and methodologies (including screening) for environmental and social planning, review, approval and implementation of sub-projects to be financed under the Project.
2. Provision of practical guidance for planning, designing and implementing environmental and social management measures as an integral part of the sub-project cycle.
3. Specifying appropriate roles/responsibilities and necessary reporting procedures, for managing and monitoring environmental and related social concerns of the sub-projects and;
4. Determining any other specific arrangements, including those related to training, capacity building and technical assistance needed to successfully implement the provisions of ESMF.

The application and implementation of the ESMF therefore, will:

- 1) Support the integration of environmental and social aspects into the decision making process at all stages related to planning, design, execution, operation and maintenance of sub-projects, by identifying, avoiding and/or minimizing adverse environmental and social impacts early-on in the project cycle.
- 2) Enhance the positive/sustainable environmental and social outcomes through improved/sensitive planning, design and implementation of sub-activities.

- 3) Minimize environmental degradation as a result of either individual sub-projects or through their indirect, induced and cumulative effects, as much as possible.
- 4) Protect human health and
- 5) Minimize impacts on cultural property.

E.10 Key Contents - Environment and Social Management Framework

The framework details out the various policies, guidelines and procedures that need to be integrated during the planning, design and implementation cycle of the Bank-funded project. The framework describes the principles, objectives and approach to be followed for selecting, avoiding, minimizing and/or mitigating the adverse environmental and social impacts that are likely to arise due to the proposed project interventions. Specifically, the Environmental Management Framework includes the following:

- a) Information on GoI's/GoAP's environmental legislations, standards and policies and World Bank safeguard policies that are relevant in the over-all project context.
- b) Background information about the project area
- c) Process to be followed for environmental and social screening to guide decision-making (inclusion/exclusion) about proposed sub-projects.
- d) Steps and process to be followed for conducting environmental and social impact assessment and preparation of Environmental Management Plans/Resettlement Action Plans (as and if required) for selected sub-projects.
- e) Preliminary assessment of anticipated environmental and social impacts in the context of broad/known project interventions.
- f) Guidance on conducting consultations and ensuring participation of key stakeholders
- g) Generic environment management plans and measures to avoid, minimize and/or mitigate anticipated impacts.
- h) Entitlement matrix to guide the preparation of Resettlement Action Plans, as and when needed
- i) Assessment of indigenous/tribal population issues and steps to prepare necessary IPDPs.
- j) Grievance Redressal Mechanisms
- k) Institutional arrangements/provisions for environment and social management, including monitoring and reporting.

E.11 Baseline/Existing Conditions – An Over-view

Andhra Pradesh, because of its long coastline and geographical location is one of the most vulnerable states to multiple natural disasters in India. The state has 974 km of coastline, the second largest in the country after Gujarat. About 44 percent of the state is vulnerable to tropical storms and related hazards. In addition to cyclones and related hazards, monsoon depressions bring heavy to very heavy rains causing floods in the inland rivers between June and September. Many areas in the state adjacent to coastal districts are vulnerable to flash floods. Out of the total coastal length of about 974 km, about 440 km faces coastal erosion. AP is also exposed to earthquakes, though the State lies in low relatively risk zones (Zone I, II and III).

The state has a population of 49.4 million (population density – 308 persons/sq.km), out of which proportion of rural population is 70.4% while that of urban areas is 29.6%. Visakhapatnam is the most urbanized district of the state having 47.5% urban population. Out of total 13 districts in the state, nine are coastal districts and account for approximately 69% (34.19 million) of its total population. The four cyclone affected districts of Vishakhapatnam, Vizianagaram, Srikakulam and East Godavari make up nearly half of the coastal region of the state. The geographic location combined with high population density makes these districts highly vulnerable to cyclones and its associated hazards like storm surge, high winds and heavy rainfall.

E.12 Profile of the Four Hudhud Affected Districts

The proposed project primarily covers four most affected districts of Andhra Pradesh - Vishakhapatnam, Vizianagaram, Srikakulam and East Godavari.

Vishakhapatnam District: The coast line is broken by a number of bald head lands, the important of them being the Dolphin's Nose (it has played major role in formation of natural harbor at Visakhapatnam), Rushikonda, Polavaram Rock and the big Narasimha Hill at Bheemunipatnam. The district has 4,64,255 hectares of Reserved Forest, 998 hectares of protected forests and 26424 hectares under plantation. The district also has around 24988 hectares of wetland area. A few important features in the district for which interventions have been targeted under APDRP are briefly described below:

Kambalakonda Wildlife Sanctuary: The Kambalakonda Wildlife Sanctuary, located within city limits of Visakhapatnam is a dry evergreen forest mixed with scrub and meadows. It covers an area of 70.70 sq.km. The location corresponds to an area west of National Highway 5 (India) on the northern side of Visakhapatnam and Pendurthi in Vizianagaram district. It was named after the local hillock Kambalakonda. The terrain is hilly with steep slopes. It is under the control of Andhra Pradesh Forest Department since March 10, 1970. Earlier, the land was under the control of Maharaja of Vizianagaram. There is diverse flora and fauna in this sanctuary representing the Eastern Ghats. The indicator species is the Indian Leopard.

Zoological Park: The Indira Gandhi Zoological Park, spread over 250 hectares (625 acres) is one of the two Zoological Parks of the state and is located within Visakhapatnam city. It is presently one of the largest zoos located in the natural settings of a reserve forest. It houses 92 Species and about 851 numbers of animals and birds in around 63 enclosures with open moats in near natural simulated environments. It has been designated as the nodal center by the Central Zoo Authority (CZA) for ex-situ conservation of the Indian Wild Dog and has also seen successful breeding of tigers, hog deer, black buck and other animals in the past. Some salient features of the Zoological Park are provided in table below:

Captive Animals	Mammals: 29 species	272 numbers
	Birds: 52 Species	488 numbers
	Reptiles: 11 species	91 numbers
Total	92 species	851 numbers
Number of Animal Enclosures	63 Nos.	
Staff	81 Nos.	
Visitors	7.85 lakhs (2012-13)	

The zoo is flanked by hills on either side and the Bay of Bengal on the east and attracts many visitors from all over the country. It was declared open to the public on the May 19, 1977. The park is the premier visiting spot for Visakhapatnam's citizens and other tourists visiting the city. This modern zoological park was established for fulfilling the following objectives:

1. Conservation of critically endangered fauna with special attention on the endemic fauna of the Eastern Ghats
2. To propagate the values of wildlife and its conservation through education and interpretation aimed at a wide public appreciation
3. Wildlife research for its conservation and management

The Zoological Park was affected severely due to the cyclonic storm Hudhud on October 12, 2014 - it not only substantially damaged property/infrastructure developed in the last four decades, but also the associated vegetation. The park has suffered extensive damage particularly to the bird aviaries designed by Salim Ali, tiger enclosures and other structures like compound wall, main gate and visitors facilities besides the Animal Rescue Centre. More than 40 percent of trees have been completely uprooted in the park and the remaining 60 percent have also suffered heavy damage. A total of 11 animals died and about 180 birds/reptiles escaped from the damaged enclosures.

Majority of the enclosures (out of total 63) have suffered damages due to roof getting blown by high velocity winds and from fallen trees. Three large bird aviaries have been completely damaged and the White Tiger, Tiger, Blue bull, Barking deer and Python enclosures were badly damaged. The other 57 enclosures were also partially damaged requiring strengthening/repair works. Permanent structures/properties like office buildings of the Curator, Range Officer, Veterinarian, stand-off barriers, vehicle shed, rescue shed, entrance gate, canteen, zoo workshop, booking counter, sagar gate, zoo hospital, post-mortem room, incinerator room, in-patient ward, quarantine block, staff quarters, fodder plot and fencing, pump sheds, were either completely or substantially damaged. The visitor amenities like shelters, benches, public conveniences, signage and hoardings and six battery operated vehicles were also badly damaged. Additionally, electrical utilities, wireless & CCTV Communication, water pipeline systems, pathways and internal roads were damaged. Leaving aside the huge infrastructural and ecological damage, the zoo incurred a loss of around Rs 25 lakh due to lack of ticket sales as it was forced to remain closed for one month after the cyclone.

Beach Front: Visakhapatnam city, where the eye of the storm made landfall, has around 50 kms of beach front from Bhimili to the Fishing Harbour. It is famous for its natural harbour, Dolphin's Nose hills and Ramakrishna beach. The shoreline near Visakhapatnam port has a rocky headland

with narrow beaches. There is need for beach front restoration and nourishment. At present, the Vishakhapatnam Port Authority is pumping around 4 lakhs cu. mts. of sand into the beach north of Visakhapatnam Port, as measure towards beach nourishment every year. This activity of beach nourishment is being carried out for over the last three decades. Large sections along the Visakhapatnam coast have seen significant erosion in the recent past exposing the beach to direct waves and are in urgent need of coastal protection. The cyclone caused damage to the beach front area, when it made landfall at Vishakhapatnam on October 12, 2014. There has also been significant erosion of beachfront during the recent storm incident in January 2015.

Turtle Nesting Sites: The Vishakhapatnam Forest Range is an important sporadic nesting ground for Olive Ridley Turtles, which are protected species in Schedule-I of Wildlife Protection Act, 1972 and listed as Vulnerable in IUCN red list. The Visakha Society for Protection and Care of Animals (VSPCA) jointly with Andhra Pradesh's Forest Department has been jointly working towards protection of the sea turtles along the sea coast of Vishakhapatnam to Bheemili. In the year 2013-14, 318 nests were recorded, 37078 eggs were collected and 33212 hatchlings released in to the sea. However, there are major challenges in the form of increased tourist footfalls, beach activities, pollution and predators, towards protecting the nesting grounds, as well as sea turtles eggs and hatchlings.

Urban Parks and Services: The city of Visakhapatnam has seen extensive damage in the cyclone including uprooted trees, disrupted services such as street lighting as well as extensive damage to the physical streetscapes along the waterfront area. Several parks and public spaces have been damaged. Most prominently, a large portion of the embankment wall supporting the coastal road was severely damaged and has resulted in poor and dangerous access to the public beach. The waterfront road is a key thoroughfare and access route for the city. The infrastructure to be created and improved needs to be integrated with mitigation techniques so that the vulnerabilities in future similar disasters are considerably reduced.

Vizianagaram District: Vizianagaram District has a coastal belt of around 28 km, as well as six main rivers flowing through it (Nagavali, Vegavathi, Gomukhi, Suvarnamukhi, Champavathi and Gostani). The Nagavali is the main river, which flows about 112 km within the district covering an area of 2,832 hectares. The district has 114104.43 hectares of Reserved Forest, 6088.88 ha under plantation and 303 hectares of shelter belts. The district also has around 23674 hectares of wetland area. As per census 2011, the total population of Vizianagaram district is 2,344,474 out of which the Scheduled Tribe (ST) population comprises of 235,556 individuals. The percentage of ST population is 10.05% to the total population.

Srikakulam District: The district can be geographically divided into two regions viz., the Hilly Region called Agency Area (which is mostly inhabited by Tribal Population) and the Plain Area. The district has a shoreline of 54 km. The predominant geomorphic feature of the district is floodplain on both sides of rivers where agriculture activity is prominent. Another striking feature is red-sand beds stabilized mainly by the cashew plantations. Beaches are very narrow with dunes ranging from 3-5 m. Nagavali, Vamsadhara, Suvarnamukhi, Vegavathi, Mahendranaya, Gomukhi, Champavathi, Bahuda and Kumbikota Gedda are the important rivers of the district. The district has 70747.18 hectares of Reserved Forest, 26689.55 hectares of scrub forests, 8627 hectares under plantation and 6538 hectares of shelter belts.

The district has around 34849 hectares of wetland area. Mangroves are found along the coast in Srikakulam district at Nuvvalarevu and Bhavanapadu - both of these fall within Coastal High Vulnerability Zone (as defined by INCOIS). These patches fall under the jurisdiction of Revenue Department. There are two 'Important Bird Areas', namely Telikunchi and Telineelapuram, located in Srikakulam district. As per census 2011, the total population of Srikakulam district is 2,703,114 out of which the Scheduled Tribe (ST) population comprises of 166,118. The percentage of ST population is 6.5% to the total population.

East Godavari District: As per census 2011, the total population of East Godavari district is 5,154,296 out of which the ST population comprises of 213,195 individuals. The percentage of ST population is 4.14% to the total population. The district has Coringa Wildlife Sanctuary - the largest surviving patch of Mangrove forests in the State with more than 65 mangrove species and a home for the rare and endangered Smooth Indian Otter, Fishing Cat and Estuarine Crocodile; and a part of Papikonda Wild Life Sanctuary in its fold. Out of the 3235.39 sq.km of forest area, the Coringa Wildlife Sanctuary occupies an area of 235.7 sq.km and Papikonda Wildlife Sanctuary covers about 591 sq.km. There are 529 Vana Samrakshana Samities (VSSs) in the division with an area of 1148.05 sq.km of forests, which is 35.4% of the forest area. In terms of forest area, the Kakinada Forest Division (of the State Forest Department) covers the entire district of East Godavari. Reserved and Protected Forests constitute 2701.31 sq.km (83.3%) and 531.13 sq.km (22.7%) of the forest area respectively.

E.13 Policy and Regulatory Framework

The implementation of the activities proposed under the APDRP must be consistent with the applicable laws, regulations, and notifications. It is the responsibility of the PMU and the concerned Implementing Agency/PIUs to ensure that project activities are consistent with the national/state/municipal/local regulatory and legal framework. It is also to be ensured that activities are consistent with World Bank policies and guidelines.

13.1 Environment – National/State Policy and Regulatory Framework

The scope of key relevant environment regulations promulgated by the central and state governments related to environment and their relevance, is presented in the table below:

S.No.	Act	Scope of the Act	Relevance
1	The Environment (Protection) Act, 1996	Under this Act, central government is empowered to take measures necessary to protect and improve the quality of the environment by setting standards for emissions and discharges. It involves regulating the location of industries; management of hazardous wastes, and protection of public health and welfare. This encompasses all legislations providing for the protection of environment in the country.	Relevant. Proposed project interventions involve construction activities that will have indirect or direct impact on the overall quality of environment. Though the stipulations laid under this umbrella act will govern most activities of the proposed project, Environment Clearance will not be required for a majority of the proposed project interventions.
2	Water and Air (Prevention and Control of Pollution) Act, 1974 & 1981 and amendments thereafter	This Act prohibits discharge of pollutants into water bodies beyond a given standard and lays down penalties for non-compliance. Water act includes maintenance or restoring wholesomeness of water. Air act restricts the operation of any industrial plant in an air pollution control area without a valid consent.	Relevant. The construction activities involved to attain the project objective may create localised deterioration in air and water quality, if executed without proper diligence.
3	Forest (Conservation) Act of 1980 and amendments thereafter	This Act restricts powers of the state in respect of de-reservation of forests and use of forestland for non-forest purposes. All diversions of forestlands to any non-forest purpose, even if the area is privately owned, require approval of the central government. Leases of forest land to any organization or individual requires approval of the central government. Proposals for diversion of forest land for construction of dwelling houses are not to be entertained.	Relevant. To be ascertained for each sub-project during the screening/preparation process. By and large project interventions will not be located in notified or protected forest area/s. Such areas will be avoided as far as possible during the selection of sites and through screening exercise. However, if under unavoidable circumstances, small part of forest land diversion is required, the requirements set forth under the Act shall be adhered to.
4	The Wildlife (Protection) Act 1972, Amendment 1991	This Act provides for protection to listed species of flora and fauna in the declared network of ecologically important protected areas such as wildlife sanctuaries and national parks. The Wildlife Protection Act has allowed the government to establish a number of National Parks and Sanctuaries to protect and conserve the flora and fauna.	Relevant. Some sub-projects may be located in/near designated or notified protected areas. This will be identified through Screening Exercises. Such areas will be avoided as far as possible and no new construction/ major civil works shall be carried out inside the designated protected areas.
5	Coastal Regulation Zone (CRZ) Regulations, 1991 (amended up to 2011)	The purpose of CRZ Act, 2011 is to ensure livelihood of fisher communities and other communities living in the coastal areas and conservation and protection of coastal stretches and its unique environment and marine environment.	Relevant. Some sub-projects will be situated in CRZ areas and will require permission from the concerned authority before any construction work is started.

S.No.	Act	Scope of the Act	Relevance
6	Biological Diversity Act 2002 and Biological Diversity Rules 2004	The Biological Diversity Act, which came into force in February 2003, aims to promote conservation, sustainable use and equitable sharing of benefits of India's biodiversity resources. It provides for establishment of National Biodiversity Authority at country level, State Biodiversity Boards at the state level and Biodiversity Management Committees at the level of Panchayats and Municipalities.	Relevant. To be ascertained for each sub-project during screening/preparation process. Some sites/activities may be located close to ecologically sensitive areas/nesting areas that are beyond the protected domain.
7	The Ancient Monuments, Archaeological sites and Remains Act, 2010	The Ancient Monuments and Archaeological sites should be protected from any developmental activity. The area within the radius of 100 m and 300m from a Protected Property is designated as 'Protected' and 'Controlled' Area respectively. No development activity (including building, mining, excavating, blasting etc.) is permitted in the Protected Area without prior permission of the Archaeological Survey of India.	Relevant. While project activities are not envisaged in such areas, considering the possibility of chance finding of objects of historical importance (given the state's and project areas cultural setting) during implementation of sub-projects, this is being considered relevant.

Other Statutory Clearance/s Required: It is envisaged that certain permission/s and clearance/s will be obtained from the competent authority by the Contractors as part of sub-project preparation and/or execution. This trigger for such statutory clearances will depend mainly on the area, type, size and scope of the sub-project. The broad requirements envisaged at this point of time are summarized below:

S. No.	Clearance/ Authorization	Relevant Act	Competent Authority	Responsibility
1	Tree Cutting Permission	Forest Conservation Act, 1980	State Forest Department	SPMU/Line Department
2	Plants such as Crushers and/or Batching Plants	Air (Prevention and Control of Pollution) Act, 1981 and Noise Pollution (Regulation and Control) Rules, 2000	State Pollution Control Board	Concerned Contractor
3	Storage, handling and transport of hazardous material/s	Hazardous Waste (Management and Handling) Rules, 1989 and Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989	State Pollution Control Board	Concerned Contractor
4	Location/ layout of workers camp, equipment and storage yards	Environment Protection Act, 1986 and Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989	State Pollution Control Board	Concerned Contractor
5	Discharges from Labour Camp	Water (Prevention and Control of Pollution) Act, 1974	State Pollution Control Board	Concerned Contractor
6	Permission for sand mining from river bed	Environment Protection Act, 1986	State Mines and Geology Dept.	Concerned Contractor

Environmental, health and safety issues during construction stage generally involve equity, safety and public health issues. The construction agencies/contractors and the Line Departments require complying with laws of the land, which include inter alia, the following:

1. Payment of Wages Act, 1936
2. Equal Remuneration Act, 1979
3. Child Labour (Prohibition and Regulation) Act, 1986
4. Minimum Wages Act, 1948
5. The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act of 1996
6. Workmen's Compensation Act 1923
7. Contract Labour (Regulation and Abolition) Act, 1970

8. Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979
9. The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 and Rules, 1996
10. Hazardous Wastes (Management and Handling) Rules, 1989

Additionally, the project will require compliance to:

The Ramsar Convention on Wetlands of International Importance, 1971: The Ramsar Convention is an international treaty for the conservation and sustainable utilization of wetlands. According to the Ramsar list of Wetlands of International Importance, there are 26 designated wetlands in the country which are required to be protected. Of these, only one site, Kolleru Lake (spans over two districts – Krishna and West Godavari) is located in the state of Andhra Pradesh. No activities/construction work proposed under the project are envisaged to be carried out in the proximity of this wetland. However, in the event that an intervention is planned/required in its vicinity towards achieving the objectives set for this operation, guidelines of the convention need to be followed.

IUCN's Technical Guidelines on the Management of Ex-situ Populations for Conservation + Policy, Guidelines and Strategy – 2014 for Zoos in India issued by Central Zoo Authority (CZA), MoEFCC, Govt. of India: Both these guidelines will apply to works proposed under Component 4 of APDRP.

Ex-situ conservation is defined as per IUCN, as "the conservation of components of biological diversity outside their natural habitats". Ex-situ collections include whole plant or animal collections, zoological parks and botanical gardens, wildlife research facilities, and germplasm collections of wild and domesticated taxa (zygotes, gametes and somatic tissue). Some of the key principles laid under the IUCN guidelines include:

1. Increasing public and political awareness and understanding of important conservation issues and the significance of extinction;
2. Coordinated genetic and demographic population management of threatened Taxa;
3. Institutional strengthening and professional capacity building and;
4. Appropriate benefit sharing.

The key requirements under the Central Zoo Authority guidelines, which are specific and quite comprehensive, include the following:

- a) All ex-situ populations must be managed so as to reduce risk of loss through natural catastrophe, disease or natural/man-made disasters. Safeguards include effective quarantine procedures, disease and pathogen monitoring.
- b) While some ex situ populations may have been established prior to the formulation of the guidelines, all ex-situ and in-situ populations should be managed in an integrated, multidisciplinary manner, and in accordance with the principles and provisions of CZA norms.
- c) Extreme/Emergency situations, where taxa/populations (both within the zoo and in the wild) are in imminent risk of extinction, must be dealt with on priority basis.
- d) The management of ex-situ populations must minimize any damaging effects of ex-situ management, such as loss of genetic diversity, artificial selection, pathogen transfer and hybridization, in the interest of maintaining genetic integrity and viability of the population.

The zoo, through ex-situ conservation should aim to increase public awareness, concern and support for biodiversity protection, and to support the implementation of conservation management through education, fundraising and professional capacity building programmes.

13.2 Social - National Policy and Regulatory Framework

This section mentions key regulations promulgated by the Central Government related to land acquisition and resettlement aspects that are relevant to the proposed project.

The Right to Fair Compensation and Transparency in Land Acquisition and Rehabilitation and Resettlement Act 2013

The RFLARR, 2013 is an umbrella Act, which has been enacted to address the aspects on both land acquisition and resettlement and rehabilitation of the project affected population. This Act supersedes the previous act of Land Acquisition (LA) of 1894 amended in 1985 and National Rehabilitation and Resettlement Policy, 2007 and is applicable to the whole of India except the state of Jammu and Kashmir.

The National Tribal Policy (2006)

The tribal communities/STs traditionally live as isolated entities in about 15% of the country's geographical areas, mainly forests, hills, undulating inaccessible terrain in plateau areas, rich in natural resources. The problems and difficulties being faced by the Scheduled Tribes and tribal areas in the country are to be addressed by the National Tribal Policy, 2006.

Panchayats Extension to the Scheduled Areas Act, 2006 (PESA)

The Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 2006 (PESA) came into force on December 24, 2006 with the objective of safeguarding and preserving the traditions and customs of the people living in the Fifth Schedule areas, their social, religious and cultural identities and traditional management practices of community resources.

13.3 Applicability of World Bank's Operational 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 the environment in the development process. These policies provide guidelines for the identification, preparation, and implementation of programs and projects. The table below describes their relevance/applicability in the context of the project along with the justification.

Policy	Applicability to this project
OP/BP 4.01 Environmental Assessment	<p>Applicable.</p> <p>Out of the seven proposed components under the project, five components, namely creation of resilient electrical network (Component 1); restoration of connectivity and shelter infrastructure (Component 2); restoration/protection of beach front (Component 3); restoration of environmental services and livelihood support (Component 4) and some capacity building and technical assistance activities for disaster risk management (Component 5), have a bearing on the approach and design of environment management and safeguard aspects of the project.</p> <p>While the project is expected to benefit coastal communities by reducing their vulnerability to cyclone and other hydro-meteorological hazards through restoration/creation of more resilient infrastructure and strengthening of disaster risk management capabilities, the proposed investments are likely to generate some adverse environmental impacts. Since proposed activities/works would be largely carried out in the coastal realms of the state that is marked by various degrees of vulnerability and sensitive environmental features, there are some issues that need to be managed through appropriate planning and upfront care during the sub-project selection and preparation phase.</p>
OP/BP 4.04 Natural Habitats	<p>Applicable.</p> <p>While the proposed project interventions are not likely to cause significant conversion or damage to natural habitats, OP 4.04 has been triggered as some of the sub-projects are likely to be located within/very close a critical natural habitat (owing to the fact that the coast line is dotted with several ecologically sensitive areas, including those defined as 'critical' under the policy). Management measures, particularly diligence in appropriate site selection would also be required for avoiding/minimizing disturbances, particularly during the planning and design stage.</p> <p>The screening exercise to be taken-up for each sub-project will ensure that activities that are likely to cause undesirable impacts are largely not supported by the project. Only interventions that strengthen protection and regeneration of damaged environmental areas and facilities or those that are needed to protect a large number of people (such as shore protection works required due to heavy coastal erosion in certain stretches making a large population vulnerable) would be taken-up following requirements of Bank policies, including those related to consultations with general public/experts and preparation of comprehensive sub-project mitigation /management plan/s.</p>
OP/BP 4.36 Forestry	<p>Applicable.</p> <p>OP 4.36 has been triggered for this project as some interventions are envisaged in/around forest areas, including some mangrove plantations that are categorized as Forests by the Govt. of Andhra Pradesh.</p> <p>While no significant conversion/degradation of this natural resource is expected to occur, screening mechanism that has been formulated for the project enables in early identification of such issues. Based on the screening result, site assessment and the availability of alternative sub-project site/s, further decision about inclusion/exclusion of a specific sub-project/s will be made.</p>

OP/BP 4.11 Physical Cultural Resources	Applicable. A few project interventions may be located close to sites, structures, natural/man-made features that have historical, archaeological, religious or other cultural significance. Through screening process, the project's potential impacts on physical cultural resources will be determined and management measures, as required will be taken and integrated into the sub-project cycle. The ESMF provides guidance on dealing with chance finds during sub-project implementation, which remains a possibility.
OP 4.09 Pest Management	Applicable. OP 4.09 is being triggered for this project as use of biological/ environmental control methods is being envisaged for shelterbelt plantations, landscaping and nursery support interventions. Primary reliance on synthetic chemical pesticides is not being encouraged and if required, shall be governed by requirements set forth under the Bank policy. An IPM plan (basic guidance/elements included in the ESMF) will be prepared and implemented for all such activities.
OP/BP 7.50 Projects on International Waterways	Not Applicable. OP 7.50 will not be triggered for this project as there are no interventions planned/ proposed over or around an international waterway that could cause a potential conflict. There are also no activities that may affect the use or pollute such a waterway.
OP 4.12 Involuntary Resettlement	Applicable. Some project interventions such as road works, resilient electrical network, beach front development works likely to trigger issues such as those related to land acquisition, loss of assets and impact on livelihood sources. Identification of any potential impacts and mitigation measures to address likely impacts is proposed. Transfer of Government land under different tenure systems could trigger adverse impacts such as loss of access to natural resources – firewood, fodder, water etc and loss of sources of income/ livelihood/ shelter/ homestead.
OP 4.10 Indigenous People	Applicable. OP 4.10 has been triggered in view of the presence of scheduled tribe groups living in the project districts, where some of the activities will be undertaken.
OP/BP 4.37 Safety of Dams	Not Applicable. Not being triggered for this project as there is no construction of new dams or activities that are concerned with safe functioning of existing dams.
OP/BP 7.60 Projects in Disputed Areas	Not Applicable. OP 7.60 is not being triggered as the project is not proposed in any disputed area.

Other important World Bank Policy is the OP 17.50. This policy deals with Disclosure of Operational Information. The Bank’s Policy on Disclosure of Information, has been incorporated in the project implementation plan.

E.14 Potential Environmental and Social Impacts

While the APDRP is expected to benefit the coastal communities by reducing the vulnerability from cyclone risks, the implementation of proposed interventions/activities of the project could lead to some adverse environmental and social impacts. The anticipated impacts arising on account of proposed project interventions are summarised below:

14.1 Activities Proposed Under the Project

The Project has seven components: i) Resilient electrical network; ii) Restoration of connectivity and shelter infrastructure; iii) Restoration and protection of beach front; iv) Restoration of environmental services facilities and livelihood support; v) Capacity building and Technical assistance for disaster risk management; vi) Project implementation support; and vii) Contingency emergency response. Out of these, four components, namely, Underground Cabling, Roads and Cyclone Shelters; Restoration of Beach Front and Urban Services; Restoration of Environmental Services/Facilities and Support to Livelihoods are ‘hard components’ and the remaining three are soft interventions. **Components 1 to 4 are specifically relevant from an environment and social management** since they have a potential to cause both positive and adverse impacts. In addition, Component 5 (capacity building) is also relevant but this is expected to largely bring positive impacts.

14.2 Existing Environmental Issues

Coastal environmental issues in the state context are influenced by anthropogenic factors such as population growth, pollution, habitat degradation, multiple resource use conflicts and over

exploitation of resources. All of these have contributed to increase in coastal degradation in the last few decades, which have witnessed the growing importance of coastal areas as areas of economic and industrial growth. This has created pressure on coastal resources, adversely affecting flora and fauna in these fragile coastal ecosystems. Major resources under stress are sand, lime, shell, fish and other bio resources.

Activities such as unregulated tourism, port activities, discharge of untreated sewage and pollution from industries into the near-shore waters, infrastructure growth/coastal development, aquaculture, sand mining, over-exploitation of fisheries, eutrophication has led to physical destruction of marine coastal habitats and health of these ecosystems. These impacts exacerbate with coastal construction activities alteration of drainage pattern and rapid urbanisation. Additionally, encroachment and reclamation of wetlands, for various activities along with unauthorized occupation is continuing and cumulatively adding to adverse impacts, especially during storm conditions.

14.3 Potential/Likely Environmental Impacts due to the Project

In the foregoing context, the APDRP focuses on reducing the vulnerability of coastal districts through creation of appropriate and more resilient infrastructure in the process of addressing immediate reconstruction needs that came-up post cyclone Hudhud. In the process of doing so, the project seeks to ensure that ecological resources are not further stressed due to proposed interventions/activities. This section identifies the potential environmental impacts of the sub-project activities, considering coastal environmental context as described above, with a view to facilitate early evaluation of such impacts and integrate suitable mitigation measures. The environmental impacts identified are broad in nature and need to be assessed in detail for each of the sub-project as part of preparatory activities. Considering the nature of the sub-project activities, the positive and negative impacts of the various sub-projects project components have been identified. The negative impacts are further classified as:

- (a) Sub-project/Activity specific impacts and
- (b) Generic impacts, especially related to construction activities, applicable to all the sub-projects.

Sub-project/Activity Specific Impacts: The table below summarizes potential or likely impacts - both positive and negative envisaged from the execution of project interventions/activities.

Potential Environmental Impacts Specific to Sub-Project/ Activity

S.No.	Activity	Positive Impacts	Adverse Impacts
1	Underground Cable Laying	<ul style="list-style-type: none"> • Safety during cyclones and floods • Early resumption of power after natural disasters • No overhead hanging cables • Aesthetic streets and lanes 	<ul style="list-style-type: none"> • Risk of accidents during excavation and laying and connecting of cables • Accidental contact with cables during digging by others after completion • Disruption to public from temporary closure of access to properties/facilities/utilities/ • Issues of safety and increased risk of accidents to public and workers when in repairs/ maintenance • Disruption to traffic movement • Impacts on physical environment in the local context from dust/debris etc. • Improper restoration of site/facility after completion of the cabling work
2	Cyclone Shelter Repair	<ul style="list-style-type: none"> • Safety and security during disasters • Important community landmark in the area • Multipurpose uses • Community cohesion 	<ul style="list-style-type: none"> • Lack of regular maintenance leading to misuse and vandalizing shelters • Lack of adequate water supply, sanitation, and site drainage with adequate connectivity to existing facilities, and maintenance provisions could lead to unwarranted impacts • Unsanitary conditions due to improper use/misuse or facility not in use • Solid waste and littering around the building • Leakage/seepage of septic tank contents into groundwater • Inadequate provision of SWM measures (during cyclone period as well as non-cyclone period) could lead to unhygienic conditions, public health issues, and land pollution.

S.No.	Activity	Positive Impacts	Adverse Impacts
			<ul style="list-style-type: none"> During non-cyclone period, lack of periodic maintenance could lead to misuse of shelters and surrounding areas (such as illegal waste dumping)
3	Roads, Bridges and Culverts	<ul style="list-style-type: none"> Better and improved connectivity Fuel savings Time savings Likely increase in income Aesthetic roads, bridges and culverts 	<ul style="list-style-type: none"> Impacts on natural drainage due to inadequate cross drainage works Impacts on coastal flora/ fauna due to inadequate drainage provisions Issues of road safety and increased risk of accidents due to faster movement of vehicles/increased traffic Some impacts of physical environment (air, water and noise) due to increased traffic
4	Shore Protection Works (nature and type of works to be finalized).	<ul style="list-style-type: none"> Safety to properties/ structures near Shore Reduced sea intrusion and erosion 	<ul style="list-style-type: none"> Impacts of sediment and tidal flows to inappropriate planning and design of embankments Impacts on coastal flora/fauna due to changes in movement of water Impacts on the adjoining areas due to inappropriate planning and design of Shore Protection Works Potential of increased erosion/ sedimentation in the adjoining areas exacerbated on account of inappropriate site selection and design of engineering structures, particularly when hard interventions are chosen for shore protection Impacts on coastal flora/fauna
5	Beach Front Restoration (Pedestrian Walkways, Street furniture, Street Beach Lighting and Landscaping along Beachfront	<ul style="list-style-type: none"> Safety and security to visitors/ tourists Recreational and leisure benefits for a large number of Visakhapatnam's citizens Aesthetic and clean beach front 	<ul style="list-style-type: none"> Impacts on coastal flora / fauna due to disturbance to the habitat Impacts of flooding and changes in local drainage pattern Littering and dumping of solid wastes leading to unhygienic conditions and public health issues Pollution Lack of regular maintenance could lead to misuse of facilities
6	Rehabilitation of Drainage and Sewerage Treatment Plants	<ul style="list-style-type: none"> Health benefits for visitors/ tourists at the beach Clean and odour free beach front 	<ul style="list-style-type: none"> Lack of regular maintenance could lead to sea water pollution Health impacts on those who come into contact with the effluents Affects marine flora and fauna Unpleasant smell at plants and at discharge points/outfalls
7	Rehabilitation of Historic Buildings and Landmarks	<ul style="list-style-type: none"> Safer and more resilient structure Preservation of architectural values and historical heritage Educational and recreational value for public 	<ul style="list-style-type: none"> Heritage buildings, even though damaged have to be repaired in a manner that restores their inherent character - if the strengthening and repair is not properly carried out under expert advice/guidance, the historic character and values may get affected.
8	Rehabilitation of City Roads and Services/ Utilities	<ul style="list-style-type: none"> Improved driving conditions Improved drainage Time savings Improved and resilient facilities for general public/users Reduced disruption from future cyclones and flooding 	<ul style="list-style-type: none"> Issues of road safety Design/works without consultation may not adequately address concerns of general public Tree cutting and damage to road side vegetation Disturbance to aesthetics

S.No.	Sub-Project/ Activity	Positive Impacts	Adverse Impacts
9	Rebuilding the Indira Gandhi Zoological Park and Eco Park at Kambalakonda	<ul style="list-style-type: none"> Resilient infrastructure to prevent losses during future disasters Safety and security for animals Improved facilities for animals, general public/visitors and staff Improved design and upkeep from international exposure 	<ul style="list-style-type: none"> Regular repair works may not prevent losses from future natural disasters Risk of animals getting disturbed Tree cutting Improper planning may lead to insufficient or improper public utilities/amenities
10	Reviving Nurseries for Farm Forestry and restoration of shelterbelts	<ul style="list-style-type: none"> Continuous supply of saplings to Farm supporting medium and long term livelihoods Reduced soil erosion Livelihood and income opportunities, especially for vulnerable groups. 	<ul style="list-style-type: none"> Cash yielding varieties may compete with real wind resistant shelterbelt species Reduced crop/ horticulture diversity; Mono-cropping in horticulture may cause disease and pest problems Competition for water and nutrient level may increase Increase in use of chemical fertilizers and pesticides Risk of fertilizers and pesticides finding their way into soil and surface and groundwater Soil fertility loss due to withdrawal of excess nutrients from soil
11	Restoration of Mangroves	<ul style="list-style-type: none"> Protection during cyclones Livelihood opportunities to coastal communities Increase in income 	<ul style="list-style-type: none"> Inappropriate selection of species

The impacts identified have also been used for preparing Generic Environmental Management Plans for certain type of sub-projects not requiring detailed environmental assessments.

Potential Impacts - Construction Stage: General Construction Impacts envisaged from works are listed here – not all listed impacts here will apply to all proposed components and activities envisaged therein.

Activity	Likely/Potential Impact/s
Site Clearance and Preparation	
(i)	Loss of top soil at critical coastal locations
(ii)	Loss or disturbance to local habitat
(iii)	Impacts on movement of local habitat
(iv)	Impacts on local drainage due to disposal of debris/other waste matter in the local water bodies
Setting up Construction Camps / Other facilities	
(i)	Loss of vegetation and sensitive coastal land for various construction facilities
(ii)	Impacts on coastal ecology due to increased human activity in the influence area
(iii)	Impacts on local water resources due to increased demand for water and discharge of untreated domestic sewage
(iv)	Deterioration of Ambient air (including dust) and noise levels due to various activities at the construction facilities and increased vehicular movement
(v)	Impacts on local resources such as fire wood, fuel, etc. due to construction workers
(vi)	Soil and water contamination due to spillage of lubricants and other substances
(vii)	Damage of local access roads due to movement of increased heavy vehicular traffic

(viii)	Conflicts with the local community due to impacts on local resources and activities
(ix)	Impacts on local land use and environment due to quarrying and development of borrow areas for the project
Construction Activities	
(i)	Deterioration of Ambient Air and Noise levels in the project area due to construction activities and associated movement of vehicles
(ii)	Disruption to the movement/local habitat of flora (seasonal migration, breeding ground, feeding areas) due to construction activities
(iii)	Impacts on natural drainage pattern due to temporary diversion/blockage of local water bodies
(iv)	Temporary disruption to movement of traffic and people in/around construction zones
(v)	Impacts on quality of surface water resources due to disposal of debris/other construction waste
(vi)	Safety and Accident risks due to construction activities to the population in the neighbourhood
Occupational Health and Safety Issues	
(i)	Health impacts on construction personnel due to exposure to increased dust, noise and other construction risks
(ii)	Accident risks to Construction Personnel

However, significant/major impacts owing to sub-project location that could lead to damage/disruption of sensitive environmental processes or features are to be screened out as part of the environmental screening process and therefore excluded from the project.

Summary: While the project is expected to benefit the coastal communities in the state of Andhra Pradesh by reducing their vulnerability to cyclone and other hydro-meteorological hazards, the proposed investments are also have potential to generate some adverse environmental impacts. Given the geographical setting, risks need to be managed through appropriate planning and upfront care during the sub-project selection and preparation phase. Specifically, due diligence during site selection and appropriate engineering/design is required for most sub-projects/activities owing to their location on/along the beach front; close to the shoreline or high tide line influence area; and/or in low lying area/s.

Potential adverse impacts on account of activities/works proposed under Components 1 to 4 of the project may include: (i) direct/indirect environmental and social impacts resulting from poor site selection and inappropriate engineering/designs (beach restoration and shore protection works are specifically critical); (ii) impact on sediment and wave movement, including the risk of erosion or accretion in surrounding areas (in case of hard shore protection works, which may be piloted based on recommendations from a comprehensive study currently being undertaken by a large team of ocean and coastal engineering experts to address the heavy erosion of the Visakhapatnam city beach); (iii) impact on the drainage pattern of the area, including impact on coastal flora and/or fauna due to changes in tidal water flow; (iii) felling of trees and clearance of vegetation for sub-project construction; (iv) impact on certain/specific endangered species like the Olive Ridley Turtles, including on their nesting areas (from inappropriate design of shore protection work and beach development activities); (v) safety and health concerns for general public, both urban (more vulnerable due to higher densities) and rural from construction activities; (vi) occupational health and safety concerns for workers involved in construction; (vii) inconvenience and temporary disruption to services and access to certain public places and facilities; (viii) impacts due to construction material (sand, water, earth, aggregate) sourcing and transportation and; (ix) concerns arising out of improper disposal of debris and other construction wastes.

On the other hand, there are several opportunities to build better, more resilient and environmentally sensitive/appropriate infrastructure and other facilities, which is being given equal importance in the design of the project. The project interventions will directly benefit more than 13 million residents in the four Hudhud affected districts of Srikakulam, Vizianagaram, Visakhapatnam and East Godavari in addition to the communities in the other five coastal districts of the state. Restoration of roads and cyclone shelters (to restore/improve access to markets, health and education facilities and facilitate evacuation/emergency response during disaster/s); shore protection (critical given the high rates of erosion making several communities/residents/properties vulnerable in the city of Vishakhapatnam); development of beach front and environmental services/areas (used by a large number of local residents and visitors/tourists and linked to livelihoods as well); creation and restoration of shelterbelts (to act as wind breaks and reduce damage in future events); support to farm forestry/ (to help restore losses and augment livelihoods of several families, including farmers, women-headed and socially marginalized families who are economically dependent on income from plantations); building of

resilient power distribution system (currently over the ground and prone to high winds, rains, thunderstorms, and storm surges) and; enhancing the capabilities of GoAP and other agencies in managing disaster risks and enhancing preparedness – all directly and indirectly would help in improving services for the affected urban and other coastal communities and in building a more resilient path to economic and environmental recovery.

In view of the potential impacts on the environment, Bank's OP 4.01 on Environmental Assessment, OP 4.04 on Natural Habitats, OP 4.36 on Forests, OP 4.09 on Pest Management and OP 4.11 on Physical Cultural Resources have been triggered, and the project is designated as Category A. On the whole, with proper planning/design and implementation of management measures, any large scale, significant and/or irreversible damage to natural and/or physical environment can be avoided/ minimized and managed. Therefore, an appropriate combination of avoiding and minimizing negative impacts on one hand and tapping on opportunities to enhance and increase positive impacts on the other, will remain central to environmental management and safeguards for the project.

14.4 Likely Social Impacts due to the Project

Potential Positive Impacts: The project would largely yield positive/beneficial impacts for the targeted population. The potential positive impacts are: reduced sufferings during cyclones and adverse climatic conditions; improved public safety and security; creation of cyclone resilient infrastructure and connectivity; improved access to services; productive use of time; improvements in income patterns; improvements in quality of life and; improved community participation and sense of ownership.

Potential Adverse Social Impacts: Any development interventions will also have some adverse impacts. However, due to the small size of the sub-projects, adverse impacts, if any, would be minimum, localized and reversible. The possible social impacts of project components would include – minimal loss of private residential or agricultural or commercial land; loss of Common Property Resources; temporary disturbances to livelihoods; inconvenience issues to access to houses/ businesses; disturbances to traffic and resulting congestion; disruption of utilities such as water, electricity, telephone, cable, etc.

Summary: Among the seven proposed components under the project, the four reconstruction components - i) constructing resilient electrical network; ii) restoration of road connectivity and shelter infrastructure; iii) restoration and protection of beach front; iv) restoration of environmental facilities and livelihood support - would involve safeguard aspects that needs to be avoided and minimized through developing and placing appropriate safeguard provisions and systems in the project.

The construction of resilient electrical network under component 1, essentially involves shifting of overhead distribution lines to underground. This is not expected to involve land acquisition but may temporarily disturb access and give disturbances to neighborhoods during construction. The roads proposed by R&B department under Component 2 may require additional land at few locations, particularly in habitation portions. These are Major District Roads (MDRs) proposed to be widened to double lane from single lane. Sufficient widths are not available particularly in habitation portions as well additional land will be required if the design involves improvements of alignment/curve improvements. The rural roads proposed under the same component 2, may not require additional land as they are not proposed for widening nor are they new connectivity roads. For component 3, there would be no requirement of any additional land; and generally existing land is found to be free from encroachments. Restoration of environmental service facilities and livelihoods under component 4 would not involve land acquisition as the sub-components include restoration of the lost shelterbelts/windbreaks and mangroves along the coast; and restoring damaged environmental services of the Zoological Park and the Eco Tourism Park at Kambalakonda Wildlife Sanctuary.

Largely, government land will be preferred for sub-project works. In cases where institutional land is not available, participatory approaches of voluntary donation or direct purchase or exchange by the sponsoring institutions will be preferred for obtaining private land. The actual impacts will only be known once the sub-projects/activities are identified and screening results are available. The said exercises have been initiated for some components but other than indicative numbers for roads component, more details at this stage are now known. If the impacts are significant, then a detailed Social Assessment will be carried out, followed by preparation of RAP and IPP as per the guidelines given in this ESMF.

The Bank's Operational Policy on Involuntary Resettlement (OP/BP 4.12) has been triggered to effectively manage such cases of involuntary resettlement. A social screening exercise at the sub-project level will determine the specific requirement, if any on land uptake in addition to any

other key social issue. Similarly, OP 4.10 (Indigenous Peoples) has been triggered in view of the presence of scheduled tribe groups living in the project districts where some of the activities will be undertaken.

E.15 Environment and Social Management - Approach, Process and Measures

The APDRP proposes to support multiple sub-projects across the varied coastal realms of the state. The approach to use ESMF helps in effective environmental and social management in a scenario where multiple sub-projects will be located in different parts of the coastal region across four districts and their specific locations are not known at this stage of the project design.

The environment management process and the instrument (ESMF) for the project have been designed keeping in mind the varied scope of work/activities under the various components. Accordingly, to effectively plan, design and integrate environmental and social dimensions into the sub-project preparation and implementation cycle, **key steps have been formulated. These steps must be followed through the sub-project cycle** such as site identification, feasibility/preliminary design, DPR preparation, bidding/tendering process, training, execution, implementation review and monitoring.

15.1 Environment Management Approach

The over-all environment management approach for the project proposes the use of a holistic and integrated approach in the project/sub-project planning process to prevent or at least minimize the vulnerability of people and assets from cyclone risks in future. Appropriate site selection and/or design for creating cyclone resilient infrastructure, therefore is central to the reconstruction and recovery path post Hudhud and plays an important role in minimizing the over-all adverse impact in the event of a disaster.

Appropriate measures will be developed to enhance positive impacts and to avoid, minimize and mitigate adverse impacts through generic/standard activity-specific Environmental Management Plans (EMPs), which form a part of the ESMF. However, critical environmental issues, which may result on account of improper site selection (an important factor of consideration in a coastal area), would be considerably avoided and/or minimized by effectively using results from the Environment and Social Screening Exercise. This will ensure that no sub-project with the likely possibility of creating significant or irreversible adverse impact on environment is taken-up without a proper study (environment assessment/ analysis). Accordingly, sub-projects or activities without significant or irreversible adverse impacts will be selected for investment under Phase I while others, which are located in/close to environmentally sensitive zones will be either dropped from the project scope or will be considered only after duly completing the environment assessment studies.

Key Steps to be followed: This over-all environment management approach for APDRP has been elaborated below and will include the following key steps:

- 1) **Identification of sub-project site/s.** The identification of site/s for risk mitigation infrastructure would be informed by results from a vulnerability assessment exercise to ensure that appropriate sites/locations are chosen keeping in mind the risks from future natural disasters. As part of this exercise, consideration of aspects related to local topographic conditions; natural drainage pattern; existing land use/s; vulnerability to erosion, flooding and other hydro-meteorological events would be necessary. The information/mapping already available with the state will be used for this purpose.
- 2) **Environmental and Social Screening.** Once the sub-project sites are identified/short-listed, an environment and social screening exercise will be carried out. This exercise will help in identification of environmentally sensitive areas such as presence of National Parks/Sanctuaries, Wildlife Corridors, Reserved/Protected forests, Cultural Properties etc. Similarly, the sites requiring private lands and/or sites with displacement issues such as those with private/government/community structures and/or sites with impacts on vulnerable people will be identified through this screening exercise. The results from this exercise will help in: (i) finalizing the sites for the various sub-projects; (ii) identification of the need to obtain any regulatory clearances (such as Forestry and/or CRZ clearances and/or LA and R&R approvals) for specific site/s (specifically where relocation is involved) and; (iii) establishing the need to carry out any further investigation/assessment. Based on this, prioritization and phasing of the civil work program/procurement plan would be worked out. All sub-projects will be subjected through the Screening Exercise. The documentation of the screening results will carry four key parts:
 - (a) Map showing location and key features prepared using Remote Sensing/GIS platform;
 - (b) Screening Checklist;

- (c) Stakeholder Consultation Proceedings/Documentation; and
- (d) Visual Documentation (photographs/videos)

Once the Screening Report/s are prepared, these shall be disclosed in line with disclosure requirements spelt out under Right to Information Act and in the Bank policies.

The results from this exercise will help in categorization of sub-projects – those to be dropped and others that can be taken in first/second tranche of the project. Also, regulatory permissions/clearances, if required for specific sub-project/s are to be sought based on the screening exercise results/outputs. Proposed investments will be screened and sub-projects with no significant adverse environmental impact will be/are being identified for implementation under Phase I.

The environment screening process for the project will use a robust methodology supported by use of scientific tools such as GIS and remote sensing techniques, which will help in avoiding environmentally sensitive sites/features to a large extent. The results will be collated component-wise in the form of Screening Report/s. The process and documentation structure for environment screening exercise was developed under NCRMP I (currently under implementation in Andhra Pradesh) and was found to be quite effective in identifying issues early-on even in a scenario where a large number of sub-projects were being considered across a long coastline.

- 3) **For sub-projects with the potential to cause significant adverse environment and social impacts** (which will emerge from screening results), **an Environment and Social Assessment (EA/SA) and a sub-project specific Environment Management Plan (EMP) and Resettlement Action Plan (RAP) will be prepared** in accordance with Bank's OP 4.01 and OP 4.12. The EA/SA will include an assessment of baseline conditions, analysis of alternative options, assessment of potential impacts, identification of mitigation measures and preparation of sub-project specific environmental and/or social management plans. However, it is expected that sub-projects with the potential for significant adverse environment and social impacts will be few in number. These are expected to be 'primarily/largely' limited to Beach/Shore Protection and Underground Electric Cabling works.

For ensuring compliance to specific Bank policies, particularly for **activities that require compliance to OP 4.04 on natural habitats or OP 4.09 on Pest Management or OP 4.11 on Physical Cultural Resources, sub-project specific comprehensive management/mitigation plans** will be prepared in line with principles and requirements set forth under the applicable policy. Likewise, if required based on screening results, **Indigenous Peoples Development Plan shall be prepared in line with requirements set forth in OP 4.10.**

- 4) Based on screening results, **if a sub-project does not require an EA, the generic/standard activity specific EMP, developed as part of the ESMF, will apply.** These generic/standard activities specific EMPs provide overall guidance on avoidance, minimization and mitigation measures to be adopted during the planning, design, implementation and operation stages of a sub-project. If the screening process for certain sub-projects has identified any minor potential impacts that may require site-specific mitigation measures, such measures will be built into the Generic EMP.
- 5) **Public consultation.** Consultation with public, particularly the beneficiary groups and likely to be impacted people/communities will be carried out during various stages of the sub-project preparation and implementation. This includes consultations and seeking consensus on site identification and selection; designs; infrastructure provision and; for understanding any specific social-economic needs of the community. All such proceedings, decisions/ community consents and resolutions will be properly documented, including written and visual means.
- 6) **Integration of Environmental and Social Requirements in sub-project selection and design.** The considerations/requirements/findings from Screening, EA and as suggested in EMPs are to be mainstreamed as part of the over-all decision making and execution process. This covers selection of sites (screening, including vulnerability assessment will determine this output) and designs, including environment, health and safety requirements which will be reflected in the site planning outputs such as maps/DPR/other reports.
- 7) **Preparation of Bidding Document/s and integration of environment, health and safety requirements.** Environment, health and safety requirements to be adhered to during construction will be integrated into the Bidding Documents. These requirements in

form of conditions/specifications, drawings and Bills of Quantities (as required/relevant) will be integrated into the Bidding Documents.

Pre-construction Activities: All utilities and common property resources likely to be affected due to the project will be relocated with prior approval of the concerned agencies/communities 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 prior to the execution of civil works.

Indicative Mitigation/Management Measures: While the table below suggests a few key indicative measures that may be required for specific activities, more detailed Generic EMPs and guidelines have been prepared and included in the ESMF. The elements indicated in the table below will be used appropriately and suitably (commensurate to the engineering design/intervention) to develop specific plans/strategies.

S.No.	Activity	Indicative Mitigation Measures
1	Underground Cable Laying	<ul style="list-style-type: none"> • Worksite Safety Management Plan • Provide for cautionary signs along the cable route and prevent any unauthorized digging. Any authorized digging should be under expert supervision. • Conduct consultations with community and fix timings to minimize inconvenience during construction. • Utility restoration, wherever affected/disrupted • Provide safety gear to all workers during implementation and during repairs/maintenance. • Provide for guards at night at critical locations
2	Roads, Bridges and Culverts	<ul style="list-style-type: none"> • Provide for cross drainage works as required in the light of flooding pattern/s in the area. • Provide for road safety measures, including traffic calming features, where required and warning signs • Avoid/minimize disturbance to flora/vegetation
3	Cyclone Shelter Repair	<ul style="list-style-type: none"> • Sensitize community and involve community groups in management and maintenance of facilities. • Provide for sufficient dustbins. Provide warning signs about littering. • Provide water proofing to the septic tanks. Locate septic tanks away from water storage structures. • Prepare a maintenance schedule and sensitize the community groups. • Fix display boards on basic do's and don'ts. • Training for Shelter Maintenance Committee Members
4	Shore Protection Works (to be finalized). **	<ul style="list-style-type: none"> • For any shore protection pilot/works, conduct a detailed Environmental Impact Assessment and prepare a detailed/specific EMP. While doing the EIA, consider the negative impacts listed in the ESMF. • The EA will cover cumulative effects/impacts assessment. • Specific assessment on any likely impact on biodiversity, including specific marine fauna. • Detailed assessment on issues like impact of any hard engineering measures on increased erosion in surrounding areas/coastal stretches. • Implement the EMP rigorously and monitor it closely on parameters suggested in EMP.
5	Beach Front Restoration	<ul style="list-style-type: none"> • Prepare a master plan/comprehensive plan for over-all reconstruction and redevelopment. • Solid waste collection and disposal arrangements • Special attention to planning and design of public amenities, including features for differently abled and women/children. • Prepare EMPs for specific works, if needed. • Implement the EMP rigorously and monitor it closely on parameters suggested in EMP.
6	Rehabilitation of Historic Buildings and Landmarks	<ul style="list-style-type: none"> • For all works involving rehabilitation of historic building/s and landmark/s, conduct a detailed assessment and prepare a detailed DPR with measures to re-build/restore to its original condition, albeit with resilient features. • Chose an agency/experts with experience in such cultural and heritage works. • Prepare specific design and construction management plans. • Public consultation.

S.No.	Activity	Indicative Mitigation Measures
7	Urban infrastructure and services (including roads, parks, public spaces etc.)	<ul style="list-style-type: none"> • Screening and consultation to determine if work/s require detailed assessment. • Public Consultation • Conduct consultations with community and fix timings to minimize inconvenience. • Utility restoration, wherever affected/disrupted • Traffic Management and Safety Plan/s • Prepare a Preventive Maintenance Schedule and implementation of the same. • Prepare EMPs for specific works, if needed. • Provide protective gear to all workers. • Implement the EMP rigorously and monitor it closely on parameters suggested in EMP.
8	Reviving Nurseries feeding to Farm Forestry	<ul style="list-style-type: none"> • Consult local experts on choice of species. • Avoid mono cropping. • Use the services of horticulturists in deciding the variety and planting spacing. • Prepare an IPM Plan. • Sensitize farmers about IPM and reduce the use of banned chemical fertilizers and pesticides.
9	Rebuilding the Indira Gandhi Zoological Park and Eco Park at Kambalakonda	<ul style="list-style-type: none"> • Follow design principles and protocols laid out under the IUCN and CZA guidelines. • Prepare a master plan/comprehensive plan for over-all redevelopment. • Special attention to planning and design of public amenities, including features for differently abled and women/children. • Build partnerships/associations to bring-in best international practices in the design and operation of the Zoological Park • Prepare comprehensive maintenance protocols/ handbook to guide the operation of the facility • Training and sensitization of staff
10	Restoration of Shelter Belts/ Mangroves	<ul style="list-style-type: none"> • Selection of sites for shelter belt plantations to be done in a manner that doesn't affect critical habitats or species, such as Turtle Nesting Sites. • Use screening results and consult community and experts to finalize locations. • Prepare a detailed plantation strategy/plan • Avoid mono cropping. • Use the services of horticulturists in deciding the variety and planting spacing. • Prepare and implement an IPM plan.

** This intervention/activity depends on the outcome/recommendations from a high level study commissioned by GVMC, which is currently underway. Once the possible technical/engineering options are recommended, a comprehensive EA, including comparison of alternatives and cumulative effects assessment will be carried out to finalise whether the recommended solution/s can actually be funded/supported under the project.

15.2 Social Management Approach

The displacement, resettlement and rehabilitation issues arising out of this project will be addressed through the Resettlement Policy Framework presented below.

Resettlement Policy Framework: The RPF prepared based on the World Bank's Safeguard Policy on Involuntary Resettlement (OP 4.12) and the National Act 'The Right to Fair Compensation and Transparency in Land Acquisition and Rehabilitation and Resettlement Act' 2013 will act as guide for mitigating the social impacts that would be triggered by the sub-projects under APDRP. The primary objective of this RPF is to provide better standard of living to the project affected persons or at least restore their standard of living to that of before project.

Guidelines for Resettlement and Rehabilitation: The basic resettlement principles and guidelines include:

1. All PAPs are eligible for compensation for lost assets and livelihood irrespective of ownership of title to land. However, a title will be required for payment of compensation for land.
2. Compensation will be at replacement value without deducting depreciation and salvage value.

3. Compensation and Rehabilitation assistance will be paid before displacement.
4. No civil works will be initiated unless compensation for land and assets and rehabilitation assistance is provided to all eligible PAPs.
5. Where land acquisition is required, it will be acquired either through direct purchase, voluntary donation or according to the RFCTLARR, Act 2013 and in a way to minimize the adverse impacts and to avoid displacement as much as possible.
6. Non-titleholder (squatters and vulnerable encroachers) will be provided replacement cost of their structures.
7. Provision for multiple options for resettlement (self-relocation or assisted relocation) of the affected residential structures, including informal dwellers/squatters.
8. Shifting assistance to the owners of residential structures and informal dwellers / squatter households and titleholders for shifting of household goods and assets.
9. Special measures and assistance for vulnerable groups.
10. PAPs will be meaningfully consulted and will have opportunities to participate in planning and implementing resettlement programs.
11. Appropriate grievance redress mechanism will be established at the city level to ensure speedy resolution of disputes, if any.
12. All activities related to resettlement planning, implementation, and monitoring would ensure involvement of women.
13. Provisions will be kept in the budget for those who were not present at the time of enumeration. However, anyone moving into the project area after the cut-off date will not be entitled to assistance.

Entitlement Matrix: The Entitlement Framework below is based on the provisions of the RFCTLARR Act, 2013 and World Bank’s safeguard policies. These entitlements do not apply for cases of Voluntary Donation.

SI No	Impact Category	Unit of Entitlement	Entitlements	Remarks
Loss of Assets - Titleholders				
Loss of Private Agricultural, Homestead and Commercial Land				
1	Private Land	Land owner(s)/ Titleholder	<p>(a) Cash compensation for the land at market value, which will be determined as per provisions of RFCTLARR Act, 2013; or Direct purchase;</p> <p>or Voluntary land donation as per the provisions specified in the Project Policy.</p> <p>(b) Amount equivalent to current stamp duty on compensation amount for replacement of lost assets.</p> <p>(c) In case of land owners become marginal farmers, landless or those who are already marginal, the following entitlement shall be provided:</p> <ul style="list-style-type: none"> • Subsistence allowance of Rs 36,000/- • Annuity of Rs 5,00,000/- for creating Income Generating Assets and • Training Assistance <p>(d) Post acquisition, if residual land becomes economically unviable, the land owner will have the choice of either retaining or selling it to the Government.</p> <p>(e) Loss of perennial and non-perennial crops will be compensated in accordance with the provisions of Horticulture and Agriculture department as applicable.</p> <p>(d) A Grant of Rs 25000 for loss of replacement of cattle shed.</p> <p>(e) In case those who lose a narrow strip of land, equivalent or less than 10% of total land, will be offered an allowance of Rs 40000/- and will be not entitled for any other R&R benefits.</p>	Compensation for land includes compensation for all assets attached to the land.

SI No	Impact Category	Unit of Entitlement	Entitlements	Remarks
Loss of Private Structures (Residential/Commercial)				
2	Loss of structure (Residential or Commercial or Res-cum-Commercial)	Land Owner/ Titleholder	<p>(a) Cash compensation determined on the basis of R&BD current Schedule Rates and without deducting depreciation cost and other provisions prescribed in RFCTLARR Act 2013; or direct purchase</p> <p>(b) Shifting allowance of Rs 50000 as per provisions of RFCTLARR Act, 2013</p> <p>(c) Provision of free house as per RFCTLARR Act 2013, for completely displaced residential/commercial or cost of @ Rs 1,50,000 will be offered if the affected family opts not take a house.</p> <p>(d) Subsistence allowance of Rs 36,000 if the structure is lost completely (RFCTLARR Act 2013)</p> <p>(e) Resettlement allowance of Rs 50,000 if the structure is lost completely (RFCTLARR Act 2013)</p> <p>(f) Additional 25% structure compensation for partially affected structures towards reconstruction of structures.</p> <p>(g) For those who lose their entire commercial structure, Annuity of Rs 5,00,000/- for creating Income Generating Assets and Training Assistance.</p> <p>(h) Right to salvage materials from affected land or structure</p>	
3	Tenants and Lease holders	Tenants and lease holders	Registered lessees will be entitled to an apportionment of the compensation payable to structure owner as per applicable local laws.	
Loss of Residential and Commercial Structures - Non Titleholders				
3	Squatters		<p>(a) Assistance amount equivalent for impacted structures at replacement cost determined on the basis of R&BD Schedule of Rates as on date without deducting depreciation cost.</p> <p>(b) All squatters will be paid subsistence allowance of Rs 30000.</p> <p>(c) All squatters will be paid Rs 10000 as shifting allowance</p> <p>(c) Right to salvage materials from affected structure</p>	
4	Encroachers	Affected Person (Individual/ Family)	<p>(a) Assistance amount equivalent for impacted structures at replacement cost determined on the basis of R&BD Schedule of Rates as on date without deducting depreciation cost.</p> <p>(b) Encroachers shall be given advance notice of 2 months in which to remove assets/crops.</p>	
Loss of livelihood – Title and Non-Titleholders				
5	Loss of livelihood – title holders and commercial squatters	(Individual/Family)	<p>One time grant of Rs 25,000 (value prescribed under RFCTLARR Act 2013)</p> <p>Training assistance</p>	<ul style="list-style-type: none"> For commercial squatters, the eligibility will become from the date of Census survey

SI No	Impact Category	Unit of Entitlement	Entitlements	Remarks
6	Foreseeable and unforeseen impacts* likely during the construction stage	Owner, affected person	Payment of damages if any to structures Temporary access would be provided, where necessary.	Such as temporary impacts on structures, temporary disruption to access or passage, particularly in congested slums if the option of mobile units is not used.
7	Temporary loss of income of mobile kiosks, if any	Kiosk owner	Two months advance notice to vacate the area	
Vulnerable People				
8	SC, ST and Disabled Persons		Assistance to include in government welfare schemes if not included, if eligible as per Government criteria; and Additional benefits to SC and ST as per the provisions of RFCTLARR Act 2013 Schedule.	
9	Women		In case of extending any productive asset, joint ownership in the name of husband and wife will be offered. While disbursing the entitlements, women will be given the first priority to receive the entitlement benefits over other entitled persons.	
10	Loss of or impact on any common or cultural property resource	Community, Village / Ward	Resources such as cultural properties and community assets shall be conserved (by means of special protection, relocation, replacement, etc.) in consultation with the community.	Such as shrine, temple, mosque, hand pump, shed
11	Unforeseen impacts		Any unforeseen impacts shall be documented and mitigated in accordance with the principles and objectives of the Policy.	

Land Requirement and Acquisition Options: APDRP proposes various types of sub-projects to be taken up, of which some may require land depending on their type and size. The GoAP is implementing similar projects on a regular basis, which require land, of which the ownership could be either public or private. Accessing public land is easier, but arrangements will have to be made for securing privately owned land. When additional lands are required, GoAP, as a first step, would try and secure public lands where feasible and available. If private lands are required, then GoAP would resort to, either through voluntary donation or by outright direct purchase or through using RFCTLARR, Act 2013.

Voluntary Land Donation: Under the APDRP, the use of voluntary donation option will be limited to small strips of land for rural roads and small plots of land for buildings. Under no circumstances, the titleholder will be subjected to any pressure, directly or indirectly, to part with the land. This process will be taken up mainly at three levels as described below:

Level	Process	Output	Responsibility
Village/ Ward Level	Based on the revenue survey, lands will be identified and the list of titleholders will be prepared. This will be done by the implementing agency of Panchayat Secretary/Revenue Department. The PIU will help in this process and will document the willingness to donate land by the titleholders in the presence of the Sarpanch and Panchayat Secretary in the form of a Willingness Letter. The list of such persons will be displayed at the Panchayat Office.	Willingness Letters/MoU/ Affidavit/Gift Deed	Sarpanch, , PIU, Panchayat Secretary, and affected persons (Titleholder)

Level	Process	Output	Responsibility
Mandal Level	Mandal Revenue Officer (MRO) or concerned Revenue Official surveys the land and demarcates the extent of area required. The survey will identify if the land is public, private or encroachment. Based on the survey, maps are prepared. The maps will be signed by Sarpanch, Village Secretary, and concerned Revenue Officer.	Survey map signed by relevant persons indicating the extent of land required.	MRO, Surveyor, Sarpanch, Village Secretary, PIU
District Level	Formalize relinquishment of land rights where concerned local people voluntarily donate their private land for the project for public purpose.	Effect Changes in Land Revenue Records	District Collector, MRO

In order to make this process transparent, the following rules are prescribed:

- The Titleholder should not belong to the vulnerable sections/ BPL category.
- Identification of vulnerable PAPs: The vulnerability shall be assessed by the project based on the census of the affected persons. The following categories of PAFs/ PAPs shall be entitled for support as vulnerable groups:
 - BPL households (with a valid proof), as per the State poverty line for rural areas;
 - BPL households without a proof of the same and belonging to the following social categories (i) Women headed households with women as sole earner (ii) Scheduled Caste/Scheduled Tribe and (iii) Handicapped person, and is subject to any of the following impacts - Loses land holding; Loses shelter and Loses source of livelihood.
- The project provides for targeted support/ assistance to the vulnerable groups.
- The impacts must be minor. The voluntary donation should not be more than 10 percent of the area of that particular holding of the Titleholder in that category of land (dry, wet or commercial/ residential). This should not require any physical relocation of the Titleholder.
- Documentation shall include village level consultation and documentation of the voluntary land donation on prescribed form with key community members as witness including the local body representative.
- The legal process in the country requires the land to be donated in the form of gift deed. This will enable to mutate the land in the name of the Government.
- The land in question must be free of squatters, encroachers, or other claims or encumbrances.
- Grievance Redressal Mechanism must be available.

Direct Purchase or through RFCTLARR, 2013: The private land acquisition can be adopted, on a willing seller and willing buyer basis, to avoid delays. If acquired using new LA and R&R Act, 2013 the process described in the Act and key excerpts included in the ESMF will need to be followed.

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 RAPs provides a link between the impacts identified and proposed mitigation measures to realize the objectives of involuntary resettlement.

- 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.

Gender and Social Inclusion Action Plan: Women and girls generally tend to be disproportionately affected by natural disasters. Recognizing the vulnerabilities, the project strongly emphasizes attention to gender equity and social inclusion in the implementation process. The proposed livelihoods component will support restoration and strengthening of livelihood activities, wherein substantial female participation is to be ensured. The restoration of public buildings would have design features that will pay special attention to the needs and interests of vulnerable people including children, women, and aged, physically disabled, and other social groups. The proposed disaster risk reduction initiatives will similarly focus on equal participation of and benefits for women, children, and other vulnerable groups.

Additional measures for women include: (i) gender disaggregated data will be collected during detailed surveys and separate women focus group discussions will be conducted to address specific women related issues under the sub-project; (ii) any direct adverse impact of the sub-project on woman-headed household will be taken up on a case-to-case basis and rehabilitation of these households will be treated as priority under the sub-project; (iii) during disbursement for rehabilitation assistance and compensation, priority will be given to woman-headed households; and (iv) joint ownership in the name of husband and wife will be offered in case of non- women headed households.

Grievance Redressal Mechanism (GRM): A GRM will be established at all levels with clear guidelines agreeable to the Bank. The grievances first would be addressed by the Village Panchayat and the field level project/line agency staff. The district level GRMs will be the second level GRM followed by the Project Steering committee at SPIU level. SPIU will document and monitor the working of the GRM. In case of land acquisition, there is a multi-layered GRM prescribed in the RFCTLARR 2013, which will be followed.

Legal Options to PAPs: The PAPs will have two kinds of options for addressing their grievances relating to the Land Acquisition. One is the grievance redressed mechanism incorporate in this framework. The other is the general legal environment consisting of court of law to address their grievance as per RFCTLARR 2013. These options will be disclosed to the PAPs during the public consultation process.

Grievance Redress Service of the World Bank: In addition to seeking to resolve their grievances through the GRM established at the government level, "communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project such as this operation may also submit complaints to the Grievance Redress Service (GRS) established by the World Bank. The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may also submit their complaint to the WB's independent Inspection Panel, after having brought the complaint to the World Bank's attention through its GRS. Information on how to submit complaints to the World Bank's Grievance Redress Service is available at <http://www.worldbank.org/GRS>. Information on how to submit complaints to the World Bank Inspection Panel is available at www.inspectionpanel.org.

Indigenous People Management Framework: The newly formed Andhra Pradesh state has about 5.33% Scheduled Tribe population as per 2011 census. Since the project is contemplating interventions in areas where there are tribals, it becomes imperative to prepare an Indigenous People Development Plan.

The Indigenous Peoples Management Framework seeks to ensure that indigenous people and tribal communities are informed, consulted and mobilized to participate in the sub-project preparation. The IPMF aims to protect ethnic minorities from the adverse impacts of development, and to ensure that ethnic minorities benefit from development projects and programs. The need for a full IPDP will depend on the nature and magnitude of the Project impacts and sensitivity of IP issues. The need for the IPDP will be established on the basis of the following criteria, to determine if project impacts are 'significant':

- 1) Adverse impacts on customary rights of use and access to land and natural resources;
- 2) Negative impacts on socio-economic status and cultural identity;
- 3) Impacts on health, education, livelihood and social security status; and
- 4) Any other impacts that may alter or undermine indigenous knowledge and customary institutions.

Screening: The screening will cover the following aspects - Name(s) of tribal community group(s) in the area; total number of tribal community groups in the area; percentage of tribal community population to that of total area/locality population; number and percentage of tribal community households in the zone of influence of the proposed sub-project; socio-economic, demographic, cultural and other details of each affected tribal community household.

If the results of the screening bring forth the presence of tribal community households affected as more than 10 households in the zone of influence of the proposed sub-project, a social assessment will be carried out.

Social Assessment: The PMU will undertake a social assessment with the help of a consultant. The SA will gather relevant information on demographic data; social, cultural and economic situation; and social, cultural and economic impacts – positive and negative on the tribal communities in the sub-project area.

Free, Prior, Informed Consultation for recording Broad Community Support: Meaningful

consultations with IPs, including women throughout the project cycle to seek their informed participation at all stages. The tribal groups/IPs will be consulted during the preparation of the IPDP. They will be informed of the mitigation measures proposed and their views will be taken into account in finalizing the plan. The Plan will be translated into the tribal language and made available to the affected people before implementation. TDP/IPDPs will include dates, locations and attendees for all consultations held; and that all TDPs/IPDPs will include a summary of the results of those consultation, evidence on the level of community support for the project, as well as any concerns or potential risks or conflicts. The tribal institutions and organizations in the affected area will also be involved in implementing the IPDP and in resolving any disputes that may arise.

Grievance Redressal Mechanism: Over and above the proposed GRM systems, for tribal population, any existing customary tribal administration system/tribal panchayats will be involved in the grievance redressal system as the first step. The preliminary level for resolving grievances shall be the Village level Committee headed by Ward member and comprising community leaders. At the secondary level, the PIU and PMU grievance redress committees shall be responsible for addressing grievances of the IPs. At the state level, the Commission for SC, STs, and Minorities shall be the apex body to hear and resolve grievances from the IPs.

Institutional Arrangements and Budget: The Line Department will be implementing the IPDP for the sub-project under the supervision of the PMU. However, PMU will have the primary responsibility for the preparation and monitoring of the IPDP. A local NGO with the relevant experience will be hired to assist the PMU in planning and implementing the IPDP.

Disclosure: The disclosure will be in a manner accessible to PAPs where there are differing levels of literacy skills. All IPDPs will be disclosed as given in the RPF.

15.3 Consultations with Key Stakeholders and Disclosure

Consultation and Participation Framework: To ensure people's participation in the planning phase and aiming at promotion of public understanding of project scope, activities and impacts, various sections of project affected persons and other stakeholders will be engaged in various consultation throughout the sub-project planning and implementation phases. The information dissemination and consultation with PAPs during the sub-project preparation should include, but not limited to, the following:

- Project Description and its Likely Impacts
- Objective and Contents of the Surveys
- General Provisions of Compensation Policy
- Mechanisms and Procedures for Public Participation and Consultation
- Resettlement Options (Reorganization on Remaining Land, Relocation to a Fully Developed Resettlement Site, or Cash Compensation)
- Grievance Redress Procedures and its Effectiveness
- Tentative Implementation Schedule
- Roles and Responsibilities of Sub-Project Proponents and Local Authorities
- Feedback on the Income Generation Activities and Effectiveness
- Feedback Regarding Relocation Site(s)
- Preferences for Mode of Compensation for Affected Fixed Assets (ie, Cash or Land-for-Land)

This framework shall be a sub-set of the overall communication strategy of the project.

Citizen Engagement Strategy: The key elements of the citizen engagement strategy for this operation include the following: (i) suo-motu disclosure of important project related information by the government on its website and at the appropriate local level under section 4 of the Right to Information Act and disclosure procedures agreed with the Bank, (ii) framework for consultation in the ESMF with the key stakeholders during planning, design and implementation of all sub-projects; (iii) ensuring free, prior, informed consultation with the Scheduled Tribe groups and their representatives for obtaining broad community support as a part of preparation of specific sub-projects relevant to that area; (iv) Grievance Redress Mechanisms (GRM) at PIU and SPIU levels to meet specific grievance redress requirements of this operation; (v) promoting community based risk reduction initiatives with the participation of and networking with relevant stakeholders including women, school children, youth, civil society organizations, and local bodies.

Information Disclosure: The Right to Information Act, 2005 provides for setting out the practical regime of right to information for citizens to secure access to information under the

control of public authorities, in order to promote transparency and accountability in the working of every public authority.

Copies of ESMF shall also be placed in the District Collector’s Office or other relevant local offices. When the draft safeguard documents (EA/SA/EMP/RAP) are available for sub-projects, the documents shall be disclosed publicly to the key stakeholders, including local NGOs. Feedback received from stakeholders shall be incorporated into the final documents. The executive summary of final set of EA/SA/EMP/RAP/IPDP, wherever applicable and other project related relevant information shall be translated in local language and made available at Project Authority’s state and local offices. The final documents in full will replace the draft documents in Project Authority’s website/s. Additionally documents like ESMF, EIA/SIA and EMP/RAP will be disclosed in the World Bank’s Info-shop.

The list of eligible persons (PAPs) for disbursement of benefits shall be separately disclosed at concerned Panchayat Offices/ Urban Local Bodies to ensure transparency. A copy of the list of eligible PAPs shall be put up at notice boards of the District Collector Offices, Block Development Offices, project offices, and any other relevant offices.

E.16 Implementation Arrangements

Over-all Project Administration Mechanism: The State level Project Steering Committee (SCC) constituted at apex level for NCRMP will oversee and monitor the overall progress of project. The State Project Implementation Unit (SPIU) for NCRMP I will act as the Project Management Unit for the project. The PMU will be supported by sector experts drawn from each of the Line Departments (LDs) implementing the project investments. The Line Departments shall be responsible for actual execution of the works and further maintain the infrastructure created. These Line Departments will appoint nodal officers and will execute the project through respective field offices. The overall list of the various project components and respective implementing agencies is illustrated in the table below.

Components	Departments/Agency
Component 1: Resilient electrical network	Eastern Power Distribution Company of A.P. Ltd. (EPDCL)
Component 2: Restoration of connectivity and shelter infrastructure	Panchayati Raj Department (PRD) for Rural Roads and repair of cyclone shelters (Sub-component 2.1) Road and Building Department (R&BD) for Major District Roads (Sub-component 2.2)
Component 3: Restoration and protection of beach front	Greater Visakhapatnam Municipal Corporation (GVMC) for Shore protection work (Sub-component 3.1) GVMC and Visakhapatnam Urban Development Authority (VUDA) for Beach front restoration (Sub-component 3.2)
Component 4: Restoration of environmental services facilities and livelihood support	Andhra Pradesh Forest Department and its partners
Component 5: Capacity building and technical assistance for disaster risk management	PMU and its partners

All Implementing Agencies shall establish a Project Implementation Units (PIUs). At the district level, the respective District Collectors will oversee and provide guidance for the implementation of the Components.

Arrangements for ESMF Implementation: Staffing arrangements for environment and social management in the project are given below:

- At PMU, Environmental and Social Specialists have been deployed to handle all matters pertaining to environmental management in the project (for both NCRMP I and this project), including activities related to project planning and preparation, supervision, monitoring, evaluation, reporting and documentation. The PMU will bring-in additional expertise as may be needed for specific activities (such as those under Component 3 and triggering requirements of OP 4.11 and OP 4.04).
- The Line Department/Agency will designate an officer/appoint expert for environment and social management/safeguard activities.
- At the sub-project level, the contractor would be responsible for planning, executing and coordinating implementation of the ESMF provisions as laid out in the contract documents; overseen by the concerned line department staff.
- During implementation, an ‘Independent/Third Party Auditor’ would audit/review the implementation of the works in accordance environmental, health and safety management provisions set out in the respective contracts.

Supervision, Reporting and Monitoring: The multi-tier implementation arrangements under the project include supervision and monitoring roles and responsibilities of the various players involved in the implementation. Supervision will generally entail routine quality certification at various stages of construction, forming the basis of payment certification and other works. Monitoring will occur as a periodic function, and will include process reviews/audits, reporting of outputs, and maintaining progressive records.

Each designated Environment and Social Specialist shall be responsible for overseeing compliance of the sub-projects to Bank safeguard requirements, GoI/GoAP regulations and applicable ESMF guidelines. They will also review regularly the timely implementation of environment and social provisions as per the ESMF, EMP, RAP and IPDP, wherever applicable. Corrective actions shall be initiated in a planned manner as appropriate to ensure compliance to the ESMF requirements. The monitoring and reporting will be done by line departments/implementing agency to PIU, which in turn will be reporting to PMU.

Training and Capacity Building: Experience from NCRMP-I has re-emphasized the need for adequate training and capacity building arrangements on environment and social management at various levels covering all levels of concerned organizations/agencies (PIU, implementing agencies, consultants and contractors). The proposed project would require regular/periodic training programmes on the safeguard aspects to ensure that the comprehensive safeguard instrument (ESMF) developed for the project is effectively and uniformly used in the field. Adequate implementation and support mechanisms would be required for the project as there are new activities (different from those under NCRMP I), some of which require specific expertise and close over-sight.

Budget for ESMF Implementation: To effectively implement the environmental and social management measures suggested as part of the ESMF, necessary budgetary provisions will be made in the DPRs for the individual sub-projects. Tentative budget for each of the project should include the environmental management costs along with the good engineering practices and cost of environmental and resettlement monitoring. The budget for complying with the EMP and RAP needs to be worked out for each sub-project by working out the cost of implementing various mitigation/R&R measures. Where this is not possible, provision of a minimum of 2% of the sub-project cost needs to be earmarked for complying with the EMP. All administrative costs for implementing the ESMF shall be budgeted for as part of the PIU and PMU costing.