

**INTEGRATED SAFEGUARDS DATA SHEET
APPRAISAL STAGE**

Report No.: ISDSA1051

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I. BASIC INFORMATION

1. Basic Project Data

Country:	India	Project ID:	P144726
Project Name:	National Cyclone Risk Mitigation Project-II (P144726)		
Task Team Leader:	Saurabh Suresh Dani		
Estimated Appraisal Date:	29-Sep-2014	Estimated Board Date:	18-Nov-2014
Managing Unit:	GSURR	Lending Instrument:	Adaptable Program Loan
Sector(s):	Flood protection (50%), Rural and Inter-Urban Roads and Highways (40%), Telecommunications (10%)		
Theme(s):	Natural disaster management (50%), Climate change (20%), Rural services and infrastructure (20%), Vulnerability assessment and monitoring (10%)		
Is this project processed under OP 8.50 (Emergency Recovery) or OP 8.00 (Rapid Response to Crises and Emergencies)?			No
Financing (In USD Million)			
Total Project Cost:	320.00	Total Bank Financing:	290.00
Financing Gap:	-44.00		
Financing Source			Amount
BORROWER/RECIPIENT			74.00
International Development Association (IDA)			290.00
Total			364.00
Environmental Category:	A - Full Assessment		
Is this a Repeater project?	No		

2. Project Development Objective(s)

The Project Development Objective is to reduce vulnerability to cyclone and other hydro-meteorological hazards of coastal communities in project States, and increase the capacity of the State entities to effectively plan for, respond to, and recover from disasters.

3. Project Description

Background. About 5,700 kilometers of India's coastline is exposed to severe cyclones and approximately 40 percent of its total population lives within 100 kilometers of the coastline increasing potential natural disaster losses. The NCRMP is a flagship program, the first Bank funded project in India exclusively focusing on ex-ante disaster risk mitigation. It is being implemented by the NDMA with support from the Ministry of Home Affairs (MHA), GoI, focusing on cyclone prone coastal States and UTs. The project is part of a broader national multi-hazard mitigation program taken up by the NDMA that includes understanding hazards like seismic risk, floods, landslides and establishment of a National Disaster Management communication network.

NCRMP I. The National Cyclone Risk Mitigation Project I (P092217, Credit 4772-IN) has been the first phase of an Adaptable Program Loan (APL) designed to assist the Government of India and the vulnerable coastal states in mitigating cyclone related risks by focusing on ex-ante risk mitigation interventions as part of a strategy to integrate disaster risk mitigation into the longer-term national development process.

The NCRMP I is a US\$455 million ongoing Project (US\$359 million IDA credit and US\$96 million counterpart funds) being implemented through the National Disaster Management Authority (NDMA) in coordination with the states of Andhra Pradesh and Odisha and the National Institute of Disaster Management (NIDM), New Delhi. The Project includes a US\$319 million project (US\$255 million IDA credit and US\$64 counterpart funds) approved by the Board of Executive Directors on June 22, 2010 and became effective on March 30, 2011. It includes Additional Financing of US\$136 million (US\$104 million IDA credit and US\$32 million counterpart funds) approved in 2013 after Cyclone Phailin. The first phase of this APL focuses on the states of Odisha and Andhra Pradesh for early warning and cyclone risk mitigation infrastructure components while technical assistance for strengthening disaster risk management capacity has been made/is available for all coastal states.

NCRMP II. The Project is the second in a series of Projects, which started with an ongoing Adaptable Program Loan. The second phase of this APL (this project) proposes to support activities, similar to those under NCRMP I, in the states of Gujarat, Kerala, Karnataka, Maharashtra and Karnataka. The lending instrument is Investment Project Financing and the implementation period is five years.

Project Components. The project has the following five components: A) Early Warning Dissemination Systems and Capacity building for Coastal Communities; B) Cyclone Risk Mitigation Infrastructure; C) Technical Assistance for Disaster Risk Management Capacity; D) Understanding Multi-Hazard Risk Management; and E) Project Management and Implementation Support. Components A and C will be implemented by NDMA with support by the states. Component B will be implemented by the five participating states: Gujarat, Maharashtra, West Bengal, Kerala, and Karnataka. Component D will be implemented by Ministry of Home Affairs (MHA). The Technical assistance for DRM capacity and understanding Multi-hazard Risk Management will be available to all the 13 coastal states and UTs that is centrally managed by NDMA/NIDM/MHA. A short description of the components is given below:

Component A: Early Warning Dissemination Systems (EWDS) - US\$15 million

The objective of this component is to reduce the vulnerability of coastal communities by addressing the existing gap in dissemination of warning to the communities. Currently NDMA is leading the development of EWDS for the states of Andhra Pradesh and Odisha, as part of NCRMP I, which includes the necessary equipment and training. This component will support the expansion of EWDS

to Gujarat, Maharashtra, West Bengal, Kerala, and Karnataka. It will assist in:

- a) installation and operating EWDS allowing the state and/or district/sub district level control center to send communications directly to the villages using Global System for Mobile Communications (GSM)/Code Division Multiple Access (CDMA) based technology, including strengthening emergency operation centers to channelize the warning through different communication channels. The component also includes providing satellite phones/alternative technology to key officials to fail proof the EWDS and also expand a new radio based wireless communication technology in selected blocks in each state; and
- b) Strengthen the capacity of officials and village representative in operating, maintain and using these EWDS equipment and communities in disaster preparedness and response by preparing disaster management plans and organizing mock drills and similar exercises.

Component B: Cyclone Risk Mitigation Infrastructure – US\$278 million

The objective of this component is to increase the preparedness and reduce the vulnerability of coastal communities through strategic infrastructure investments, i.e., improving their capacity/ access to emergency shelter, evacuation routes and protecting critical infrastructure against cyclones and hydro meteorological hazards to reduce potential damages and ensure continuation of services. To determine the number, characteristics and location of risk mitigation infrastructure in each of the project states, identification mechanisms included vulnerability assessment of the areas, current status/availability of structures, land availability, access to the sites, public consultations and status/ type of other on-going programs in the coastal areas. The portfolio of risk mitigation infrastructure under this component includes a broad range of investment such as multi-purpose emergency shelters, up-grading of roads, underground electric cabling, construction of bridges and upgrading of saline embankments and bunds.

Sub-component B.1: Cyclone Risk Mitigation Infrastructure in Gujarat – US\$77 million. To finance: i) multi-purpose cyclone shelters (MPCS), and ii) access roads and bridges. Construction of 175 MPCS across 12 districts, including 29 shelters in surge prone areas. Improvement of roads of an aggregate length of about 188 kilometers from existing single lane standard to double lane standard.

Sub-component B.2: Cyclone Risk Mitigation Infrastructure in Maharashtra – US\$87.5 million. To finance: i) MPCS, ii) underground cabling, iii) saline embankments and bunds, and iv) emergency operations centers infrastructure. Construction of 20 MPCSs, conversion of HT (high tension) & LT (low tension) overhead lines into HT< underground cables in the coastal town of Alibag in Raigad District, construction of one new and rehabilitation of 7 saline embankment, and construction and equipment of district level emergency operation centers.

Sub-component B.3: Cyclone Risk Mitigation Infrastructure in West Bengal – US\$91.2 million. To finance construction of 155 multi-purpose cyclone and flood shelters along coastal districts.

Sub-component B.4: Cyclone Risk Mitigation Infrastructure in Kerala – US\$22.3 million. To finance: i) construction of 49 MPCS across 9 districts, ii) rehabilitation of 13km of access roads, and iii) construction of 19 footbridges and canals.

Sub-component B.5: Cyclone Risk Mitigation Infrastructure in Karnataka – US\$14.0 million. To finance: i) construction and rehabilitation of 30 MPCS, ii) rehabilitation of embankments and canals; and iii) construction and rehabilitation of bridges. Investments in Karnataka are based on a preliminary proposal, which will be appraised and finalized during implementation of this project.

Component C: Technical Assistance for Disaster Risk Assessment and Recovery - US\$10 million
The objective of this component is to improve the quality of available information on multi-hazard risks for decision making, and the assessment of strategies for risk financing.

Sub-component C.1: Multi-hazard risk modeling and assessment – US\$8 million. In Phase I, NDMA is undertaking a hazard and risk assessment of coastal India. The understanding of risk and vulnerabilities from Phase I will be carried forward through improved probabilistic risk modeling of multi-hazards and cascading impacts of disasters along coastal India.

Sub-component C.2: Strengthening Emergency Recovery Capacity – US\$2 million. This sub-component will finance the implementation of the key findings from the Capacity Building study (at national, state and local level) undertaken by NIDM in NCRMP I focused on risk and damage assessment. The findings will feed into developing training modules that will focus on strengthening capacity of the State's disaster responders.

Component D: Understanding and Strengthening Multi-Hazard Risk Management - US\$19.5 million
The objective of this component is to understand and strengthen National Multi-hazard risk management at a national level. The components would entail the following:

Sub-component D.1: Enhancing the Capacity for Disaster Risk Management and response in non-coastal states – US\$ 14.5 million. This will entail the following: a) Multi-hazard risk assessment– This will finance a systematic assessment of the current and future disasters and climate risks, focusing on urban areas in non-coastal states. A web-based GIS platform will be established to store and manage the data gathered. Modeling will also be undertaken on a pilot basis for high risk flood areas and potentially landslide risk areas to factor in cascading multi-hazard disaster impacts; b) Pilot physical structural assessment– entailing a pilot initiative to train engineers on the assessment of the physical vulnerability of identified public buildings and critical infrastructure to seismic and other hazardous events. This will entail the development of identifying vulnerable critical infrastructure, a comprehensive multi-hazard check-list and accepted assessment guidelines; and c) Strengthening capacity for disaster response – This would entail the strengthening the capacity of emergency responders (local governments, first responders and other agencies involved in disaster response) in selected urban areas that are considered highly vulnerable to the impacts of earthquakes or landslides. It will include: (i) operating, maintaining and regular use of the EWDS equipment by officials and village representatives; and (ii) of communities in disaster preparedness and response through disaster management plans, arranging mock drills etc. It will also facilitate upgrading search and rescue equipment's coupled with proper training in the use and deployment of these tools.

Sub-component D.2: Comprehensive multi-hazard risk financing strategy – US\$2 million. This sub-component would assist a feasibility study that would review options to improve the management and financial protection against multi-hazards. It will assist in estimating annual expected losses caused by adverse natural events, and the probable maximum loss which will enable the development of a comprehensive Multi-Hazard Risk Financing strategy at the National level.

Sub-component D.3: Design of a National Seismic Risk Mitigation Program – US\$2 million. This sub-component would assist the Ministry of Home Affairs (MHA) and the National Disaster Management Authority (NDMA) in the design of a comprehensive National Seismic Risk Mitigation Program. This will encompass activities that will strengthen risk assessment capabilities, raising public awareness, strengthening the design and enforcement of building codes and land-use regulations, retrofitting critical infrastructure, and risk financing. Such a program would enable

government agencies to be better prepared, respond to, and recover from earthquakes.

Component E: Project Management and Implementation Support - US\$23 million

This component will finance the incremental operating costs of the Project Management Unit (PMU) and the State Project Implementation Units (SPIUs). In addition, the component will include consultancies required for the preparation and supervision of specific activities, trainings, exposure visits and knowledge exchange programs. The component allocation is as follows: NDMA US\$5.3m, Gujarat US\$4.6m, Maharashtra US\$5.3m, West Bengal US\$5.5m, Kerala US\$1.3m and Karnataka US\$1m.

4. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

India is one of the most populated countries in the world with over one billion people and is vulnerable to a wide range of natural hazards particularly cyclones, floods, earthquakes, drought and landslides. The Global Climate Change and Vulnerability Index 2011, ranked India second in 'extreme risk' countries in the world vulnerable to natural and climate change hazards. It has a coastline of 7,516 km, of which approximately 5,700 km is exposed to cyclones of various degrees of intensity, and an estimated 40 percent of its total population living within 100 km of the coastline that can be potentially affected. As storm surges and climate change induced sea level rise become more pronounced, hazard events are set to grow in frequency and intensity. Economic losses due to disaster are also on the rise both from an increase in the number of disaster events and from an increase in the average loss associated with each disaster event, coupled with a greater concentration of exposed assets.

India's high level of poverty, rapid urban infrastructure growth, high population density, and limited community awareness, further increases the vulnerability of its people to the impacts of natural hazards and climate change. New residents, urban poor living in peri-urban areas, and informal settlements concentrated in high risk zones are particularly vulnerable to natural hazards due to lack of adequate infrastructure, insufficient enforcement of building codes, a near absence of financial and insurance mechanisms that help transfer risk, and limited access to basic emergency services. It is estimated that around 200 million city dwellers in India will be exposed to storms and earthquakes by 2050 (World Bank and United Nations 2010).

In the past decade, the Government of India (GoI) has shifted from a reactive emergency response to being proactive in implementing disaster preparedness and risk reduction initiatives. This change has led to an increased focus towards future oriented risk mitigation programs and strategies aimed at ultimately benefitting millions of people vulnerable to natural disaster risks at the national, state and district, including the village level.

The NCRMP is structured in phases, based on the risk levels of the states and their implementation readiness. In the first project (Phase I), under implementation since 2010, states of Odisha and Andhra Pradesh have been covered and in the second project or Phase II, the states of Gujarat, Maharashtra, Kerala, West Bengal and Karnataka are being included. A brief description of the participating states that are being supported under NCRMP II is provided here:

Gujarat. The State has the largest share (23%) of the total Indian coastline. Its coast has a high diversity of terrain, shelf depths and hydrology, with some extremely flat and low lying sections. The highest tidal ranges in the Indian coast are witnessed in the Gulf of Khambat (up to 8m). These characteristics can amplify storm surges and impact wide stretches unlike many other coastal regions of India. Two cyclone seasons are experienced in Gujarat: March to July (advancing southwestern

monsoon) and September to November (retreating monsoon).

The state has a large number of key ports and coastal settlements along its 1,600 km coastline. It serves as gateway for importing petroleum, gas and other bulk goods to North India. About 90,000 houses, spread over 1,300 settlements, are vulnerable to severe damages. A simulation of storm surge along the Gujarat coast substantiated by field work and observations indicate that an estimated 291 settlements are prone to storm surges of various intensities along the coast.

Maharashtra. Located along the west coast, the state is the second largest in terms of population and the third largest in terms of area, and is spread over 307,713 square km. The state has the country's second largest urban population, and is about 43% urbanized. Mumbai, Maharashtra's capital city is the principal financial center and a major commercial hub of the country.

Maharashtra is prone to a host of hazards. It is at moderate risk to cyclones and storms. During the period from 1890 to 1995, 210 cyclonic depressions were recorded in the Arabian Sea. Out of these, 19 (including 6 major ones) affected the Maharashtra-Goa coast. The Konkan region lies in the moderate to low damage cyclone risk zone with wind speeds rarely exceed 155km/h. Heavy urbanization has also increased vulnerability to hazards, in particular urban flooding.

West Bengal. The coastal stretch of West Bengal is highly vulnerable to cyclones and the frequency of storms crossing this belt is high. The most destructive element associated with an intense cyclone is storm surge which leads to inundations and coastline washout/erosion. High storm surge in coastal West Bengal is due to its peculiar bathymetry and the nature of the coastal belt. The northern part of the Bay of Bengal is very shallow. The coast is also landlocked on three sides. As a result, when a very severe cyclonic storm or cyclone approaches the coast, the storm surge generated by the wind pressure submerges the coastal belt. Another peculiar characteristic of this coast are the high number of rivers and rivulets criss-crossing islands that have an elevation of 4 to 5m above sea level. This makes these islands and the populations inhabiting them highly vulnerable.

The state has a population of more than 90 million and it is amongst the highest density states in the country. Coastal communities in the state are largely poor and often live in houses made of mud walls and thatched roofs, making them highly vulnerable to cyclones, high speed winds, precipitation and inundation. West Bengal has suffered from cyclones, floods, droughts and earthquakes. On May 25, 2009, a severe cyclone, "Aila" lashed the West Bengal coast causing destruction not only in the coastal blocks but also far inland.

Kerala. The state has a geographical area of 38,863 square km. It lies between the Arabian Sea on the west and the Western Ghats on the east. Kerala's coast runs 580km in length, while the state itself varies between 35km to 120km in width. Kerala receives an average annual rainfall of 3,100mm mostly through seasonal monsoons and averages 120-140 rainy days per year. The excessive rainfall that the state receives every season, including from tropical cyclones, makes it prone to severe landslides, flooding and coastal erosion.

The density of coastal urban population is 4,228 persons per square km, nearly twice the average urban density in the state. Continuous occurrence of high intensity rainfall for a few days is the primary factor contributing to extreme floods in the State. Between the year 1891 to 2007, 31 cyclonic storms/severe cyclonic storms have affected the Kerala coast. Cyclones are usually accompanied by tidal waves which, on occasion, enter land up to a distance of 10 km, along with heavy rains and winds with speeds exceeding 50 km/h.

Karnataka. The state has a total area of 191,791 square km, and it is the seventh largest state in India by area, and eight by population. The total coast length is 320km, along which there is one major port, the New Mangalore Port, and more than 10 medium and small ones. The three coastal districts (Uttar Kannada, Udupi, and Dakshina Kannada) have a total population of about 5 million. Of these, the people at highest risk (the ones within 5km from the coastline) are about 2.8 million, of which close to 40 percent are below the poverty line. The state falls under moderate and low risk zones for cyclones but it has experienced floods related to low pressure systems and cyclonic circulation over the Bay of Bengal and Arabian Sea. The last major hydro-meteorological event, in 2009, affected more than 4,000 houses causing major damage.

5. Environmental and Social Safeguards Specialists

Venkata Rao Bayana (GSURR)

Neha Pravash Kumar Mishra (GENDR)

6. Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/ BP 4.01	Yes	<p>While the project interventions are likely to have an over-all positive impact in mitigating risks from disasters, specific interventions envisaged under the project such as creation of cyclone risk mitigation infrastructure under Component B (that includes improvement of roads and bridges; strengthening/upgrading of coastal embankments; underground electric cabling and construction of cyclone shelters) may have some potential adverse environmental and social impacts.</p> <p>Planning and construction of this infrastructure would require avoidance/mitigation measures to ensure that adverse environmental impacts are minimized and properly managed. Impacts resulting from poor sub-project location and/or design; drainage; impact on local flora and fauna; work site safety management, including occupational health and safety of construction workers; construction materials management, including source handling and transportation and; issues associated with improper disposal of debris and construction wastes would require attention. More so, like the parent project, the most important environmental concern pertains to avoiding the highly sensitive ecological areas and/or environmental features in the vulnerable coastal environs, which is possible by using the screening mechanisms (including use of GIS) diligently.</p> <p>OP 4.01 has been triggered to facilitate creation/</p>

		strengthening of mechanisms whereby sub-projects can be planned, designed and maintained in an environmentally sound manner through integration of appropriate approaches into the over-all decision making process of the project – as was done for NCRMP I.
Natural Habitats OP/BP 4.04	Yes	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.
Forests OP/BP 4.36	No	OP 4.36 has not been triggered for this project as no interventions are envisaged in forest areas and therefore no conversion/degradation of this natural resource is expected to occur. The 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 such a sub-project will be made.
Pest Management OP 4.09	No	OP 4.09 is not being triggered for this project as biological/environmental control methods or reliance on synthetic chemical pesticides is not envisaged.
Physical Cultural Resources OP/BP 4.11	Yes	The implementation of the project/program is not likely to affect religious structures of local significance or other physical cultural resources. Impacts, if any would be addressed through appropriate design interventions. Since some civil works are involved, ‘chance finds’ at work sites is a likely impact that has to be managed through appropriate provisions in the relevant (safeguards as well as bidding) documents.
Indigenous Peoples OP/BP 4.10	No	OP 4.10 has not been triggered as there are no tribal habitations with unique socio-cultural identity vis-à-vis the mainstream population in the proposed project locations. This is based on the assessment (both field level and documentary)

		conducted for the preparation of the Environment and Social Management Framework (ESMF) for this project.
Involuntary Resettlement OP/BP 4.12	Yes	OP/BP 4.12 has been triggered to effectively manage involuntary resettlement in case of acquisition of any private land/s. While primarily the proposed works would be undertaken on available/government land, participatory approaches of voluntary donation, direct purchase or exchange by the sponsoring institutions will be followed for obtaining land, if required for some sub-projects.
Safety of Dams OP/BP 4.37	No	OP 4.37 is 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.
Projects on International Waterways OP/BP 7.50	No	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.
Projects in Disputed Areas OP/BP 7.60	No	OP 7.60 is not being triggered as the project is not proposed in any disputed area.

II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

While the project is expected to benefit the coastal communities in the participating states by reducing their vulnerability to cyclone and other hydro-meteorological hazards through creation of cyclone risk mitigation infrastructure and early warning systems, the proposed investments may have some adverse environmental and social impacts.

Environmental Issues/Impacts. The proposed investments under Component 2 of the project to create risk mitigation infrastructure include construction of multi-purpose emergency cyclone shelters, improvement/upgrading of roads to provide connectivity to cyclone shelters, underground electric cabling works, construction of bridges and strengthening of saline embankments/bunds. These activities are central to the approach and design for environment management and safeguards aspects of the project since they have a potential to create significant or irreversible impacts on natural and physical environment in a coastal area, if not managed appropriately. Activities under other components would focus on multi-hazard risk modeling and assessment, capacity building for Disaster Risk Management; implementation support and other such softer aspects. Any significant or irreversible adverse impact on environment is not envisaged from the implementation of such proposed interventions.

Since works would be largely carried out in the coastal realms of states that are marked by various degrees of vulnerability and are marked with sensitive environmental features, there are some risks or issues that need to be managed through appropriate planning and upfront care during the site selection process, particularly in case of sub-projects located close to the shoreline or high tide line influence area or in low lying area/s.

Potential adverse impacts on account of activities/works proposed under Component 2 of the project may include: (i) direct/indirect impacts resulting due to poor site selection for sub-projects (example: salt water intrusion due to inappropriate planning and design of embankments); (ii) impact on the drainage pattern of the area, including impact on coastal flora and/or fauna due to changes in tidal water flow or drainage congestion resulting from obstruction to natural flow of water due to the improper storage of materials or dumping of construction wastes; (iii) felling of trees and clearance of vegetation for sub-project construction; (iv) impacts on water resources used by the people; (v) occupational health and safety concerns that may arise during the construction stage; (vi) impacts due to construction material (sand, water, earth, aggregate) sourcing and transportation and; (vii) concerns arising out of improper management of debris and other construction wastes.

In view of the potential impacts on the environment, Bank's OP 4.01 on Environmental Assessment, OP 4.04 on Natural Habitats 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 and implementation of management measures, the project interventions are not likely to cause large scale, significant or irreversible damage to natural and/or physical environment.

Social Issues/Impacts. Based on past experience from NCRMP I, land acquisition or population displacement is not envisaged under the project. Primarily, land owned by the government will be used for construction and rehabilitation of shelters, roads and embankments. In cases where institutional land is not available, participatory approaches of voluntary donation or direct purchase or exchange by the sponsoring institutions will be followed for obtaining land. Although it is highly unlikely that private lands and/or public land from private users will be required; considering any remote circumstances that may arise in a few sub-projects, World 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.

Further, the field level and documentary assessment conducted for the preparation of the Environment and Social Management Framework (ESMF) reveals that there are no tribal habitations with unique socio-cultural identity vis-à-vis the mainstream population in the project locations in the five participating states. The assessment reveals that: (a) the proposed sub-projects under the operation will be located in coastal zone/non-scheduled areas (non-tribal/non-indigenous people areas); (b) the population in the coastal zone mainly belongs to fishing communities, which are non-tribal/non indigenous in character and practice; (c) the major economic occupations of these populations are fishing, salt making and agriculture and that these occupations are more than subsistence economic pursuits.

In view of the points mentioned above, Bank's OP 4.12 on Involuntary Resettlement has been triggered and based on the assessment, OP 4.10 has not been triggered for this project.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities

in the project area:

Most significantly, the reduction in the vulnerability of coastal communities, in the five participating coastal states of Kerala, Gujarat, Maharashtra, West Bengal and Karnataka, to the adverse impacts of cyclones and climate related hazards will be a desirable long term impact from the project. This long-term generally positive impact of the project will help in bringing development in the targeted areas, particularly in the local context.

Considerations of environment and social dimensions in operation and maintenance cycle of assets would help in ensuring the soundness and sustainability of the program from an environmental perspective. For example, project benefits for multipurpose disaster shelters include ensuring safe sheltering of the project beneficiaries at the event of any disasters including cyclone, and providing new or upgraded spaces for schools, health centers, or other public uses (as decided by the community). Separate floor for sheltering livestock is expected to save number of cattle and other livestock in the event of a disaster. Some ancillary provisions in the cyclone shelters stemmed out from environmental considerations. The design of each shelter includes separate sanitary facilities for men and women, access ramps and sanitary facilities for physically challenged, separate space for generator, first aid facilities and a kitchen. These provisions also include an attempt towards clean energy benefits from use of solar panel/s.

Further, the experience gained during the project implementation would help the implementing agencies, both at the central and state level, to address environmental and social issues more systematically in their regular disaster risk reduction operations as well. The project's treatment of environmental and social issues specifically with regard to the approach used for screening sub-projects (which is based on a robust and scientific methodology) has a potential to set an important precedent for non-project activities/areas now and in the future. At the same time, long-term/indirect adverse environmental and social impacts may result if road infrastructure and saline embankments are designed and implemented without due considerations to local environmental and social features, including drainage and safety aspects.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

The environment and social screening tool developed as part of the Environment and Social Management Framework (ESMF) for the parent NCRMP project has been used effectively for early identification of key environmental and social issues associated with sub-projects, which are not only many in number but also spread across a wide geographical coastal realm of two states, namely Odisha and Andhra Pradesh. This exercise, carried out in parallel with the technical assessment, has also helped in precisely identifying the location for a sub-project. For location/s falling within the Coastal Regulation Zone (CRZ) line, an alternative site was identified in Odisha. For sub-projects with significant social issues, land acquisition and displacement issues and the ones falling within the CRZ with no alternative sites, were either dropped or considered for Phase II, depending on the nature and scale of issues. The already established methodology for environment screening exercise, supported by use of scientific tools such as GIS and remote sensing techniques, has helped in avoiding/minimizing adverse environmental impacts on sensitive habitats and in finding alternatives, wherever possible.

For NCRMP II, all sub-projects will be subjected to an environmental and social screening in line the process and procedures set forth in the ESMF and in line with the well-established system adopted for the parent project (NCRMP I). The screening process will filter out sub-projects with substantive/ major environmental or social issues. It will distinguish/identify sub-projects

requiring a detailed impact assessment and/or regulatory clearances and requirement for land uptake, if any.

A detailed or limited environmental impact assessment study (as the case may be depending on findings from the screening exercise) will be undertaken for investments pertaining to saline embankment/bund strengthening works and underground electric cabling (or in exceptional cases for roads with major re-alignments). These sub-projects will undergo an analysis of alternatives, especially in terms of their proposed location and/or design as required under standard EA practice. For sub-projects requiring regulatory clearances (including the Coastal Regulation Zone (CRZ) clearance), alternative site/s will be explored, and for those with no viable alternatives, permissions will be sought in line with regulatory requirements.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

Environmental and Social Management and Safeguards Instrument: In order to ensure effective environmental and social management in a scenario where multiple sub-projects are proposed along different locations in the coastal areas of five participating states and their specific locations are not known at the time of over-all project design, an approach for preparation, application and implementation of an Environment and Social Management Framework (ESMF) has been adopted for the project. It includes: (a) Environment and Social Screening approach and methodology and; (b) Environment and Social Assessment for certain type of sub-projects (such as saline embankment/bund works and underground electric cabling works).

The ESMF was originally prepared for NCRMP I, wherein it was applied and implemented in the two participating states of Odisha and Andhra Pradesh. The framework has now been revised/ updated and is being used for NCRMP II. The revised document reflects the changes in regulatory requirements/ procedures that have come into effect post-2009 and takes into account the experiences/lessons learnt from the implementation of the first project. The revision/ updating has also considered the baseline or existing environmental and social characteristics of the four states (Gujarat, Maharashtra, Kerala and West Bengal) proposed to be covered under NCRMP II. The use of this framework will be extended to Karnataka, where project preparation works have recently been initiated. Once some baseline information is available, appropriate additions/ modifications will be made in the ESMF.

Management of Environmental and Social Issues/Risks: The ESMF will serve as a comprehensive and a systematic guide covering policies, procedures and provisions, which are being/will be integrated with the over-all project cycle to ensure that the environmental concerns/issues are systematically identified and integrated into the project/sub-project cycle. It guides the integration of environment, health and safety aspects within the decision making and implementation process of various sub-projects. It will also support compliance with applicable laws and regulations of GoI and State Governments apart from meeting the requirements of the relevant Bank policies. This includes the consideration of the relevant Environmental, Health and Safety Guidelines of the World Bank Group.

The over-all environment management approach for the project under the ESMF includes the following key steps:

- (i) Environment screening, which helps in early identification of key environmental issues at the sub-project level. The screening process forms the first step in the environment management process for the project and has been/is being carried out in parallel with the project identification/

engineering feasibility studies for the sub-projects under consideration for inclusion in the project. Proposed investments have been/are being screened and sub-projects with no significant adverse environmental impact are being identified for implementation under Phase I. The environment screening process for the project has used a robust methodology supported by use of scientific tools such as GIS and remote sensing techniques, which has helped in avoiding environmentally sensitive sites. The results are being collated state-wise in the form of Screening Reports. The process and documentation structure for environment screening exercise was developed under NCRMP I (currently under implementation in Odisha and 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 (400+ in each state) were being considered in a single state.

(ii) For sub-projects with a potential for significant adverse environment impacts (as identified from the screening results), an Environment Assessment (EA) and sub-project specific Environment Management Plan (EMP) will be prepared in accordance to Bank's OP 4.01. The EA 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 management plans. However, it is expected that sub-projects with the potential for significant adverse environment impacts will be few in number. These are primarily expected to be limited to strengthening of saline embankments/bunds and underground electric cabling works.

(iii) 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 activity-specific EMPs provide over-all guidance on avoidance, minimization and mitigation measures to be adopted during the planning/selection, design, implementation and operation stages of a sub-project.

(iv) Integration of Environmental Requirements in Bidding Documents. The considerations/requirements will be mainstreamed as part of the over-all decision making and execution process. For environment, health and safety requirements to be followed by the Contractor during construction, the requirements in form of conditions/specifications will be integrated into the Bidding Documents and Bills of Quantities (as required/relevant) will be provided for.

Institutional Arrangements: The project proposes to use the institutional arrangements (both at the central and state levels) and a safeguards framework similar to that followed for NCRMP I. This approach would help in strengthening aspects/elements that have worked in the first project and facilitate in refining/focusing on issues that require some improvement.

The National Disaster Management Authority (NDMA), on behalf of Ministry of Home Affairs (MHA), is managing the project and has the over-all responsibility for implementation. As in NCRMP-I, the NDMA will provide technical and monitoring support, including that for proper application of the ESMF requirements in various stages of the project cycle. NDMA's existing PMU is headed by a Project Director and supported by technical experts and management staff. The current PMU set-up has one specialist each to handle environment and social aspects. NDMA is currently providing guidance to the participating states under NCRMP II and four states (except Karnataka) have developed the required investment proposals. Model DPRs have been prepared and first-year investments have been identified in the said four states.

At state level, the existing nodal agency for disaster management (e.g., State Disaster Management Authorities or Revenue/Relief Departments) will be responsible for managing the project. Within this department/agency, a State Project Implementation Units (SPIU) will be created to play the coordination/project management role. Implementation of the ESMF, including sub-project specific preparation of safeguard documents and implementation/monitoring of the RAPs and EMPs is the responsibility of the State PIUs. The Project Implementation Unit in each state will

have Nodal Environmental and Social Experts to continuously apply and review the ESMF implementation in the project. These experts will be responsible for ensuring proper preparation and implementation of safeguard documents/instruments as well. All the Detailed Project Reports prepared by the line/implementing agencies will be vetted/certified by these Nodal Environment and Social Experts.

The project also has a provision for Third Party Audit covering technical, environmental and social aspects to support NDMA/SDMAs/Line Departments in attaining technical quality and safeguard compliance objectives. These arrangements and staff positions at the central and state level are similar to the institutional structures from the parent project (NCRMP I).

The NDMA and the state agencies have also designed a Grievance Response Mechanism (GRM) to answer to queries, receive suggestions and address complaints and grievances about any irregularities in application of the guidelines adopted in this framework for inclusive project design, and assessment and mitigation of social and environmental impacts. In case of grievances, the matter will be brought to the notice of local tehsildar/Sub Divisional Magistrate (SDM). He/she shall hear the case in presence of all concerned and will try to reach an amicable solution. In case of non-satisfactory solution, the matter will be brought to the notice of the District Collector and he is the final authority to decide the case. As and if required, certain cases will be referred to State Steering Committee which would examine and address the grievances. The Social Management Specialist from the SPIU/SDMA will be responsible for maintaining a record of the proceedings and the final decision/s.

Borrower Capacity: The NDMA, which will be the central co-ordinating agency for this project, is familiar with the Bank's safeguard requirements, through its involvement in NCRMP-I. On the environment and social management aspects, the Authority has gained basic familiarity with regard to the Bank's safeguard requirements through the on-going project. Insights into typical issues/problems have been developed at most levels, reporting and other monitoring mechanisms have been developed/standardized.

The state governments, particularly those of Gujarat, Maharashtra and Kerala are generally aware of environmental issues and management requirements of the Bank on account of their involvement in other Bank projects. However, West Bengal may require a closer monitoring and over-sight and for this required training and support is being provided both by NDMA and the Bank. More so, some sensitization/awareness among implementers in the field (consultants, contractors and line agency staff) will also be required so that project specific requirements set forth in the ESMF are understood clearly by all concerned. The Bank will continue its oversight on aspects pertaining to institutional arrangements and staff capacity, as with a large number of implementing entities that are involved in the operation, some staff turnover during the course of project implementation is expected.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Stakeholders: The primary beneficiaries will be the coastal communities in the five participating states (Gujarat, Kerala, Maharashtra, West Bengal and Karnataka), benefitting from targeted risk mitigation interventions such as cyclone risk mitigation infrastructure and early warning systems. The secondary stakeholders include officials from National Disaster Management Authority, concerned State Disaster Management Authorities, Revenue and Disaster Management Department/s, local governments/village Panchayats; local NGOs; and selected government

departments such as Public Works, Irrigation/ Kharland Board and other administrative officials/ staff in the five said states associated with the planning, design and implementation of NCRMP II.

Consultations: Stakeholder consultation, information dissemination and social mobilization have remained integral part of NCRMP's planning and implementation. In accordance with the applicable Bank policies, public consultations have been/are being carried out in areas where specific investments are proposed for funding under NCRMP II in the five participating states. The public consultation process has been designed in a way that: (i) affected people are included in the decision making process; (ii) public awareness and information sharing on project alternatives/ benefits are promoted; and (iii) views on designs and solutions from the communities are solicited. During the preparation of the ESMF for both NCRMP I and II and during planning of sub-projects, extensive consultation have been/are being carried out with communities, intended beneficiaries, implementing departments, experts (as needed), local NGOs and other stakeholders. The outcomes of these consultations have been considered in the ESMF preparation process and are also documented in the screening reports. Beneficiary consultations and participatory planning have continued through the implementation period in NCRMP I. The same approach and mechanisms will continue for sub-projects/interventions proposed under this project.

The key stakeholders in the project are those are vulnerable to cyclone, storm surges, and floods in the coastal areas. The ESMF was prepared in consultation with the local communities, NGOs and government officials/agencies. The sub-project specific EA/s (environmental assessment) and SA/s (social assessment) and Resettlement Action Plan/s (RAP/s), where required, will be prepared in consultation with affected communities and the draft/s will be disclosed to solicit feedback.

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Disclosure: The draft ESMF document (March 12, 2014 version) has been made public through the Project Authority's website and has also been disclosed at Bank's PIC/Infoshop. The state-wise draft Environment Screening Reports (for Phase I investments), including proceedings from the public consultation process are currently being consolidated and will be disclosed on the NDMA and the state websites in line with the requirements of Bank's Operational Policies and as has been done for the parent project. The final version of the ESMF (October 1, 2014) has also been disclosed, both in the Project Authority's website and at Bank's PIC/Infoshop.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other	
Date of receipt by the Bank	20-Mar-2014
Date of submission to InfoShop	28-Apr-2014
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	
"In country" Disclosure	
India	16-Apr-2014
<i>Comments:</i>	
Resettlement Action Plan/Framework/Policy Process	
Date of receipt by the Bank	20-Mar-2014
Date of submission to InfoShop	28-Apr-2014

"In country" Disclosure	
India	16-Apr-2014
<i>Comments:</i> The ESMF is the tool which is going to be used to implement safeguards.	
If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.	
If in-country disclosure of any of the above documents is not expected, please explain why:	

C. Compliance Monitoring Indicators at the Corporate Level

OP/BP/GP 4.01 - Environment Assessment	
Does the project require a stand-alone EA (including EMP) report?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
OP/BP 4.04 - Natural Habitats	
Would the project result in any significant conversion or degradation of critical natural habitats?	Yes [<input type="checkbox"/>] No [<input checked="" type="checkbox"/>] NA [<input type="checkbox"/>]
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?	Yes [<input type="checkbox"/>] No [<input type="checkbox"/>] NA [<input checked="" type="checkbox"/>]
OP/BP 4.11 - Physical Cultural Resources	
Does the EA include adequate measures related to cultural property?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
OP/BP 4.12 - Involuntary Resettlement	
Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
The World Bank Policy on Disclosure of Information	
Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
All Safeguard Policies	
Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]

Have costs related to safeguard policy measures been included in the project cost?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes [<input checked="" type="checkbox"/>] No [<input type="checkbox"/>] NA [<input type="checkbox"/>]

III. APPROVALS

Task Team Leader:	Name: Saurabh Suresh Dani	
<i>Approved By</i>		
Regional Safeguards Advisor:	Name: Francis V. Fragano (RSA)	Date: 06-Oct-2014
Practice Manager/ Manager:	Name: Bernice K. Van Bronkhorst (PMGR)	Date: 07-Oct-2014