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PROJECT APPRAISAL DOCUMENT

ON A

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IN THE AMOUNT OF SDR 146.9 MILLION
(US\$ 221.96 MILLION EQUIVALENT)

TO THE

REPUBLIC OF INDIA

FOR AN

INTEGRATED COASTAL ZONE MANAGEMENT PROJECT

May 14, 2010

Sustainable Development Department
Environment, Water Resources & Climate Change
South Asia Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2010)

| | | |
|---------------|---|----------------------|
| Currency Unit | = | Indian Rupee (Rs.) |
| Rs. 44.37 | = | US\$1 |
| US\$ 1.5111 | = | SDR 1(30 April 2010) |

FISCAL YEAR

April 01 - March 31

ABBREVIATIONS AND ACRONYMS

| | |
|-------|--|
| AAP | Annual Action Plan |
| BISAG | Bhaskaracharya Institute of Space Application & Geo-Informatics |
| CAAA | Controller of Aid Accounts and Audit |
| CBO | Community Based Organization |
| CDA | Chilika Development Authority |
| CMZ | Coastal Management Zone |
| CRZ | Coastal Regulation Zone |
| DGS&D | Directorate General of Supply and Disposal |
| DoFE | Forest and Environment Department (in Gujarat), Department of Forests and Environment (in Orissa), or Department of Environment (in West Bengal) |
| DPR | Detailed Project Report |
| DSDA | Digha-Shankarpur Development Authority |
| E&SA | Environmental and Social Assessment |
| ESA | Ecologically Sensitive Area(s) |
| ESMP | Environment and Social Management Plan |
| GAAP | Governance and Accountability Action Plan |
| GEC | Gujarat Ecology Commission |
| GEER | Gujarat Ecological and Education Research Foundation |
| GFR | General Financial Rules |
| GP | <i>Gram Panchayat</i> (Village Local Self-Government) |
| GPCB | Gujarat State Pollution Control Board |
| GoI | Government of India |
| GoG | Government of Gujarat |
| GoO | Government of Orissa |
| GoWB | Government of West Bengal |
| ICB | International Competitive Bidding |
| ICR | Implementation Completion Report |
| ICZM | Integrated Coastal Zone Management [<i>A process to promote security of life and livelihood of the coastal communities, and to protect the ecosystems that sustain productivity of the coastal areas while promoting sustainable development.</i>] |
| IDA | International Development Association |

| | |
|-----------|--|
| IEC | Information, Education and Communication |
| IESWM | Institute of Environmental Studies and Wetland Management |
| IOC | Incremental Operating Cost |
| IPCC | Inter-Governmental Panel on Climate Change |
| IUFR | Interim Unaudited Financial Report |
| JMC | Jamnagar Municipal Corporation |
| LIB | Limited International Bidding |
| ME&L | Monitoring, Evaluation and Learning |
| MoEF | Ministry of Environment and Forests |
| MoU | Memorandum of Understanding |
| MNP | Marine National Park, Jamnagar, Gujarat |
| NCB | National Competitive Bidding |
| NCZMA | National Coastal Zone Management Authority |
| NCSCM | National Center of Sustainable Coastal Zone Management |
| NPMU | National Project Management Unit |
| NGO | Non Governmental Organization |
| OP/BP | World Bank: Operational Policy / Bank Procedure |
| OSPCB | Orissa State Pollution Control Board |
| OSDMA | Orissa State Disaster Management Authority |
| O&M | Operation and Maintenance |
| PAD | Project Appraisal Document |
| PEA | Pilot Investment Execution Agency |
| PIP | Project Implementation Plan |
| PHED | Public Health Engineering Department |
| PPF (PPA) | Project Preparation Facility (Advance) |
| PMO | Prime Minister's Office |
| RBI | Reserve Bank of India |
| RIW | Risk Identification Worksheet |
| RPF | Resettlement Policy Framework |
| RTI | Right to Information (Act) |
| SC | Steering Committee |
| SICOM | Society for Integrated Coastal Management |
| SOI | Survey of India |
| SPMU | State Project Management Unit |
| ToR | Terms of Reference |
| WBSEDCL | West Bengal State Electricity Distribution Company Limited |
| WRD | Orissa Water Resources Department |

| | |
|-------------------|-----------------------|
| Vice President: | Isabel M. Guerrero |
| Country Director: | N. Roberto Zagha |
| Sector Director: | John H. Stein |
| Sector Manager: | Gajanand Pathmanathan |
| Task Team Leader: | Tapas Paul |

INDIA
Integrated Coastal Zone Management Project

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INDIA
INTEGRATED COASTAL ZONE MANAGEMENT PROJECT
PROJECT APPRAISAL DOCUMENT

SOUTH ASIA

| | |
|--|--|
| <p>Date: May 14, 2010 Country Director: Roberto N. Zhaga Sector Director/Manager: John Henry Stein / Gajanand Pathmanathan</p> <p>Project ID: P097985</p> <p>Lending Instrument: Specific Investment Loan</p> | <p>Team Leader: Tapas Paul Sectors: General water, sanitation and flood protection sector (30 percent); General agriculture, fishing and forestry sector (25 percent); Solid waste management (25 percent); General public administration sector (10 percent); Ports, waterways and shipping (10 percent) Themes: Other environment and natural resources management (33 percent); Environmental policies and institutions (17 percent); Other urban development (17 percent); Biodiversity (17 percent); Pollution management and environmental health (16 percent) Environmental Screening Category: Full Assessment Safeguard Screening Category: Limited Impact</p> |
|--|--|

Project Financing Data

Financing Plan (US\$m)

| Source | Local | Foreign | Total |
|---------------------------------------|--------|---------|--------|
| BORROWER/RECIPIENT | 63.71 | 0.00 | 63.71 |
| INTERNATIONAL DEVELOPMENT ASSOCIATION | 186.37 | 34.53 | 220.90 |
| PROJECT PREPARATION FACILITY ADVANCE | 1.06 | 0.00 | 1.06 |
| Total | 251.14 | 34.53 | 285.67 |

Borrower:

Government of India

Responsible Agencies:

Government of India, Ministry of Environment and Forests, New Delhi

Estimated Disbursements (Bank FY/US\$m)

| FY | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|------------|-------|-------|--------|--------|--------|--------|
| Annual | 25.75 | 40.40 | 47.50 | 45.50 | 45.50 | 17.31 |
| Cumulative | 25.75 | 66.15 | 113.65 | 159.15 | 204.65 | 221.96 |

Project Implementation period: Start July 2010

Expected Effectiveness date: September 01, 2010

Expected Closing Date: December 31, 2015

Does the project depart from the CS in content or other significant respects? Yes No

Ref. PAD I.C.

Does the project require any exceptions from Bank policies? Yes No

Ref. PAD IV.G.

Have these been approved by bank management? Yes No

| | |
|--|------------------|
| Is approval for any policy exception sought from the Board? | [] Yes [X] No |
| Does the project include any critical risks rated “Substantial” or “High”? <i>Ref. PAD III.E.</i> | [X] Yes [] No |
| Does the project meet the Regional criteria for readiness for implementation? <i>Ref. PAD IV.G.</i> | [X] Yes [] No |

Project development objective: *Ref. PAD II.C., Technical Annex 3*

The project development objective is to assist GoI in building national capacity for implementation of comprehensive coastal management approach in the country, and piloting the integrated coastal zone management approach in states of Gujarat, Orissa and West Bengal.

Project description: *Ref. PAD II.C., Technical Annex 4.*

There are 4 components as follows:

Component One. National ICZM Capacity Building, with the objective to establish and support an appropriate national institutional structure for guiding and coordinating coastal zone management. Its sub-components include: (a) hazard line and coastal sediment cell mapping; (b) mapping of ecologically sensitive areas; (c) establishing a new national institute for sustainable coastal zone management; and (d) national level capacity building.

Component Two, Three and Four. Development and Implementation of State Level approaches to ICZM (in the three States of Gujarat, Orissa and West Bengal), with the objective to develop and empower state level authorities to adopt appropriate ICZM approaches consistent with national strategies. The sub-components include: (a) institutional strengthening of state level coastal zone authorities; and, (b) pilot investments consistent with local ICZM priorities around three themes of coastal resource conservation/ protection; pollution management; and community livelihood enhancement and adaptation to threats from sea-level rise.

Which safeguard policies are triggered, if any? *Ref. PAD IV.F., Technical Annex 10*

The following safeguard policies are triggered:

Environmental Assessment (OP/BP/GP 4.01)

Natural Habitats (OP/BP 4.04)

Cultural Property (OPN 11.03, being revised as OP 4.11)

Involuntary Resettlement (OP/BP 4.12)

Indigenous Peoples (OP/BP 4.10)

The Borrower has prepared an Environmental and Social Assessment which has been reviewed, approved and disclosed in country on November 27, 2009 and at the World Bank Info Shop on November 28, 2009.

Significant, non-standard conditions, **if any**, for: *Ref PAD III.F.*

Board Presentation: Nil

Negotiations: Submission of The 18 month Procurement Plan, Project Implementation Plan, All Regulatory clearances (Environmental clearance and Coastal Regulation Zone clearance as applicable, Expenditure Finance Committee clearance), Formal commitments on share of financing and provision of all required resources by the states of Gujarat, Orissa and West Bengal and submitted to MoEF; MoU signed between the Survey of India and MoEF; and between the Priority Investment Execution Agencies and the respective State Project Management Unit (SPMU); National Project Management Unit (NPMU) registered; Key Staff of NPMU and SPMUs as agreed in place. All conditions met.

Credit Effectiveness: Nil.

Retroactive financing up to a ceiling of US\$10 million effective from July 15, 2009.

Covenants applicable to project implementation: In addition to the standard loan covenants, the following covenants incorporated into the legal documents (unless otherwise covered by standard loan covenants):

(1) MoEF shall ensure that the MoEF and the participating States of Gujarat, Orissa and West Bengal

shall maintain NPMU and SPMU, respectively with suitably qualified personnel with resources sufficient to carry out project management including technical and fiduciary supervisions, monitoring and evaluation, and public communication to achieve the Project Development Objectives in a timely and effective manner.

(2) MoEF shall ensure that each participating Project States will maintain dedicated, multi-disciplinary team of suitably qualified personnel in each Pilot Investment Execution Agency (PEA) with resources sufficient to carry out their respective part of the Project under Components two, three and four.

(3) MOEF, through NPMU, will cause each Project State to: (a) make such annual budgetary allocations as shall be required to pay for ten percent (10%) of the estimated cost of implementing its Respective Part of the Project, and transfer such budgeted amount to the respective SPMU at the beginning of each Fiscal Year; (b) establish and maintain, throughout the period of the Project implementation, a State Level Steering Committee to provide guidance and approval to the SPMUs, as necessary; and (c) provide, in a timely manner, all other funds, facilities and services required for its Respective Part of the Project.

(4) NPMU and SPMUs shall maintain specific dedicated units as per agreed staffing plan; and will engage full-time procurement specialists and finance professionals with qualification acceptable to the Bank for entire project implementation period.

(5) The NPMU will submit quarterly consolidated IUFs within 60 days from the close of the quarter.

(6) The NPMU and SPMUs will, within six months from effectiveness, place in position suitable external and internal auditors pursuant to terms of reference acceptable to the Bank, and the NPMU will submit annual audit reports for the entire project within six months from the close of each financial year.

(7) Within three months from effectiveness, the NPMU and the SPMUs will establish and operationalize computerized accounting system and maintain throughout the implementation period.

(8) MoEF shall take all necessary measures, or cause others to take such measures, to ensure implementation of the Project is in accordance with the provisions of the National Project Report, which includes, among others, Financial Management Manual, Procurement Manual, Governance and Accountability Acton Plan (GAAP), Environmental and Social Management Plan (ESMP).

I. STRATEGIC CONTEXT AND RATIONALE

A. Country and sector issues

1. India has a coastline of about 7,500km¹, which is less than 0.25 percent of the world coastline, but home to 63 million people, or approximately 11 percent of global population living in low elevation coastal areas. The 73 coastal districts (out of a total of 593) have a share of 17 percent of the national population, and nearly 250 million people live within 50km of the coastline. The coast also includes 77 cities and towns, including some of the largest and most dense urban agglomerations - Mumbai, Kolkata, Chennai, Kochi and Visakhapatnam.

2. **Sustainable management of coastal and marine resources is essential to India's economic growth.** India's coastal zone is endowed with a wide range of mangroves, coral reefs, sea grasses, salt marshes, sand dunes, estuaries, lagoons, and a unique marine and coastal flora and fauna. The abundant coastal and offshore marine ecosystems include some 6,740km² of mangroves, including part of the Sundarbans and the Bhitarkanika, which are among the largest mangroves in the world. There are major stocks of corals, fish, marine mammals, reptiles and turtles, sea grass meadows, and abundant sea weeds. Most of the oil and gas reserves in India lie in the coastal and shallow offshore areas. Thirty-five per cent of the coastal stretch is laden with substantial placer mineral and heavy metal deposits. Offshore wind, tidal, wave and future ocean thermal energy potential is huge. Cultural and archaeological sites, some with national and international significance dot the coasts. A significant share of India's economic infrastructure, including maritime facilities, petroleum industries, and import-based industries is located on the coasts, as are 197 major or minor ports and 308 large-scale industrial units. Coastal fishing employs a million people full time, and the post-harvest fisheries sector employs another 1.2 million people in 3,638 fishing villages and 2,251 fish landing centers.

3. Despite their ecological richness and the contribution to national economy, the coastal and marine areas have not received adequate protection, and are under stress. Rapid urban-industrialization, maritime transport, marine fishing, tourism, coastal and sea bed mining, offshore oil and natural gas production, aquaculture, and the recent establishment of special economic zones have led to a significant increase in demand for infrastructure, resulting in the over-exploitation of natural resources. About 34 percent of mangroves of India were destroyed in last five decades (although substantial restoration and conservation have taken place in last 10 years); almost all coral areas are threatened; marine fish stocks are declining; and several species of ornamental fish, sea cucumbers, etc., are fast disappearing. Such rapid depletion and degradation, unless arrested, will impact the livelihood, health and well being of the coastal population; affecting in turn prospects for India's sustained economic growth.

4. **Threat of coastal hazards on economic and livelihood security is increasing.** The Indian coast is subject to severe weather events, such as cyclones and super-cyclones (at an average of nine cyclones per year) inflicting great loss of lives and property, especially among the rural coastal communities that always had low resilience to extreme weather variability, mostly due to impoverishment. In recent years, accelerated erosion of coastal land has affected coastal agriculture and built habitats. The returns from traditional fishing are also diminishing due to environmental degradation and over-exploitation. Climate change aggravates the risks to coastal communities and infrastructure. Studies already reveal a significant rise in sea level, increase in the frequency and intensity of extreme weather events, and changes in mean climate variables. A one-meter sea level

¹ Of this 5,400km belong to peninsular India and the remaining to the Andaman, Nicobar and Lakshadweep Islands.

rise would flood nearly 6,000 km² in India, potentially triggering significant population movements among the 63 million people living in low elevation areas, the poorer among them being the most vulnerable. Climate change will also impact the large infrastructure investments in the port, industrial and urban areas. The recent tsunami (2004) also indicates that the Indian coast and marine areas are also prone to seismic related disasters.

5. **Diverse stakes increasingly compete for coastal and marine resources.** Rapid economic growth in recent years has propelled newer and larger investments in coastal zones, with more ports set up to act as gateways to the hinterland economy. Together with real estate growth in larger urban areas and unplanned tourism activities, these have contributed to a sharp increase in the demand for basic infrastructure to support the fast-growing rural, semi-urban and urban populations in the coastal zones. Numerous unplanned but competitive economic activities have resulted in conflicts among stakeholders; misuse, abuse and overuse of resources; and degradation of ecosystems with some pockets of coastal landscapes entirely destroyed by commercial aquaculture. The key challenge in coastal zone and marine management is how to accommodate such needs in a sustainable manner.

6. A plethora of fragmented and sectoral policies and a **weak institutional framework** had been unable to ensure balanced development. The management regime for coastal and marine areas of the country had suffered from the lack of an integrated and coordinated decision-making process. This is evidenced by a multiplicity of institutional, legal, economic and planning frameworks that exist, all narrow and sector driven. Consequently, sectoral activities and interventions in coastal and marine areas work in isolation from each other, at times with conflicting objectives and outputs. At the same time stakeholder interests are diverse and competitive, partly due to a lack of participatory planning and management processes. Investments in large and small economic infrastructure - all critical components of national goals for growth and poverty reduction take place without systematic analysis of long term implications. The overall policy and plan responses are further crippled by lack of knowledge of coastal resources, processes, impact analyses and management options.

7. Up to now, the approach to managing India's coastal zone has been a purely regulatory one, as per the Coastal Regulation Zone (CRZ) Notification of 1991, promulgated under the Environment (Protection) Act of 1986. This approach does not provide adequate room to promote coastal zone conservation and the needs of improved livelihood of coastal communities or to seek convergence with other development activities. The 1991 notification prevents, restricts and regulates development activities within a landward distance of up to 500m from the high tide line along the coasts. In the last decade, as development pressures grew, there were large-scale reported violations of the regulations, along with demands from the various stakeholders for suitable modifications in the Notification.

8. **The reform agenda for sustaining coastal and marine areas in India is to support participatory, integrated but decentralized planning and management.** In July 2004, the Ministry of Environment and Forests (MoEF) constituted an Expert Committee, chaired by Prof. M. S. Swaminathan, to carry out a comprehensive review of the CRZ Notification, taking into account the findings and recommendations of previous committees, judicial pronouncements, and representations of various stakeholders, and to suggest suitable amendments. The Committee also had the mandate to recommend regulatory framework consistent with well-established scientific principles of coastal zone management that would reflect the local characteristics of the coastal zone stretches to be protected. The Committee submitted its report in February 2005. A major recommendation was to adopt an **integrated coastal zone management (ICZM) approach that would, with people's participation, promote the livelihood security of the coastal communities, and protect the ecosystems while promoting sustainable development.** The GoI accepted the Report in 2006, and mandated the MoEF to implement its recommendations, including initiating the process of improving

the CRZ Notification, with an appropriate coastal zone management notification. The process of finalizing the notification is currently underway².

9. Besides recommending a shift from pure regulation to management, the reforms suggested by the Committee included the adoption of integrated coastal zone planning as a mechanism for intersectoral collaboration and decision-making, the decentralization of management responsibilities to states and local governments, the creation of an institutional architecture to foster integrated planning and management; and the establishment of an appropriate knowledge base for addressing medium and long term issues. These need to be implemented in parallel to the process of reforming the regulatory framework, so that the new notification is complemented by adequate institutional capacity and knowledge base. The Committee, therefore, proposed a national coastal zone management program to address and finance these institutional, capacity and knowledge needs.

B. Rationale for Bank involvement

10. Given the country and sector issues outlined in Section 1A, the GoI has developed a vision for the long-term management of the coastal and marine areas, as articulated in the 2005 National Environment Policy, and the Swaminathan Committee report. The vision has two parts - (a) reforming the regulatory framework for integrated management of coastal and marine areas; and (b) developing the institutional arrangements, capacity and adequate knowledge systems to enable the desired shift to ICZM approaches. The GoI has already initiated steps to implement both parts of this vision, and has requested Bank support for the second part.

11. It should be emphasized that this reform process has been deliberated and articulated over the last five years. Only after the GoI decided to initiate implementation of the reform program, was the Bank's support requested. ICZM, as well as capacity and knowledge building for such management are international best practices to which the Bank subscribes, and which it promotes through its projects around the world. The shift from regulation to management of natural resources; decentralized management, decision-making and planning processes that involve all relevant stakeholders; institutional development for fostering intersectoral collaboration in conservation of natural and economic resources, which are other parts of the GoI reform program – are all best practices, that the Bank supports.

12. Integrated management of the coastal and marine areas in general and the project in particular will have long lasting benefits. Development of economic infrastructure in the coastal zone, along with protection of ecological and cultural landscapes and traditional rights is crucial to India's growth and development. Balanced, sustainable and rapid economic growth is also the fulcrum for poverty reduction. The project, and the reforms it supports, will play a vital role in reducing the vulnerability of coastal populations to current variability and disasters, both of which are expected to increase due to climate change effects.

13. The project will support capacity building for effective coastal zone management at the national level and in three pilot states. Once the initial demonstration is complete, the initiatives will be replicated for long-term gains and wider impacts, both at the national level and for the remaining

² A draft Notification titled Coastal Zone Management was issued by the MoEF for public discussion in 2008. A very large number of comments on the drafts were received from a variety of stakeholders. In July 2009, an expert committee, again chaired by Prof. Swaminathan, which reviewed the comments, recommended to the MoEF (i) to allow the 2008 draft notification to lapse; (ii) prepare a further improved notification emphasizing upfront the needs for protection and conservation of coastal resources; (iii) prepare a separate notification for island areas; and (iv) prepare a separate notification, in consultation with the Department of Fisheries, Ministry of Agriculture for protection of traditional rights of coastal fishing communities. The new revised drafts are expected by mid-2010.

nine coastal states and four union territories. The replications will be supported by the GoI's own resources, possibly complemented by additional financing from the Bank and other agencies, such as the Asian Development Bank (ADB), which are already discussing supporting the GoI and other states on the ICZM approach.

14. The Bank's involvement is significant for the GoI. By bringing in international expertise, sharing knowledge on coastal zone management issues among India and other countries, and supporting demonstration of ICZM processes and benefits, this project will help to ensure that the GoI's long term reform agenda has strong institutional and capacity underpinnings, tested experience in implementation, and relevant advanced knowledge needed for integrated planning. Operationalization of policy statements has long been a grave concern in India, similar to the lack of enforcement of regulations. The absence of real impacts of policies is mainly attributed to weak institutional arrangements, along with lack of stakeholder ownership, attention to details, and appropriate knowledge. This Project has been designed to address these capacity gaps. The lessons learnt from, and the quality of capacity created by this project will be crucial for designing and implementing future projects and program in India.

C. Higher level objectives to which the project contributes

15. The project's contribution to sustainable management of coastal and marine resources in India is consistent with the country's goal of sustained economic growth and poverty reduction. It is also consistent with the national objective to devolve decision-making to the coastal states and local governments by supporting their capacity. Additionally, the project will contribute to achieving Millennium Development Goal 7 on environmental sustainability and specifically to meeting Target 9 – to “integrate the principles of sustainable development into country policies and programs.” The project would also be one of the prominent actions, within a larger GoI program to reduce vulnerability to climate change and disasters.

16. The project is **consistent with and conforms to the India Country Strategy (CAS)** of the Bank. The India CAS, 2009-12, recognizes that *while India needs to grow to reduce poverty and create employment, it has an opportunity to do so in a way that is sustainable and preserves the country's natural heritage*. The project is consistent with the CAS pillars, namely rapid and inclusive growth, sustainable development, and service delivery, with a cross-cutting focus on improving the effectiveness of public spending and achieving results. Further, the project addresses the specific provisions in the CAS related to “sound environmental management and sustainable use of natural resources”, “impacts due to rising sea levels”, and “challenge of climate change”. The Strategy Outcome matrix of the CAS clearly identifies lending to support coastal zone management and biodiversity conservation, as a priority.

17. The CAS identifies the central government as a strong counterpart. The expectation is that the Bank will add value to the development programs in India by piloting new approaches. Moreover, the Bank is expected to play a key role in addressing difficult issues, such as how to spur development in low-income states and forge the institutions needed to help India transition into a middle-income country. The project is consistent with these expectations as set out in the CAS.

II. PROJECT DESCRIPTION

A. Lending instrument

18. The proposed lending instrument is a Specific investment Credit (SIL), which uses IDA resources within the project financing envelope of US\$ 221.96 million equivalent. A SIL was

selected, over the alternative option of a development policy lending (DPL), for the following reasons: (a) the government had already prepared and decided upon an accepted reform agenda by 2006, and any remaining policy conditionality was expected to be met upfront; and (b) a SIL provides better and more timely incentives to executing agencies for implementation of demonstration projects. Within the SIL, output based lending was considered to be inadequate for an operation that is not small, particularly as there is very little experience on how to use this for an intersectoral operation. The rationale for using IDA resources include – (i) natural resources and coastal communities face increased threats, and the project will have a direct and positive impact on coastal communities and resources; and (ii) most of the investment is for conservation and reinstatement of natural resources, which will improve livelihood security of rural coastal communities.

B. Program objective and Phases

19. This project has been prepared as a stand-alone. However, international experiences show that impacts from implementing ICZM are achieved only after a sustained program of implementation over a period of 15-20 years. The GoI and the Bank recognize that a longer timeframe is required to address all substantial issues in the coastal and marine areas. Considering the substantive results and the scope for replication of the project in the country, additional financing or repeater projects could be considered depending on project performance. Dedicated financing of US\$3 million is set aside in this project to facilitate preparation of the next phase of projects or for designing investments to be financed through additional financing.

C. Project development objective and key indicators

20. The project's *development objective* (PDO) is to assist the GoI in building national capacity for implementation of comprehensive coastal management approach in the country, and piloting the integrated coastal zone management approach in states of Gujarat, Orissa and West Bengal.

21. Building state level capacity to manage coastal zone issues is a necessary complement to the national level capacity building, given the constitutional division of responsibilities between the state and national governments. Three states were chosen to pilot the ICZM approaches with a view to replicating it in all the coastal states in future (see paragraph 68).

22. The *key outcome indicators* will be (i) the existence of an appropriate national institutional structure for guiding and coordinating implementation of ICZM approaches, (ii) the number of "knowledge benchmarks" showing improvement according to end-users of knowledge services, (iii) the number of completed pilot ICZM activities demonstrating cross-sectoral and spatial integration; and, (iv) the number of other ICZM Plans initiated to replicate the lessons learnt.

D. Project components

23. The project consists of four components, one at the national level and one each for the three participating states. The national component focuses on expanding the institutional capacity and the knowledge base needed for integrated management of coastal zones. The three states were chosen for their varying levels of development, industrialization and nature of coastal zone management challenges, so that the lessons from the state components can be used for ICZM in all coastal states in future. The state components include implementation of a range of complementary local pilot investments in select small coastal stretches (in total about 3 percent of the coastline of India) to support state level capacity building. Each of these local pilot investments were designed to demonstrate results from integrated and joint actions, and were selected based on wide stakeholder consultations. These state level pilot investments directly benefit 1.1 million people, while the state

and national capacity building activities benefit 7.65 million people directly, 35 million people indirectly in the medium term, and eventually all 63 million people living in the low elevation coastal areas in India.

24. The project cost is estimated at Indian Rupees 1330 crore or about US\$285.67 million including contingencies. The estimated investment costs for the four components and the Bank financing shares are summarized below.

Table 1: Project Costs by Component

| Component | | Total Cost (US\$ m) | Borrower's Financing Share (US\$ m) | | Bank Financing Share* | |
|----------------------|---|---------------------|-------------------------------------|------------------|-----------------------|-------------|
| | | | GoI | State Government | (US\$ m) | % |
| I | National ICZM Capacity Building | 87.3 | 19.5 | - | 67.8 | 77.7 |
| II | Piloting ICZM approaches in Gujarat | 74.1 | 9.1 | 7.4 | 57.6 | 77.7 |
| III | Piloting ICZM approaches in Orissa | 49.3 | 6.1 | 4.9 | 38.3 | 77.7 |
| IV | Piloting ICZM approaches in West Bengal | 75.0 | 9.2 | 7.5 | 58.3 | 77.7 |
| Total Project | | 285.7 | 43.9 | 19.9 | 222.0 | 77.7 |

*Bank will reimburse the project expenditure up to the ceiling of US\$221.96 million.

Component One: National ICZM Capacity Building (US\$87.3 million)

25. The national component will include [i] mapping, delineation and demarcation of the hazard lines, and delineation of coastal sediment cells all along the mainland coast of India; [ii] mapping, delineation and demarcation, as required, of the ecologically sensitive areas (ESAs), also all along the mainland coast of India; [iii] capacity building of the MoEF as the secretariat for the National Coastal Zone Management Authority (NCZMA), and nation-wide training program for ICZM; and [iv] setting up and operationalization of the new National Center for Sustainable Coastal Management (NCSCM).

26. The mapping, delineation and demarcation of **hazard line** will define the boundaries of the coastal zone in mainland India (which in turn will establish planning boundaries of the state/local ICZM plans) and will incorporate the effects of recurrent coastal hazards, including potential incremental effects induced by climate change (most notably sea level rise) within ICZM plans. The hazard line for the mainland coast will be mapped and delineated as the landward composite of the coastal 100 year flood lines (including sea level rise impacts), and the 100 year predicted erosion lines. Once the hazard line is delineated, ground markers will be installed to address the current non-conformity between local revenue maps and standard topographical maps. Publicly disseminated maps and the ground markers will obviate the need for developers and stakeholders repeatedly investing in physical surveys and interpretation to comply with coastal regulations. The mapping and delineation of **coastal sediment cells³ and sub-cells** are required to determine the lateral boundaries of individual ICZM plans. Preparation of state/local level ICZM plans is contingent upon the delineation of the hazard line and the coastal sediment cells or sub-cells. Mapping, delineation and demarcation, as required, of **ecologically sensitive areas** is important to define these areas which would be conserved based on the overall principles of ecological security and precautionary approaches to intergenerational resources. The ESAs will include existing protected areas (national parks and wildlife sanctuaries) as well as currently unprotected areas (such as mangroves, coral reefs, sea grass and sea weed beds, littoral forests, sea beaches, sand dunes, rocky cliffs, mud flats, lagoons,

³ Sediment cells are the lengths of discrete, functionally separate coastline and its associated nearshore zone within which the longshore or littoral drift (i.e., the movement of coarse sediment) is largely self-contained.

salt marshes, estuaries, and habitats of critical species including olive ridley turtles and horse-shoe crabs). Contiguous areas containing these ESAs within the coastal management zone will be designated as areas to be protected, and MoEF will assume the conservation responsibilities for these.

27. A new **national centre for coastal zone management** will be established that will develop a central repository of information and knowledge on ICZM practices in India and elsewhere; partner with national and similar international institutes; analyze the successes and failures in ICZM and develop suitable applications in Indian contexts; promote technically sound and practical management approaches to ICZM; evaluate and monitor implementation of ICZM approaches, programs and projects; advise the governments and other stakeholders on policy, legal and scientific matters related to ICZM; serve as an interface between coastal communities, experts and governments; and will promote applied research, education and awareness with respect to ICZM including ecological literacy. To achieve these objectives, the proposed NCSCM will be established as a self-sufficient institution, with adequate resources and assured long-term funding, with an aim to become a world-class institution for coastal and marine area management.

28. At the national level, support will be provided for MoEF's medium-term **capacity building** plan, and training of coastal zone managers from all coastal states and union territories. This component will also support **project management**, which will include staffing and operation of the national project management unit (NPMU); establishment of adequate financial management and procurement management systems; implementation of the communication plan and the Right to Information (RTI) related activities; implementation of governance and accountability actions; monitoring and evaluation (M&E) and third party audits; coordination with states and other stakeholders; and special evaluation studies. The aim is that the NPMU, which is being set up as an independent society, and its operational systems, will help during the project period in setting up the coastal zone management division of MoEF, as per the MoEF capacity building plan.

Component Two: Piloting ICZM Approaches in Gujarat (US\$74.1 million)

29. This component will support capacity building of the state level agencies and institutions, including preparation of an ICZM plan for the coastal sediment cell that includes the Gulf of Kachchh, and pilot investments. The capacity building support and the pilot investments complement each other, and serve common objectives. The pilot investments are designed to demonstrate integrated management of ecological, economic and social concerns in the Gulf of Kachchh (a stretch of 180km or 10 percent of the Gujarat coast, but contains two of the world's largest refineries; two major ports and several smaller facilities accounting for 70 percent of India's import of crude oil; the largest of India's salt industries; several booming industrial and urban centers; India's first marine national park; significant parts of remaining coral reefs of the country, and important patches of protected forests).

30. The preparation and adoption of an **ICZM Plan for the Gulf of Kachchh** has been designed as a process of regular revolving stakeholder dialogue, supported by scientific and technical inputs related to the natural coastal and marine processes, resource endowments, potential coastal hazards and risks to coastal communities. Stakeholder analyses and consultations will be used to identify stakeholders' requirements, priorities, concern or conflicts, and development risks and opportunities. The content of the plan will depend upon stakeholder agreements, subject to the limitation that any plan proposal may not affect directly or indirectly the ESAs (as determined by the ESA mapping under the national component), or violate the guiding principles set out in the Swaminathan Committee Report. The ICZM plan will include and define the implementation arrangements, the

M&E and plan review mechanisms, detailed proposals for financing implementation, including resource generation, and all relevant social and environmental mitigation measures.

31. To complement ICZM plan preparation, the component will support **capacity building** of the Forest and Environment Department (which is the secretariat for the Gujarat SCZMA), Gujarat State Pollution Control Board (for monitoring and enforcing pollution control in the coastal areas), Gujarat Ecological Educational and Research Foundation (for developing relevant research capacity in coastal ecology, and for developing suitable techniques for transplantation or regeneration of coral reefs), the Bhaskaracharya Institute of Space Applications and Geo-Informatics (for preparing GIS-enabled mapping and decision support tools for the coastal areas), and any other relevant agencies as may be agreed.

32. This component will also support **pilot investments**, all located in the Gulf of Kachchh, to complement the ICZM plan and capacity building sub-components, and will include investments in: (a) conservation and protection of coastal resources including mangrove and coastal shelterbelt plantation, coral reef regeneration, and establishment of a marine resource information and conservation centre; (b) environment and pollution management by completing the sewerage system for Jamnagar City to prevent further degradation of the coral reefs; and (c) livelihood security of coastal communities including ecotourism and related livelihood improvement activities in the coastal villages within and outside forest areas.

33. **Project management** support will include staffing and operation of the state project management unit (SPMU), and other project management activities similar to the support to NPMU (see paragraph 28). Additional support will be provided to establish a grievance registration and redress system, quality assurance consultancies and social audits. To build long-term institutional sustainability, the SPMU is aimed to help during the project period in setting up the coastal zone management division of the DoFE, as per the state medium-term capacity building plan.

Component Three: Piloting ICZM Approaches in Orissa (US\$49.3 million)

34. This component will include capacity building of the state level agencies and institutions, including preparation of **an ICZM plan** for the coastal sediment cells that include the stretches of **Paradip-Dhamra** and **Gopalpur-Chilika**, including a regional coastal process study, and pilot investments. These coastal stretches in Orissa are known for their significant ecological and economic resources. The Chilika Lake is one of the largest brackish water lakes in the world; the Bhitarkanika is the second largest mangrove ecosystem in Asia, and the most significant nesting site of olive ridley turtles. These two areas contain a large vulnerable population dependent on coastal resources, and there are proposals to expand economic infrastructure such as ports. The content of the ICZM plan and the plan process that will be supported will be similar to those described under Component Two for ICZM plan preparation in Gujarat (see paragraph 30).

35. The project will support **capacity building** of the Forest and Environment Department (which is the secretariat for the Orissa SCZMA), Orissa State Pollution Control Board (for monitoring and enforcing pollution control in the coastal areas), and the Chilika Development Authority (for species and wetland research).

36. The **pilot investments** in Orissa are concentrated in selected areas in the two reaches of (i) Gopalpur-Chilika and (ii) Paradip-Dhamra, which together consist of 14 percent of the coastline of Orissa. These will include investments in: (a) conservation and protection of coastal resources including protection of the olive ridley turtle and other aquatic wildlife; mangrove and shelterbelt plantation; conservation of archaeological heritage some of which serve as cyclone shelters; and a

pilot activity in shoreline protection for the village of Pentha; (b) environment and pollution management by completing the solid waste management system for the coastal town of Paradip to reduce pollution load on the coastal stretches known to be nesting habitats; and (c) livelihood security of coastal communities including allied farming improvement support in 60 fishing villages on the periphery of the Chilika lake and the Gahirmatha Wildlife Sanctuary; support to fisher-people groups in developing small-scale and community-based tourism, industrial and marketing activities, such as coir-making; and provision of cyclone shelters in the thirteen remaining coastal villages, where cyclone shelters were not constructed in earlier programs.

37. **Project management** support will be similar to the support to Gujarat described for Component Two, and with the same intention of contributing to Orissa's medium-term ICZM capacity building plan (see paragraphs 28 and 33).

Component Four: Piloting ICZM approaches in West Bengal (US\$75 million)

38. In West Bengal, the project will support capacity building of the state level agencies and institutions, including preparation of an **ICZM plan** for the coastal sediment cells in the coastal areas of West Bengal, and pilot investments. The content of the ICZM plan and the plan process will be similar to those described under Components Two and Three for Gujarat and Orissa (see paragraph 30). All three coastal stretches in West Bengal (Sundarban, Haldia and Digha-Shankarpur) could be covered in the plan, if the initial coastal geomorphologic studies determine that all three stretches are located within one coastal sediment cell.

39. A **capacity-building** sub-component will support the Environment Department (which is the secretariat for the West Bengal SCZMA), Calcutta University (for research on microbial biodiversity), and the Institute of Environmental Studies and Wetland Management (for geomorphologic and wetland research, and for supporting completion of a Sundarban resources interpretation centre through an NGO).

40. Similar to Gujarat and Orissa, the **pilot investments** in West Bengal will complement the ICZM plan and the capacity building sub-components to address the major coastal zone management issues in the two targeted coastal stretches of (i) Digha-Shankarpur, and (ii) Sagar Island in the Sundarban, covering about 13 percent of West Bengal's coasts. These stretches have experienced high rates of coastal erosion in recent years, and significant coastal resources and community livelihood are threatened. The pilot investments will include (a) conservation and protection of coastal resources including mangrove and coastal shelterbelt plantation; pilot works in shoreline protection for Digha beach and the southern end of Sagar Island; and rehabilitation of the marine aquarium at Digha; (b) environment and pollution management by completing the sewerage system for Digha to prevent flow of sewage onto the sandy beach; cleaning and environmental improvement of the Digha beach, and solid waste management in Digha; improvement of the fish auction centre at Digha; and distribution of grid electricity on Sagar Island to replace diesel generation and prevent soil and water pollution; and (c) livelihood security of coastal communities in Sagar Island including support to CBO coordinated livelihood improvement activities; afforestation-based livelihood improvement; promotion of local small-scale tourism and ecotourism activities; and provision of cyclone shelters in the coastal villages.

41. **Project management** support is similar to the support to Gujarat and Orissa described in Components Two and Three, and with the same intention to contribute to the medium term ICZM capacity building plan of West Bengal (see paragraphs 28, 33 and 37).

42. Carbon finance opportunities will be explored to enhance financial attractiveness of interventions such as improved sewerage systems and the mangrove plantations in Components two, three and four. The extent of greenhouse gas emission reductions that can be claimed will be established by two ongoing studies.

E. Lessons learned and reflected in the project design

43. This will be the first Bank-financed ICZM or similar project in the Region⁴. Learning from Bank-financed environment sector projects in India does not directly relate to this project, as the scope of those projects was very different. Operational experiences from those projects, relevant to a generic capacity building project, are as follows: (a) to be sustainable or successfully implemented, capacity building projects need strong demonstration of improvements in environmental quality; (b) project impacts are achieved only if the institutional capacity created is put into practice; (c) project impacts are linked to the leverage and ability to influence environmental protection and bring about actions. Across the Bank, lessons learned show uneven results in strengthening institutional effectiveness through capacity building projects if important issues on the ground remain unaddressed. Therefore, this project explicitly links institutional capacity building directly to hands-on ICZM practices and tangible investments.

44. **Design of this project benefitted from experiences of similar Bank projects in other regions.** In the recent past the Bank has financed a number of ICZM or similar projects. Prominent among these are: *Albania: ICZM and Clean-up*, *Brazil: Espirito Santo Water and Coastal Pollution Management*; *Croatia: Coastal Cities Pollution Control*, *Egyptian Red Sea Coastal and Marine Resource Management*; *Georgia: ICZM*, *Ghana: Coastal Wetland*, *Honduras: Sustainable Tourism*, *Indonesia: Coral Reef Rehabilitation and Management*, *Mozambique: SEACAM-Capacity Building for ICZM*, and *Tanzania: Strengthening Marine and Coastal Resource Management*. The respective implementation completion reports (ICRs) or implementation status reports (ISRs) present the following key lessons: (i) the design of the project should use and demonstrate an overall ICZM framework right from the start of the preparation period to link project components to project objectives; (ii) project implementation suffers if the design and planning do not ensure joint planning among different government agencies, who have jurisdiction over coastal zone activities; (iii) sound coastal and marine resource management is possible only if there is adequate cross-sector coordination; (iv) project design should have a very strong project outreach and communication strategy; (v) it is important to have quantifiable performance indicators; and (vi) implementation of projects suffers if counterpart funding from borrowers is not available or timely. This project incorporates each of these lessons specifically by adopting an ICZM framework to strongly link each discrete activity from the outset, through joint planning by responsible sector agencies, and by securing counterpart resources from national and state governments and from each PEA.

45. Many Bank ICZM projects suffered due to classical linear project design (i.e., a step by step progression from policy-making to plan preparation, and thereafter to implementation of actions), where each next step depends on the successful implementation of earlier steps. The ICZM plan is a consensus building process - a universal lag – and follow up activities often could not be implemented in time. Integrated decision-making is best attempted through multiple simultaneous actions, rather than through such a linear design. In this project, therefore, the objective of integrated

⁴ A small ICZM component was added to the Pakistan: Sindh Water Resources project following an Inspection Panel recommendation. In India, although there had been no such component, in the Tamil Nadu Tsunami Emergency Response Project, an ICZM plan is under preparation; a similar plan was prepared in Andhra Pradesh Cyclone Risk Mitigation project, closed in 2003; and a small US\$1.5 million integrated marine and coastal management TA was implemented in the Environmental Management Capacity Building Technical Assistance Project, which closed in 2004.

decision-making is attempted through smaller, discrete but strongly related actions, through (i) the participatory ICZM plan processes, (ii) the demonstration of cross-sector and geographical integration in a substantial number of pilot investments, (iii) the integrated capacity building and training programs, and (iv) the demonstration of integrated project management through SPMUs. The project preparation itself was a substantial stakeholder consultation process, and the project is designed to be an initial step towards the desired level of integrated decision-making.

46. International experiences in implementation of ICZM approaches suggest that: (a) ICZM plans are successful if the institutional structure is amenable to joint actions, and only if substantial knowledge is available; (b) improved integrated management of coastal areas requires understanding of threats, opportunities and the needs to conserve inter-generational resources; (c) success depends on the use of continuously improving science as a basis of decision-making, instead of proxies; and (d) ICZM involves multiple stakeholders and multiple simultaneous actions, and cannot be successfully implemented by artificial simplistic processes. The European Union reviews of ICZM implementation practices (1998, 2002) recommend adopting the following: (i) a broad holistic perspective, or systems approach, and delineation of the coast according to natural social boundaries; (ii) working with natural processes, such as coastal engineering, soft engineering and/or 'setback and retreat' options, and local specificity; (iii) a long-term view, and use of adaptive management tools; (iv) participatory planning with both powerless and powerful stakeholders; (v) ensuring the support and involvement of all relevant administrators, i.e., the horizontal integration of local agencies, and vertical integration between local and central government; and (vi) use of a combination of instruments, such as legislative measures, policy programs, economic incentives, technology solutions, research, voluntary agreements and education. The project design reflects these lessons from ICZM experience worldwide.

47. **Project design addresses lessons from related sector investments in India.** Investments in coastal zone management or protection in India have always been very small (each usually costing less than US\$ 100,000), given the focus on protection by regulation. During project preparation, a *management effectiveness study* evaluated the performance of 37 such small projects implemented in the last decade in Gujarat, Orissa and West Bengal. Although these 37 projects were completed with varying degrees of success, the study identified five weaknesses common to the majority of these projects – (i) sector departments did not attempt to collaborate with each other, as the projects were seen to be strictly sector based activities; (ii) an absence or overall lack of access to adequate technical expertise or capacity; (iii) performance was always driven by the quantity of the outputs rather than quality due to the sectoral nature of targets; (iv) an absence of adequate documentation at local or community level, including lack of planning or financial transaction records; and (v) a lack of participation of local communities in planning or M&E, and only partial participation during implementation. The design of the pilot investments in this project has taken each of these issues into account. Activities have been designed to ensure that each participating department has a stake; and resources are dedicated to ensure the timely availability of adequate human and technical resources necessary to implement the activities. Performance will be measured by the quality of outputs and the integration of outcomes in addition to quantities. Adequate financial management, procurement, and M&E systems have been planned and resources allocated. Finally, each activity is planned to invoke the participation of stakeholders, including a number of activities implemented through the communities themselves.

48. Many Bank projects in India experience significant and unnecessary implementation delays largely due to the decision-making process of executing agencies. The risk of possible implementation delays has been mitigated by specific project design features, such as: (a) the creation of the national and state project management units as autonomous societies with adequate

responsibilities and empowerment to efficiently implement the project; (b) the avoidance of complex procurement decision-making by concentrating procurement activities at the four implementing agencies, where adequate capacity will be created; (c) the establishment of a high level cross-sector coordination mechanism for reviewing the annual performance and action plans; and, (d) agreements with stakeholders across various sectors on the design of the three state components, which was achieved through a consultation process that started with the project reconnaissance mission.

F. Alternatives considered and reasons for rejection

49. An alternative to adopting the proposed ICZM approach was to design this operation as a “simple and narrow” investment operation, focusing narrowly on habitat protection and pollution control, in which MoEF, the main implementing agency has significant experience. This option was rejected because: it would not have resulted in the sustenance of outcomes (for example, coral reefs cannot be protected unless sewage flow to the reefs stops); it would not have responded to the request from the GoI for supporting their reform agenda; and it would not have been practical at all given that MoEF has no clear jurisdiction over urban sewerage or similar other sectors responsible for degradation of coastal ecology.

50. Another possible option could have been to dedicate most of the project investments to coastal protection infrastructure, which is a popular demand at local levels, while linking capacity building actions indirectly to this. This was also rejected due to the lack of understanding of regional coastal sediment transport processes, the risk of creating larger adverse impacts elsewhere on the coasts, and the lack of institutional viability. A potential feeble option could have been to limit the project only to training, awareness campaigns and studies on coastal conservation - mainly at national level but with possible inclusion of modules for each coastal state. This was rejected as it would have had only marginal impact on the sustainable development of the coastal zone. It would not have promoted the adoption of ICZM approaches as suggested by global experiences. It would not have been viable as per lessons learnt from Bank-financed projects; and as such it was not requested by the GoI. Lastly, given the survival and livelihood risks to the large population living in the coastal areas, the rapid degradation of coastal resources, and the opportunity cost of prohibited economic activities, a “no project” option is neither viable nor desirable.

51. The original GoI request was to include all thirteen coastal states and union territories for piloting ICZM approaches. It was agreed with the GoI that the current institutional capacity is adequate for implementing the project in a maximum of three states. To address the persistent demand from other coastal states to be included in the project, it was agreed that depending on the success of the three state pilot components, additional financing would be considered for other states in future, or follow-up projects would be considered depending on the performance of the current project.

52. The selection of the three states in this project was based on extensive consultation among different GoI sector ministries, and a prioritization based on the range and significance of the coastal zone management issues encountered by the coastal communities. The three states (Gujarat, Orissa and West Bengal), were chosen for their varying levels of development and different coastal zone management challenges, so that lessons learnt could be used for eventual replication and scaling-up in the other coastal states of India. The selection was endorsed by a meeting of the NCZMA, attended by all coastal states. Within each of the three selected states, the choice of the coastal stretch for preparation of the ICZM plan and complementary pilot investments was similarly debated, discussed and endorsed by the key stakeholders.

III. IMPLEMENTATION

A. Institutional and implementation arrangements

53. **Institutional arrangements:** The project has four implementing agencies - MoEF at the national level with lead responsibilities, and the Departments of Forests and Environment (DoFE) of the three participating states. The MoEF and the State DoFEs have the sole mandate and experience in coastal zone management and were, therefore, the obvious choice to lead project implementation. Each of these four main partners has already set up special purpose vehicles in the form of registered societies (NPMU and SPMUs), to manage the project and achieve the PDOs; coordinate project activities on a full-time basis and directly execute some of the relevant project sub components. In addition, Steering Committees (SCs) at the national and the state levels have been set up for inter-sectoral coordination.

Table 2: Implementing Agencies and their Responsibilities

| Implementing Agencies | Responsibilities | Special Purpose Societies | Delegated Responsibilities |
|--|---|--|--|
| GoI - MoEF | Providing national policy and implementation framework; approval of project's overall annual action plans and budget; and implementation oversight. | NPMU (Society for Integrated Coastal Management - SICOM) | Project implementation leadership; accountability to achieve PDOs; Implementation of Component One. |
| Gujarat Forests and Environment Department | Providing state policy and implementation framework; approval of state level annual action plans and budget; | SPMU (Gujarat Ecology Commission - GEC) | State level project implementation leadership; accountability to achieve PDOs; Implementation of State Components. |
| Orissa Department of Forests and Environment | ensuring timely counterpart financing from state budget; and implementation oversight. | SPMU (Orissa SPM Society) | |
| West Bengal Environment Department | | SPMU (Institute of Environmental Studies and Wetland Management - IESWM) | |

54. The NPMU and SPMUs will be responsible for all procurement, ensuring prudent financial management, quality assurance, monitoring and evaluations under the project. The NPMU and SPMUs will collaborate with a range of government departments or specialized agencies (the PEAs) that have jurisdiction, demonstrated capacity and expertise in management and execution of the proposed pilot investments. PEAs will be responsible for contract management including signing of contracts, regular supervision, contract payments and accounting. In the cases of community procurement, force accounts, and procurement of small works, goods and incremental operating facilities through shopping, PEAs will manage the entire procurement process with necessary support from NPMU/SPMUs. The sharing of roles and responsibilities, including administrative and fiduciary arrangements between the NPMU/SPMUs and the PEAs has been agreed and documented in bilateral MOUs.

55. The NPMU/SPMUs will collaborate with and seek support from and partnership with a range of other agencies to strengthen the capacity of the main implementing agencies. These will include international, national and local knowledge centers; academic and research institutes; private sector business houses and industries; urban and rural local government bodies; civil society groups, NGOs, community based organizations and other government departments responsible for coastal zone development and protection.

56. During implementation, the NPMU will submit consolidated reimbursement requests for the entire project based on interim unaudited financial reports (state level consolidation will be done by the SPMU and forwarded to NPMU). There will be only one special account for this project.

57. To be able to efficiently implement the above-mentioned responsibilities, adequate provision of staff, capacity and resources has been made within the NPMU and SPMUs. The proposed institutional arrangements, powers, roles and responsibilities of the various actors and their organizational linkages are presented in Annex 6, and complete details are described in the Project Implementation Plan (PIP).

58. Implementation schedule: The Project implementation will begin on July 01, 2010. A detailed project implementation schedule has been developed for a 5-year implementation period, and is presented in Annex 6.

59. Project implementation plan and guidelines: MoEF and the states have prepared detailed PIPs and guidelines in the form of a set of project reports and operating manuals and guidelines. These form the basis for implementation performance monitoring and include:

- (a) National and State Project Reports: These project reports include all the project design details and implementation arrangements;
- (b) Detailed project reports (DPRs) for capacity and institution building: The MoEF and DoFEs have prepared detailed plans for capacity and institution building investments; including schedules of implementation, procurement of human and physical resources, and outcome monitoring indicators;
- (c) DPRs for pilot investments : For pilot investments the PEAs have prepared detailed project reports which provide similar details for specific pilot investments including relevant environmental and social impact management measures and outcome monitoring indicators;
- (d) Financial Management Manual providing the details of funds flow, accounting, auditing and reporting and the related control and accountability mechanisms (see Annex 7 for details);
- (e) Procurement Manual containing the proposed procurement strategy, methods and procedures to be adopted; documents to be used for procurement of works, goods and consultant services; and powers to award these works and consultancies (see Annex 8 for details);
- (f) Environmental and Social Assessment and Management Plan (see Annex 10 for details);
- (g) A Governance and Accountability Action Plan (see Annex 11 for details);
- (h) A Communication Strategy and Action Plan (see Annex 13 for details);
- (i) A detailed project cost model that will be used for monitoring costs and expenditure; and,
- (j) Memorandum of Understanding (MoU) between various PEAs with the respective NPMU/ SPMUs outlining the respective roles and responsibilities, reporting and accountability requirements.

B. Monitoring and evaluation of outcomes/results

60. **Monitoring, evaluation and learning:** A project monitoring, evaluation and learning (ME&L) framework has been designed to facilitate: (a) results and outcome based management; (b) learning and process enhancement (through participatory methods as well as through independent technical, financial and social audits, and beneficiary satisfaction surveys); and (c) impact evaluation.

61. **Monitoring indicators:** The ME&L system has been designed to align with the existing government systems as far as possible and to avoid information overload. A key objective of the system is continuous learning for timely course correction during project implementation. Three sets of indicators have been developed: (a) input-output indicators to measure the project implementation performance including related process indicators; (b) intermediate results indicators to measure the performance of each project component; and (c) outcome indicators to assess the achievement of PDOs. Annex 3 provides further details of these indicators.

62. **Monitoring reports and management information system (MIS):** The NPMU includes a dedicated operations unit with a ME&L specialist and support staff with overall responsibility for planning and coordinating ME&L activities. Similar arrangements have been agreed for the SPMUs. Quarterly progress reports will be generated by NPMU based on inputs from the three states and its own MIS system for tracking progress of the national component. In addition, the NPMU and SPMUs will prepare respective annual action plans detailing the achievements and lessons learned in the previous year, and proposed implementation plan and budget for the following year. These arrangements should ensure timely collection, analysis and reporting of information, as well as mechanisms to enable efficient use of the ME&L system by managers, policy makers and other key stakeholders. Qualified consultants will be recruited for the design and operation of a computerized MIS during the first year of project implementation.

C. Sustainability

63. **Ownership and commitment:** The GoI is strongly committed to comprehensive management of the coastal and marine areas as evidenced through : (i) the setting up of the Swaminathan Committee which submitted its report in February 2005; (ii) the acceptance of the Committee's report by GoI in 2006; (iii) the issue of several draft notification for nationwide dissemination and stakeholder feedback on the revision of the CRZ Notification in 2008; and (iv) extensive nation-wide consultations with civil society, NGOs, industry groups and other stakeholders during 2008-10. This consultation process was completed in April 2010, based on which GoI intends to promulgate a final revised notification. GoI is keen to implement this new ICZM approach to balance the dual needs of conserving the ecosystems of the coastal zone and protecting the traditional rights of coastal communities, while at the same time promoting economic development and poverty reduction in the coastal areas. The states of Gujarat, Orissa and West Bengal, similarly, are committed to implementation of the project, including commitment to provide their respective share of the project cost and all other resources necessary to achieve project development objectives.

64. **Institutional sustainability:** Historically, the MoEF and the DoFE have had the mandate, budgets and responsibility for implementing the CRZ Notification and in future, they will have the responsibility for implementing the proposed ICZM approach. These regular government ministry and departments are deemed to be sustainable. New institutions in the form of registered societies have been created to develop and pilot institutional mechanisms that would be suitable for the proposed ICZM and decentralized approach. These institutions are very likely to be sustainable either in the same form or after they are converted and merged into regular ministries and departments, once the project demonstrates its successes. The prospect of sustainability will be further strengthened as the GoI desires to build on the project's success by scaling up ICZM to the rest of the coastal states.

65. **Sustainability of pilot investments:** Each pilot investment, as part of its design, has developed a detailed plan for operation and maintenance of the assets that would be created under this project. These plans have identified the institutional responsibilities as well as the funding and other resources that will be required for their long term sustainable operations.

66. **Replicability:** Replicability will be the litmus test for the project. To facilitate replication the following steps were taken: (i) careful selection of project states based on the diverse nature of challenges they face so that lessons from these pilots would be immediately applicable to other coastal states; (ii) careful selection of small coastal stretches within each project state so that the lessons learnt from the preparation of ICZM plans and from the implementation of local pilot investments could be readily useful for other coastal stretches experiencing similar challenges within or outside the state; and, (iii) dedicating substantial resources for developing high quality ICZM plans and planning processes. Preparation and adoption of successful ICZM plans will depend on stakeholders’ engagement and co-management of the ICZM planning process. Many pilot investment activities such as mangrove plantations will be co-managed by the local coastal communities and self-help groups. The successful demonstration of co-management benefits will help replicate the project, and the processes it supports.

D. Critical risks and possible controversial aspects

67. The most prominent risks are the reputational risks associated with coastal zone management which must address a wide variety of stakeholders (some of which surfaced in the Bank-financed Albania ICZM and Clean-up Project). During project preparation, elaborate consultations ensured that these issues are reasonably incorporated in the design of the project. MoEF is one of the better performing ministries in implementing the RTI Act, and this project has designated budget and plans to ensure transparent implementation. The project will introduce novel methods to redress potential grievances including supporting vulnerable persons to access legal recourse if they are unsatisfied with the project’s grievance redress mechanisms. A specific independent legal review confirmed that the design of the project has included all reasonable measures to address these reputational risks.

68. Other major risks, such as low implementation capacity of staff, administrative and procedural constraints in recruiting and maintaining highly skilled and motivated staff, and weaknesses in procurement and financial management systems have been systematically addressed and mitigated in the project design. Each activity has been designed with plans for future operation and maintenance with committed funding from state government agencies. The major risks and the risk management measures are described below. The governance and accountability action plan (GAAP) also addresses some of these risks, and a detailed description is presented in Annex 11. The procurement and the financial management risks are substantial, and are described in Annex 7 and 8 respectively.

Table 3: Major Risks, Mitigation Measures, and Rating of Residual Risks

| <i>Risk Factors</i> | <i>Description of Risk</i> | <i>Rating of Risk</i> | <i>Mitigation Measures</i> | <i>Residual Risk Rating</i> |
|--|--|-----------------------|---|-----------------------------|
| I. Sector Governance, Policies and Institutions | | | | |
| Sector Governance, Policies and Institutions | Governance and financial accountability framework rests with multiple agencies. Other key institutional issues that affect the sector include: (a) Poor human resource management and weak human resource capacity; and a weak performance management and accountability system; (b) Complex and often duplicated business processes and disjointed administrative structures causing problems in coordination and delayed responses | Substantial | Sector governance and financial accountability assessments have been conducted at the level of implementing entities to assess and review their financial management, accountability and governance practices and policies. In addition, various technical assistance activities have been initiated including diagnostic of all concerned agencies, skill development plan and broader capacity building initiatives so they have sufficient knowledge to prepare and implement the project. | Moderate |

| <i>Risk Factors</i> | <i>Description of Risk</i> | <i>Rating of Risk</i> | <i>Mitigation Measures</i> | <i>Residual Risk Rating</i> |
|---|--|-----------------------|---|-----------------------------|
| Systemic misuse/ Misappropriation of funds | (a) Although a strong framework of sanctions exists for dealing with conflicts of interest and ethical lapses, corruption and political and official patronage distorts implementation of laws or policies. (b) Procurement remains an area of vulnerability and institutional capacity in this area is limited (c) Direct theft of public/project resources remains a risk and poor financial management, M&E system and weak accountability mechanisms make assessment of leakage/corruption very difficult. (d) Anti-corruption agencies in many states are poorly resourced and lack independence. Permission is required to prosecute officials. | Substantial | Overall: (a) The Central Vigilance Commission has been strengthened to deal with cases involving state staff; (b) The national administrative reforms commission is deliberating on improved accountability and transparency in development and welfare programs and schemes at the national level; (c) Similar steps are being taken by the states. Project: The project design adequately responds to these issues through better internal control systems, third party quality assurance and inspection where required; better M&E systems, prudent financial and procurement management systems, expenditure tracking; and systems and processes designed for accountability and transparency. | Moderate |
| III. Operation-specific Risks | | | | |
| Implementation duration, capacity and sustainability | Administrative hurdles delay the project; low implementation capacity of staff; HR constraints (delays in recruitment, induction and placement of staff; pressures and interference in appointments); poor operations and maintenance of assets proposed as pilot investments | High | NPMU and SPMUs are registered societies to reduce bureaucratic hurdles, and efficient fund flow. Training programs in specific technical areas will be imparted. Staffing plan agreed upon before appraisal; for specific high turnover posts, time-based consultancy contracts are used. MoEF and state governments assume full financing for 100 percent O&M after installation; resources allocated. | Substantial |
| Transparency and accountability and grievance redress | Lack of citizen voice in formulation of ICZM plans or implementing pilot investments; inadequate disclosure measures; Weak grievance and complaint handling system | Substantial | Consultation, communication and disclosure processes and methods agreed. TORs for ICZM plans include regular stakeholder consultation, clear process to use results from such consultations, and disclosure in local vernacular media; final ICZM plans to be endorsed by the stakeholder groups. All provisions outlined in the RTI Act will be met; project will undertake social audits, as required, and publicly disclose all monitoring and evaluation reports. Detailed grievance redress systems agreed and will be established at the NPMU and SPMUs. Potentially aggrieved vulnerable persons will be supported to access legal recourse if they are unsatisfied with project's grievance redress system. | Low |
| Social and Environmental safeguards | Environmental degradation caused by pilot investments | Moderate | Selection and design of pilot investments avoid environmental impacts. Mitigation and monitoring measures are proposed to ensure that avoided impacts do not recur. | Low |

| <i>Risk Factors</i> | <i>Description of Risk</i> | <i>Rating of Risk</i> | <i>Mitigation Measures</i> | <i>Residual Risk Rating</i> |
|--|---|-----------------------|---|-----------------------------|
| | Chance resettlement in future (although no land acquisition is involved; and no involuntary resettlement was found during site verification exercises); social exclusion, elite capture, and exclusion of poor households and women | Moderate | No involuntary resettlement. For chance future impacts, a resettlement policy framework prepared consistent with Bank policies. The selection and design of pilot investments, implementation of communication plan and GAAP ensures that cases of exclusion and elite capture will be identified and minimized. | Low |
| IV. Associated Risks including Third-Party Risks | | | | |
| Third-party risks | New notification is not legalized in time before start of project | High | Project design ensures that all its components can be implemented even under the current CRZ Notification. | Moderate |
| Natural and other disaster impact risk | Inadequate response to natural disasters during project execution; potential future large-scale oil spill | Moderate | The project will adopt an adaptive management approach that can respond to such crises; at worse, halt the project if needed. | Moderate |
| V. Reputational Risks | | | | |
| Risk of opposition, by association with Notification | Communities perceived to be affected by the future Notification express reservation; industrial lobbies resist change in Notification | High | Project preparation, design and communication plan clearly convey separation of the project from the GoI sovereign process of regulation. | Substantial |
| Risks arising from weak enforcement | Weak enforcement of new/old notification leads to violations/delays for the project | Moderate | Project activities are designed not to be impacted by enforcement of the old/new notification. | Low |
| Criticism from several stakeholder groups | Criticism that approach is a means to bring in convenient land use changes and has no concern for biodiversity conservation and preservation; public opposition regarding design of ICZM plans | High | Communication plan is to be fully implemented – showing that the project is focused on biodiversity conservation. ICZM plan and stakeholder consultation processes to be communicated clearly. | Substantial |
| Risks encountered by the Albania ICZM and Clean-Up project | Associated risks from government action against violation of old 1991 regulation. [Specifically, the project does not require any such enforcement.] Associated risks from the final content of the ICZM plans, (implementation not financed by the project). | Moderate | Public and civil society opinion in favor of action against violations. A large number of cases of violations are already in various courts of law. Bank is unlikely ⁵ to be associated to any government actions to enforce the laws of the country. A separate legal review confirmed that the project design has adequately considered these risks. | Low |
| VI. Overall Risk (including Reputational Risks) | | | | Substantial |

E. Loan/credit conditions and covenants

69. (i) MoEF and the participating States of Gujarat, Orissa and West Bengal shall maintain NPMU and SPMU, respectively with suitably qualified personnel with resources sufficient to carry out project management including technical and fiduciary supervisions, monitoring and evaluation, and public communication to achieve the PDO in a timely and effective manner. (ii) MoEF shall ensure that each Project State will maintain dedicated, multi-disciplinary team of suitably qualified

⁵ Previous Bank involvement such as in the CZM plan for Andhra Pradesh or Tamil Nadu (ongoing) or investments subject to coastal zone regulations in Tamil Nadu, Kerala or Maharashtra did not precipitate any such association risks.

personnel in each PEA with resources sufficient to carry out their respective part of the Project under Components two, three and four. (iii) MOEF, through NPMU, will cause each Project State to pay for ten percent of the estimated cost of implementing its Respective Part of the Project, and transfer such amount to the respective SPMU at the beginning of each Fiscal Year; to establish and maintain, throughout the implementation period, a state level Steering Committee to provide guidance and approval to the SPMUs, as necessary; and to provide, in a timely manner, all other funds, facilities and services required for its Respective Part of the Project. (iv) NPMU and SPMUs shall maintain specific dedicated units as per agreed staffing plan; and will engage full-time procurement specialists and finance professionals with qualification acceptable to the Bank for entire project implementation period. (v) NPMU will submit quarterly consolidated IUFRRs within 60 days from the close of the quarter. (vi) NPMU and SPMUs will, within six months from effectiveness, place in position suitable external and internal auditors acceptable to the Bank, and the NPMU will submit annual audit reports for the entire project within six months from the close of each financial year. (vii) Within three months from effectiveness, the NPMU and the SPMUs will establish and operationalize computerized accounting system and maintain throughout the implementation period. (viii) MoEF shall take all necessary measures, or cause others to take such measures, to ensure implementation of the Project is in accordance with the provisions of the PIP, including the Financial Management Manual, the Procurement Manual, the GAAP, and the ESMP.

IV. APPRAISAL SUMMARY

A. Economic and financial analyses

70. The full cost of the project over the 5 year life span is US\$285.67 million with long-term annual recurrent costs of US\$17 million. Identifiable revenue streams associated with targeted investments at state levels are US\$31 million annually. Accordingly, the project's minimum financial internal rate of return (FIRR) is 4.8 percent; this is a lower bound because it excludes other induced revenues that such investments will create. Also, the project structure is not readily amenable to a full stand-alone economic analysis because numerous unmarketed benefits arise from the project investments; a conservative estimate of such benefits generates an economic internal rate of return (EIRR) of 20.2 percent. Separate analyses of the institutional investments and some targeted pilot investments ensure that the chosen structure is economically efficient and financially sustainable over the long-term (see Annex 9).

71. **Capacity building investments:** The project includes national level institutional investments that will generate broad-based benefits for all coastal states in India, as well as additional capacity building investments in the pilot states of Gujarat, Orissa, and West Bengal that will confer economic benefits to the coastal areas of those states. Estimation of the benefits associated with the US\$109 million of institutional investments in this project is not readily done, although an indicative analysis suggests that these institutional investments will protect coastal values of about US\$400,000 annually for each kilometer of coastline affected. This translates to US\$2.1 billion annually for peninsular India as a whole; even if only one percent of this value were captured under the project, the EIRR on the institutional investment would approximate 20 percent.

72. **Pilot investments:** The project is investing US\$131 million at the state level to address local priorities relating to conservation and protection of coastal resources, environment and pollution management, and community livelihood interventions.

- (a) Investments for conservation and protection of coastal resources: Approximately US\$36 million in such investments have an estimated FIRR of 8.8 percent and EIRR of 20.9

percent. These investments include: (i) construction of coastal protection infrastructure; and, (ii) bioshield solutions associated with mangrove plantation or similar natural measures. Both types of investments provide a variety of economic benefits through reducing the risks of flooding, and through protecting businesses, public and private assets, agricultural output, and the health of residents in coastal areas. Based on analyses of the 1999 super-cyclone, for example, storm protection from a 10 percent increase in mangrove cover reduced human casualties by about 12 percent, and the losses of livestock and related agricultural assets by 2 to 7 percent.

- (b) Investments for environment and pollution management: To improve pollution management and public health, US\$49 million of interventions will contribute to distribution of grid electricity, completion of sewerage systems, sanitation and solid waste management. These investments are treated as cost-of-service utilities; stand-alone analyses of tariffs show the projects are cost-effective in generating an FIRR of 10.0 percent, which is consistent with investor expectations and financing instruments available in the power and public utility sector in India. The EIRR is considerably higher (21 percent), as there remains an unmet demand for power in rural India; health benefits from improved water quality and sanitation also generate incremental value to households. The robust results also reflect cost recovery of some investments already made by State authorities; the additional investments within this project permit cost recovery on these assets that might not otherwise occur.
- (c) Community livelihood activities: About US\$39 million in community livelihood investments are expected to generate an FIRR of 10.7 percent and an EIRR of 20.5 percent. These community-managed sub-projects are developed in a participatory manner with typical contributions from communities of 5 to 20 percent in cash and kind, which provides in-built incentives to choose efficient and locally appropriate designs. These range from straightforward livelihood improvements associated with sustainable management of mangrove plantations to more complex integrated investment schemes relating to ecotourism development. Sub-project selection will follow a risk managed portfolio approach such that no single type of activity represents more than 50 percent of portfolio value, and no more than 90 percent for the top three activities in any given state. In addition to reducing risk through diversification, the portfolio approach provides a larger range of potential activity types that can lead to eventual replication.

73. **Project Sustainability and Fiscal Impacts:** The liability of the project to the national and state governments arises from expenditure on counterpart funding and on long-term financing needs. During the life of the project, contributions from the GoI are about US\$53 million or US\$11 million per year. This is a minor portion of the annual government outlay (e.g., 2009/10 budget outlay was US\$200 billion for the Central Government alone) and it will not have a major fiscal impact. Most of the government's counterpart funding will finance recurrent costs and government seconded staff. In the long term, the governments will bear incremental costs for government staff associated with the new institutional reforms; this is primarily at the national level and is estimated to be about US\$4.5 million annually. Recurrent expenditures for the various state level local pilot investments or subprojects will be covered through tariff mechanisms, service delivery revenue, transparent subsidies or ongoing community contributions.

B. Technical

74. The activities that the project is supporting can be classified in four broad sets. First, activities such as hazard line mapping and delineation, mapping of environmentally sensitive areas, and

delineation of coastal sediment cells and sub-cells will be done for the first time in India. For these, the challenge has been to reach a consensus on the methodology and tools for implementation. During project preparation, specific national, regional and local consultations were undertaken, including consultations with a wide range of relevant experts and academia; training (especially on hazard line and coastal sediment cells); and studies to determine the appropriate methodologies to be followed. Capacities of relevant agencies to undertake these activities were assessed and confirmed during project preparation.

75. A second set of activities includes those that remain challenging, in spite of relevant experience in implementing similar activities elsewhere in the country. These include the underground urban sewerage systems in each of the three states (where the challenge is not about laying the underground works, but about ensuring that old and partially completed systems work properly and effectively as part of the overall system); and rehabilitation of coral reefs (where the challenge is to adapt to local geographic and climatic conditions). During project preparation adequate attention was paid to these uncertainties; the activities were designed based on requisite assessments and include specific measures to adapt to uncertainties.

76. The third set of activities concerns regular activities implemented successfully many times over. These include most of the pilot investments, such as mangrove plantation, shelterbelt plantation, and coastal protection using geosynthetic gabions, livelihood improvement support activities, small local eco-tourism development activities, and marine aquarium. Ensuring that these investments will be implemented and operated adequately is not a constraint. However, ensuring that they are implemented by joint actions among two or more stakeholder agencies, and using these to complement the ICZM planning process remains a challenge. The project preparation process examined the sector incentives for joint or integrated actions, and built those into the design of the project components. For each of the three sets of activities the best institutions of the country, from the public and private sector and from academia have been involved in preparation of the project.

77. The fourth set of proposed activities includes preparation of ICZM plans in the three project states. This will remain a challenge as it includes the following works at a scale unfamiliar to most stakeholders: (i) detailed scientific and socio-economic studies and (ii) a very involved process of stakeholder consultation and participation in the process of preparation and finalization of ICZM plans. Similarly the NCSCM, which is being designed to support the nationwide adoption of ICZM approaches through the development and provision of cutting-edge knowledge, will face the challenge to effectively collaborate with relevant national and international institutes of repute. For this set, it is likely that all the requisite skills do not exist in the country, and the design of the activities includes dedicated resources to source international skills.

78. Overall, the technical design and readiness of each project components are satisfactory, and conforms to national and/or international standards.

C. Fiduciary

79. **Procurement.** Specific procurement capacity assessments have been carried out for MoEF, the SPMUs and major PEAs. The procurement required for implementing the activities identified in the DPRs by PEAs will be carried out by the SPMUs on behalf of the PEAs except for the few small value procurements of furniture, office equipment and small works⁶, following shopping only, which would be procured by the respective PEAs. As a specific exception to the above, some of the PEAs which have better procurement capacity compared to SPMU or NPMU (such as the Orissa Disaster

⁶ Small works only for PEAs as identified in the Procurement Manual, who have the requisite engineering capacity.

Management Authority or the Survey of India) will carry out procurement for all the activities identified in the DPRs by themselves.

80. The procurement activities are substantial in the project because of decentralized procurement in NPMU, three SPMUs and PEAs. Procurement plans have been prepared for all SPMUs and NPMU, and all PEAs respectively. The complexities have been mitigated by concentrating major procurements at the SPMU level. Decentralized procurement without adequate procurement capacity is a risk⁷ identified by the implementing agencies (NPMU/SPMUs) and the PEAs during risk identification workshops for the project, and the mitigation measures have been prominently included in the RIW and in the GAAP.

81. Procurement capacity assessment studies for various entities and procurement post reviews of projects in India have pointed out issues such as weak procurement organization, delays in finalization of annual procurement plans, ambiguous and incomplete specifications for equipment, delays in procurement decision-making, piece-meal procurement by implementing entities, absence of procurement manuals, weak or absence of quality assurance and inspection of goods, low capacity of procurement personnel, absence of post-award reviews, and weak complaint handling mechanisms, etc., for failure of decentralized procurement. The above findings are fully relevant for the current project. Therefore, the NPMU and the SPMUs include specific units overseeing procurement and financial management; and will engage full-time procurement specialists for the entire project implementation period. The relevant procurement risk mitigation measures are discussed in detail in Annex 8.

82. Procurement will be done in accordance with the Procurement Manual for the project, which is consistent with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" (dated May 2004 and revised in October 2006); "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" (dated May 2004 and revised in October 2006); and the provisions stipulated in the Financing Agreement. The Bank's Standard Bidding Documents for international competitive bidding (ICB), Requests for Proposals, and Forms of Consultant Contract will be used. For procurement works and goods following national competitive bidding (NCB) procedures, the India Specific Bid documents for NCBs (with updated fraud and corruption clauses as per latest Procurement Guidelines) will be used. In case of conflict or contradiction between the Bank's Procurement/Selection Guidelines/Procedures and any national rules and regulations, the Bank's Procurement/Selection Guidelines/Procedures will take precedence. A summary of the procurement capacity assessment of the implementing agencies and precise arrangements are presented in Annex 8.

83. **Financial Management.** The project will prepare work plan based annual budgets. The process followed will be bottom-up after the annual budget preparation parameters are established for each entity through a consultative process. Based on the overall budget parameters the PEAs will prepare their budget which will then be consolidated at SPMUs along with SPMU budgets. The SPMU budgets will be discussed with NPMU, the national component budget will be prepared by NPMU; and NPMU will consolidate the overall project budget.

84. MoEF will transfer the budget to the NPMU bank account based on the action plan and the approval of the governing council of the NPMU. The NPMU will open a separate bank account for the project in a scheduled bank. The NPMU will further transfer money to the SPMUs who will in turn maintain separate bank accounts and ensure that PEAs are given access to the funds through linked bank accounts as per requirement. The PEAs would use the linked bank account cheques and

⁷ This is a risk identified in **India DIR** also.

will make payments. PEAs will compile a monthly statement of expenditure made and cheques issued, and send it along with 'cheque issue statement' or copies of cash book to the SPMU for accounting by the 10th of the following month. The SPMU will finalize the accounts within 30th of the same month. The original documents will be retained and filed separately in the PEAs which will be audited as a part of the internal audit.

85. All accounting centers for the project (NPMU, SPMUs) will handle and account for the expenditures according to the Financial Management Manual, which provides details of applicable accounting policies and procedures for the project. The books of account will be maintained on a double entry cash basis. Accounts will be maintained by the NPMU/SPMUs using a computerized accounting system. A uniform Chart of Accounts will be prescribed to enable data to be captured by project component/ category, and expenditure heads, etc., and will facilitate consolidation at state and national levels.

86. A Designated Account (DA) will be maintained in the Reserve Bank of India (RBI) and will be operated by the Department of Economic Affairs (DEA) of GoI. Advances to and reporting for the DA will be in accordance with the Bank's operational policies. There will be a one-time fixed advance for US\$10 million which will be maintained throughout the project life and adjusted in the last year of the project. The project will submit IUFRR based withdrawal applications to the Controller of Aid Accounts and Audit (CAA&A) in DEA for onward submission to Bank for reporting on expenditure made from the DA or fresh advances to the DA. The national level consolidated IUFRR for the project will be shared with the Bank and will be the basis for reporting eligible expenditures to the Bank as well as would be used for disbursement. The IUFRRs will be based on project accounts and will be reconciled with the project accounts. From the second quarter the Bank will finance actual expenditures⁸ that are made on project components as reported in the IUFRRs. All expenditures reported in the IUFRRs will be subject to confirmation or certification by the annual audit reports. Any difference between the expenditure reported in the IUFRRs and those reported in the annual audit reports will be analyzed and those expenditures which are confirmed by the Bank as being not eligible for funding (refundable to Bank) would be adjusted in the subsequent disbursements.

87. The NPMU and SPMUs will appoint chartered accountants' firms, to perform regular internal audit of the NPMU/SPMUs, PEAs and of all activities funded by this project. Annual project financial statements and accounts for all activities under the project will be subject to statutory audit by an independent chartered accountants' firm, appointed by NPMU and acceptable to the Bank. The annual project audit report will provide the project financial statement along with a summary of the observations, individual SPMU financial statements and observations. All expenditures reported in the IUFRRs will be subject to confirmation/ certification by the annual project audit reports. Any discrepancies between the audited and un-audited IUFRRs will be adjusted in subsequent disbursements. The annual project audit report and accounts will be submitted to the Bank by September 30 of each year.

88. Retroactive financing: Expenditures already identified in the Procurement Plan, carried out with Bank's concurrence, and where Bank's procurement guidelines are followed will be eligible for retroactive financing up to an overall ceiling of US\$10 million, and will be claimed through financial reports consolidated by NPMU.

⁸ Expenditure means actual payment made to contractors/laborers against works done and does not include advances/ transfers made, except for mobilization advance made as payment under a contract. Transfers made will not be claimed, unless adjusted against actual expenditure.

D. Social

89. Inclusion, participation of coastal communities, as well as issues and constraints faced by women are priorities that were integrated into the design of the project during preparation. An environmental and social assessment identified potential adverse social impacts, and proposed the requisite avoidance, mitigation and compensation measures, which were also integrated into the design of the project (especially the pilot investments).

90. **Inclusion:** A number of pilot investments target the poor and vulnerable groups and support options for their improved livelihood. The project will involve CBOs for implementation of these investments. Most of the environmental conservation works are planned to be implemented and managed by coastal communities, except in remote uninhabited locations. The terms of reference for preparing ICZM plans include at least five rounds of consultation with each stakeholder group, especially the vulnerable coastal communities dependent on coastal and marine resources. An additional analysis identified “pockets of poverty” within all three project states, and targeted these poorer areas for pilot investments.

91. **Livelihood security of coastal communities:** The project is designed to improve resilience within the coastal communities and provide livelihood security. The livelihood improvement activities include (i) support to fishing villages and fishing communities in fishery based activities, and small scale industrial or marketing activities; (ii) development of allied farming activities; (iii) livelihood support through construction activities; and (iv) eco-tourism for communities living in protected areas. Beneficiary selection will be guided by pre-determined criteria such as inclusion of vulnerable groups.

92. **Gender:** Based on borrower commitment, activities were integrated under each proposed pilot investment to address women’s needs. Pilot investments in West Bengal and Orissa have planned to advance opportunities for fisherwomen to market their wares in areas where relevant forward marketing linkages exist. In Gujarat, a number of women-led CBOs will undertake and manage investments for the redevelopment and conservation of mangroves. Women will also be involved as distinct stakeholder groups in the preparation of ICZM plans.

93. **Social accountability and communication:** The project will adopt strategically designed social accountability mechanisms during the implementation and monitoring of its pilot investments using effective tools for transparency, participation and redress. To comply with the RTI Act, the project will ensure proactive disclosure and sharing of information. The project communication plan includes dissemination of project information through efficient use of print and electronic media, bill boards, posters, and any other suitable method in the local contexts.

94. Communities will be engaged through stakeholder consultations in implementing the pilot investments, and in preparing ICZM plans. Additionally, civic oversight on project implementation will be ensured using tools such as social audits. SPMUs will appoint independent consultants from civil society, who can facilitate community participation/social audits, monitor project processes on a day-to-day basis to ensure that they include and address community concerns, and report findings to the concerned PEAs. The project will also have a three-tier grievance redress mechanism. The NPMU and SPMUs will have specific communication cells to register stakeholder complaints using various mediums (dedicated toll free phone line, web-based complaints, or written complaints) and address them in a time bound manner (see Annex 11 and 13).

95. **Involuntary Resettlement:** There is no land acquisition, and the project design has ensured that the potential for involuntary resettlement is absolutely minimized. Site verification has been conducted for 15,500ha of revenue and forest land to be used for the project; and no squatters or

encroachment has been identified. However, possibility of future discovery of cases of involuntary resettlement cannot be absolutely ruled out given (i) the possibility of incremental coastal erosion before the start of coastal protection works, which could require additional voluntary land donation that may not be clearly documented; and (ii) the need for formal agreement with stakeholders for in-situ restoration works. To address these possibilities, the project has prepared a resettlement policy framework, consistent with the National Resettlement and Rehabilitation Policy, 2007 and the Bank's OP 4.12. As the number of potential attributable cases is unknown, notional numbers have been used to define a resettlement and rehabilitation budget, which will be updated if and when these chance cases are discovered during the implementation period. The project will finance preparation of ICZM plans for selected stretches in three states. Each of these plans will be prepared on a regional plan scale. It is unlikely that the planning exercise will be able to identify directly attributable cases of involuntary resettlement. However, the plan process will include an examination of the final plan for its consistency with OP 4.12 and the applicable national policy and legislation on displacement from or loss of access to traditional and customary rights and assets.

96. **Scheduled tribe population:** The project does not have any adverse impact on the scheduled tribe population. A social analysis was undertaken to determine the needs for specific plans to provide culturally appropriate benefits to the Scheduled Tribe population in the villages where project activities, especially village level livelihood activities and entry-level activities for mangrove plantation are planned. The analysis found that in none of the 267 villages in the three states, the scheduled tribe populations live in tribal settlements that are characterized by collective attachment to distinct habitats, or with respect to distinct cultural, ethnic, economic, social or political institutions. No meaningful tribal peoples plan can be prepared in these villages. However, each village plan will be prepared and implemented by the villagers after free, prior and informed consultation with entire village community. The project's criteria for beneficiary selection ensure that all vulnerable groups including scheduled tribe groups are included. Consultation will continue as part of preparation of the ICZM Planning processes, where any further culturally appropriate needs of the scheduled tribe communities will be identified and incorporated, if any.

E. Environment

97. Given that the coastal and marine ecosystems have long been damaged by over-extraction of resources, increased pollution and physical alterations, and that degradation is expected to be accentuated by climate change induced impacts, a number of corrective conservation initiatives are required to be implemented effectively and programmatically. This project is one of the most important such initiatives, and has been designed to establish and develop institutional capacities that will ensure long-term conservation of coastal and marine resources. Overall, the environmental impacts of the project are positive, highly beneficial, and aimed at long term sustainability.

98. A comprehensive Environment and Social Assessment (E&SA) was undertaken, along with systematic and wide ranging stakeholder consultations at two levels. On the more macro level, the GoI has proposed (as per the national Environmental Policy, 2005) a program to shift from the current partially effective regulatory regime to adoption of ICZM approaches. Although the project will not in itself cause any change in policy or regulations, it does support implementation of the changed policy and regulation. Therefore, at the macro level, the E&SA carried out a regulatory impact assessment that delineated the possible risks from the change in regulation, and whether the risks will be adequately mitigated and managed. The major issue was whether, by accepting decentralized planning and management of coastal areas, the ecologically sensitive areas would be more exposed to exploitation. The E&SA concluded that the proposed changes will strengthen rather than dilute the current protection regime. The project will support identification and delineation of all

ecologically sensitive areas (many of which are not protected currently), along with zoning of these areas to be protected by MoEF. The ICZM approach will also facilitate investment in financing conservation of the ecologically sensitive areas, a major benefit over the current state of mere regulatory protection. As per the GoI policy, one of the three prime objectives of ICZM plans will be to ensure that livelihood of the coastal communities is secured. This project will support preparation of ICZM plans for four coastal stretches in three states. The ICZM planning is designed as fully participatory processes, with identification and involvement of all stakeholder groups, especially vulnerable communities dependent on coastal and marine resources. This will ensure that the concerns related to equitable sharing and protection of traditional access to coastal and marine resources will be adequately incorporated in the ICZM plans and decision-making processes.

99. On the micro level, the project design and the E&SA examined the potentially adverse impacts the project could have at local and site levels, and proposed avoidance, mitigation and management measures. The project will finance several capacity building and pilot investments towards protection and conservation of coastal resources in the specific areas for which ICZM plans will be prepared. Each of the activities financed by the project has been carefully examined and designed to avoid potential negative impacts, and provides for adequate mitigation and management measures for direct and indirect impacts. In cases where the possibility of indirect impacts cannot be fully discounted, management actions are proposed in the EMP and/or as part of the implementation requirements of the activities. At a cumulative level, the impacts are beneficial, and the ICZM plan process will ensure that these beneficial impacts are enhanced. The avoidance, mitigation and management measures have been incorporated in the bidding documents, as required. For details, see Annex 10.

100. Project activities including the state level local pilot investments are in conformity with the national laws and international commitments of India. Each project activity has been carefully planned and designed to comply with the CRZ Notification, 1991, and other applicable laws and regulations. This has been confirmed by a separate independent legal review. The three project states have obtained all applicable state and national level regulatory clearances.

101. Implementing agencies for the project are those mandated at national and state levels to protect and conserve the environment through a mix of regulatory, institutional and financial tools. These agencies employ the best environmental professionals in the country, and have invested for a long time in specialized institutes for research and development of application tools on environmental conservation and pollution management. There is no obvious capacity gap, for addressing environmental safeguard issues that may arise related to the project. However, to complement the current regulatory capabilities, the NPMU and SPMUs will designate activities and budget for environmental audits and specialized evaluation studies in addition to monitoring implementation and outcomes of the environmental and social management plan.

F. Safeguard policies

102. Except for OP 4.01 and OP4.10, which fully apply, the other Bank safeguard policies have been triggered from a precautionary point of view. Although the project does not have any land acquisition and has absolutely minimized the potential for involuntary resettlement, a Resettlement Policy Framework has been prepared to address if any such issues arise accidentally during implementation of the project. Likewise, although the project will have no direct or indirect impacts on natural habitats, OP4.04 is triggered to accommodate future third-party risks, such as oil spill in the coastal areas or damage from future cyclones. The project does not impact any physical cultural resources, and instead supports conservation, renovation and restoration of seven dilapidated locally

important cultural properties. Triggering OP4.11 has helped to ensure that the conservation, renovation and restoration works will be planned and implemented using the best professional standards.

| Safeguard Policies Triggered by the Project | Yes | No |
|---|-------|-------|
| <u>Environmental Assessment (OP/BP 4.01)</u> | [X] | [] |
| Natural Habitats (<u>OP/BP 4.04</u>) | [X] | [] |
| Pest Management (<u>OP 4.09</u>) | [] | [X] |
| Physical Cultural Resources (<u>OP/BP 4.11</u>) | [X] | [] |
| Involuntary Resettlement (<u>OP/BP 4.12</u>) | [X] | [] |
| Indigenous Peoples (<u>OP/BP 4.10</u>) | [X] | [] |
| Forests (<u>OP/BP 4.36</u>) | [] | [X] |
| Safety of Dams (<u>OP/BP 4.37</u>) | [] | [X] |
| Projects in Disputed Areas (<u>OP/BP 7.60</u>) | [] | [X] |
| Projects on International Waterways (<u>OP/BP 7.50</u>) | [] | [X] |

G. Policy Exceptions and Readiness

103. No policy exception has been sought.

104. **Readiness:** SAR requirements for project implementation readiness have been met. The institutional and implementation arrangements have been agreed. The NPMU society and the State level SPMU societies have been approved. National and State Project Directors have been formally nominated. A plan and timetable for recruitment of other staff of NPMU and SPMU have been developed and agreed. The NPMU and the three SPMUs are already functioning with key staff that coordinated and prepared the project. The PIP (including detailed national and state project reports, detailed reports on each capacity building or pilot investment, procurement plan, procurement and financial management manuals, detailed cost estimates) is ready. Most of the procurement in the project will take place in the first 18-months of the project implementation period. Bid documents for each capacity building and pilot investment are under preparation (a substantial number of the initial sets of bid documents have been already submitted to Bank for review). Environmental and social assessments have been disclosed in-country by November 27, 2009. Indicators and institutional arrangements for monitoring and evaluation have been agreed.

105. All states have formally communicated to MoEF commitments for their share of financing, and providing all other resources and support needed to implement the project. The respective state finance departments have already approved financing share of the states, and initial budgetary provisions have been made. MoEF has already established a budget line for the project; and received approval of the Planning Commission for the project. All other GoI and state level clearances such as for authorization for expenditure have been completed (including the clearance for GoI Expenditure Finance Committee, and the GoI Cabinet Committee on Economic Affairs). Further, the Planning Commission has approved a budget of Indian Rupees 150 crore (US\$32.6 million) for fiscal year April 01, 2010 – March 2011. MoUs between each of the PEAs and the respective SPMUs have been signed. Another MoU has been agreed between the MoEF and the SOI for mapping, delineation and demarcation of the hazard line.

Annex 1: Country and Sector or Program Background

INDIA: Integrated Coastal Zone Management Project

1. The coastal areas of India include the nine states of the coastal peninsula, which is bounded by the Bay of Bengal, the Indian Ocean and the Arabian Sea; and the union territories of Andaman & Nicobar Islands, Lakshadweep Islands, Daman and Diu. About 47 percent of Indian people live in these coastal states and union territories. The 73 coastal districts (out of the total of 593 districts in the country) have a share of 17 percent of the national population. India has a coastline of about 7,500km (of which about 5,400km are the mainland coasts – remainder belonging to the islands). While this constitutes less than 0.25 percent of the world's coastlines, the low elevation coastal areas of India (81,805km²) has a population of more than 63 million, approximately 11 percent of global population living in such low elevation areas. Nearly 200 million more live within 50km of the coastline.

2. The mainland coasts of India have four geographical divisions: one on the eastern coast, and three on the western one. The eastern coast, 2,630 km long, is predominantly deltaic with deep sedimentation. The major deltas, from north to south, are the Ganga-Brahmaputra, the Mahanadi, the Krishna-Godavari, and the Kaveri. Most of the Mahanadi and Ganga-Brahmaputra floodplains have poor drainage and flood regularly. Tidal incursions extend far inland, and the wide deltas are regularly subject to cyclones and other special weather events. The eastern coastal plain contains several lagoons, the largest of which, Pulicat and Chilka lakes, are a result of sediment deposition along the shoreline. On the western coast, the largest division is the Gujarat Coast, which is about 1,600 km long. It lies to the northwest of the Western Ghats, extending from the Gulf of Khambhat into the salt marshes of the Kathiawar and Kachchh peninsulas. These tidal marshes include the Great Rann of Kachchh along the border with Pakistan and the Little Rann of Kachchh between the two peninsulas. The level of the marshes rises during the rainy season, making the Kachchh Peninsula an island every year. The Konkan Coast between Daman and Goa is constituted by several flooded valleys extending inland into narrow riverine plains. These plains are dominated by low-level lateritic plateaus and are marked by alternating headlands and bays, the latter often sheltering crescent-shaped beaches. Finally, the Malabar Coast, from Goa south to Cape Comorin, was formed by deposition of sediment along the shoreline. This 25-100km wide plain is characterized by lagoons and brackish, navigable backwater channels.

3. **Coastal and marine biodiversity resources:** India's tropical climate and diverse geomorphologic setting favors an abundance of coastal and offshore marine ecosystems. The Indian Ocean region has 227 of the 686 species of corals globally reported. The fish population in Indian waters is diverse, with 2,546 species belonging to 969 genera (equal to 57 percent of fish genera found in the Indian Ocean, the Atlantic and the Mediterranean). Further, the Indian coast hosts 26 species of sea snakes and 5 species of sea turtles. Of the 120 species of marine mammals reported globally, 25 (including sea cow, dugong, dolphin, and whale) are found in Indian waters. Many of these marine mammals and reptiles are endangered.

4. India had a total reported area of 6,740km² under mangroves in 1987. The west coast mangroves (Maharashtra, Goa, Karnataka, Kerala) are scrubby and degraded, whereas the Gujarat mangroves are richer, and occur in Gulf of Kachchh and the Kori Creek. The mangroves on the eastern coast are, however, very rich and diverse. The mangroves of Sundarbans are the largest single block of tidal halophytic mangroves of the world, and the mangroves of Bhitarkanika are the second largest in the Indian sub-continent. Mangrove swamps occur in profusion in the intertidal mudflats on both sides of the creeks in the Godavari-Krishna deltaic regions, Pichavaram and Vedaranyam in Tamil Nadu. In the Andaman and Nicobar Islands, the small tidal estuaries and the lagoons support a

dense and diverse undisturbed mangrove flora. Major coral reefs are found in the Gulf of Kachchh, the deltaic regions of Kori creek (Gujarat) and Pichavarm-Vedaranyam. Major sea grass meadows in India (although poorly documented) occur along the southeastern coast of Tamil Nadu, in the lagoons of some of the Lakshadweep Islands, and in some areas of Andaman and Nicobar islands. Sea weeds are abundant on the Indian coasts, with 770 species, a standing crop of 91,339 tonnes, and a share of about 4 percent of global annual seaweed harvest. However, the Indian coast is relatively poor in marine algal diversity – it has only 624 of the 20,000 known species, mainly concentrated in Tamil Nadu, Gujarat and Maharashtra. Most Indian coastal forests are found on the western coast, with some in Tamil Nadu and Andhra Pradesh coasts on the eastern coast.

5. **Other coastal and marine resources:** Nearly 45 percent of India's total energy needs are supplied by oil (mostly imported) and gas. Most of the country's oil and gas reserves lie in the coastal and shallow offshore areas of the Gulf of Kachchh, Bombay High, and Krishna-Godavari Basin, and some in the known deep sea locations. There is no dependable estimate of ocean energy potential (wave, tidal, ocean thermal energy). Some work has started on coasts where the tidal amplitude is very high (Gulf of Khambat, Gulf of Kachchh, Hoogly Estuary). Nonetheless, the potential, subject to development of the required technology, is anticipated to be very high.

6. Most of the placer and mineral deposits of ilmenite, rutile, leucoxene, monazite, sillimanite, magnetite, zircon, garnet, and other heavy metals in India are concentrated in the coastal zones. Of the 7,500km of coasts in India, a total stretch of 2,643km is laden with substantial mineral deposits. In Maharashtra, Goa, Karnataka, Kerala, Andhra Pradesh and Orissa, huge mineral deposits are also located near-shore up to a depth of 15-25 meters, whereas in Tamil Nadu, such deposits are found up to a depth of 1 meter from the shore.

7. High temperatures and wind velocity along the coastline are congenial for salt pan activities, mainly on the coasts of Gujarat, Tamil Nadu and Andhra Pradesh. The groundwater in coastal India (18.8 million hectare-metre per year) is by and large fresh, although in the Mahanadi and the Godavari deltas, there are large pockets of saline groundwater. There is increased salinity ingress in most coastal states, notably in Tamil Nadu and Gujarat.

8. There are several tourism and cultural heritage sites on the Indian coastline. Some of the sites have regional, national and international significance. Prominent among these tourism and cultural sites are the Marine National Park, Dwarka and Porbandar, Daman, Diu, Alibag, Elephanta Caves, Goa, Kochi, Thiruvananthapuram, Rameswaram, Mallapuram, Vishakhapattanam, Chilika, Puri, Digha, and the Sundarban. Most of these sites contain historical and archaeological heritage.

9. **Economic value of coastal and marine ecosystem services:** Very little is systematically known about the economic value of the coastal resources of India. The primary coastal and marine ecosystem service is the fisheries industry, which is a major driver and safety net for economic development and rural livelihoods. Coastal fishing employs a million people full time (including 200,000 workers in the mechanized sector, and 630,000 in the informal sector). The post-harvest fisheries sector employs another 1.2 million people, of which 25 percent are rural women. India has 3,638 fishing villages and 2,251 fish landing centers. The total marine fish production is about 2,695 million tones, of which nearly 50 percent comes from near shore waters and is contributed by traditional fishermen. Although systematic data is not available, the non-fishery values are considered to be high, and are of prime national concern.

Key Challenges in Coastal and Marine Area Management

10. The major issues relate to misuse, overuse and abuse of resources, degradation of ecosystems (albeit with some improvement in recent years), conflicts among stakeholders, increasing damages

from coastal hazards, threats to livelihood security, growing pressure from and demand for economic infrastructure, and the overarching concern for sustainable development.

11. **Vulnerability of coastal areas and coastal communities:** The Indian coast is subject to severe weather events and episodic events, including in the recent past the 2004 tsunami and several super-cyclones. On average, 5.2 depressions, 1.9 storms and 1.4 severe storms affect the Indian coast every year. Between 1877 and 1990, 964 out of 1474 cyclones that originated in the Bay of Bengal and the Arabian Sea affected the Indian coasts, inflicting severe damages to lives and properties. At times, the effects are exacerbated by inland floods, and in recent years, inundation. All 73 coastal districts of India are vulnerable to coastal hazards. Six of these districts (Jagatsinghpur and Kendrapara in Orissa; Nellore in Andhra Pradesh; Nagapattinam in Tamil Nadu; Junagadh and Porbander in Gujarat) are regarded as severely threatened. Ten more districts (North 24 Parganas and South 24 Parganas in West Bengal; Baleshwar and Bhadrak in Orissa; Srikakulam, Guntur and Krishna in Andhra Pradesh; Thiruvallur, South Arcot and Ramanathapuram in Tamil Nadu) are regarded as highly threatened.

12. Resilience of the rural coastal communities to these extreme weather events is low, mostly due to impoverishment. Resource productivity over the years has declined due to low inputs, poor technology, and lack of communication and marketing facilities. Many coastal communities have weak, undiversified and limited livelihoods that rely heavily on unsustainable utilisation of natural resources. Lacking access to other sources of income, subsistence or employment, these communities have few alternatives but to continue to rely on an insecure and rapidly degrading natural resource base. Meanwhile markets for both marine and coastal products remain undeveloped, inaccessible and often distorted, even while the catch is declining due to environmental degradation and over-extraction. Another significant issue in the rural coastal areas is accelerated erosion of coastal land, which threatens the sustenance of coastal agriculture, and built habitats.

13. **Accommodating urban and rural growth and economic needs:** Coastal areas in India today face multiple environmental degradation issues due to ever increasing anthropogenic pressures and over-extraction of natural resources. Between 1981 and 2001AD, the coastal districts of India experienced a population growth of nearly 80 percent. The coast also contains some of the largest and most dense urban agglomerations, including Mumbai (population 16 million, density 21,190 persons/km²), Kolkata (13 million, 24,760 persons/km²), Chennai (6 million, 24,231 persons/km²), Kochi and Visakhapatnam (each with more than 1 million). There are 77 coastal cities, 197 major and minor ports, 308 large-scale industrial units, and several newly established special economic zones. Apart from the pressures related to rapid urbanization, important economic activities in the coastal zones include marine fishing, tourism, coastal and sea bed mining, offshore oil and natural gas production, aquaculture, agriculture, and forestry. These have led to significant increase in demand for infrastructure and exploitation of natural resources.

14. **Degradation of coastal and marine resources and habitats:** The resilience of marine ecosystems has been subjected to great pressure through over-extraction of resources, increased pollution, and physical alterations in coastal ecosystems. Mangroves have been exploited for timber, fuel wood, and other purposes. For about 200 years, large mangrove areas have been cleared for agricultural activities and shrimp farming. In a six year period between 1975 and 1981AD, according to the estimates of the National Remote Sensing Agency, about 70,000ha of mangrove (10 percent of total) were lost. The decline has been partly arrested, but recent estimates show that only about 4,474km² (66 percent of mangrove areas recorded in 1960s) remain. Along with the mangroves, coastal forests have declined in both area and composition as a result of over-harvesting for fuel-wood, construction materials and fodder. There is ample evidence that fish stocks are declining; and

endangered or commercially important marine species such as food fish, aquarium fish, sea cucumbers and corals are fast disappearing. Major issues in coastal fisheries are overfishing, habitat destruction and degradation, pollution, post-harvest damages due to lack of infrastructure, fishing during monsoon, and conflicts between mechanized and traditional artisanal sectors.

15. The northern Indian Ocean is one of the ten global hotspots for threatened coral reef areas. Sixty-one per cent of the coral reef areas in India are threatened due to coral mining, fishing with explosives, sedimentation, oil pollution, removal of reef organisms, anchoring, harbor construction and removal of coral for curio trade. In the early 1980s, reefs in the Gulf of Kachchh were utilized for commercial mining of coral sand (up to 1 million tons per year). Coral reefs off the mainland coast were exploited for extraction of lime. Collection of reef fishes, ornamental shells, sea fans, seaweed, sea cucumbers, spiny lobsters and sea horses continues. Agricultural and industrial runoff, pesticides and oil pollution add to the degradation of mainland reefs.

16. **Cumulative contamination and pollution from sectoral and uncontrolled developments:** Municipal wastewater constitutes the largest single source of marine pollution in India. The cities and towns located in the coastal areas generate 5560 million litres of wastewater per day. Of this only about 521 million litres per day (about 9 percent) are treated before being released to the coastal waters. Agricultural run-off laden with excessive chemicals and pesticides is thought to be huge but has not been estimated. Clearance of upstream land for agriculture has also resulted in sedimentation and siltation, impacting the mangrove and reef areas in particular. A variety of industries, including shrimp farming, tanneries, slaughterhouses and other chemical processes, contribute solid waste and wastewaters to the coasts, often without adequate – or any – treatment. Wastes and sewage from cities and tourism centres are also frequently dumped in the sea and estuarine water bodies. A large proportion of all industrial units of all sizes are located along the coast, including most of the petrochemical complexes and thermal power plants. While coasts are natural location for such industries, poor infrastructure, acute concentration, and lack of integrated planning have resulted in threat to the environment. The MoEF has identified 30 industrial hotspots along the coast, which include Mumbai, Trombay, Okha, Mangalore, Chennai, Tuticorin, Paradip and Visakhapatnam.

17. **Sectoral planning and management in marine and coastal areas is uncoordinated and often conflicting.** There is no integrated approach to planning and management of coastal and marine areas at the national, state or local level. Harmonisation of conservation and development goals is poor, with little coordination between the different sectors that depend on, impact or manage coastal and marine resources. The lack of integration is reflected in a multiplicity of institutional, legal and economic planning frameworks. This has resulted in a series of activities and interventions being carried in coastal and marine areas in isolation from each other, at times resulting in direct conflict between the goals of the different stakeholders and sectors.

18. Rapid development of the shrimp sector during nineties and thereafter required the conversion of flat, coastal lands to shrimp ponds. Shrimp aquaculture has, in the last twenty years, accounted for about 80 percent of the conversion of mangrove land, and 10-12 million litres/day of wastewater discharge to the sea. Mangrove conversion has been undertaken by both small-scale extensive farms and by larger-scale semi-intensive and intensive farms. In the Godavari delta, about 14 percent of the aquaculture farms have been constructed on mangrove lands. The rate of conversion of mangroves into shrimp ponds increased in the period 1997 to 1999, suggesting that shrimp pond construction started in fallow and croplands but then encroached on mangroves in the absence of suitable fallow land. Shrimp aquaculture production increased from 30,000 tonnes in 1990 to 102,000 tonnes in 1999, primarily driven by the high profitability of shrimp farming and attracted a wide range of investors.

19. **Lack of integrated planning of economic infrastructure:** India has 14 major and 185 minor/intermediate ports and many more are in pipeline. While each of them might be constructed or expanded carefully, the lack of integrated planning has unintended impacts on geomorphological setting of the coasts. Near some of the ports, the shoreline has receded by about 500m with respect to the original shoreline as measured in 1876. Seawalls constructed to prevent further erosion resulted in undermining of the seabed, leading to large waves that affect the coast. Construction of a smaller port, near the Pulicat lagoon required dredging of 14 million m³ of seabottom, the spoil of which was deposited on-shore, reportedly closing the mouth of the lagoon. Elsewhere, unplanned development of tourism infrastructure has resulted in large-scale beach and dune erosion; increased stress on local freshwater availability, and in a few cases destruction of coastal habitats. Construction of irrigation works and causeways on coastal estuaries is a growing concern. At a number of places, such as the Vembanad Lake, estuarine systems are being transformed into freshwater systems, which is counterproductive to the needs of much of coastal population in the long term. New investments over US\$ 2 billion per year in construction of offshore and near-shore platforms and pipelines – while all critical component of national economy – have also increased the threats of oil-spill and ballast water pollution.

20. **Legal and policy frameworks are not adequately implemented:** Although a number of laws have been enacted and rules and regulations promulgated for the management and protection of coastal and marine environment, their enforcement has been ineffective, and in many cases laws are partial or incomplete. Legal frameworks remain, for the most part, based on command and control measures which are costly and difficult to enforce given the limited institutional capacity and budget constraints. Economic instruments are used more in support of development ignoring conservation objectives. Adequate funds and effective financing mechanisms are lacking, both for the public agencies who are mandated with development and conservation in coastal and marine zones, as well as for the resource users and local communities who bear many of the indirect costs of maintaining a healthy environment. As a result there are few concrete incentives for local communities, resource users and land managers to promote sustainable and integrated development and conservation in coastal and marine areas.

21. **Lack of involvement of relevant stakeholders in natural resource management:** Planning and management of coastal and marine environments for both development and conservation tends to be dominated by the goals and objectives of economic development, and mainly include central and state decision-makers, urban populations and commercial sectors. Local communities and their needs are frequently marginalized in these processes – at the cost of both the natural environment and the livelihoods of the poor communities who depend on them. While the need to mobilize local participation and support is recognized at the policy level, there is a significant gap between these statements of intent and actual practice. Studies point out that government agencies are slow to share information, either due to a lack of formal mechanisms or as a result of institutional culture.

22. **Lack of adequate capacity, skill and knowledge in managing coastal zones:** The organizations and institutions responsible for managing coastal and marine areas do not have adequate capacity to address issues of marine and coastal conservation, sustainable livelihoods, economic development and disaster management in a holistic manner. Most coastal zone planners, environment agencies, and the managers in the sectors whose activities have an impact on the coastal and marine environment have little understanding of these impacts created, or of the possible benefits of coordinated joint actions. There is an insufficient knowledge base in the country to understand and manage direct, indirect and cumulative impacts on the environment, and few if any mechanisms for sharing information on national and international best practice. This is exacerbated by the scarcity of

technical and scientific data on the geomorphology, biophysical or socio-economic situations and changes along the coasts.

23. **Climate change induced risks to coastal communities and infrastructure:** According to the Intergovernmental Panel on Climate Change (IPCC), Asia will be one of the most severely affected regions of the world as a result of “business-as-usual” global warming. India is likely to have increased exposure to extreme events, including cyclones and tropical storms, floods, and severe vector-borne diseases. Sea level rise may cause large-scale inundation along the coastline and recession of flat sandy beaches. The ecological stability of mangroves and coral reefs may be at risk.

24. A number of studies note a significant acceleration in sea level rise in Asia, an average rise of 3.1mm/year over the past decade, compared with 1.7–2.4mm/year over the 20th century. There has also been an increase in the frequency and intensity of extreme weather events. A number of studies in the region have explored linkages among the observed changes in mean climate variables, extreme weather events, and changes in biophysical and human systems. The IPCC estimates that even under its most conservative scenario, sea levels in 2100 will be about 40 centimeters higher than today, which will cause flooding in the coastal areas in Asia, effecting 80 million people, the majority of which will be in India. A sea level rise of 1 meter would flood nearly 6,000 km² in India. By including the effect of ice-sheet dynamics, other studies suggest a 3–5m rise in sea levels by 2100. Such an increase, if probable, would have a devastating impact on the region. The large coastal cities such as Mumbai and Kolkota are at average elevations of 2–10m above the mean sea level. Overall, some 63 million people live in urban areas in low-elevation coastal zones, and 31 million of them in cities larger than 5 million in population. A 3–5m rise in average sea level could effectively de-urbanize the region along the coast. Whether the eventual sea level rise is about the damaging 40cm or the devastating 3–5m, a large urban and rural population will be affected. Significant numbers of people will likely migrate toward large urban settlements in the interior of the country rather than get dispersed in the hinterland of existing coastal cities. Further, the large infrastructure investments in ports, industries and other facilities in the coastal areas will be at greater risk due to rising sea levels.

25. Sea level rise will affect the coastal zone in multiple ways, including inundation and displacement of wetlands and lowlands, coastal erosion, increased coastal storm floods, increased salinity in estuaries and freshwater aquifers, alteration of tidal ranges, as well as changes in sediment and nutrient transport. Rapid urbanization has led to the enlargement of natural coastal inlets and dredging of waterways for navigation, port facilities, and pipelines, exacerbating saltwater intrusion into surface and ground waters. The areas protected by mangroves, deltas, low-lying coastal plains, coral islands, sand beaches, and barrier islands are less likely to be impacted by sea level rise compared to the built-up areas. However, these areas and resources are already under stress. Most of the sandy beaches are eroding; the sand dunes are disappearing mainly due to reduced supply of freshwater and sediments in the coastal estuaries. This degradation will aggravate climate-change-induced sea level rise by increasing shoreline retreat or by coastal flooding.

26. The most vulnerable communities will include those with maximum exposure to these stresses, as well as those with the least capacity to respond and recover. Physical changes are likely to take place in abrupt, nonlinear ways as thresholds are crossed. The least resilient communities—for example, those dependent on subsistence fishing—will be the first to experience “tipping points” in their life systems; they will have little choice but to abandon their homes and search for better prospects elsewhere.

27. The combination of extreme climatic and nonclimatic events has already caused coastal flooding resulting in substantial losses and fatalities. Between 1981 and 1990, 262 cyclones occurred in a 50 km wide strip of Indian coasts, resulting in massive destruction of life and property. The

frequency of cyclonic events (especially during November, the month of severe cyclones) has increased by 25 percent in the Bay of Bengal and by 100 percent over the north Indian Ocean over a period of about 100 years (1877–1998). Salt water from the Bay of Bengal is reported to have penetrated 100 kilometers or more inland along tributary channels during the dry season. Climate change has the potential to exacerbate water resource stresses on all Indian coasts, affecting agriculture through declining production, as well as through reductions in arable land area and food supplies for fish. Climate change also poses substantial risks to human health. Empirical studies project that in India, a larger population will be at risk of dengue fever.

The Institutional and Policy Setting for Coastal Zone Management

28. **Overlapping and multiple institutions:** Roles and responsibilities for conservation, development and management of the coastal areas in India are extremely fragmented, and lack a robust coordination mechanism. At the national level, the following 15 GoI ministries have allocated responsibilities:

- (a) The Ministry of Environment and Forest - for implementation of CRZ notification, the EIA notification, and the Environment (Protection) Act. As part of the Ministry, the Central Pollution Control Board sets regulatory norms on coastal pollution;
- (b) The Department of Ocean Development – for forecasting the monsoons and other weather/climate events, earthquakes, tsunamis;
- (c) The Ministry of Agriculture – for managing coastal fisheries and aquaculture;
- (d) The Coast Guards, Ministry of Defence – for managing oil pollution, preventing poaching;
- (e) The Ministry of Commerce – for managing development of marine products, and the special economic zones;
- (f) The Ministry of Surface Transport – for managing the ports and harbors;
- (g) The Ministry of Tourism for development of tourism;
- (h) The Ministry of Rural Development – for implementation for poverty alleviation, employment generation, infrastructure development and social security programs;
- (i) The Ministry of Tribal Affairs – for integrated socio-economic development of the most under-privileged sections of the society;
- (j) The Ministry of Urban Development - for town and country planning, provision of urban infrastructure, and for urban waste management;
- (k) The Ministry of Industries – for setting up of industrial units, and for attracting industrial investment in coastal areas;
- (l) The Ministry of Mines – for regulating coastal and offshore mining;
- (m) The Ministry of Home – for coordinating and supporting disaster management planning and activities;
- (n) The Ministry of Petroleum and Natural Gas – for regulating exploration and exploitation of oil and natural gas; and,
- (o) The Ministry of Chemicals and Fertilizers – for regulating storage of chemicals and fertilizers in the ports.

29. Similarly, at the state or union territory levels, a very large number of agencies (sometimes as high as 50 agencies every state) are involved in the development activities in the coastal zones. Most or all of the activities are sector focused, at times with conflicting objectives and outcomes. The only coordinating mechanism, howsoever incomplete is the Coastal Regulation Zone Notification of MoEF.

30. The final policy and decision-making bodies for implementing the Coastal Regulation Zone Notification (see paragraph 35 below) are the National Coastal Zone Management Authority (NCZMA), and the thirteen state or union territory level coastal zone management authorities (SCZMAs). Each of these authorities has nine members, four from the national/state/union territory government, four independent experts, and one NGO member. The authorities normally meet twice a year, mostly to review applications for clearance and exemption. The MoEF and state departments of environment provide the secretariats of the NCZMA and SCZMAs, respectively.

31. **National policies relevant for coastal and marine area management:** The various policy statements related to conservation and development of coastal and marine resources in India include the Deep Sea Fishing Policy, 1991 (to regulate operations of Indian fishing vessels in the Indian EEZ – currently under reconsideration); the Marine Fishing Policy, 2004 (to achieve sustainable development of marine fishery, and to ensure livelihood security of artisanal fisherpersons); the National Forest Policy, 1988 (to ensure environmental stability and maintenance of ecological balance in management of forests); the National Wildlife Action Plan, 1983, revised 1988 (for strategies and action points for wildlife conservation); and the National Water Policy, 1987, revised 2002 (recognizes that water resources development should be planned for hydrological units; and the need for environmental flows).

32. Of particular relevance is the **National Environment Policy, 2006 (NEP)**, which stresses the need for an integrated approach to coastal environmental regulation, and preparation of ICZM plans. The NEP recognizes the need for technical and financial support for the states for preparation of ICZM plans. The NEP recommends decentralization to the state level environmental authorities, to the extent feasible, the clearance of specific projects and exemption of activities that do not cause significant environmental impacts, and which are consistent with approved ICZM plans. The NEP also recommends (i) mainstreaming sustainable management of mangroves into the forestry sector regulatory regime, ensuring that they continue to provide livelihoods to local communities; (ii) dissemination of available techniques for regeneration of coral reefs, and support for activities based on application of such techniques; (iii) explicit consideration of sea-level rise and vulnerability of coastal areas to climate change and geological events, in coastal management plans, as well as in infrastructure planning and construction norms; (iv) adoption of a comprehensive approach to integrated coastal management by addressing linkages between coastal areas, wetlands, and river systems, in relevant policies, regulation, and programs; and, (v) development of a strategy for strengthening regulation, and addressing impacts of ship-breaking activities on human health, and coastal and near marine resources.

33. Apart from the above, India is signatory to the following relevant **international conventions and treaties** – the Basel Convention, 1992 (to control shipment of hazardous wastes); the Ocean Policy Statement; the Convention on Migratory Species (covers protection of crocodiles, sharks and turtles); the MARPOL 73/78 (for disposal of the ship based wastes); the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, also known as London Dumping Convention, 1972 (to prevent marine pollution); the Convention on Civil Liability for Oil Pollution Damages, 1969; the Convention on Biological diversity, 1992 (for conservation, sustainable use and sharing benefits of biological diversity).

34. **Relevant sectoral legislation:** There is a multitude of laws governing coastal and marine areas in India. These include the Indian Fisheries Act, 1897 to prevent destruction of fish stock; the Marine Fishing Regulation Act, 1978 for protection of marine fish stock; the Indian Ports Act, 1908 for safety of shipping and conservation of ports; the Major Port Trust Act, 1963 for administration and management of major ports; the Merchant Shipping Act, 1958 for managing shipping wastes; the Coast Guard Act, 1950 for prevention of pollution in coastal waters; the Wildlife Protection Act, 1972 for protection of birds and animals; the Water (prevention and control of pollution) Act; the Air (prevention and control of pollution) Act, the Maritime Zones of India (regulation of fishing by foreign vessels) Act, 1976; the Environment (Protection) Act, 1986, the Environment Impact Assessment Notification, 2006; the Biological Diversity Act, 2002 for conservation, sustainable use, fair and equitable sharing of the benefits and knowledge of biological resources; the National Environmental Tribunal Act, 1995 to compensate for damages from any activity involving hazardous substances, including shipped substances; the Hazardous Wastes (management and handling) Rules to control the generation, collection, treatment, import, storage, and handling of hazardous wastes; the Municipal Solid Waste Rules, 2003; and the National Oil Spill Disaster Contingency Plan, 1996.

35. Of particular relevance is the **Coastal Regulation Zone Notification, 1991**. The directive to regulate development in coastal areas in India, and thereby conserve the coastal resources was first promulgated in 1981. The then Prime Minister issued the directive to (i) keep the beaches free from all artificial development within a ‘zone’ of at least 500m from the high tide line⁹; and (ii) direct industries and towns to absolutely avoid generation and disposal of wastes in this zone. As a follow up, the MoEF issued the Coastal Zone Regulation Notification, 1991. This Notification (CRZ Notification) declared that for the landward side of coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters influenced by tidal action, (i) land between the low tide line and the high tide line, (ii) land located within 500m of high tide line, and (iii) greater of 100-150m or the width of tidal water bodies will constitute the coastal regulation zone (CRZ). Based on geomorphological, ecological and demographic setting, the Notification divided the regulation zone into four sub-zones (known as CRZ I-IV), and stipulated restrictions on development and activities within each sub-zones. Overall, the Notification prevents any development or economic activity in the CRZ unless specified and cleared by the central/state governments. The goal was protection of coastal resources, but not conservation or sustainable development.

36. **Limited success of the regulatory regime:** The CRZ Notification was not fully enforced until 1996, when the Supreme Court of India, based on a public interest litigation directed the GoI to enforce the Notification, directed that coastal zone management authorities be set up at national and state levels, and coastal zone management plans relevant to the provisions of the Notification to be prepared within a period of 6 months. Since 1996, the CRZ Notification has been enforced with varying degree of success, but has become known more for being violated than for compliance.

37. Enforcement of the CRZ notification has helped raise awareness about the need to conserve the coastal areas; protected some traditional rights and livelihood sources of coastal communities; protected some fragile ecosystems; maintained quality of landscape at places; raised awareness about protection from coastal hazards; and to an extent prevented uncontrolled industrialization. On the other hand, there are approximately 1,500 cases of violation under judicial review at present, and reportedly a much larger number of violations not documented yet. Violations have resulted in destruction of mangroves, coral reefs, critical natural habitats, and various construction activities in the “no development” zones.

⁹ The high tide line means the line on the land up to which the highest waterline reaches during the spring tide.

38. The stimuli for these violations come mainly from the “irrational” regulation preventing almost all economic development. The Notification did not provide for any incentive for compliance, or any enforceable disincentive for violation. Without an adequate enforcement mechanism, the only remedy being police action (and seen to be a low priority law and order problem by the states). In the absence of adequate maps, demarcation of regulation zone boundaries is based on individual interpretations and subject to vested interests. Most local and state stakeholders argued that the boundary of the zone for “no-development” or “controlled development” had been determined arbitrarily. In the last 10-15 years, coastal areas that attracted large investment in economic infrastructure, expansion of urban sprawl –sought clearances from State/Central Government. Promoters argue that many of the economic infrastructure, such as ports, coastal mining, tourism facilities, fish processing units, warehouses, export oriented industries are so dependent on the seafront that the “no development” regulation is in conflict with national and local economic interest. Apart from the large and commercial activities, there has also been persistent demand to create basic infrastructure (roads, buildings, housing) for local communities. Most of these are reportedly permitted, again in an ad hoc manner. The CRZ Notification also did not effectively support conservation of the coastal resources, as the emphasis was on protection, and there was no substantial financing for conservation activities or livelihood security of traditional coastal communities. Overall, the restrictions are seen by many to be irrational or unfair while any attempt to relax the restrictions is opposed by stakeholders who are convinced that such relaxation is arbitrary (and the perception that the decision-making process will not able to guarantee livelihood security of traditional coastal communities).

GoI Coastal Zone Management Reform Agenda and Activities Undertaken

39. Since 1996, there have been demands and suggestions from various stakeholders, Central/ State Governments, local communities, associations and NGOs to amend the Notification for permitting certain activities. To consider these demands, the MoEF constituted seven expert committees between 1996 and 2003. These committees were:

- (a) The B. B. Vohra Committee on issues relating to tourism.
- (b) Prof. N. Balakrishnan Nair Committee on issues relating to Kerala Coastal Regulation Zone.
- (c) Fr. Saldanha Committee (I) to advise on withdrawal of ground water and extraction of sand in Andaman & Nicobar Islands
- (d) Fr. Saldanha Committee (II) to examine specific issues relating to CRZ
- (e) The D. M. Sukthankar Committee (I) to examine the issues relating to Mumbai and Navi Mumbai
- (f) The D.M. Sukhtankar Committee (II) to prepare a National Coastal Zone Policy of India (NCZP); and
- (g) Dr. Arcot Ramachandran Committee on Ocean Regulation Zone.

40. Based on the recommendations of the committees, the MoEF had amended the CRZ Notification from time to time. In five such cases, the amendments were nullified by the High Courts or the Supreme Court of India. The Courts instead recommended a systematic approach to amending the Notification, rather than case-by-case amendments.

41. **Prof. M.S. Swaminathan Committee Report, 2005:** In July 2004, following the Prime Minister’s Office’s (PMO) recommendations, the MoEF constituted an Expert Committee, named after its Chairman Prof. M.S. Swaminathan, to carry out a comprehensive review of the CRZ

Notification, taking into account the findings and recommendations of previous committees, judicial pronouncements, and representations of various stakeholders, and to suggest suitable amendments. The basic understanding underlying the expert committee's approach was that management of coastal zones is essential to the social and economic development of the country. The national policy is to accelerate growth and development in the coastal zone, without compromising the unique collection of natural resources, and preventing destruction of life and properties. The 2004 tsunami further underlined the need for planning and management of coastal areas, proportionate to the need of the country.

42. **Recommendations of the Swaminathan Committee:** The Swaminathan Committee recommended twelve guiding principles for management of coastal and marine areas: (i) ecological, cultural, livelihood and national security; (ii) integration of sea bed and landward areas; (iii) participatory and sustainable coastal zone management; (iv) protection and sustainable development of the marine and coastal environment and resources; (v) scientific and ecological principles and safeguarding natural and cultural heritage; (vi) precautionary approach for potential threats of serious or irreversible damage to ecologically fragile critical coastal systems and to living aquatic resources; (vii) non-acceptance of significant or irreversible risks and harm to human health and life, critical coastal systems and resources including cultural and architectural heritage; (viii) gender and social equity as well as intra-generational and inter-generational equity; (ix) 'polluter-pays' principle(s) and 'public trust' doctrine; (x) application of principles contained in the Biodiversity Act 2002; (xi) implementation of actions yielding short and long-term ecological and livelihood benefits; and (xii) cohesive, multi-disciplinary approaches.

43. **Recommended ICZM process:** To operationalize the above guiding principles, the Swaminathan Committee recommended that India adopt ICZM, with objectives to protect, with people's participation, the livelihood security of the coastal fisher and other communities and the ecosystems which sustain productivity of the coastal areas while promoting sustainable development that contributes to the nation's economy and prosperity.

44. The committee recommended that for the purpose of management, the coastal zone include marine areas within the territorial waters. In the recommendations, the coastal management zone will be divided into four zones. Coastal Management Zone I (CMZ-I) will include all environmentally sensitive areas, irrespective of its current legal protection status. CMZ-I areas will be protected from anthropogenic impacts; and based on ICZM plans, will be conserved. CMZ-II will consist of high population areas; economically, strategically or culturally important areas. CMZ-III will consist of all other open mainland coasts. CMZ-II and CMZ-III will be managed by local self government agencies, based on ICZM plans. CMZ-IV are all island ecosystems, and will be managed by a partnership between GoI and the union territories, again as per ICZM plans. As the basis for zoning, the committee recommended scientific studies to map vulnerability and ecological sensitivity of the coastal areas. It also recommended that the MoEF prepare and notify a new policy for sustainable and integrated coastal zone management to replace the CRZ Notification 1991. On the institutional part, the Swaminathan Committee recommended (i) strengthening of the NCZMA and SCZMAs for policy and decision-making, and to support the process of preparation and implementation of ICZM plans; (ii) establishing a separate division in the MoEF for coastal zone management in the country, and providing technical support to NCZMA; and (iii) establishing a new national institute for sustainable coastal zone management to support the decision-making processes with requisite knowledge products and information services.

45. GoI accepted the Swaminathan Committee Report in 2006, and mandated the MoEF to implement the recommendations, including initiating the process of replacing the CRZ Notification, with an appropriate coastal zone management notification.

46. **Draft Coastal Zone Management Notification:** The MoEF is mandated by the PMO to revise the Coastal Regulation Zone Notification in light of the findings and recommendations of the Swaminathan Committee and to implement the recommendations of the Report. A draft Notification titled *Coastal Zone Management* was posted on the MoEF website for public discussion by in 2007, and a revised draft in 2008 (revisions based on comments from GoI ministries, state governments, NGOs and experts).

47. MoEF informed that about 10,000 comments were received on the revised draft notification. In parallel, MoEF organized (i) meetings with all coastal states; and (ii) a national level discussion with NGOs. A Parliamentary Committee had visited the coastal states during November-December 2008, and discussed the notification with a large variety of stakeholders, including state governments, NGOs, fisherpersons' associations, and other local communities.

48. Based on these consultations, MoEF constituted an experts committee¹⁰ in July 2009, recommended that MoEF to (i) allow the then current draft of the to lapse; and (ii) to draft a revised notification keeping intact ecological protections provided by the CRZ Notification and adding suitable amendments taking into account the new challenges likely to arise from climate change-induced sea level rise, and the growing pressure of population on coastal resources and biodiversity.

49. MoEF, in agreement with the expert committee, is currently responding to the need of suitable amendments for a revised draft notification, taking into consideration the diverse and large number of suggestions that they have received for an equally diverse set of stakeholders. Once MoEF finalizes the revised draft notification, consultation with the different GoI and State level stakeholders will take place. Final Notification is expected by end of CY2010 under the Environment (Protection) Act, 1986. Overall, the Notification is a sovereign process of the union and the states, and the processes, albeit slow, are accepted as just and fair.

50. At the beginning of the preparation period of the current project, MoEF and the project states were adequately aware that (a) the regulation in force – the CRZ Notification had only limited success and compliance, the National Environmental Policy 2006 has proposed adoption of ICZM approaches for managing and conserving the coastal and marine resources; (b) at the behest of PMO and the expert committees MoEF is interested to bring in a adequately new regulation; and (c) that the process of replacing the previous CRZ Notification by a new notification could be long. Therefore, the project has been designed carefully, with each activity contributing to the larger goal of moving forward to a sustainable integrated management approach from the pure regulatory approach currently at place, but at the same time compliant with the CRZ Notification. The development objective of the project is to support building national capacity including institutional capacity and knowledge to be able to sustainably manage the coasts of India in future. These capacity, institutions and knowledge can be created without any needed change in CRZ Notification. Therefore even if the proposed modifications in the CRZ Notification are not issued in the immediate future, the project development objective will still be achieved. Nonetheless in the long run, suitable modifications to the Notification in consultation with all stakeholders will help expanding impacts of the project.

¹⁰ Consisting of Prof. Swaminathan as the chair; and Ms. Sunita Narain (Director, Center for Science and Environment), Dr. Shailesh Nayak (Secretary, Ministry of Earth Sciences), and Mr. J. M. Mauskar (Additional Secretary, MoEF) as members.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

INDIA: Integrated Coastal Zone Management Project

Note: This project will be the first Bank-financed ICZM in the region; and there had been no similar project financed by any other agency in India. However, this project incorporated lessons from other projects which (a) had some coastal zone management related activities; or (b) were environmental sector projects including activities related to conservation of natural resources. The following table summarizes these projects.

| Project Name | Objective/Description | Status | OED Review Rating |
|--|--|--------------------------|---------------------------|
| Andhra Pradesh Hazard Mitigation Project (1997-2003) US\$125 million | (i) Assist Government of AP in preparing and implementing a long term hazard management program in high risk areas and with enhanced community participation; (ii) Restore public infrastructure lost in the 1996 disaster, according to hazard resistant criteria; and (iii) Enhance the capacity of GoI in early cyclone warning. | Completed in 2003 | Moderately Unsatisfactory |
| Orissa Emergency Cyclone Restoration Project (Bank finance US\$46 million) | Emergency response to the Super Cyclone in Orissa in 1999, by reallocating a portion of the funds from the then ongoing Orissa Water Resources Consolidation Project. | Completed in 2004 | Satisfactory |
| Gujarat Emergency Earthquake Reconstruction project (Bank finance US\$348 million) | To assist in implementing the medium term disaster management strategy including undertaking emergency management activities, hazard management and risk transfer activities, and development of disaster management institutions. | Completed in 2005 | Satisfactory |
| Emergency Tsunami Reconstruction Project (Bank finance US\$465 million) | To assist the states of Tamil Nadu and Puducherry to reconstruct housing, public buildings and basic amenities, and to restore livelihood impacted by the 2004 Tsunami. The project has been restructured in 2009 with objectives of reviving livelihoods and promoting recovery in the Tsunami-affected areas in the short-term and of reducing the vulnerability of coastal communities to natural hazards over the longer term. | Expected completion 2011 | Marginally Satisfactory |
| Environmental Capacity Building Project (Bank financing US\$60 million) | To assist the GoI to implement the environmental priorities outlined in the Environmental Action Plan of India. | Completed in 2004 | Moderately Satisfactory |
| Industrial Pollution Prevention project | To promote cost effective pollution abetments from industrial sources. | Completed in 2002 | Moderately Satisfactory |

Annex 3: Results Framework and Monitoring

INDIA: Integrated Coastal Zone Management Project

Results Framework

| PDO | Project Outcome Indicators | Use of Project Outcome Information |
|--|--|--|
| To assist GoI in (i) building national capacity for implementation of comprehensive coastal management approach in the country, and (ii) piloting the integrated coastal zone management approach in states of Gujarat, Orissa and West Bengal | <ol style="list-style-type: none"> 1. Existence of an appropriate national institutional structure for guiding and coordinating implementation of ICZM approaches¹¹ 2. “Knowledge Benchmarks”¹² showing improvement according to end-users of knowledge services 3. Number of pilot ICZM activities demonstrating cross-sectoral and spatial integration completed 4. Number of other ICZM Plans initiated to replicate the lessons learnt | <ul style="list-style-type: none"> - To measure progress on strengthening the institutional framework for guiding and coordinating ICZM in India. - To assess the impact of project interventions for integrated development and conservation of coastal zones in India. |

| Intermediate Outcomes | Intermediate Outcome Indicators | Use of Intermediate Outcome Monitoring |
|--|---|---|
| <p>Component One (National)</p> <ul style="list-style-type: none"> - National Capacity Built for guiding and coordinating ICZM - Coastal Management Areas Demarcated and Verified | <p>Component One:</p> <ol style="list-style-type: none"> 1. Institutional development plan for MoEF for coordination and implementation of ICZM approaches prepared and approved 2. Percentage of staffing at MoEF completed as per institutional development plan 3. Percentage of planned funds disbursed for planned ICZM knowledge activities by the National Center for Sustainable Coastal Management annually 4. Cumulative percentage planned funds utilized as per the national level training plan 5. Kilometer of mainland coastline for which coastal sediment cell, hazard line and ecologically sensitive areas mapped and demarcated | <p>Component One:</p> <p>To measure progress; to record, discuss with clients and agree on corrective measures</p> |
| <p>Component Two (Gujarat):</p> <p>Gujarat state and other stakeholder’s capacity built in implementing ICZM approaches</p> | <p>Component Two:</p> <ol style="list-style-type: none"> 1. ICZM plan for Gulf of Kachchh prepared using the designed participatory process, and approved 2. Percentage planned funds disbursed for implementation of the Gujarat state ICZM capacity building plan 3. Number of pilot investments planned, implemented as per the planned ICZM approach, and efficiently functioning 4. Stakeholder workshops organized to agree on the incorporation of lessons learnt from evaluation of implementation of the pilot investments | <p>Component Two:</p> <p>To measure progress; to record, discuss with clients and agree on corrective measures</p> |

¹¹ For detailed explanation of the institutional development indicator (a set of benchmarks), see Annex 3A.

¹² For detailed explanation of knowledge development indicators (a set of benchmarks), see Annex 3B.

| Intermediate Outcomes | Intermediate Outcome Indicators | Use of Intermediate Outcome Monitoring |
|--|---|---|
| <p>Component Three (Orissa): Orissa state and other stakeholder's capacity built in implementing ICZM approaches</p> | <p>Component Three:</p> <ol style="list-style-type: none"> 1. ICZM plan for Paradip-Dhamra and Gopalpur-Chilika prepared using the designed participatory process, and approved 2. Percentage planned funds disbursed for implementation of the Orissa state ICZM capacity building plan 3. Number of pilot investments planned, implemented as per the planned ICZM approach, and efficiently functioning 4. Stakeholder workshops organized to agree on the incorporation of lessons learnt from evaluation of implementation of the pilot investments | <p>Component Three:</p> <p>To measure progress; to record, discuss with clients and agree on corrective measures</p> |
| <p>Component Four (West Bengal): West Bengal state and other stakeholder's capacity built in implementing ICZM approaches</p> | <p>Component Four:</p> <ol style="list-style-type: none"> 1. ICZM plan for the West Bengal Coast prepared using the designed participatory process, and approved 2. Percentage planned funds disbursed for implementation of the West Bengal state ICZM capacity building plan 3. Number of pilot investments planned, implemented as per the planned ICZM approach, and efficiently functioning 4. Stakeholder workshops organized to agree on the incorporation of lessons learnt from evaluation of implementation of the pilot investments | <p>Component Four:</p> <p>To measure progress; to record, discuss with clients and agree on corrective measures</p> |

Arrangements for results monitoring

| Project Outcome Indicators | Baseline | Target Values | | | | | Data Collection and Reporting ¹³ | | |
|---|-----------------------------------|---------------|-----|-----|-----|-----|---|---|------------------------------------|
| | | YR1 | YR2 | YR3 | YR4 | YR5 | Frequency and Reports | Data Collection Instruments | Responsibility for Data Collection |
| 1. Existence of an appropriate national institutional structure for guiding and coordinating implementation of ICZM approaches ¹⁴ | Not Applicable | - | - | 1 | 1 | 1 | Quarterly, starting from YR3 | Progress report. Mission meetings/ findings | NPMU |
| 2. “Knowledge Benchmarks” are shown to be of high value to end users of knowledge services (provided by the National Center for Sustainable Coastal Management and related network) ¹⁵ | Baseline to be established in YR1 | - | 2 | - | 6 | 10 | every two years plus closing | Special feedback / evaluation reports and web-based surveys | NPMU |
| 3. Number of pilot ICZM activities demonstrating cross-sectoral and spatial integration completed (cumulative) | 0 | - | 0 | 2 | 5 | 8 | Quarterly after MTR | Progress reports, Mission Reviews | SPMUs and NPMU |
| 4. Number of other ICZM Plans initiated to replicate the lessons learnt (cumulative) | Not Applicable | - | - | 1 | 2 | 3 | Quarterly after MTR | Compilation of relevant government letters | SPMUs and NPMU |
| Intermediate Outcome Indicators: Component One (National) | | | | | | | | | |
| 1. Institutional development plan for MoEF for coordination and implementation of ICZM approaches prepared and approved | Not Applicable | | 1 | - | - | - | Quarterly till approval of Plan | Progress Report, Mission reviews | NPMU |
| 2. Percentage of staffing at MoEF completed as per institutional development plan ¹⁶ | 10 | 20 | 40 | 70 | 75 | 80 | Quarterly | Progress report | NPMU |

¹³ Agreed in consultation with National and State Project Preparation Cells

¹⁴ A series of Institutional Benchmarks (IB) is defined and will be refined. Provisional IBs are listed in the Annex 3A.

¹⁵ Ten Knowledge Benchmarks (KB) will be identified and baseline developed in Year 1 and performance monitored during implementation that relate to explicit performance targets for the knowledge services provided by various institutions in India. These will include no more than three explicit outputs (e.g., publications, trained professionals) and will focus mainly on responses to “satisfaction surveys” of stakeholders and end-users of ICZM knowledge services. At least one benchmark will relate to policy impact to demonstrate the extent to which knowledge services are integrated into decision-making. See preliminary Terms of Reference for Knowledge Benchmark Development: Consultancy Services in Annex 3B.

¹⁶ MoEF staffing indicators are targeted to a maximum of 80 percent to accommodate potential vacancies in existing or new posts. In initial years targets are considerably lower (20 percent and 40 percent) to reflect likely existence of an unfilled staffing structure as qualified people are recruited or trained using standard Government procedures.

| Project Outcome Indicators | Baseline | Target Values | | | | | Data Collection and Reporting ¹³ | | |
|--|------------------------------|---------------|------|------|------|-----|--|--|-------------------------------------|
| | | YR1 | YR2 | YR3 | YR4 | YR5 | Frequency and Reports | Data Collection Instruments | Responsibility for Data Collection |
| 3. Percentage of planned funds disbursed for planned ICZM knowledge activities by the National Center for Sustainable Coastal Management | Not Applicable ¹⁷ | 10 | 20 | 50 | 80 | 100 | Quarterly | Progress report | NPMU |
| 4. Cumulative percentage planned funds utilized as per the national level training plan | Not Applicable | 10 | 40 | 70 | 90 | 100 | Quarterly | Progress report | NPMU |
| 5. Kilometer of mainland coastline for which coastal sediment cell, hazard line and ecologically sensitive areas are mapped and delineated ¹⁸ | 0 | 100 | 1000 | 2500 | 5500 | - | Quarterly | Progress report | NPMU |
| Intermediate Outcome Indicators: Component Two (Gujarat) | | | | | | | | | |
| 1. ICZM plan for Gulf of Kachchh prepared using the designed participatory process, and approved | 0 | - | - | - | 1 | - | Quarterly starting YR2; Annual evaluation from YR2 | Progress report; Annual project evaluation reports (M&E Consultants) | SPMU and SPMU appointed consultants |
| 2. Percentage planned funds disbursed for implementation of the Gujarat state ICZM capacity building plan | Not Applicable | 30 | 50 | 75 | 80 | 90 | Quarterly | Progress report | SPMU |
| 3. Cumulative number of pilot investments planned, implemented as per the planned ICZM approach, and efficiently functioning (7 investments) | 0 | - | 0 | 2 | 3 | 5 | Quarterly | Progress report | SPMU and PEAs |

¹⁷ National Institute Indicators are targeted for 80 percent just after mid-project. An initial target of 10 percent in Year 1 reflects an expectation that initiation of knowledge activities (consequent to rapid recruitment and mobilization) is possible as follow-on from existing planning activities under the PPF.

¹⁸ Definitions of Hazard Line and Ecologically Sensitive Areas (ESAs) are as defined through project activities in Component One; definitions have been prepared under PPA. PEA is obliged to provide 100 km of initial mapping of hazard line as a key deliverable for MoEF review. Subsequent targets in effect reflect three pilot states mapped by project mid-term and all country mapped by year 4. Currently no such lines are mapped, due to lack of topographic data at the required resolution - hence the baseline is "Zero". For ESAs, a current draft - prepared via PPA - of what constitutes an ESA is currently under review. Currently no such areas are mapped hence baseline value is "Zero". Pace of mapping is the same as hazard line. Coastal sediment cells have been described but never mapped, hence the baseline is "Zero". All mapping (5500 km) is expected to be completed before project mid-term, with priority coastal areas in project's pilot states by first year (1000km). The demarcation on ground will continue and be completed by the end of the Project.

| Project Outcome Indicators | Baseline | Target Values | | | | | Data Collection and Reporting ¹³ | | |
|--|----------------|---------------|-----|-----|-----|-----|---|--|-------------------------------------|
| | | YR1 | YR2 | YR3 | YR4 | YR5 | Frequency and Reports | Data Collection Instruments | Responsibility for Data Collection |
| 4. Stakeholder workshops organized to agree on the incorporation of lessons learnt from evaluation of implementation of the pilot investments | Not Applicable | - | 1 | 2 | 3 | 4 | Annual evaluation reports from YR2 | Annual project evaluation reports; workshop reports | SPMU appointed consultants |
| Intermediate Outcome Indicators: Component Three (Orissa) | | | | | | | | | |
| Component Three (State Support – Orissa): 1. ICZM plan for Paradip-Dhamra and Gopalpur-Chilika prepared using the designed participatory process, and approved | 0 | - | - | - | 1 | - | Quarterly starting from YR2 Annual evaluation reports from YR2 | Progress report Annual project evaluation reports (M&E Consultants) | SPMU and SPMU appointed consultants |
| 2. Percentage planned funds disbursed for implementation of the Orissa state ICZM capacity building plan | Not Applicable | 30 | 50 | 75 | 80 | 90 | Quarterly | Progress report | SPMU |
| 3. Cumulative number of pilot investments planned, implemented as per the planned ICZM approach, and efficiently functioning (9 investments) | 0 | - | 0 | 2 | 4 | 6 | Quarterly | Progress report | SPMU and PEAs |
| 4. Stakeholder workshops organized to agree on the incorporation of lessons learnt from evaluation of implementation of the pilot investments | Not Applicable | - | 1 | 2 | 3 | 4 | Annual evaluation reports from YR2 | Annual project evaluation reports; workshop reports | SPMU appointed consultants |
| Intermediate Outcome Indicators: Component Four (West Bengal) | | | | | | | | | |
| Component Four (State Support – West Bengal): 1. ICZM plan for the West Bengal Coast prepared using the designed participatory process, and approved | 0 | - | - | - | 1 | - | Quarterly starting from YR2; Annual evaluation reports from YR2 | Progress report Annual project evaluation reports (M&E Consultants) | SPMU and SPMU appointed consultants |
| 2. Percentage planned funds disbursed for implementation of the West Bengal state ICZM capacity building plan | Not Applicable | 30 | 50 | 75 | 80 | 90 | Quarterly | Progress report | SPMU |

| Project Outcome Indicators | Baseline | Target Values | | | | | Data Collection and Reporting ¹³ | | |
|---|----------------|---------------|-----|-----|-----|-----|---|---|------------------------------------|
| | | YR1 | YR2 | YR3 | YR4 | YR5 | Frequency and Reports | Data Collection Instruments | Responsibility for Data Collection |
| 3. Cumulative number of pilot investments planned, implemented as per the planned ICZM approach, and efficiently functioning (9 investments) | 0 | - | 0 | 2 | 4 | 6 | Quarterly | Progress report | SPMU and PEAs |
| 4. Stakeholder workshops organized to agree on the incorporation of lessons learnt from evaluation of implementation of the pilot investments | Not Applicable | - | 1 | 2 | 3 | 4 | Annual evaluation reports from YR2 | Annual project evaluation reports Bank Participation in Workshops | SPMU appointed consultants |

Notes on similarity of indicators for all three state level components (Components Two, Three and Four):

- (a) All states have a similar set of indicators as all are essentially starting from Baseline conditions of “Not Applicable” or “Zero” in terms of ICZM capacity. The project seeks to monitor similar institutional indicators in each state.
- (b) Target values for state capacity building plans reflect a slow build-up corresponding to potential start-up delays but achievement of 75 percent of funding targets by mid-term.
- (c) The number and type of potential pilot investment projects varies by state and the targets also thus vary. These investments are described in greater detail in PAD Annex 4. No pilot is in fact expected to be fully functioning efficiently before end of Year 3, although ISRs will also track potential intermediate steps (planned, implemented). In each state, a target of 2 pilots is expected to be operating efficiently by end of Year 3, with gradual progression thereafter. Note that full “efficient functioning” is not expected by all pilots by end of project because some may still at that stage be in different stages of implementation. Through this means, Orissa and West Bengal in effect have 67 percent of their potential projects functioning (6 of 9) while in Gujarat some 85 percent will be functioning by end of project (5 of 7). This in effect sets the performance target for Gujarat higher, as it also generally has intrinsically more local capacity.

Institutional Benchmarks

Background

1. The first indicator of the PDO reads as “Existence of an appropriate national institutional structure for guiding and coordinating implementation of ICZM approaches”. The intent of this indicator is to capture the ability of national level systems to implement ICZM. The existence of such an institutional structure consists of multiple elements. We term these elements “Benchmarks” to provide a verifiable basis for the existence of such an institutional structure.
2. Within the context of this project, a number of these necessary elements have been identified and ALL are necessary for the structure to be regarded as “appropriate”. Absence of any one of these elements indicates that this objective has not been achieved.
3. In the following IBs, there are a total of 6 different benchmarks associated with 4 specific institutional bodies or structures. Although the 4 institutional bodies are explicitly named here, it is acknowledged that the names may change during project delivery. In principle, the benchmark seeks to verify the FUNCTION of these institutions and once the function has been adequately established (in whatever name), then the benchmark has been achieved.

Baseline

4. The Baseline value of the indicator as a whole is “not applicable” because at project start most of these institutions are not formally in place. The exception to this is that there are some state level Coastal Zone Management Authorities (SCZMAs) operational but the project will need to monitor the continued development and functioning of these SCZMAs. If their function becomes undermined then it indicates a weakening of national structures.

Provisional Benchmarks

5. The following benchmarks will be used:
 - (IB-1a) Existence of a National Board or similar entity for Coastal Zone Management (“CZM Board”). The CZM Board has the general function of guiding National CZM policy through MoEF. It is composed of representatives from various organizations and technical experts. Its existence is recognized upon promulgation of any legislation that refers to this body (or any such body with equivalent function and composition). Current Status: CZM Board has been proposed by MoEF.
 - (IB-1b) Functioning of CZM Board. The CZM Board will be regarded as functioning if it has sufficient numbers appointed to form a quorum, and if at least [# TBD] meetings occur on a [yearly/quarterly] basis.
 - (IB-2a) Existence of a National Coastal Zone Management Authority (NCZMA). The NCZMA has the general function of monitoring and enforcing compliance with the CRZ Notification. Its existence is recognized upon the formal appointment of the majority of its members and the convening of its first meeting after the new revised notification.
 - (IB-2b) Functioning of NCZMA. The NCZMA will be regarded as functioning if it is meeting on a regular basis (X of times per year) to review proposals referring recommendations to MoEF.

- (IB-3a) Existence of a National Center for Sustainable Coastal Management (NCSCM). This benchmark will be fulfilled upon formal establishment and inauguration of the NCSCM as defined under this project. Its establishment includes appointment of all senior management positions within the organizational structure of the body, and at least six months of operation under the guidance of this management team.
- (IB-3a) Functioning of the NCSCM. This benchmark will be satisfied upon submittal of a detailed work program which would identify its knowledge activities, and capacity building activities for the first twelve months of operation.
- (IB-4) Functioning of State Coastal Zone Management Authorities (SCZMAs). SCZMAs have already been formally established in a number of states, including the focal states of Gujarat, Orissa, and West Bengal which are beneficiaries of this project. This benchmark will be satisfied if and only if these three states are routinely providing input to and interacting with NCZMA through any of the following means: (i) examining proposals in CRZ areas and making recommendations to NCZMA; (ii) reviewing and taking actions on alleged violations of CRZ Notification; (iii) identifying ecologically sensitive and economically important areas in CRZ; and (iv) providing annual reports to NCZMA.

Targets

6. The target for the overall indicator is to have the entire structure in place/functioning by mid-term (Year 3) and that it continues to function in subsequent years. Note that lapses may be possible if the IBs associated with on-going function (IB-1b, IB-2b, IB-4) are not achieved.

Outline Terms of Reference Knowledge Benchmark Development: Consultancy Services

Background

1. Sustainable management of coastal and marine resources is essential to India's economic growth. India's coastal zone is endowed with a wide range of mangroves, coral reefs, sea grasses, salt marshes, sand dunes, estuaries, lagoons, and unique marine and terrestrial wildlife. Up to now, the approach to managing India's coastal zone has been a purely regulatory one, as per the Coastal Regulation Zone (CRZ) Notification of 1991, promulgated under the Environment (Protection) Act of 1986. This approach does not provide room to balance coastal zone conservation and necessary economic growth in the area or seek convergence with other development activities. The 1991 notification prevents, restricts and controls development activities within a landward distance of up to 500m from the high tide line along the coasts. In the last decade, as the pressure of development has been growing, on one side there were large-scale reported violations of the provisions of the notification, and on the other demands from the various economic sectors to rationalize it.

2. The reform agenda for sustaining coastal and marine areas in India is to support participatory, integrated but decentralized planning and management. In July 2004 the Ministry of Environment and Forests (MoEF) constituted the Swaminathan Committee to carry out a comprehensive review of the Coastal Regulation Zone Notification, taking into account the findings and recommendations of previous committees, judicial pronouncements, and representations of various stakeholders, and to suggest suitable amendments. The Committee also had the mandate to make the regulatory framework consistent with well-established scientific principles of coastal zone management and more flexible, depending on the local characteristics of the coastal zone stretches to be protected. The Committee submitted its Report in February 2005, in which it recommended that India needs to adopt integrated coastal zone management (ICZM) approaches with objectives to protect, with people's participation, the livelihood security of the coastal communities and the ecosystems which sustain productivity of the coastal areas while promoting sustainable development that contributes to the nation's economy and prosperity. GoI accepted the Report in 2006, and mandated the MoEF to implement the recommendations, including initiating the process of replacing the CRZ Notification, with an appropriate coastal zone management notification. Besides recommending a shift from regulation to management, the reforms suggested in the Report also included adoption of integrated coastal zone planning as a mechanism for intersectoral collaboration and decision-making; decentralization of management responsibilities to states and local self governments; creation of institutional architecture to foster integrated planning and management; and setting up an appropriate knowledge base for addressing medium and long term issues.

3. The India Integrated Coastal Zone Management Project intends to support activities at the state and national level to address a number of challenges in coastal zone management and planning. The project's development objective (PDO) is to assist GoI in building national capacity for implementation of comprehensive coastal management approach in the country, and piloting the integrated coastal zone management approach in three states.

4. The project consists of four components: a national capacity building component, and state level interventions in Gujarat, Orissa, and West Bengal. A key intervention is the establishment of a National Coastal Zone Management Institute and a series of related services that are intended to improve India's technical knowledge base that informs coastal zone management planning and implementation; it also informs those policies that might influence such planning and implementation. Monitoring of project progress requires the establishment of baseline values for key performance indicators, and routine monitoring of these indicators to assist World Bank and the Government of India in project management. Monitoring and evaluation of the "knowledge systems" being supported in the project is also prescribed by the project implementation arrangements.

Objective and Scope

5. This assignment calls for the services of a Consulting Firm (or consortium) to assist in the development of a series of Knowledge Benchmarks (KBs) that can be used to evaluate the progress of the project. These KBs, as an aggregate, constitute an input to the Project Objective Indicator 2 (POI2), which reads as: "Knowledge Benchmarks are shown to be of high value to end-users of knowledge services". The consultant will also establish the baseline values for the selected KBs and provide three additional monitoring reports for all benchmarks (Years 2 and 4 of project plus project closing as input to ICR). Some of the KBs will be measured directly as an output of various institutions while most will be developed in response to an end-user survey. The Consultant will develop and execute the survey.

6. A provisional listing of KBs has been developed during project preparation (Annexure to TOR) and the scope of the assignment will be to test up to ten of these during the baseline studies and surveys. After the baseline work has been completed, the Consultant may make recommendations for adjustments to the definition of KBs or to the number of KBs. In principle, the KBs will be of three general types:

- Output KBs (maximum 3): These focus on simple indicators of outputs from knowledge institutions in the network (including the National Center for Coastal Zone Management)
- Implementation Impact KBs (minimum 4): These focus on end-user perceptions, from the perspective of stakeholders involved in the implementation of the ICZM approach, of the quality and usefulness of various knowledge services.
- Policy Impact KBs (minimum 1): These focus on end-user perceptions, from the perspective of decision-makers involved in formulating coastal zone policy, of the quality and usefulness of various knowledge services.

Tasks and Deliverables

7. Key tasks and deliverables associated with this assignment include the following:

8. Elaboration of KBs. This task involves further elaborating the (maximum 10) KBs, with a view to identifying the scope and scale of each KB. This pertains primarily to the Impact Indicators (Implementation and Policy) as they will be expressed within a survey instrument. During this Task, the sample frame for the survey will be developed (including total size of survey and the institutions, stakeholders, and individuals surveyed). The output from this task will be a fuller description of each KB, and a recommended sample frame for the survey.

9. Survey Instrument Design and Pre-testing. This task involves developing a survey (in the form of a questionnaire) for the Impact KBs, and a pre-testing of the questionnaire on an

appropriate small sample set in a focus group. An output of this Task will be a final Survey Instrument, informed by the pre-testing process and client and World Bank feedback.

10. **Baseline Survey.** This task requires execution of the survey as well as collection of data regarding the Output KBs. Survey data will be analyzed to generate a Baseline Evaluation Report summarizing all KBs for the beginning of the project. In addition, the consultants will include a short Diagnostics Report that provides an assessment of whether the chosen KBs will, in fact, adequately reflect progress on the PDO. If there are weaknesses in the KB set once the Baseline has been completed, the Diagnostics Report may make recommendations to the World Bank and the Government of India to modify either the technical definition or total number of KBs or the type of knowledge services that may be of more importance and utility to the end users. If the recommendations are accepted, then the Survey Instrument will be modified accordingly.

11. **Monitoring (3 times).** This task involves re-execution of the Survey Instrument (as modified, if applicable) and supplementary data collection to provide a Monitoring & Evaluation Report in years 2 and 4 of the project, for all KBs. A third M&E Report will also be generated just prior to project closing.

Annexure to Terms of Reference: Provisional Listing of Knowledge Benchmarks

12. **Output KBs:** The following KBs are raw measures of various services or achievements that are directly generated by key institutions within the network.

- (KB-1a). Total publications (all India) submitted to Peer Reviewed Journals relating to ICZM
- (KB-1b). Gaps (all India) in trained and qualified practitioners in ICZM (follow up gap analysis recently completed in October 2009)
- (KB-1c). Total number of reports from monitoring and evaluation of coastal zone management projects/programs in India, and national/international best practices.

13. **Implementation Impact KBs:** The following are reflected by the results of a survey instrument directed to stakeholders involved in ICZM implementation.

- (KB-2a). Types of services available for ICZM planning and implementation that were found satisfactory by the national level ministries and institutions, and how these services were used.
- (KB-2b). Types of services available for ICZM planning and implementation that were found satisfactory by the state level ministries and institutions (includes municipalities), and how these services were used.
- (KB-2c). Types of services available for ICZM planning and implementation that were found satisfactory by non-governmental stakeholders (including local community organizations, national and international NGOs, and private sector), and how these services were used.
- (KB-2d). Satisfaction in academic and research circles with quality and availability of basic data and information for conducting research and analysis on coastal zone management issues
- (KB-2e). Aggregate satisfaction (all stakeholders) with amount of funding available to conduct research and studies that are required for ICZM planning

14. **Policy Impact KBs.** The following are reflected by the results of a survey instrument direct to decision-makers involved in coastal zone policy.

- (KB-3a). Attitude of national level policy makers on usefulness of in-country knowledge resources, what knowledge resources informed their decision-making
- (KB-3b). Attitude of state level policy makers on usefulness of in-country knowledge resources, and what knowledge resources informed their decision-making.

Annex 4: Detailed Project Description

INDIA: Integrated Coastal Zone Management Project

1. The project is designed to create capacity for adopting and implementing ICZM approaches at the national level, and for building capacity and demonstrating benefits of ICZM in three pilot states of Gujarat, Orissa and West Bengal. At the national level, the role for the project is to create enabling capacity, tools, and requisite knowledge building institutions. At the pilot state level, the role is to support preparation and subsequent adoption of ICZM plans. The context for the project is explained below, followed by a description of project components.

Rationale and context

2. **Scope of ICZM:** The GoI intends to apply efficient ICZM approaches for managing the needs of the coastal and marine areas in India. The objectives¹⁹ of ICZM from the GoI perspective is to help achieve (i) security of lives and property in disaster-prone coastal zones; (ii) conservation, preservation, restoration and development of coastal resources and ecosystems; (iii) security of livelihood of coastal communities and overall food security; (iv) security of cultural and heritage sites; and (v) goals of national development and growth in such ways that the development is sustainable. GoI recognizes that coastal zone management requires a multi-disciplinary approach, as no single sector can adequately address these issues.

3. The GoI objectives and the scope of ICZM are consistent with the definitions and scope of ICZM adopted by different countries and international agencies since the Earth Summit 1992. *ICZM is a process for the management of the coast and marine areas using an integrated approach, regarding all aspects of the coastal zone, in an attempt to achieve sustainability* (Earth Summit, Agenda 21, Chapter 17). *The objective is to provide for the best long-term and sustainable use of coastal natural resources and for perpetual maintenance of the most natural environment* (FAO, 1992). *It is the most appropriate process to address current and long-term coastal management issues, including habitat loss, degradation of water quality, changes in hydrological cycles, depletion of coastal resources, and adaptation to sea level rise and other impacts of global climate change* (IPCC, 1994).

4. It is important to note that the principles of coastal zone management are similar to principles of a regional development program, provided the objective of the regional development program is sustainable development, and not simple growth of income and economy. What differentiates ICZM from a usual regional development program is the physical context of the coasts. The coastal zone and coastal processes are always dynamic, and the coast is vulnerable to regular natural hazards. Therefore, the GoI objectives of ICZM include a primary focus on safety and security – national security, security of lives and properties, of ecology, culture and heritage, and of livelihood for coastal communities. These priorities are also consistent with the advanced practices in many countries, where ICZM is seen as a *dynamic, continuous, iterative and multidisciplinary process to promote sustainable management of coasts ... for ecological, disaster prevention and human utilization functions of the coastal zone*²⁰.

5. **Role of advanced knowledge in ICZM:** International experience in implementing ICZM approaches highlights four essential elements for success – (i) the planning and actions need to depend on competent understanding of the complex coastal processes; (ii) the planning process

¹⁹ Swaminathan Committee Report (2006), and the National Environment Policy (2005)

²⁰ European Union, 2004

should essentially be a process of participatory agreements, including a dependable process of conflict resolution; (iii) the planning and management process should be adaptive, accommodating changing aspirations and opportunities of multiple stakeholders; and (iv) the processes should include attention to building knowledge and its dissemination to enable informed consensus. Each of these four essential elements is dependent on high quality knowledge. The EU principles for ICZM emphasizes on the need for a sound scientific basis concerning the evolution of the coastal zone. Recognizing ICZM experiences worldwide, the GoI has emphasized knowledge building as an important component of ICZM. This implies high quality research, tools and instrumentation (data, indicators, thresholds, predictive capabilities, etc) which can help inform the planning and management process. A knowledge approach is expected to result in consensus by means of quantifications with reliable methodologies, reliable data, and reliable impact prediction models. The knowledge needs noted by the Swaminathan Committee also include the need to combine traditional knowledge and wisdom of the coastal communities with formal scientific knowledge; specifically in areas where the *national competence is inadequate*²¹.

6. **Scoping the national component:** Although the objectives of ICZM in India (as listed in paragraph 2 above) are to be achieved through decentralized ICZM planning and management processes at the state and local government levels, the Swaminathan Committee proposes that precautionary principles be used to set up the system of ICZM planning and management. The MoEF has a role to play to ensure that there is unity of purpose among all the ICZM plans that would be prepared in future at decentralized levels. MoEF also has the responsibility to ensure that sufficient safeguards are in place, from a national perspective, based on the precautionary principles. Such facilitation from MoEF to the future planning and management processes will include four priority areas. The scope of the national component relates directly to each of these four priority areas, as listed below:

- (a) First, to ensure that the principle of security and safety of lives and properties is achieved, it is essential to define planning boundaries for ICZM, which takes care of the issue of coastal hazards. This will be achieved by delineating the coastal hazard line to form the basis for landward boundary of the planning unit. The hazard line needs to be defined based on “scientific” principles, and not by arbitrary definitions. This is to ensure that not only are local variations in coastal processes and geomorphology taken care of, but the principles are the same nation-wide.
- (b) Second, to ensure that the principle of ecological security is achieved, and to respond to the national need for conservation of ecologically important areas, habitats and ecological associations, it is essential to delineate areas which need to be protected, restored and conserved. This will be achieved by defining such areas, habitats and ecological associations as ecologically sensitive areas (ESAs). ESAs will consist of all protected areas, and ecologically sensitive areas which are not currently protected. ESAs, including those not protected currently, need to be identified and delineated before the ICZM planning process starts at the state or local government levels. This will ensure that important ecological and intergenerational values are not disturbed by local development pressures, if any.
- (c) At the national level, the major role of MoEF will be that of facilitating the ICZM processes at state and local government levels. This implies substantial handholding in

²¹ Swaminathan Committee Report, 2005

the initial years of adopting the ICZM approach, given that there is a considerable gap in capacity and knowledge at these levels that needs bridging. There is limited knowledge for instance on the existence and value of all coastal and marine ecosystem wealth in India, the nature of sensitivity of this wealth, the way anthropogenic impacts propagate, and sustainable development practices and prospects in coastal zones. In both the short and long run, therefore, MoEF is expected to facilitate and coordinate generation of such knowledge. To do so, MoEF intends to learn from international experiences and proposes appropriate modules of such learning for the state/local authorities.

- (d) Although ICZM plans will be prepared and managed at the state/local levels, at the national level MoEF will continue to have important responsibilities. These include providing regular support to the NCZMA, which is the highest policy-making body for management of coastal zones in India. Under the proposed reform, MoEF will be directly responsible for preparing and implementing the ICZM plans for all areas which are equivalent to ESAs, and for financing restoration and conservation activities within ESAs. MoEF will also be responsible for: providing guidance to state/local authorities for preparation of ICZM plans; reviewing and approving the large number of expected ICZM plans; monitoring the process of preparation of the ICZM plans to ensure that the processes comply with principles agreed at the national level. Finally, MoEF will also need to monitor and evaluate implementation of ICZM plans at state/local levels, and finance, at least in the short to medium term, capacity building at the state/local levels. To undertake all these activities, the current capacity of MoEF needs augmentation.

7. **Need for the state components:** Given India's federal structure, the GoI intent for decentralized management of coastal zones at state or local government levels is particularly important. As both land and water are subjects within the state's jurisdiction, no development or conservation plan can be prepared or implemented at national level. While the national government may make policies and legislation (subject to state ratification, as far as jurisdiction apply), application of ICZM will be at the state/local levels. A project to support operationalization of ICZM approaches in India will not have any impact unless such approaches are piloted at the state/local levels. International experiences also suggest that adoption of ICZM policies do not result in conservation or sustainable management of coastal zones, until the practical benefits of adopting the policies are demonstrated at the local level.

8. **Selection of pilot states:** The initial request from the GoI was to include all thirteen coastal states and union territories in the project. Since this was not found feasible by the Bank, an agreement was reached with GoI to focus on not more than three states and use pilot experiences to demonstrate the benefits of an ICZM approach for the other coastal states in India. This selection was based on extensive consultation with different GoI sector ministries, and on the range and significance of issues. The three states (Gujarat, Orissa and West Bengal), were chosen for their varying levels of development and different coastal zone management challenges (e.g. coral reef management; level of industrialization; etc.), so that lessons learnt can be used for the other coastal states in India for future replication and scaling-up. The final choice of the three states was endorsed by a meeting of the National Coastal Zone Management Authority (NCZMA) in 2007. Later, Maharashtra, Goa and the Andaman and Nicobar Islands reiterated their demand to MoEF to be included in the project, but the Bank remained firm in keeping the project manageable by focusing on the initially agreed three states.

9. **Scoping the state components:** As intended by the decentralization agenda of the GoI, every coastal state and local authority will be involved in preparation and implementation of ICZM plans. However, to be able to move to a decentralized management regime, it is important to build capacities of the states and local governments for adopting a multi-sector and multi-stakeholder participatory planning process for ICZM, and to prepare, adopt and implement ICZM plans. Capacity building for ICZM is a complex and adaptive process. Some part of the capacity building needs will be addressed through preparation of the plans itself. But in itself, the plan preparation process is not enough. Under the current scenario, there is insufficient understanding about stakeholder participation and inclusion processes, and about coastal processes and ecological resources. There is no effective mechanism for integration of sectoral activities, or for resolving competitive demands on resources. In many cases, there is no culture of integrated or joint actions for common purposes. A plan preparation process, howsoever extensive, cannot address each of these issues, and needs complimentary activities to ensure its success. These complimentary activities will include institutional capacity building, and demonstration investment in priority activities.

- (a) ICZM plans: The coastline in each of the three states is long. It is unlikely that one plan can take care of the entire coastal zone of Gujarat (approximately 1600km), or Orissa (480km). Each state therefore recommended one or two of their priority coastal stretches. The project will support preparation of ICZM plans for these stretches. In the process of preparation of such plans, the expectation is to build capacity of the state and the stakeholders such that they will prepare the ICZM plans for the other stretches. Once ICZM plans are prepared, the states would implement these after following due procedures.
- (b) Capacity building needs, complimentary to the ICZM plan process, are different for each state, depending on the particular need of the state. Overall, the state level capacity building sub-component in this project will concentrate on (i) understanding the nature and propagation of water pollution that affects coastal and marine life; and (ii) research on important coastal ecological resources. These capacity building activities are designed to inform the ICZM plan process.
- (c) International experience shows that unless local priority issues are directly addressed by simultaneous actions, an ICZM plan process may be seen as an exercise in the abstract by stakeholders. As ICZM plan process takes time (sometimes 2-3 years). Some investment is needed therefore in conserving critically endangered ecosystem, particularly where waiting for completion of the plan process would mean accelerated destruction of ecological resources. Investment in priority activities is important also to complement the process of inter-sector integration through the ICZM plan. However, the selection of pilot investments needs to be done carefully, based on the following principles.
 - (i) The pilot investments should be such that they would expectedly be part of any eventual ICZM plan prepared, such as protection of coral reefs, or pollution control at beaches. However, any investment that can potentially jeopardize quality of the ICZM plan itself needs to be avoided (e.g., any investment in large-scale infrastructure, such as a seawall). The current selection of pilot investments in the project is consistent with this principle.

- (ii) As the pilot investments are selected to complement the ICZM plan, these are located only in the coastal stretches for which ICZM plans would be prepared. Each of the pilot investment is designed to ensure the sectoral departments participate in the ICZM plan process.
- (iii) Further, the pilot investments selected are expected to support the inter-sector integration. Each of the pilot investments is expected to demonstrate benefits of either inter-departmental integration (two or more sector departments working together in one activity, such as a combination of hard and soft coastal erosion protection work); integration of purpose (two or more departments working to achieve one objective, such as restoration of coral reef by planting of diverse species of corals and stopping sewage flow into the corals); or geographic integration (two or more department achieving independent but consistent result in the same geography, such as a sea beach).
- (d) The current selection of pilot investments evolved through a consultative process among relevant stakeholders. The eventual selection of pilot investments incidentally²² offers the possibility of demonstrating investments in conservation of ecological and cultural heritage resources, livelihood improvement activities for coastal communities, including alternative livelihood for people where return from traditional livelihood is reducing; and pollution control or mitigation.
- (e) In design of the pilot investments, attention was focused on clear demonstration of inter-sectoral integration; community participation; mainstreaming gender, poverty and equity issues.
- (f) As applicable, design of each pilot investment concentrated on the need to demonstrate physical, environmental and financial sustainability; quality control; and clear allocation of financial and human resources for operation and maintenance.

10. **Description of the project components.** The project has four components – one national and three state level components in the states of Gujarat, Orissa and West Bengal. The paragraphs below describe the project components. Additionally a consolidated table summarizing the outputs to be financed under each component, and the number of targeted beneficiaries is included in Table A1.1.

Component One: National ICZM Capacity Building (US\$87.3 million)

11. The national component will include [i] mapping, delineation and demarcation of the hazard lines all along the mainland coast of India; [ii] mapping, delineation and demarcation, as required, of the environmentally sensitive areas (ESAs), also all along the mainland coast of India; [iii] capacity building of the MoEF as the secretariat for the NCZMA, and nation-wide training

²² This was incidental because there was no deliberate intention at any of the three project states to cover all of these issues. As such, in none of the three states all of these are covered, denoting the differences of coastal resource endowments, of perceived threats, and of priorities among the stakeholders. Overall, this incidental selection of pilot investments which shows a strong linkage to the recommendations of the Swaminathan Committee possibly demonstrates the strong alignment between the state and the national level policy-makers on issues and options for coastal zone management.

program for integrated coastal zone management; and [iv] setting up and operationalization of the new National Center for Sustainable Coastal Management.

12. **Mapping, delineation and demarcation of hazard line:** Since the Swaminathan Committee recommendations, MoEF constituted an expert committee in 2006 to finalize the methodology of mapping and delineation of hazard line. The expert committee suggested a practical method of using topographic elevation, coastal flood heights including sea level rise effects, and coastal erosion data to determine the hazard line. The options and details were discussed at different forums through 2006-2008. During project preparation, several workshops were organized to reach a consensus among experts including scientists. The expert consensus was presented to stakeholders in each state, and the final methodologies were agreed. The hazard line for the mainland coast of India will be mapped and delineated as the landward composite of the coastal 100 year flood lines (which includes sea level rise impacts), and the 100 year predicted erosion lines. This will involve (i) surveys and preparation digital terrain model of 0.5m contour interval for the entire mainland coast; (ii) collection of historical tide gauge data and analyses to determine 100 year flood levels, (iii) analyses of maps and satellite imagery since 1967 to predict 100 year erosion line, (iv) preparation of composite maps, showing the hazard line on the digital terrain model, and (v) transfer of the hazard line to topographic maps for public dissemination. Once the hazard line is delineated, ground markers will be constructed. This is important as the revenue maps used for local planning purposes are not comparable to topographic maps. The publicly disseminated maps and the ground markers will obliterate the need for each developer and stakeholder to invest in physical surveys and interpretation each time a need for decision regarding applicability of coastal regulations arises. Once mapped and delineated the hazard lines will be used for coastal area planning.

13. **Mapping, delineation and demarcation, as required, of the ESAs:** Based on the recommendations of the Swaminathan Committee, a consultation-based study was undertaken during project preparation to define the type, nature and characteristics of ESAs to be demarcated. After expert and stakeholder consensus, the study recommended 15 different types of ESAs to be identified, mapped and delineated. The ESAs include: the currently protected national parks, wildlife sanctuaries (for most of which maps exist), mangroves, coral reefs, sea grass and sea weed beds, littoral forests, sea beaches, sand dunes, rocky cliffs, mud flats, lagoons, salt marshes, estuaries, and habitats of critical species such as the olive ridley turtles and the horse-shoe crab. Detailed methods to determine the ecological richness of each of these had been defined. Following these methods, the ESAs will be identified and delineated. Once these are delineated, boundaries of ESAs will be transferred to topographical maps, prepared for hazard line delineation. Contiguous areas containing these ESAs within the coastal zone will be focus of ICZM plans.

14. **Setting up of the new national institute for coastal zone management:** During project preparation a study was undertaken for designing the program for the national institute. The study included analyses of ICZM skill gaps in the country. Scientific, legal and technological gaps and the skill requirements were identified for relevant areas such as physical, chemical and biological oceanography; coastal geology and geomorphology; coastal engineering; capture and culture fishery; coastal and seabed resources; coastal ecology and environment; regional planning; ecosystem management; strategic environmental analysis; environmental assessment; integrated coastal zone management; marine area management; traditional wisdom, social and cultural anthropology of the coastal communities; and the development need of coastal communities. This was followed by a capacity analysis which identified the needs for enhanced expertise and human

resources; institutional framework and legal/policy climate to use the available skills; and enhancement in physical and financial resources, as the key gaps for knowledge and capacity building program. Based on the study results, stakeholder discussions, and as per recommendations of the Swaminathan Committee, the proposed National Center for Sustainable Coastal Zone Management (NCSCM) will develop and promote international best practices and approaches for integrated coastal zone management in India.

15. The institution will develop a central repository of information and knowledge on ICZM practices in India and elsewhere; analyze the successes and failures in ICZM and develop suitable applications in Indian contexts; promote technically sound and practical management approaches to ICZM; evaluate and monitor implementation of the ICZM approaches, programs and projects; advise governments and other stakeholders on policy, legal and scientific matters related to ICZM; serve as an interface between coastal communities, experts and governments; and promote applied research, education and awareness with respect to ICZM including ecological literacy. To achieve these objectives, the proposed NCSCM will be established as an autonomous institution, with an aim to become a world-class institution for coastal and marine area management.

16. Detailed description of the organizational model, including its level of autonomy, legal framework, proposed powers of procurement and scientific decision-making; and detailed description of the relationship and linkages with other national institutions, and international twinning options have been prepared. Also finalized are the following:

- a. Human resources and staffing proposals, including human resources policy, and skills mix, job descriptions including setting up of functional units.
- b. Proposals for office building and infrastructure, laboratory and scientific facilities, equipment, information technology and service delivery enhancements, and such other operational needs for effectively delivering its functions.
- c. Description of the operational and implementation arrangements, and internal procedures to deliver its functions efficiently - performance indicators, administration, financial management and audit system, procurement system, annual planning system, self-monitoring and evaluation of targets, and reporting.
- d. Detailed investment and operating budget needs, principles of budget allocation and fund sources; and outsourcing and networking resources.

17. **Capacity building of MoEF:** An analysis of the current capacity constraints of MoEF was undertaken to assess the extent to which it can play a role as the secretariat to NCZMA. A further analysis was undertaken to identify capacity building needs necessitated by the proposed shift to an efficient ICZM approach. Based on this analysis, and consultation with NCZMA and the coastal states, a capacity building plan was prepared. [The following are scheduled to be completed before appraisal] - (1) Proposals on staffing (skills mix, job descriptions including setting up of functional units within), equipment, office space and such other operational needs and other operational and implementation arrangements. (2) Investment and operating budget needs and timetable for implementing the institutional changes. Note that a part of the capacity building needs will be fulfilled by the implementation of the project itself (see paragraph 16).

18. **Project Management:** This will support staffing and operation of the national project management unit (NPMU); establishing adequate financial management and procurement management systems; implementation of communication plan and RTI related activities;

implementation of governance and accountability actions; M&E and third party audits; coordination meetings with states and other stakeholder engagement; and special evaluation studies. It is expected that the NPMU, which is being set up as an independent society will be transformed during the project implementation period into the coastal zone management division of MoEF, as per the MoEF capacity building plan. Most of the systems set up for project management, such as the financial management and procurement systems and the M&E systems will therefore be incorporated into the medium term capacity building plan.

Component Two: Piloting ICZM approaches in Gujarat (US\$ 74.1 million)

19. This component will include [i] capacity building of the state level agencies and institutions, including preparation of ICZM plan for the coastal sediment cell which includes the Gulf of Kachchh, and [ii] pilot investments.

20. **ICZM Plan for the Gulf of Kachchh:** International experiences suggest that it is important to use natural, and not administrative, boundaries as the boundary of coastal zone plans. The landward boundary of the coastal zone plans will be dependent on the hazard line (to be delineated under the national component), and the longitudinal boundary will be the coastal sediment cell. The plan is designed as a process of regular stakeholder dialogue, where the government creates a platform for all stakeholders to voice their concern and engage in integrated decision making. The stakeholder dialogue will be supported by technical and data inputs. At the initial stage of plan preparation, a stakeholder analysis will be carried out based on a socio-economic profile of the population and sub groups, who are dependent on the coastal zone with varying needs and absorptive capacities. The identified stakeholder groups will participate through the process of planning. Specific consultant support will be required to understand the natural coastal and marine processes, resource endowments, potential coastal hazards and risks to coastal communities, assessment of the current and cumulative pressures on the coastal and marine resources, and valuation of the traditional and current resource use and dependence among the stakeholders. Stakeholder analyses and consultations will be used to identify stakeholder's requirements, priorities, concern and conflicts, development risks and opportunities. The plan process will undertake a detailed analysis of legal and institutional issues related to ICZM plan including resource development, regional planning, social equity and environmental protection. Stakeholder agreements on ICZM plan strategy will also be widely disseminated. Based on the strategy accepted by all stakeholder groups, an ICZM plan will be prepared. It is expected that the ICZM plan will have the character of a regional plan or a structure plan (and not a master plan or area development action plan) with a 20-30 year horizon. The content of the plan will depend upon stakeholder agreements, subject to the limitation that any plan proposal will not affect directly or indirectly the ESAs (as determined by the ESA mapping under the national component), or violate the guiding principles set out in the Swaminathan Committee Report. The ICZM plan will include the implementation arrangements, M&E and plan review mechanisms, detailed proposals for financing implementation of the ICZM plan including resource generation by implementation of the plan itself, and all relevant social and environmental mitigation measures (with financing plan and conditionality on the impact inducing activity).

21. **Gujarat state ICZM capacity building:** The capacity-building sub-component in Gujarat will include capacity building of the Forest and Environment Department (which is the secretariat for the Gujarat SCZMA), Gujarat State Pollution Control Board (for monitoring and enforcing pollution control in the coastal areas), Gujarat Ecological Education and Research Foundation (for developing relevant research capacity in coastal ecology, and for developing suitable techniques

for transplantation regeneration of coral reefs), and the Bhaskaracharya Institute of Space Applications and Geo-Informatics (for preparing GIS-enabled mapping and decision support tools for the coastal areas). As in the case of other components, the project management (see below in paragraph 22) support is designed to contribute to the medium term capacity building plan.

22. **Pilot investments:** The pilot investments in Gujarat, all located in the gulf of Kachchh, will include the following:

- a. Conservation and protection of the coastal resources – (i) mangrove plantation by Gujarat Ecology Commission, (ii) coral reef regeneration by the Forest and Environment Department, (iii) mangrove and shelterbelt plantation by the marine National Park, and (iv) a marine oceanarium, research and conservation information center at Dwarka, by the Forest and Environment Department through a private-public-partnership model.
- b. Environment and pollution management – (i) completing the environmental sanitation of Jamnagar city, by the Jamnagar Municipal Corporation.
- c. Livelihood security of coastal communities – (i) livelihood improvement activities by the Gujarat Ecology Commission in the non-forest villages of the coast, and (ii) ecotourism and related livelihood improvement activities by the Marine National Park for villages within the protected areas.

23. The pilot investments and the capacity building support are complementary to each other, and serve common objectives. Together with the ICZM plan, they address the major coastal zone management issues in the Gulf of Kachchh in particular and the entire coastal and marine areas of the state in general.

24. **Project Management:** This sub-component will support staffing and operation of the state project management unit (SPMU); establishment of adequate financial management and procurement management systems; implementation of communication plan and RTI related activities; implementation of governance & accountability actions, including establishment of a grievance registration and redress system; M&E, quality assurance consultancies, and third party audits, including social audits; coordination meetings with a wider range of state agencies and other stakeholder engagement; and special evaluation studies and specific expert input. It is expected that the SPMU, which is being set up within the Gujarat Ecology Commission (which is an autonomous institution) will be transformed during the project implementation period into the coastal zone management division of the DoFE, as per the state capacity building plan. Most of the systems set up for project management, such as the financial management and procurement systems, and the M&E systems will be incorporated into the medium term capacity building plan.

Component Three: Piloting ICZM approaches in Orissa (US\$49.3 million)

25. This component will include [i] capacity building of the state level agencies and institutions, including preparation of ICZM plan for the coastal sediment cells which include the stretches of Paradip-Dhamra and Gopalpur-Chilika, including a regional coastal process study, and [ii] pilot investments.

26. **ICZM Plan for the Paradip-Dhamra and Gopalpur-Chilika:** The content of the plan and the plan process that will be supported will be similar to those described under component two. The differences are that, depending on coastal geomorphology, two plans will be prepared in

the event that it is determined that the two targeted coastal stretches are not located within one coastal sediment cell/sub-cell.

27. **Orissa state ICZM capacity building:** This sub-component will support capacity building of the Forest and Environment Department (which is the secretariat for the Orissa SCZMA), Orissa State Pollution Control Board (for monitoring and enforcing pollution control in the coastal areas), and the Chilika Development Authority (for species and wetland research). As in the case of other state components, the project management (see below in paragraph 28) support is designed to contribute to Orissa's medium term ICZM capacity building plan.

28. The **pilot investments** in Orissa are concentrated in the two reaches of (i) Gopalpur-Chilika and (ii) Paradip-Dhamra - and will include the following:

- a. Conservation and protection of coastal resources – (i) protection of olive ridley turtle and other aquatic wildlife by the Forests and Environment Department (Wildlife Wing), (ii) mangrove plantation by the Forest and Environment Department, (iii) conservation of archaeological heritage, which serve as cyclone shelters at times of distress by the Culture Department, and (iv) a pilot work in shoreline protection for village Pentha by the Water Resources Department.
- b. Environment and pollution management – (i) environmental sanitation of coastal town of Paradip by Housing and Urban Development Department
- c. Livelihood security of the coastal communities – (i) livelihood improvement support in 60 fishing villages in the periphery of the Chilika lake and the Gahirmatha Wildlife Sanctuary to develop allied farming activities by the Fisheries Department, (ii) support to fisher-people groups in developing small-scale tourism activities by the Tourism Department, and community-based tourism by the Forests and Environment Department (Wildlife Wing), (iii) support to fishing communities in developing small-scale industrial and marketing activities, such as coir-making, by the Industries Department, and (iv) provision of cyclone shelters in the 14 remaining coastal villages, where cyclone shelters were not constructed from earlier programs, by the Disaster management Authority.

29. Similar to Gujarat, the pilot investments and the capacity building support are complementary to each other, and serve common objectives. Together with the ICZM plan, they address the major coastal zone management issues in the two targeted coastal stretches in particular and the entire coastal and marine areas of the state in general.

30. **Project Management:** This will support staffing and operation of the state project management unit (SPMU); establishment of adequate financial management and procurement management systems; implementation of communication plan and RTI related activities; implementation of governance and accountability actions, including establishment of a grievance registration and redress system; M&E, quality assurance consultancies, and third party audits, including social audits; coordination meetings with a wider range of state agencies and other stakeholder engagement; and special evaluation studies and specific expert inputs. It is expected that the SPMU, which is being set up as an autonomous society will be transformed during the project implementation period into the coastal zone management division of the DoFE, as per the state ICZM capacity building plan. Most of the systems set up for project management, such as the

financial management and procurement systems, and the M&E systems will be incorporated into the medium term capacity building plan.

Component Four: Piloting ICZM approaches in West Bengal (US\$75 million)

31. This component will support [i] capacity building of the state level agencies and institutions, including preparation of ICZM plan for the coastal sediment cells which include the coastal areas of West Bengal, and [ii] pilot investments.

32. **ICZM Plan for the West Bengal Coast:** The contents of the plan and the plan process that will be supported will be similar to those described under component two for Gujarat. The differences are that, depending on coastal geomorphology, all three coastal sectors in West Bengal (Sundarban sector, Haldia sector, and Digha-Shankarpur sector) will be covered in the plan, provided all of them are located within one coastal sediment cell.

33. **West Bengal state ICZM capacity building:** The capacity-building sub-component will support the Environment Department (which is the secretariat for the West Bengal SCZMA), the Calcutta University (for research and inventory of microbial biodiversity), and the Institute of Environmental Studies and Wetland Management (for geomorphologic and wetland research, and for supporting completion of a Sundarban resources interpretation centre through an NGO). As in the case of Gujarat and Orissa, the project management (see below in paragraph 34) support is designed to contribute to the medium term ICZM capacity building plan of West Bengal.

34. The **pilot investments** in West Bengal will take place in two limited areas – (i) Digha-Shankarpur, and (ii) Sagar Island in the Sundarban – and will include the following:

- a. Conservation and protection of coastal resources – (i) mangrove plantation by the Forest Department, (ii) a pilot work in shoreline protection for Digha beach, based on the learning from previous protection works, by the Irrigation Department, (iii) a pilot work in shoreline protection for the southern end of Sagar Island by the Sundarban Development Corporation, and (iii) rehabilitation of the marine aquarium at Digha by the Zoological Survey of India.
- b. Environment and pollution management – (i) completing the sewerage system and environmental sanitation of Digha by the Public Health Department, (ii) cleaning and environmental improvement of the Digha beach, and solid waste management in Digha by the Digha-Shankarpur Development Authority, (iii) improvement of the fish auction centre at Digha by the Fisheries Development Corporation, and (iv) distribution of grid electricity in Sagar Island by the State Electricity Distribution Company Limited to replace diesel generation and prevent serious soil and water pollution.
- c. Livelihood security of the coastal communities – These activities will be implemented in Sagar Island and will include (i) improvement in fishery based livelihood systems by the Fisheries Department, (ii) cyclone shelters by the Department of Disaster Management, and (iii) support to CBO coordinated livelihood improvement and market access, afforestation-based livelihood improvement, as well as promotion of local small-scale tourism and ecotourism activities – all by the Sundarban Development Corporation.

35. Similar to Gujarat and Orissa, the pilot investments and the capacity building support are complementary to each other, and serve common objectives. Together with the ICZM plan, they address the major coastal zone management issues in the two targeted coastal stretches in particular and the entire coastal and marine areas of the state in general.

36. **Project Management:** This sub-component will support staffing and operation of the state project management unit (SPMU); establishment of adequate financial management and procurement management systems; implementation of communication plan and RTI related activities; implementation of governance & accountability actions, including establishment of a grievance registration and redress system; M&E, quality assurance consultancies, and third party audits, including social audits; coordination meetings with a wider range of state agencies and other stakeholder engagement; and special evaluation studies and specific expert input. It is expected that the SPMU, which is being set up within the Institute for Environmental Studies and Wetland management (which is as an autonomous society) will be transformed during the project implementation period into the coastal zone management division of the DoE, as per the state ICZM capacity building plan. Most of the systems set up for project management, such as the financial management and procurement systems, and the M&E systems will be incorporated into the medium term capacity building plan.

37. Two on-going studies are attempting to establish the extent to which revenues from emission reduction monetization through Carbon Finance can help in improving the financial attractiveness for selected interventions – urban sewerage enhancement and additional mangrove plantation to be undertaken as part of the pilot investments in Components two, three and four.

Table A1.1: Summary of Project Components, Inputs or Outputs to be financed, and targeted Beneficiaries

| Component / Sub-Component | Activity | Cost (US\$ million) | Major Outputs to be financed | Number of Beneficiaries | | |
|---|--------------------------------------|--|---|--|------------|------------|
| | | | | Direct | Indirect | |
| Component 1: National ICZM capacity building | Capacity Building | Hazard line Mapping | 29.68 | 3 consultancy contract for composite hazard line topographic maps and other applications developed and 13 works contracts for benchmark pillars (\$17.4); IOC of SOI (\$3.4m), scientific instruments and office equipment (\$4.1), training including international training (\$1.3m), quality assurance consultancy (\$0.95) | 12,500,000 | 63,000,000 |
| | | Mapping Environmentally Sensitive Areas (ESAs) | 5.22 | 25 consultancies for land-region wise ESAs mapping; transfer to topographic maps. | 25,000 | 63,000,000 |
| | | Coastal Sediment Cell mapping | 0.5 | 1 consultancy for mapping sediment cells and sub-cells | 200 | 63,000,000 |
| | | National Center for Coastal Zone Management. | 41.28 | Office building and infrastructure (\$11.5), scientific equipment (\$14.6), IOC including staff salaries (\$13.1), training, workshops and research program (\$6.8) | 24,000 | 63,000,000 |
| | | Capacity building of the MoEF | 5.72 | 5 consultancies for national training, workshop (\$1.9), 5 consultancies for international training (.5), equipment (0.2), provision for replication of the project (\$3m). | 1,500,000 | 63,000,000 |
| | Project Management | 6.8 | Office equipment (\$.1m), IOC including salaries, workshops and coordination meeting (\$2.4), consultancies (FM&P STC, internal and independent audits, environmental and social audits, benchmarks monitoring, special impact evaluation studies – \$4.3), RPF Budget and GR system (\$0.1m) | 10 | 63,000,000 | |
| Component 2: Piloting ICZM approaches in Gujarat | Gujarat state ICZM capacity building | ICZM plan for Gulf of Kachchh | 2.92 | Consultancy (ICZM plan; stakeholder engagement; specialized studies) | 5,000,255 | 16,100,000 |
| | | Forest and Environment Department | 0.5 | Training programs and workshops | - | 50,000 |
| | | Gujarat State Pollution Control Board (GSPCB) | 3.8 | Office equipment (0.1m\$), IOC (0.1\$), Laboratory (\$0.1m), scientific equipment (\$3.6m) | 2,500,158 | 25 |
| | | Gujarat Environment and Ecology Research (GEER) Foundation | 3.63 | Office equipment (\$0.1m), IOC (\$1.5m), trainings (\$.1m), works (field & centralised labs, 200m ² coral transplantation and artificial reef - \$0.4m), goods (scientific equipment, boats - \$1.5m) | 126 | 500,3000 |
| | | Bhaskaracharya Institute of Space Applications and Geo-Informatics (BISAG) | 1.22 | Services (satellite imagery - \$0.1m), training (\$0.4m), IOC (\$0.7m) | 6 | 3,750,000 |
| | Pilot Investment (a) | (i) Mangrove plantation by Gujarat Ecology Commission | 6.59 | Community procurement (10,000ha mangrove; energy resources development, bioshield, fodder development - \$5.1m), consultancy (\$0.1m), IOC including IEC (\$0.9m), training (\$0.2m), equipment (0.2m) | 2,703,215 | 2,700,000 |
| | | (ii) Coral reef regeneration by MNP | 3.7 | Works (1700m ² coral transplantation - \$3.7m) | 58,000 | 258,000 |
| | | (iii) Mangrove and shelter-bed plantation by MNP | 5.78 | Works (marine interpretation centre, 5100ha mangrove, 1000ha island mangrove, 1500ha shelterbelt, sea turtle hatchery -\$4.5m); community procurement (\$1.1m), equipment (\$0.1m), IOC including IEC activities (\$0.1m), Office equipment (\$1m) | 3,785 | 2,100,000 |
| | | (iv) Marine Conservation Research Center at Dwarka | 6.5 | Works (\$6.5m) VGF | 1,000,149 | 900,000 |

| Component / Sub-Component | Activity | Cost (US\$ million) | Major Outputs to be financed | Number of Beneficiaries | | |
|--|--|---|--|--|-----------|-----------|
| | | | | Direct | Indirect | |
| Component 2: Piloting ICZM approaches in Gujarat | Pilot Investment (b) | 17.41 | Office equipment (\$0.02m), IOC (\$0.1m), consultancies (\$0.2m), works (STP, sewage collection system; pumping stations - \$16.7m); goods (deep suction pumps - \$0.2m). Complementary borrower investment - \$7.2m. | 498,594 | 1,606,316 | |
| | Pilot Investment (c) | (i) Livelihood improvement activities by the GEC | 5.47 | Community procurement (fodder and fuelwood development, shelterbelt, rainwater harvesting, groundwater recharge, multi-purpose cyclone shelters - \$3.6m), IOC including IEC (\$0.9m), training (\$0.8m), equipment (\$0.1m), consultancy (\$0.1m) | 164,038 | 5,000,000 |
| | | (ii) Eco-tourism and livelihood improvement by the MNP | 0.22 | Works (coral reef watch trails & mangrove canopy walks - \$0.2m) | 54 | 580 |
| | Project management - SPMU | 4.53 | Office equipment (\$0.3m), IOC including salaries and coordination meeting (\$0.9), training and workshops (\$1.5m), consultancies (FM&P STC, internal audits, 10 special studies - \$1.3), communication and IEC (\$0.5m) | 10 | | |
| Component 3: Piloting ICZM approaches in Orissa | ICZM Plans for Chilika-Gopalpur and Paradip-Dhamra coastal stretches | 1.57 | ICZM plan; stakeholder engagement; specialized studies. | 2,500,255 | 82,40,000 | |
| | Orissa state ICZM capacity building | Forest and Environment Department (Orissa SCZMA) | 0.5 | Training programs and workshops | - | 30,000 |
| | | Orissa State Pollution Control Board | 2.48 | Laboratory; manpower; data & research papers; evaluation of projects. | 136 | 112,899 |
| | | Chilika Development Authority for species and wetland research. | 0.49 | Equipment; research papers & strategies; awareness camps. | 846 | 2,500,000 |
| | | Regional coastal studies (SPMU) | 2.45 | Computers; Mike21 software; data collection, analysis and Shoreline Management Plans for stretches. | 2,800,037 | 2,500,000 |
| | Pilot investment (a) | (i) Protection of aquatic wildlife by the Wildlife Department | 1.11 | Speed boats & running existing vessels; monitoring centre; equipments; hatchery of crocodiles and interpretation centre. | 2,900,613 | 1,000,000 |
| | | (ii) Mangrove plantation | 0.67 | Mangroves planted on 168ha and shelterbed planted on 77ha land. | 10,650 | 5,000 |
| | | (iii) Conservation of archeological heritage | 1.35 | Improvement and conservation of 7 historical structures | 10,085 | 7,000 |
| | | (iv) Shoreline protection for Pentha | 3.69 | 400m coastline with geotubes; shelterbed & fencing on 77,000sqm land | 2,886 | 2,723 |
| | Pilot investment (b) | (i) Solid waste management at Paradip | 1.87 | Land-fill & compost facility & equipment; awareness campaigns; collection facility; collection equipment. | 75,343 | 75,000 |

| Component / Sub-Component | Activity | Cost (US\$ million) | Major Outputs to be financed | Number of Beneficiaries | | |
|---|--|---|---|--|-----------|-----------|
| | | | | Direct | Indirect | |
| Component 3: Piloting ICZM approaches in Orissa | Pilot investment (c) | (i) Livelihood improvement support | 600 SHGs; crab tanks; value added fish equipment and dairy activities. | 9,080 | 26,861 | |
| | | (ii) Support to fisher groups for small-scale tourism activities | Infrastructure built & upgraded; boats & illumination. | 10,338 | 90,000 | |
| | | (iii) Biodiversity and sensitive habitat based livelihood activities | Facilities, infrastructure, camping sites & trails. | 256 | 90,000 | |
| | | (iv) Support to fisher groups for coir making by Industries dept. | Training-Cum- Production Center and training in different coir skills. | 243 | 2,000 | |
| | | (v) Provision of cyclone shelters in 14 villages, by OSDMA | 14 cyclone shelters and extensive capacity building of local communities. | 22,071 | 22,000 | |
| | Project management - SPMU | 2.06 | Staffing, operations; financial management systems; communications plan, RTI, & stakeholder engagement; audits & M&E; evaluation studies. | 10 | - | |
| Component 4: Piloting ICZM approaches in West Bengal | west bengal state ICZM capacity building | ICZM plan for West Bengal | ICZM plan; stakeholder engagement; specialized studies. | 2,600,255 | 1,130,000 | |
| | | Forest and Environment Dept. (West Bengal SCZMA) | Training program and workshops | - | 68,000 | |
| | | Calcutta University | Study published, equipment; | | 150,000 | |
| | | Institute of Environmental Studies and Wetland Management-IESWM | Equipment & infrastructure for labs; software; trainings; Mobile labs; | 2,600,000 | 2,600,000 | |
| | Pilot investment (a) | (i) Mangrove plantation by the Forest Department. | 1.17 | Coastal bio shield regeneration and maintenance; central nursery; district level 7 village level trainings | 1,804 | 3,909,000 |
| | | (ii) Rehabilitation of the Marine aquarium at Digha by the Zoological Survey of India | 1.29 | Marine aquarium upgraded; workshops; marine museum and interpretation centre developed. | 903 | 100 |
| | Pilot investment (b) | (i) Completing sewerage system at Digha | 7.79 | Laying sewerage network and ancillary infrastructure and O&M | 42,349 | 1,000 |
| | | (ii) Cleaning and environmental improvement of Digha beach | 8.96 | 620 existing shacks rehabilitated; public infrastructure and facilities; handicrafts centre. | 4,990 | 2,000 |
| | | | 2.0 | Landfill & vermin-composting facility; collection equipment. | 20,693 | |
| | | (iii) Developing drainage system and phyto-remediation tanks. | 3.24 | Storm-water system upgraded in Digha; 2 aeration ditches of 3000cum capacity constructed for phyto-remediation | 30,540 | 45,000 |
| (iv) Fish auction centre at Digha | | 1.30 | Fish auction centre; cold storage; flake ice plant; quality control lab. | 1,040 | 2,000 | |
| (v) Distribution of grid electricity in Sagar Island. | 7.54 | Sub-station; towers & distribution system for Sagar Island. | 185,100 | 400,000 | | |

| Component / Sub-Component | Activity | Cost (US\$ million) | Major Outputs to be financed | Number of Beneficiaries | |
|--|---------------------------|---------------------|---|-------------------------|----------|
| | | | | Direct | Indirect |
| Component 4: Piloting ICZM approaches in West Bengal | Support Investment (c) | 6.54 | (iia) Baseline survey; SHGs & federations; skill & finance links. | 47,100 | 27,000 |
| | | 8.01 | (iib) Mangrove & commercial plantation; mud-flats stabilised; training; conservation activities. | NA | |
| | | 10.86 | (iic) Kapil Muni Temple Complex; Sagar Eco-tourism Center; Center for arts and crafts established with facilities; village, SHGs and state level trainings. | 2900 | |
| | Project Management - SPMU | 4.89 | Staffing, operations; financial management systems; communications plan, RTI, & stakeholder engagement; audits & M&E; evaluation studies. | 10 | - |

Annex 5: Project Costs
INDIA: Integrated Coastal Zone Management Project

Table 1: Project Cost Estimate

In US \$ Million

| Project Components | | Estimated Base Costs | | |
|-----------------------------------|---|----------------------|------------------|---------------|
| | | Local Currency | Foreign Currency | Total |
| A | National Component | | | |
| A1 | Hazard line and ESA Mapping and delineation | 32.79 | 0.00 | 32.79 |
| A2 | Capacity Building & National Institute | 36.16 | 4.88 | 41.04 |
| A3 | Project Management | 3.86 | 2.39 | 6.25 |
| | Total – National Component | 72.81 | 7.27 | 80.08 |
| B | Gujarat State Component | | | |
| B1 | Capacity Building & ICZM Plan preparation | 7.35 | 5.81 | 13.16 |
| B2 | Pilot Investments | 33.67 | 10.72 | 44.39 |
| B3 | Project Management | 8.64 | 0.00 | 8.64 |
| | Total – Gujarat State Component | 49.66 | 16.53 | 66.19 |
| C | Orissa State Component | | | |
| C1 | Capacity Building & ICZM Plan preparation | 5.83 | 3.04 | 8.87 |
| C2 | Pilot Investments | 24.13 | 0.00 | 24.13 |
| C3 | Project Management | 11.35 | 0.07 | 11.42 |
| | Total – Orissa State Component | 41.31 | 3.11 | 44.42 |
| D | West Bengal State Component | | | |
| D1 | Capacity Building & ICZM Plan preparation | 6.38 | 3.51 | 9.89 |
| D2 | Pilot Investments | 46.58 | 0.00 | 46.58 |
| D3 | Project Management | 9.45 | 0.88 | 10.33 |
| | Total – West Bengal State Component | 62.34 | 4.39 | 66.73 |
| Base Costs - Total Project | | 226.19 | 31.30 | 257.49 |
| | Project Preparation Cost (Covered by PPA) | 1.06 | 0.00 | 1.06 |
| | Price Contingencies | | | 20.87 |
| | Physical Contingencies | | | 6.24 |
| Total Project Costs | | | | 285.67 |

Note: Totals may not add due to rounding

Note: The base cost of the project approved by GoI Cabinet Committee on Economic Affairs was Indian Rupees 1155.63 crore. This is equivalent to US\$257.49 million based on standard exchange rate applicable in April 2010. The estimate of price contingencies is based on standard projections by the Bank. The estimate of physical contingencies is an estimate of potential physical variation in the civil works activities.

Table 2: Proposed Financing Plan : Component-wise Sources of Funds

In US \$ Million

| Component | Total (with Cont) | % to Total Cost | Sources of funds | | | | | percent Bank |
|--|-------------------------|-----------------------|------------------|------------|------------|------------|--------------|-----------------|
| | | | GoI | GoG | GoO | GoWB | Bank | |
| A National Component | | | | | | | | |
| A1 Hazard line and ESA Mapping and delineation | 35.4 | 12.4 | 5.3 | | | | 30.1 | 85.0 |
| A2 Capacity Building & National Institute | 45.0 | 15.8 | 9.0 | | | | 36.0 | 80.0 |
| A3 Project Management | 6.8 | 2.4 | 5.2 | | | | 1.7 | 24.3 |
| <i>Total – National Component</i> | 87.3 | 30.5 | 19.5 | | | | 67.8 | 77.7 |
| B Gujarat State Component | | | | | | | | |
| B1 Capacity Building & ICZM Plan preparation | 14.1 | 5.0 | 1.4 | - | | | 12.7 | 90.0 |
| B2 Pilot Investments | 50.6 | 17.7 | 3.7 | 6.5 | | | 40.5 | 80.0 |
| B3 Project Management | 9.4 | 3.3 | 4.1 | 0.9 | | | 4.4 | 46.8 |
| <i>Total – Gujarat State Component</i> | 74.1 | 26.0 | 9.1 | 7.4 | | | 57.6 | 77.7 |
| C Orissa State Component | | | | | | | | |
| C1 Capacity Building & ICZM Plan preparation | 9.6 | 3.4 | 1.0 | | - | | 8.6 | 90.0 |
| C2 Pilot Investments | 27.4 | 9.6 | 1.8 | | 3.7 | | 21.9 | 80.0 |
| C3 Project Management | 12.4 | 4.3 | 3.3 | | 1.2 | | 7.8 | 63.1 |
| <i>Total – Orissa State Component</i> | 49.3 | 17.3 | 6.1 | | 4.9 | | 38.3 | 77.7 |
| D West Bengal State Component | | | | | | | | |
| D1 Capacity Building & ICZM Plan preparation | 10.7 | 3.8 | 1.1 | | | - | 9.7 | 90.0 |
| D2 Pilot Investments | 53.0 | 18.6 | 4.2 | | | 6.4 | 42.4 | 80.0 |
| D3 Project Management | 11.2 | 3.9 | 3.9 | | | 1.1 | 6.2 | 55.0 |
| <i>Total – West Bengal State Component</i> | 75.0 | 26.2 | 9.2 | | | 7.5 | 58.3 | 77.7 |
| TOTAL – Project Cost | 285.7 | 100 | 43.9 | 7.4 | 4.9 | 7.5 | 222.0 | 77.7 |

Note: Totals may not add due to rounding

Table 3: Projected Expenditure Profile by Financiers

In US \$ Million

| Source of Funding | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | Total | percent to total |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|--------------|---------------|---------------------|
| Government of India | 5.09 | 7.98 | 9.39 | 8.99 | 8.99 | 3.42 | 43.86 | 15.4 % |
| Government of Gujarat | 0.86 | 1.35 | 1.59 | 1.52 | 1.52 | 0.58 | 7.42 | 2.6 % |
| Government of Orissa | 0.57 | 0.90 | 1.06 | 1.01 | 1.01 | 0.38 | 4.93 | 1.7 % |
| Government of West Bengal | 0.87 | 1.37 | 1.61 | 1.54 | 1.54 | 0.59 | 7.50 | 2.6 % |
| World Bank | 25.75 | 40.40 | 47.50 | 45.50 | 45.50 | 17.31 | 221.96 | 77.7 % |
| Total | 33.14 | 52.00 | 61.15 | 58.57 | 58.56 | 22.28 | 285.67 | 100 % |
| Expenditure Profile (%) | 11.6 % | 18.2 % | 21.4 % | 20.5 % | 20.5 % | 7.8% | 100 % | |

Note: Totals may not add due to rounding

Annex 6: Implementation Arrangements
INDIA: Integrated Coastal Zone Management Project

Institutional arrangements

1. GoI's MoEF will have the lead responsibility for project implementation and ensuring that the project development objectives are met. The DoFE of each of the three participating states will be the key partners of MoEF in project implementation. Each of these four main partners have set up special purpose vehicles in the form of registered societies (National and State level PMUs), to exclusively lead and coordinate project activities on a full time basis and directly implement some of the project sub components. The main division of responsibility amongst these four partners and the National and State level PMUs would be as below.

| Responsible Institution | Main Function |
|---|--|
| GoI – Ministry of Environment and Forests (MoEF) | Providing National Policy and implementation framework, Approval of Annual Plans and budget, and Implementation oversight |
| National Project Management Unit (NPMU) under MoEF | Project Implementation leadership and accountability to achieving PDOs, Implementation of the National Component |
| States - DoFE in each of the three States- Gujarat, Orissa and West Bengal | Providing State Policy and implementation framework, Approval of state level Annual Plans and budget, and Implementation oversight |
| SPMUs under the respective DoFEs of Gujarat, Orissa and West Bengal | State Level Project Implementation leadership and accountability to achieving PDOs, Implementation of the State components |

2. Managing coastal zone development in an integrated manner would require diverse interventions ranging from simple mangrove plantations to installation and operation of complex underground sewerage systems, from building capacity of the communities in managing coastal resources to building national capacity in integrated coastal zone management. It will also require working with wide range of stakeholders from coastal communities to government departments at various levels and large industries having conflicting interests especially in determining boundaries of future protection zones. In view of the larger socio political issues involved, the project will need to implement a sound and proactive communication plan and a carefully designed GAAP. The National and state level PMUs would therefore need to deal with: project management including institutional development, capacity building, M& E and IEC on one hand and collaborate with national./ state level departments / agencies that have demonstrated capacity and cutting edge expertise in managing the proposed select coastal zone pilot investments.

3. Thus, the project's institutions will mainly operate at three levels

- (a) National Level : MoEF with National level PMU (NPMU)
- (b) State Level : DoFE with State level PMUs in each of the three states (SPMUs), and

- (c) Pilot Investment's Level: Pilot Investment Executing Agencies (PEAs) covering a range of selected government departments/ specialized agencies in the 3 states.

4. The MoEF and the state DoFEs have the sole mandate for coastal zone management respectively at the national and state levels. They have the expertise, experience and demonstrated capacity in coastal zone management and have been the obvious choice to lead project implementation. Similarly the PEAs have been selected by MoEF and the State DoFEs in view of their singular expertise in implementing respective coastal zone conservation, protection and development interventions. Component wise responsibilities and key functions of the project institutions are summarized below:

| Component | Department / Agencies | Main function(s) |
|---|---|--|
| Component One: National Component | SICOM as NPMU PEA – Survey of India, NCSCM | Overall project management + Direct implementation of the National component, viz., ESA mapping, Setting up NCSCM, National Capacity Building and liaise with the Bank Hazard line mapping, delineation and demarcation; Operation of the NCSCM knowledge program |
| Component Two: Gujarat State Component | SPMU housed in GEC <u>PEAs</u> - Marine National Park, GEER Foundation, Jamnagar Municipal Corporation, Gujarat State Pollution Control Board, and BISAG, Gujarat Ecology Commission | Overall state level Project Management including M&E, Capacity Building, ICZM plan preparation and Mangrove Plantations + liaise with NPMU and the Bank Planning, Implementation and sustained O&M of the respective Pilot Investments, and the capacity building investments |
| Component Three: Orissa State Component | SPMU Society <u>PEAs</u> - Departments of Forests and Environment, Wildlife, , Fisheries, Culture, Water Resources; Orissa Pollution Control Board, Paradip Municipal Corporation, Chilika Development Agency, Orissa Tourism Development Corporation, Orissa Coir Corporation, and Orissa State Disaster Mitigation Authority | Overall state level Project Management including M&E, Capacity Building, ICZM plan preparation + liaise with NPMU and the Bank Planning, Implementation and O&M of the respective Pilot Investments, and the capacity building investments |
| Component Four: West Bengal State Component | SPMU housed in IESWM | Overall state level Project Management including M&E, Capacity Building, ICZM plan preparation + liaise with NPMU and the Bank |

| Component | Department / Agencies | Main function(s) |
|-----------|--|---|
| | PEAs - Digha Sankarpur Development Authority, Departments of Irrigation and waterways, Disaster Management, Forests, and Public Health Engineering; State Fisheries Development Corporation, Sundarban Development Corporation, Zoological Survey of India, Calcutta University and West Bengal State Electricity Distribution Company Limited | Planning, Implementation and O&M of the respective Pilot Investments, and the capacity building investments |

5. Further details of the proposed institutional arrangements, roles and responsibilities of various actors and their organizational linkages are given in the PIP. A brief description of key actors and their implementation responsibilities is provided below.

6. **National Level: Ministry of Environment and Forests:** MoEF headed by the Secretary will be primarily responsible for implementing the project. It has set up a special purpose society, called the Society for Integrated Coastal Management (SICOM) to exclusively manage the project and also established a Governing Council (SC) to facilitate speedy decision making. The SC is headed by the Additional Secretary, MoEF and the Project Director of the NPMU is its Member Secretary. The other members of the Steering Committee include representatives of select National and State level departments, agencies and experts in the CZM. SC's main functions would be: providing policy and implementation framework, approval of AAPs and budgets, approval to high cost consultancy (more than US\$ 300,000) and works contract (more than US\$ 5 M) awards pertaining to the National Component (only) and provide an oversight on the project's implementation performance and outcomes. The details of SC's mandate, composition, functions and powers are included in the MoA and by-laws of SICOM. SC will also seek guidance and support of the National ICZM Authority from time to time as needed.

7. **National Project Management Unit (NPMU) or SICOM:** NPMU has been set up within the MoEF under the Secretary with an exclusive mandate for providing countrywide leadership, collaboration and management of the ICZM project. NPMU will be responsible for ensuring that the Development Objectives of the project as a whole are fully achieved in a timely manner. Its main functions will include : (a) overall project planning and management, directly implementing the national component, ensuring satisfactory implementation of the state components, providing guidance, support and approvals to the three SPMUs where needed (expected rarely other than for approval of the AAPs and budget) , and monitoring implementation performance of the State level implementing agencies, (b) ensuring compliance with agreed financial management policies and procedures including management of project funds, timely release of advance project funds to the States, conducting external audits for all project components and ensuring compliance with audit observations, submitting to the Bank a single annual statutory audit report for the project, and seeking reimbursements from the Bank, (c) capacity building of all project partners, managing country wide IEC campaigns and stakeholder consultation and participation, (d) ensuring compliance with the agreed procurement policies and procedures and high quality of engineering designs and construction, ensuring compliance with the project's safeguard policies, (e) implementing enhanced Governance and Accountability Action Plan - see Annex 11, (f) regular monitoring and evaluation of project performance, including regular review of strategies and

implementation arrangements in the context of implementation experiences and for ensuring course corrections as needed, and (g) liaising with the World Bank including sending quarterly progress reports to SC of the MoEF and the Bank.

8. NPMU has been set up as a registered society (named Society for Integrated Coastal Management or SICOM) and its MOA and bylaws, mandate, composition, functions, powers and operational procedures have been agreed and are included in the PIP. The NPMU will be headed by a Project Director with adequate financial and administrative powers who will have about 15 key professional staff. The staff will be multi-disciplinary including specialists in environment, ecology, ocean engineering, finance, operations, human resources development, M&E, procurement and communications disciplines. The professional staff will be drafted from within the national/ State government offices/ agencies, or recruited from private sector on contract basis. Project Director and some of the key staff members are already in position and recruitment process for a few additional positions has been initiated. In addition, NPMU will recruit private sector consultants/ experts (individuals, institutions or firms) from time to time as necessary to strengthen its project management capacity. NPMU will recruit a consultancy firm for the project to perform the routine FM functions through its key FM specialist staff located in the office of the NPMU, and providing requisite support to the three SPMUs. NPMU has signed an MOU with the Survey of India (which will be a PEA) for undertaking hazard line mapping and its delineation on the ground.

9. **State Level: Departments of Forests and Environment (DoFEs)** headed by the Secretary in each state would be primarily responsible for implementing the respective state components of the project. Each state has set up special purpose SPMUs as registered societies (or nominated existing agencies) to exclusively manage the project in their states and also established Steering Committees to facilitate speedy decisions. These SCs are headed by the Secretaries of the DoFE and the Project Directors of the SPMUs are their Member Secretaries. The other members of the Steering Committees include representatives of select National and State level departments, agencies and experts in the CZM. SC's main functions would be: providing state level ICZM policy and implementation framework, approval of AAPs and budgets, ensure inter-departmental coordination and partnership, approval to high cost consultancy (more than US\$ 300,000) and works contract awards (more than US\$ 5 M) pertaining to the respective state components and provide an oversight on the project's implementation performance and outcomes. The details of SC's mandate, composition, functions and powers are included in the respective state PIPs. SCs will also seek guidance and support of the State ICZM Authorities from time to time as needed.

10. **State Project Management Units (SPMUs):** Respective State level SPMUs are state level counterparts of the NPMU and would have similar responsibilities for the respective state components. SPMUs have been set up in the three States within the respective DoFE under the Secretary with an exclusive mandate for providing statewide leadership, collaboration and management of the ICZM project and would be accountable to NPMU for achieving PDOs. They will adopt various project implementation guidelines issued by NPMU and report to NPMU from time to time on project implementation performance and achievements.

11. **SPMU's main functions** will include: (a) overall project planning and management, directly implementing some of the state sub components, providing guidance, support and approvals where needed to the State PEAs, and monitoring implementation performance of the PEAs, (b) ensuring

compliance with agreed financial management policies and procedures including management of project funds, timely release of advance project funds to the PEAs, conducting concurrent internal audits for all state components, and ensuring compliance with audit observations, and submitting reimbursement claims to NPMU, (c) capacity building of all PEAs, managing state wide IEC campaigns and stakeholder consultation and participation, (d) ensuring compliance with the agreed procurement policies and procedures and high quality of engineering designs and construction, ensuring compliance with the project's safeguard policies, (e) implementing enhanced Governance and Accountability Action Plan - see Annex 11, (f) regular monitoring and evaluation of project performance/ achievements, including regular review of strategies and implementation arrangements in the context of implementation experiences and for ensuring course corrections as needed, and (g) liaising with the NPMU and the World Bank and for sending quarterly progress reports to SC of the DoFE, NPMU and the Bank.

12. SPMUs have been set up as registered societies and their MOA, bylaws, mandate, composition, functions, powers and operational procedures have been agreed and are included in the respective state project reports. Gujarat and West Bengal have mandated existing state agencies to perform the function of the SPMU whereas Orissa has set up an entirely new society for the project. The SPMUs are headed by a Project Director, an officer not below the rank of an Special/Joint Secretary of the State and will each have about 10 full time key professional staff. Where exclusive Project Directors have not been provided, additional/deputy project directors have been included to lead the SPMU on a full time basis. The staff will be multi-disciplinary including specialists in Environment, Ecology, Ocean engineering, finance, operations, HRD, M&E, procurement and communications disciplines. Most professional staff will be drafted from within the National/ State government offices/ agencies. The rest would be filled from private sector on contract basis. Project Director and some of the key staff members are already in position and recruitment process for a few additional positions has been initiated. In addition, SPMUs will recruit private sector consultants/ experts (individuals, institutions or firms) from time to time as necessary to strengthen their project management capacity.

13. **Pilot Investment Executing Agencies (PEAs):** Each of the State DoFEs have entrusted the work of implementing select pilot investments to identified specialized agencies in their states. The Secretaries of these departments will be responsible for implementing the respective pilot investments, ensuring acceptable implementation standards and for achieving the output and outcome targets of the pilot investments. They have identified exclusive project teams to be responsible for implementing the agreed pilot investments adopting the project guidelines contained in the state project reports and PIPs. The main function of the PEAs would be to plan and implement the pilot investments and put in place institutional arrangements and other resources needed for satisfactory operation and maintenance of the assets created on a sustainable basis. This will particularly require (a) preparing DPRs as per nationally accepted technical standards and specifications, seeking appropriate technical and administrative approvals from within their own departments and SPMU, (b) collaboration and coordination with the relevant other government departments/agencies, Local government bodies, NGOs , CBOs and coastal communities, (c) procurement of works and goods with support from SPMU, (d) construction/ installation of facilities including contract management and day to supervision, ensuring compliance with project's safeguard policies, certifying works and making payments and preparing completion reports, and (e) managing project funds including compliance with the agreed FM policies and procedures . The PEAs would report to the respective SPMUs in regard to

implementation progress and performance of the pilot investments and provide technical, administrative, accounting and audit and other progress reports as required by SPMU. The sharing of roles and responsibilities – including administrative and fiduciary arrangements - between the SPMUs and the PEAs have been agreed and documented in the signed bilateral MOUs.

14. **Other Support Agencies:** The National and State level PMUs will collaborate with and seek support and partnership with a range of other agencies to strengthen the capacity of the main implementing agencies. These will include International, national and local knowledge centers, Universities and academic and research institutes, private sector business houses and industries, Urban and Rural local self government bodies, civil society groups, NGOs, Community based Organizations as well as other government departments responsible for coastal zone development and protection.

Organization and staffing

15. The overall organizational charts for project institutions at the national level and in the three states are in Attachment 6 A. The project staffing plan for each implementing agency (NPMU, three SPMUs and PEAs) along with the job description and selection criteria as well as the terms of employment for the key staff have been agreed and their details are included in the National and State level project reports.

Implementation Arrangements

16. **Implementation Schedule:** The Project implementation will be launched from January 1, 2010. A detailed Project implementation schedule has been developed for a 5-year implementation period and an overall implementation schedule in a bar chart form is in Attachment 6 B. (further details are in the respective state project reports).

17. **Project Implementation Plan/ Guidelines:** MoEF and the states have prepared detailed PIP and guidelines in the form of a set of project reports and operating manuals and guidelines. These will form the basis for project implementation and performance monitoring. Main features of these are summarized below.

18. National and State Project Reports: MoEF has prepared a comprehensive National Project Report. This report provides details of current CZM status and issues in India, lessons learned over the past 10 years in CZM, GoI's vision and strategy for changing the Coastal zone management policy from "Regulation" to "Development with conservation and livelihood security of the stakeholders", justification for the project, project description and components, cost estimates and financing plans, institutional and implementation arrangements, fiduciary policies and procedures, applicable safeguard policies and mitigation plans, detailed implementation schedules, operation and maintenance management plans and the proposed monitoring and evaluation arrangements. Each of the three states also has prepared comprehensive State project reports covering similar details.

19. Detailed Project Reports for Capacity Building Investments and for Pilot Investments: For pilot investments the PEAs have prepared detailed Project Reports (DPRs). These DPRs provide: (i) details of the pilot specific context, their objective and how they will contribute to developing approaches to Integrated CZM; (ii) description of the activities, findings of the stakeholder

consultations and how these are reflected in the final pilot project design; (iii) a detailed implementation schedule; (iv) the proposed institutional and implementation arrangements, procurement plan and fiduciary procedures to be followed; (v) relevant capacity support and capacity building inputs; (vi) environmental and social management plan actions; (vii) post implementation operations and maintenance management plans; (viii) investment and recurrent O&M cost estimates and financing plans; and (ix) arrangements for M&E including relevant progress, process and outcome indicators.

20. The DPRs are supported by additional documents such as detailed engineering designs and drawings, bid documents for works/ goods/ services to be procured , copies of relevant government guidelines on policy and implementation aspects, etc.

21. **Model Agreements/ MOUs:** Towards operationalizing the proposed institutional model, the following instruments have been prepared: (i) The National and State level project reports as well as MOA and Bye laws of the societies set up under MoEF and the three states have been approved by MoEF and the respective state governments; (ii) MOUs have been signed between the SPMU and the PEAs clarifying the respective roles and responsibilities including arrangements for ensuring fiduciary assurances; and (iii) draft MOU to be signed between NGOs and SPMU for community implemented pilot investments.

22. **Powers of Approvals:** Powers and procedures for technical and administrative approvals of schemes, for award of contracts for works/ goods and services, and for making payments have all been well defined for each implementing agency and documented in the Procurement and FM manuals. To ensure efficiency in implementation most of the powers have been delegated to the lowest appropriate levels, adopting the principle of subsidiarity. Thus, once annual action plans are cleared by MoEF, most implementation related powers are vested with NPMU, SPMUs and the PEAs for their respective components. Only exceptions will be award of high cost consultancy and works/ goods contracts – which have been defined in the approved fiduciary manuals.

23. **Project Cost Estimate and expenditure monitoring model:** A detailed Excel based project cost model has been developed. The model provides component wise estimates of physical quantities with projected annual achievement targets and corresponding annual base cost estimates. It also provides annual expenditure profiles by base costs and with physical and price contingencies in Local and foreign currencies. It provides component wise breakdown of investment and financing shares of GoI, states, PEAs and beneficiaries (where relevant). The model also provides breakdown of projected expenditures on works/ goods/ services/ trainings and incremental operating costs. During implementation, this model will be used to track physical and financial progress against the targets set at appraisal. The full cost table is attached with the national and respective state project reports. The summary tables are attached with annex 5 of this PAD.

24. Other important documents guiding project implementation are:

- (a) FM manual providing the details of funds flow, accounting, auditing and reporting and the related control and accountability mechanisms (details in Annex 7)
- (b) Procurement Manual containing the proposed procurement strategy, methods and procedures to be adopted, Documents to be used for bidding for works and goods and

procurement of consultant services and powers of actors to award these works and consultancies (details in Annex 8)

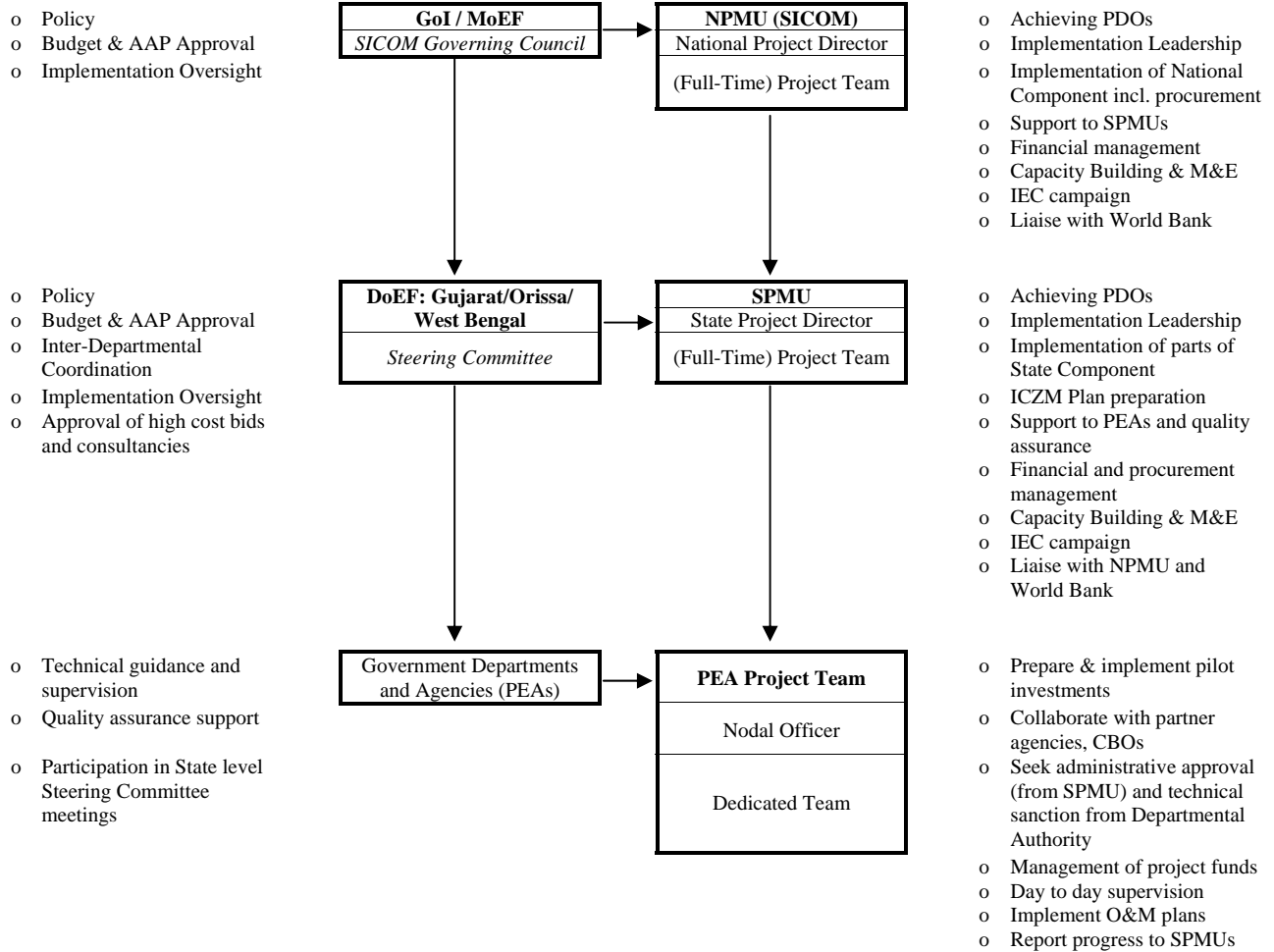
- (c) Environmental and social management plans (details in Annex 10)
- (d) Governance and accountability action plan (details in Annex 11)
- (e) Communication strategy and action plan (details in Annex 14)

25. **National institute and capacity building plans:** The Project will have full scale capacity building components both at the National level and in the states. Capacity of the implementing agencies will be enhanced based on the skill and capacity gaps assessments conducted by expert agencies. A detailed capacity building plan has been developed and is included in the PIP.

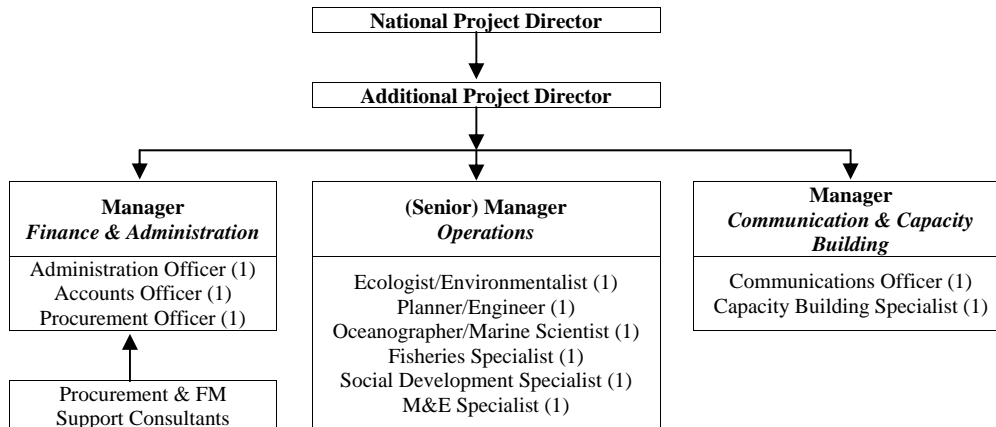
26. **Post implementation management of assets created:** Each DPR has developed a detailed plan for operation and maintenance of assets that will be created under the project. These plans have identified the institutional responsibilities as well the funding and other sources that would be required for their long term sustainable operations.

Annex 6A: Institutional Arrangement & Reporting Structure

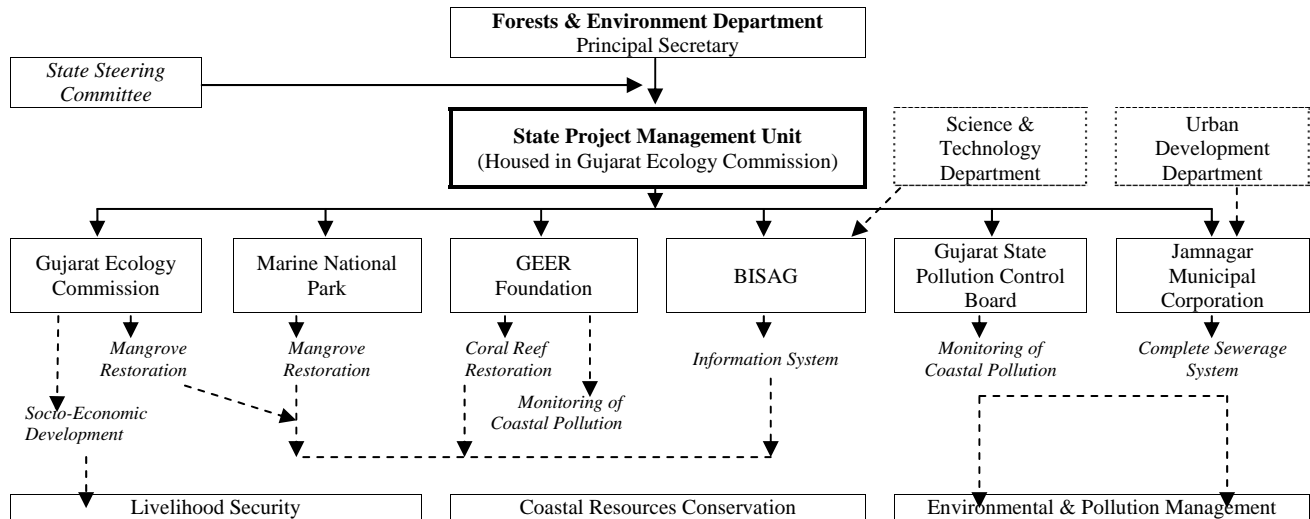
A1: Overall Project Implementation Arrangement



NPMU Staffing



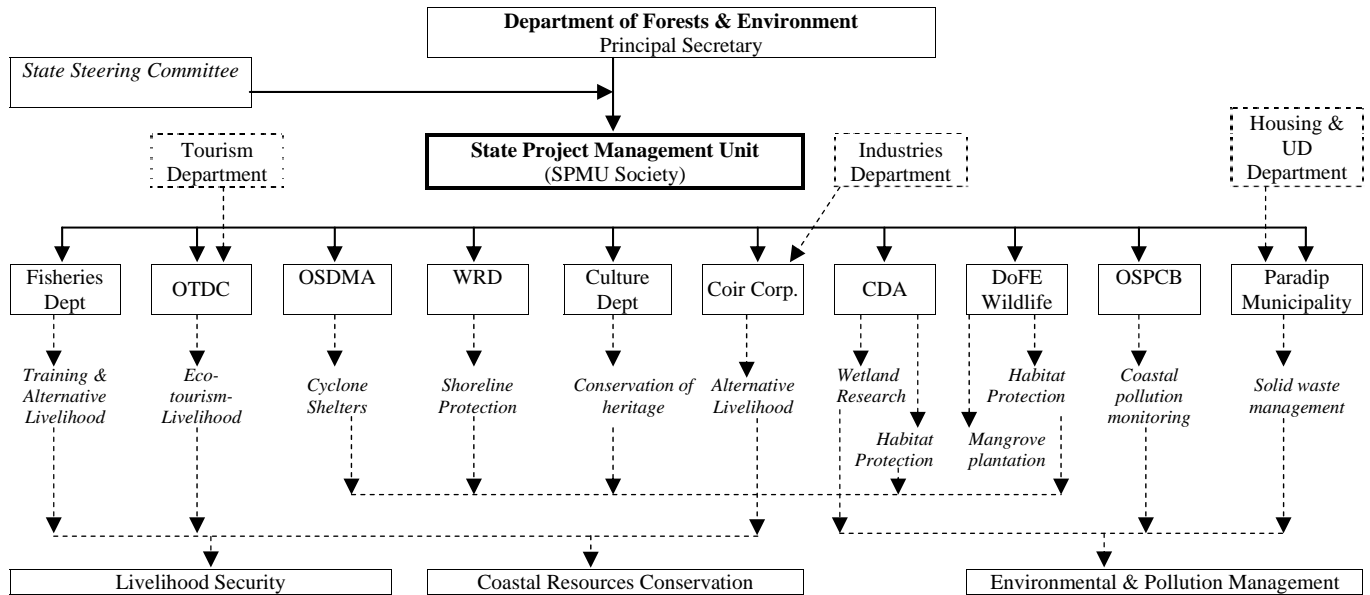
A2: Institutional Arrangements – Gujarat State



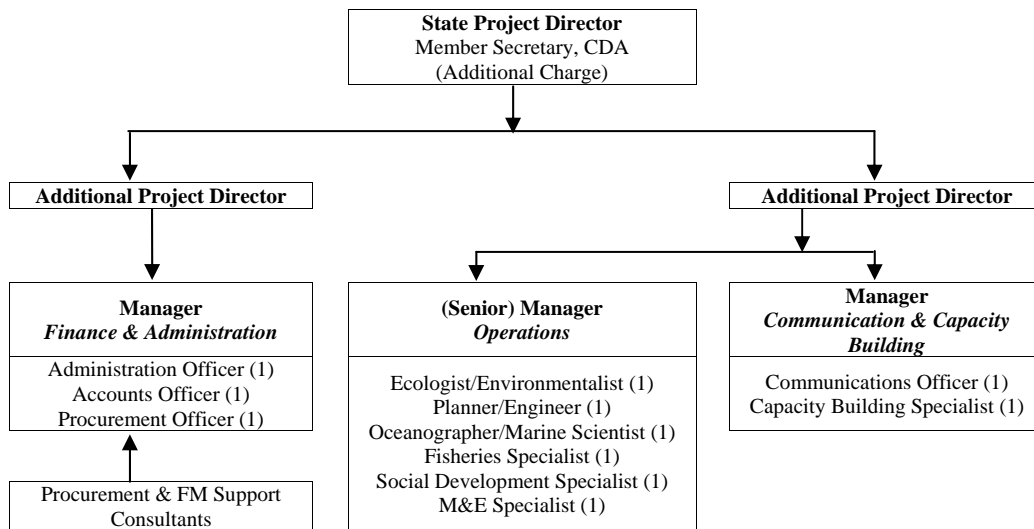
SPMU Staffing



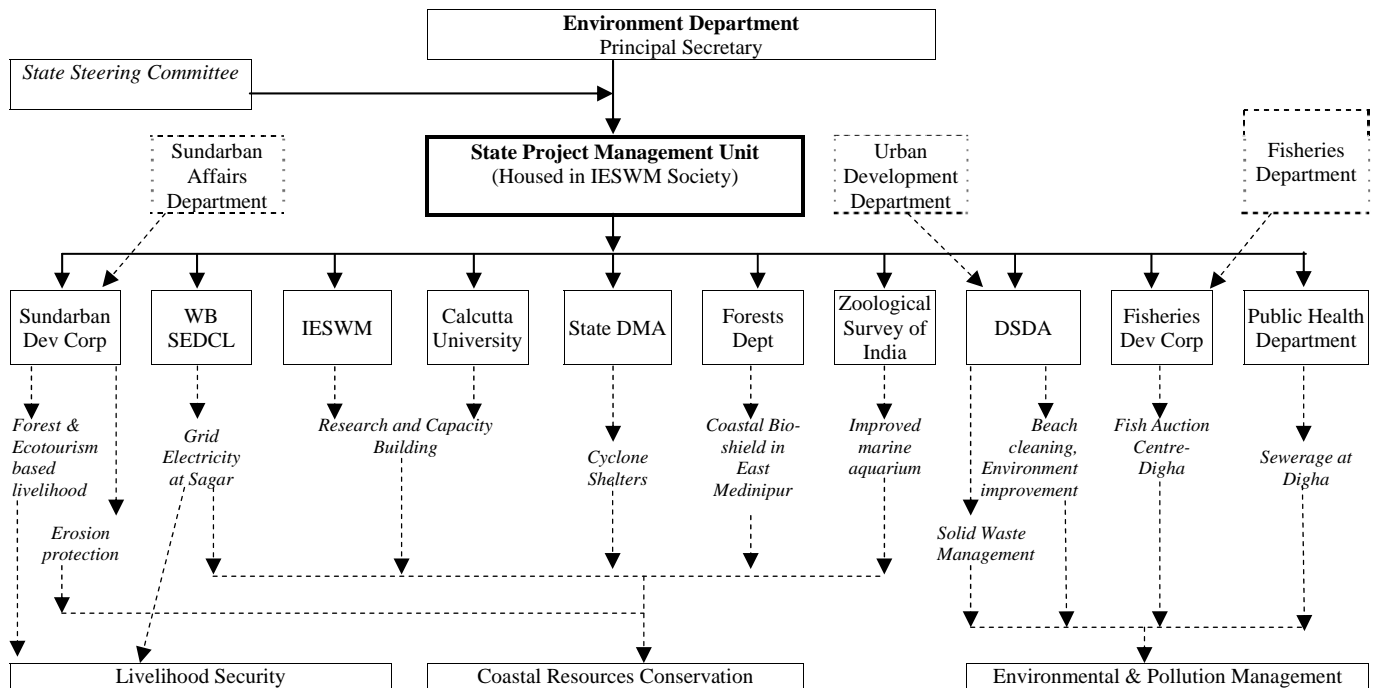
A3: Institutional Arrangements – Orissa State



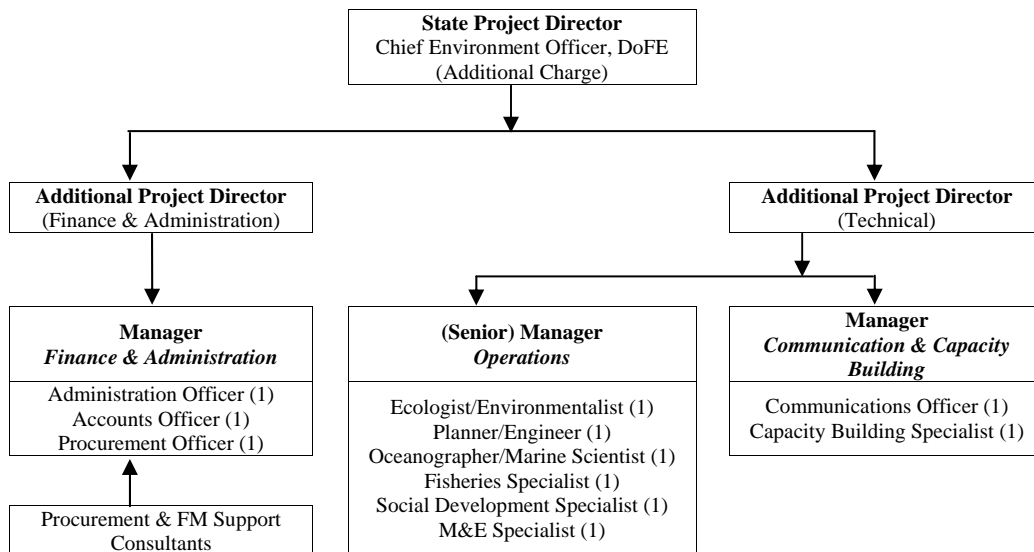
SPMU Staffing



A4: Institutional Arrangements – West Bengal State



SPMU Staffing



Annex 6B: Overall Implementation Schedule

| Project Components | | 2010-11 | | 2011-12 | | | 2012-13 | | | 2013-14 | | | 2014-15 | | | 2015-16 | |
|--|--|------------|---------|-----------------|---------|---------|------------|---------|---------|--------------|--------------|---------|---------|---------|---------|---------|---------|
| | | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun |
| Component - A (National Component) | | | | | | | | | | | | | | | | | |
| A1 | Hazard Line (HL) Mapping | A | | B | | | | | | | | | | | | | |
| A1 | ESA's Mapping | A | B | | | | | | | | | | | | | | |
| A1 | Physical Demarcation of "HL" | | A | (Pilot states) | | | (Others) | | | | | | | | | | |
| A2 | Establishment of National Institute | | | | | | | | | | | | | | | | |
| | Planning & Detailed Design | A | | | | | | | | | | | | | | | |
| | Procurement of works & goods | | | | B | | | | | | | | | | | | |
| | Staffing & Operations | | | | | | | C | | | Continued... | | | | | | |
| | Capacity Building - National | B | | | | | | | | | | | | | | | |
| Component - B (Gujarat State Component) | | | | | | | | | | | | | | | | | |
| B1-1 | State level capacity building | B | | | | | | | | | | | | | | | |
| 2 | Capacity Building - Pollution Monitoring(GPCB) | A | | B | | | C | | | Continued... | | | | | | | |
| 3 | Capacity Building - R&D (GEER) | A | | B | | | | | | | | | | | | | |
| 4 | Capacity Building - Geo Informatics (BISAG) | B | | | | | | | | | | | | | | | |
| 5 | ICZM Plan preparation | | | | B | | | | | | | | | | | | |
| B2 | Priority Investments | | | | | | | | | | | | | | | | |
| 1 | Mangrove plantation (GEC) | A/B-batch1 | | A&B Batch2 | | | A&B batch3 | | | | | | | | | | |
| 2 | Coral Reef Regeneration (MNP) | A | | B | | | | | | | | | | | | | |
| 3 | Mangrove plantation (MNP) | A/B-batch1 | | A&B Batch2 | | | A&B batch3 | | | | | | | | | | |
| 4 | Marine Aquarium (MNP) | A | | B | | | C | | | Continued... | | | | | | | |
| 5 | Environmental Sanitation - Jamnagar (JMC) | A | | B | | | C | | | | | | | | | | |
| 6 | Livelihood Improvement (GEC) | B | | | | | | | | | | | | | | | |
| 7 | Livelihood -Ecotourism (MNP) | B | | | | | | | | | | | | | | | |
| Component - C (Orissa State Component) | | | | | | | | | | | | | | | | | |
| C1-1 | State level capacity building Plan | B | | | | | | | | | | | | | | | |
| 2 | Capacity Building -Pollution Monitoring (OPCB) | A | | B | | | C | | | Continued... | | | | | | | |
| 3 | Capacity Building -Wetland Research (CDA) | A | | B | | | | | | | | | | | | | |
| 4 | ICZM Plan preparation | | | | B | | | | | | | | | | | | |
| C-2 | Priority Investments | | | | | | | | | | | | | | | | |
| 1 | Olive Ridley Turtle protection (CDA) | B | | | | | | | | | | | | | | | |
| 2 | Mangrove Plantation (FD) | A&B | | | | | | | | | | | | | | | |
| 3 | Conservation of arch assets (Culture Depts.) | A | | B | | | | | | | | | | | | | |

| Project Components | | 2010-11 | | | 2011-12 | | | 2012-13 | | | 2013-14 | | | 2014-15 | | | 2015-16 |
|--|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------------|--------------|---------|---------|---------|---------|---------|
| | | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec | Jan-Mar | Apr-Jun |
| 4 | Shoreline protection at Pentha (WR Depts.) | A | | | B | | | | | | | | | | | | |
| 5 | Environmental Sanitation - Paradeep (H&UDD) | A | | | B | | | C | | | Continued... | | | | | | |
| 6 | Livelihood - Fisheries based (Fishery D) | B | | | B | | | | | | | | | | | | |
| 7 | Livelihood - Biodiversity (Forest D) | B | | | B | | | | | | | | | | | | |
| 8 | Livelihood - SSE (Independent Departments) | A | | | B | | | C | | | Continued... | | | | | | |
| 9 | Livelihood - Tourism (Tourism Department) | B | | | B | | | | | | | | | | | | |
| 10 | Multipurpose cyclone shelters (OSDMA) | A | | | B | | | | | | | | | | | | |
| Component - D (West Bengal State Component) | | | | | | | | | | | | | | | | | |
| D1-1 | State level capacity building Plan | | | | | | | | | | | | | | | | |
| 2 | Capacity Building -Biodiversity (WBSBB) | B | | | | | | | | | | | | | | | |
| 3 | Capacity Building -Invertebrates Research (KU) | B | | | B | | | | | | | | | | | | |
| 4 | Capacity Building -Wetland Research (IESWM) | B | | | B | | | | | | | | | | | | |
| 5 | ICZM Plan preparation | | | | B | | | | | | | | | | | | |
| D2 | Priority Investments | | | | | | | | | | | | | | | | |
| 1 | Mangrove Plantation (FD) | | | | | | | | | | | | | | | | |
| 2 | Erosion protection Digha Beach (Irrigation Department) | A | B | | | B | | | | | | | | | | | |
| 3 | Erosion protection Sagar (SDC) | A | B | | | B | | | | | | | | | | | |
| 4 | Coastal Biosheild -East Medinipur (FD) | A | B | | | | | | | | | | | | | | |
| 5 | Marine Aquarium Improvement (ZSI) | A | B | | | B | | | C | | | | | | | | |
| 6 | Env Sanitation - Digha (PHED) | A | B | | | B | | | C | | | | | | | | |
| 7 | Beach Cleaning at Digha (DSDA) | A | B | | | B | | | | | | | | | | | |
| 8 | SWM at Digha (DSDA) | A | B | | C | | | | | | Continued... | | | | | | |
| 9 | Fish Auction Centre - Digha (Fisheries Development Corporation) | A | B | | | B | | | C | | | Continued... | | | | | |
| 10 | Grid Elect. - Sagar (WBSEDCL) | A | B | | | B | | | C | | | Continued... | | | | | |
| 11 | Livelihood - Fisheries (Fisheries Department) | B | | | | | | B | | | | | | | | | |
| 12 | Livelihood - Eco tourism (SDC) | B | | | | | | B | | | | | | | | | |

Note: Planning Phase will include planning, designs, detailed engineering, bid invitations and award; Implementation phase will include actual construction, trial operations & commissioning period; Operations Phase will include satisfactory operations of the assets created on a sustainable basis and will continue beyond project period.

Annex 7: Financial Management and Disbursement Arrangements

INDIA: Integrated Coastal Zone Management Project

1. As outlined in Annex 6 of the PAD, this project is a GoI Central Scheme project with involvement of a Union Government agency and three states supported by PEAs (technical partners) under the respective states. The project will be operated at three levels from the technical and operational level, while from the financial angle there would be two levels of implementing agencies with support from PEA (technical partners) in the field level.

- **Level 1: National level:** The National Project Management Unit (NPMU) for the project is the apex organization, set up by the Ministry of Environment and Forest (MoEF), Government of India (GoI) for the overall management of the ICZM project.
- **Level 2: State level:** Gujarat, Orissa and West Bengal have set up State Project Management Units (SPMU) or designated one of the societies as SPMU. PEA (technical and operational partners) would work on behalf of SPMU to implement individual pilot activities.

2. The project has four major components, one at the central level and three at the respective state level. The details of the project components are provided in the main sections of the PAD, as well as in the Annex 4 of the PAD.

Legal Structure

3. **NPMU:** The NPMU is a registered society under the Scientific and Charitable Societies Act 1955. NPMU will setup proper FM systems and procedures (comprising budgeting, internal controls, accounting, reporting and audit) to account for and report on the entire project resources and expenditure as per requirements of the Bank. A FM manual has been developed which details project FM systems and controls to ensure uniform acceptable FM practices and reporting across the project. The FM arrangements will be overseen by a finance specialist recruited by the society who will be assisted by at least one commerce graduate. The FM staffing requirements and the need for a Procurement and Financial Management Support Consultants (PFMC) has been confirmed during appraisal. The FM Manual has been prepared, was reviewed and found acceptable.

4. **SPMU:** The State Project Management Unit (SPMU) in Gujarat, Orissa and West Bengal will serve as the apex state level organization. The SPMUs will function under the overall guidance of NPMU and DoFE and the respective state PEAs will function under the SPMU's guidance. The FM arrangements will be overseen by the finance specialist recruited by the societies/government who will be assisted by at least two commerce graduates. The FM assessment of SPMUs clearly demonstrates the requirement of additional FM staff requirements, and need for PFMC to carry out the project accounting and reporting.

5. **PEAs** (working as technical partners and working on behalf of SPMU): PEAs are technical partners for this project. MoUs had been signed between SPMU and each PEA such that each of these PEAs would work on behalf of the SPMU. There are 29 PEAs identified under the project –

one at national level, 6 in Gujarat, 10 in Orissa and 12 in West Bengal²³. The PEAs will work under the overall guidance of the respective SPMU and the controlling department. The legal status of the PEAs is varied - registered societies, company under the companies act, government departments, urban local body etc.

Budgeting

6. The project will prepare work plan based annual budgets. The process followed will be bottom-up after the annual budget preparation parameters are established for each entity through a consultative process. The PEAs will prepare their budget which will be consolidated at SPMU along with SPMU budget. The SPMU budgets will be discussed with NPMU and the national project budget will be prepared and finalized with MoEF. The annual consolidated budget will be shared with the Bank. The Financial Management Manual provides the details and formats for annual budget preparation and revision.

7. MoEF and SPMUs have already provided the requisite budget for the current financial year. MoEF and States have agreed that the contribution for the project funds would be provided in one tranche at the beginning of the year once the budget is approved.

Funds Flow

8. **National Level:** For the project, MoEF has already created a subhead in the budget namely “National Coastal Management Program” 3435.04.104.04 of MoEF budget. This head is already being used to transfer PPF funds. Transfers from this head would be made to the NPMU bank account based on the work plan and the approval of the Steering Committee. The NPMU will open a separate bank account for the project in a scheduled bank.

9. NPMU will be preparing annual work plan, based on annual forecasts from SPMU which would provide the basis for funds transfers from MoEF to NPMU through budget on periodic basis for the project. Funds received by NPMU from MoEF will be for (i) NPMUs own expenses and (ii) projected expenses for the SPMUs and PEAs.

10. The NPMU will within two weeks²⁴ of receipt of funds from MoEF, transfer SPMU’s share of the funds received to the relevant SPMU. NPMU would maintain accounts based on the project requirements and transfers made to other states. The amount would be transferred in one installment from the NPMU to SPMU to their bank account on a yearly basis based on the annual work plan and the amount spent in the last financial year.

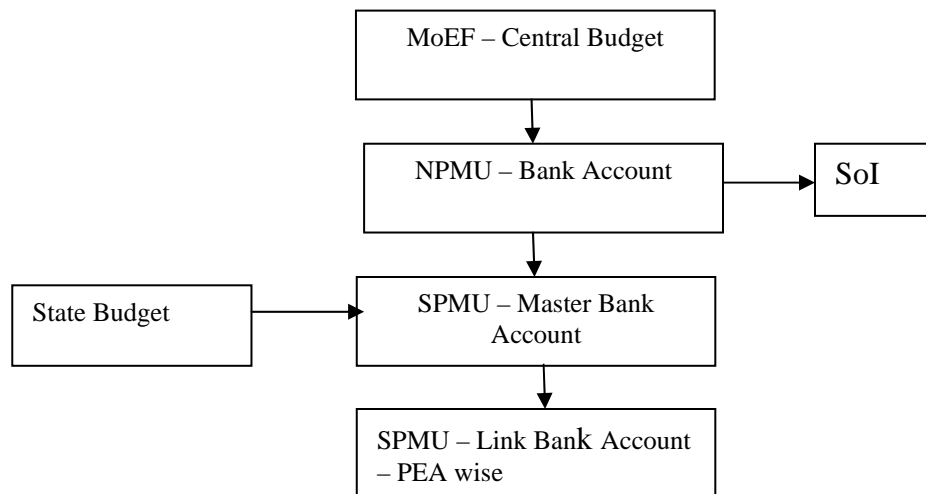
11. Survey of India (SoI) is a central government organization under Department of Science and Technology under the Ministry of Science and Technology. In case of SoI, as they can work through the civil deposit works account concept, a separate sub head under the civil deposit main account would be created which would be used for tracking the receipt as well as expenditure of the funds incurred. The accounts would be maintained at both the project director’s office and also the Regional PAO. The payments would be made by the PAO using the deposit account. The PAO

²³ The Bank has carried out FM assessments of all except one PEA in West Bengal.

²⁴ This based upon the assumption that SPMU submits IUFRR on a timely basis to the NPMU.

prepares monthly accounts which would be submitted to NPMU along with director office accounts. The salaries of the permanent staff of SoI would not be reimbursed from the project.

12. The proposed fund flow would be as follows:



13. **State Level:** SPMUs have opened and will maintain separate bank accounts for the project, all funds transferred by NPMU and from state budget will be routed through this project account. The funds received will be for (i) SPMU’s own expenses and (ii) projected expenses for the PEAs. . The respective state governments have already provided budget for the current financial year and the entire state contribution would be provided each year to the SPMU in the first quarter itself in one tranche. The accounting at the state level would be consolidated at the SPMU level while the actual payments would be carried out by the PEAs through link bank account. To have prudent fund flow and have better control on accounting and reporting at the SPMU the following mechanism has been agreed:

- a. The SPMU would open a separate bank account for the project. The entire amount received would be kept and accounted through this account.
- b. The SPMU would open linked bank accounts for the PEAs in the same bank. The account would be opened in such bank which would offer both Pay in Par facility and core banking solution. These linked bank accounts would be operated by the designated PEA officers (or alternatively, jointly by SPMU and PEA).
- c. SPMU will decide whether to do the actual cash transfer or provide a line of credit to the linked bank accounts based on the state’s decision. From the point of view of financial prudence, it would be better to operate on a line of credit model with pooling/netting of funds in the main bank account on a periodical basis.
- d. The SPMU on a quarterly basis would set either the limit of the advance or the limit of amount which can be used by the PEA from the linked bank account. The limit would be set based on the actual work in progress and the expected work to be carried out.
- e. The PEA would use the linked bank account cheques and would make payments. PEA would compile a monthly statement of expenditure made and cheques issued and send

- it along with cheque issue statement/ copies of cash book to the SPMU for accounting within 10 days from end of the corresponding month. SPMU would finalize the accounts within 30 days from end of the corresponding month. The original documents would be retained and filed separately in the PEA which would be audited as a part of the internal audit.
- f. In case credit limit is used as medium for fund transfer, once the link bank account cheques are encashed, the amount would be automatically transferred from the main account to the linked account by the bank. The banker should be able to provide linked accounts statements which would be used by the SPMU for reconciliation.
 - g. The SPMU would be carrying out the final accounting for all the expenses. The SPMU can release limit/funds based on whether the expenditure statement are submitted on a timely basis. This will help the SPMU in having dynamic control over the cash flow, accounting and reporting.
14. The above arrangement has been agreed and confirmed during appraisal with the states of Gujarat, Orissa and West Bengal as well as at the central level with NPMU. The states have opened bank accounts at the SPMU level. The SPMUs would carry out the internal procedures for operating the PEA bank accounts well in advance of the start of implementation of the respective PEA activities.

Accounting

15. The major accounting centers for the project would be the NPMU, SPMUs and SOI. The actual payments would happen at the PEA level through the linked bank account while the actual accounting and consolidation would happen at the SPMU level for the state level expenditure and the NPMU level for the entire project.
16. A Financial Management Manual has been developed which will provide in detail the applicable accounting policies and procedures for the project. The books of account will be maintained on a double entry cash basis. The manual has separate sections for accounting arrangements for NPMU, SPMUs and PEAs. Books of accounts for the project would be maintained under double-entry principles.
17. Accounts will be maintained by SPMUs and NPMU using a computerized accounting system. A uniform Chart of Accounts will be used for data capture and will facilitate consolidation at state and national levels. All operational and control systems are described in the manual to guide implementation and to help ensure necessary fiduciary control. The accounting software will be configured as per the FM manual and operationalized at the NPMU and the SPMUs within three months from effectiveness.
18. Transfer of funds between NPMU, SPMUs and PEAs will be accounted through inter-unit accounts²⁵ which will be reconciled on a quarterly basis and will be closely monitored by internal audit. All bank accounts will also be reconciled on a monthly basis.

²⁵ NPMU will maintain inter-unit accounts for Gujarat, Orissa and West Bengal in its books to record transfer of funds from NPMU to the SPMUs. The SPMUs will maintain inter unit account of the NPMU in its books. The SPMUs will also maintain inter-unit accounts of the PEAs in the state to record transfer of funds from SPMU to the PEAs.

19. PEAs in terms of accounting work as extended divisions of SPMUs. Each PEA will maintain a separate cash book for the project to capture the receipt of the funds and the expenditure made from the same. They would use the linked bank account for all payments. PEA shall be fully responsible for proper utilization of the funds and also submission the reports to the SPMU. The PEA will maintain the following minimum important books like cash book, general ledger and cheque issue registers which would be used as the basis for reporting to SPMU. The PEA accounts would be like proforma or memorandum books of account which would be used as the basis for accounting by SPMU. PEA would compile a monthly statement of expenditure made and cheques issued and send it along with cheque issue statement or copies of cash book to the SPMU for accounting within 10th of next month.

20. SPMU would do the actual accounting entries based on the report and cash book copy received from the PEA. The SPMU would also prepare bank reconciliation statement for the state. SPMU would finalize the accounts within 30th of the following month. SPMU would be fully responsible for submitting the reports and claims to the NPMU.

21. Survey of India: The accounts would be maintained at both the project director's office and also the regional pay and accounts officer (PAO) of SoI. The payments would be made by the PAO using the deposit account. The PAO will prepare monthly accounts which would be submitted to NPMU along with the accounts maintained at the project director's office, who will be responsible for reporting to NPMU.

Reporting and Monitoring

22. The project entities will prepare quarterly Interim Unaudited Financial Reports (IUFs) in the prescribed format which would be submitted to the bank within 60 days from the end of a quarter. The SPMU will submit IUFs to NPMU for national level consolidation. The national level consolidated IUF for the project will be shared with the Bank and will form the basis for disbursement by the Bank. The IUFs will disclose receipt and utilization of project funds (both Bank share and counterpart contribution) during the quarter, year to date and project to date. It will also provide expenditure forecasts for the next two quarters (based on the annual/revised budget) for the purposes of reporting to the Bank. The IUFs will be based on project accounts and will be reconciled with the project accounts. The draft formats of IUFs have been prepared and agreed.

FM Staffing

23. **NPMU:** A FM specialist who will be CA with relevant experience would lead the FM team at the NPMU. The detailed staffing requirement has been finalized and the agreed staff will be hired within three months from effectiveness.

24. **SPMU:** As the SPMU will handle most of the accounting and payments for the project, it will be staffed with a senior officer supported by an FM specialist and other support staff for book keeping and accounting. The FM specialist, hired based on an acceptable ToR developed would be CA or equivalent with required experience. The ToR has been finalized; the agreed staff should be hired within three months from effectiveness.

25. **PEAs:** As the payments would be done by the PEA, the requirement of good accounts staff is a must for smooth functioning of the project. There will be a designated FM staff at each PEA who will be adequately trained in FM arrangements by SPMU/PFMC and there will be periodic monitoring by SPMU. PEAs will either assign staff from their own cadre or hire commerce graduates with adequate experience to work for this project.

26. **SoI:** In case of SOI the main accounting and payments would be done by the PAO office. As the payments would be initiated by the Project Director, an accounting staff would be placed in the director's office to record the transactions. SOI will either assign a staff from their own cadre or hire commerce graduates with adequate experience to work for this project.

27. Procurement and Financial Management Support Consultants (PFMCs) will be hired at the NPMU and SPMUs. The ToR for PFMCs has been finalized. These respective PFMC would also be responsible for training and helping the NPMU, SPMUs and other agencies in preparing timely accounts and reports.

Internal Control and Audit

28. To perform internal audit, NPMU and SPMUs will appoint CA firms. The internal auditors would audit the NPMU/SPMU/PEA and all activities which are being funded by this project. An acceptable ToR for the internal audit has been developed and agreed. The independent internal auditors would be selected from the panel of CA firms empanelled with the CAG and acceptable to the Bank. The auditor would be appointed within 6 months from effectiveness. The quarterly internal audit reports along with the compliance reports would be shared with the Bank on a periodical basis. The project would constitute audit committees at the SPMU/NPMU levels which would review all these internal audit reports and follow up on the action taken.

External Audit

29. Annual Project Financial Statements and accounts will be subject to audit by an independent CA firm. The audit and reporting will be in accordance with the TOR agreed by the Bank. The auditor would be selected from the panel of CA firms empanelled with the CAG, and acceptable to the Bank. The auditor will be appointed by NPMU to cover all the activities under the project, and all expenditures reported in the IUFRRs will be subject to confirmation/ certification by the annual project audit reports. The annual project audit report which will provide the project financial statement along with a summary of the observations will also attach individual SPMU financial statements and observations. . Any difference between the expenditure reported in the IUFRRs and those reported in the annual audit reports will be analyzed and those expenditures which are confirmed by the Bank as being not eligible for funding (refundable to the Bank) will be adjusted in the subsequent disbursements The annual project audit report and accounts will be submitted to the Bank by September 30 each year. Thus the following audit reports will be monitored in the Audit Reports Compliance System (ARCS) of the Bank:

| Agency | Audit | Auditors | Audit Due Date |
|---------------------|---|----------|----------------|
| ICZM Project – NPMU | NPMU and SoI Project Financial statements | CA firm | September 30 |
| ICZM- Gujarat SPMU | SPMU Project Financial Statements | CA firm | September 30 |
| ICZM- Orissa SPMU | SPMU Project Financial Statements | CA firm | September 30 |
| ICZM- WBengal SPMU | SPMU Project Financial Statements | CA firm | September 30 |
| CAAA | Special Account | CAG | September 30 |

30. **Plan to complete outstanding audits of PEAs:** Three PEAs, namely the OSPCB, the OCCL and the JMC have backlog of audits which is a potential reputational risk. In case of the OSPCB and the OCCL, the audit reports are due for nearly ten years. The case of the JMC is slightly different, as per statutes the JMC does not require statutory audit, and the audit conducted by the internal auditor is deemed adequate. As these PEAs would be working on behalf of the SPMU, they are not treated as implementing agency for this project, but it would be important for

each of these agencies to clear their audit backlog. The states of Gujarat and Orissa have submitted plans for completing the pending audits by these PEAs, and it has been agreed during negotiations that these pending entity audits will be completed and brought up to date by March 2011, and progress would be followed up during the implementation period.

Disbursement Arrangements

31. A Designated Account (DA) will be maintained in the RBI and will be operated by the DEA of GoI. There will be an initial advance followed by IUFR based reporting and disbursement. Advances to and reporting for the DA would be in accordance with the Bank's operational policies. There will be a onetime fixed advance for US\$10 million which will be maintained throughout the project life and adjusted in the last year of the project. The project will submit withdrawal applications to CAA&A in DEA for onward submission to Bank for reporting eligible expenditures and requesting advances of the designated account or reimbursement.

32. From the second quarter the bank will finance actual expenditures²⁶ that are made on project components as reported in the IUFRs. All expenditures reported in the IUFRs will be subject to confirmation/certification by the annual audit reports. Any difference between the expenditure reported in the IUFRs and those reported in the annual audit reports will be analyzed and those expenditures which are confirmed by the Bank as being not eligible for funding (and refundable to Bank) would be adjusted in the subsequent disbursements. The IUFR formats have been included in the Financial Management Manual and have been agreed.

33. Retroactive Financing: The project is eligible for retroactive financing subject to a limit of US\$10 million which will be claimed by the project as part of the normal disbursement procedure. Claims may be submitted for the same provided that all the Bank's guidelines are followed.

Supervision

34. Supervision by the Bank team will involve desk reviews of internal, external audit reports and IUFR along with books of accounts and supporting vouchers and documents. Site visits will be planned as needed to review internal control procedures and practices. The focus during supervision will be on compliance, controls, and capacity building at all levels of project FM. Based on the risk quarterly missions would be required in the first year of the project and the supervision can be reduced as the work progress and the accounting systems are put in place and are providing the desired results

Adequacy of FM Arrangements

35. NPMU will be responsible for implementing the above agreed FM arrangement for the project. A time-bound Action Plan has been agreed with NPMU to mitigate the perceived risks (refer FM action plan).

36. Once the agreed actions are implemented the project FM residual risk would become "Substantial". Subject to implementation of these agreed actions as stated in this financial assessment, there would be adequate financial management arrangements to account for and report on project expenditures for the Bank funded project.

Financial Management Action Plan

²⁶ Expenditure means actual payment made by any entity to contractors/laborers against works done and does not include advances/transfers made, except for mobilization advances made under a contract. Transfers made should be not unless adjusted against actual expenditure.

37. Financial Management Action Plan is as follows:

| S. No. | Agreed Action | Time Frame | Latest Position |
|--------|--|------------------------------------|---|
| 1 | Finalization of audit ToR for both external and internal audit | By Appraisal | Completed |
| 2 | Draft FM manual | By Appraisal | Completed |
| 4 | Fund flow arrangement with Orissa, Gujarat, West Bengal and NPMU confirmed | By Appraisal | Completed |
| 5 | Activation of state budget head, requisition of budget | By Negotiation | Completed |
| 6 | Opening of bank account | By Negotiation | State level bank accounts have been opened, NPMU and PEA bank accounts to be operationalized. |
| 7 | Appointment of one FM staff at NPMU and state societies | By Negotiation | NPMU pending |
| 8 | PFMC ToR | By Negotiation | Completed |
| 9 | FM software to be operationalized in NPMU/SPMU | Within 3 months from effectiveness | |
| 10 | Appointment of external and internal auditors | Within 6 months from effectiveness | |
| 11 | Appointment of PFMC | Within 3 months from effectiveness | |
| 12 | Appointment of FM specialist and other qualified accountants | Within 3 months from effectiveness | |

Risk Assessment

38. The FM residual risk rating for the project after implementation of the mitigation measures would be “Substantial”. The rating would be modified based on the actions completed by the project before negotiations, which will be reviewed and revised as needed during preparation.

| Risks | Remarks | Risk mitigating measures | Residual Risk |
|--------------------------------|---|--|---------------|
| Country level | The country level FM risk for India is rated at Modest | - | M |
| State level | New SPMU is being created in Orissa while in 2 states the existing independent societies would be designated as SPMU. The dependence on the state would be for the budget of the state share. | The budget head has been created and the required amount would be allocated every year based on the work plan. | M |
| Entity or Project level | This project is being implemented by MoEF through an NPMU and three SPMUs (29 PEAs). The NPMU Society (SICOM) has been registered. In Gujarat, GEC and in | NPMU and SPMU capacity will be strengthened through outsourcing of accounting work, and the risk of multiple entities will be mitigated through centralising accounts at | S |

| Risks | Remarks | Risk mitigating measures | Residual Risk |
|------------------------------|---|--|----------------------|
| | West Bengal, IESWM are designated as SPMU. These entities have been in existence for the last five years. GEC has worked with the Bank in the past. In case of Orissa a new SPMU society has been created. | SPMU and using linked bank concept. | |
| OVERALL INHERENT RISK | | | S |
| Budgeting | There will be annual work plan based budgets for the project which will be prepared by each PEA and consolidated at state and central level. SPMU will provide necessary training and guidance to the PEAs in this respect. | The budget head created and the required amount would be allocated every year based on the work plan. | M |
| Accounting | This project is in the nature of CSS project with involvement of 3 states and 29 PEAs. The NPMU is being created as a new society at the National level and in case of Orissa also a new SPMU has been created. | The project accounts would be kept separately from the entity accounts. The national FM manual will prescribe the accounting procedures to be followed. Accounting would be done at NPMU/SPMU. Accounting software would be introduced at NPMU/SPMU which would help in information collection and collation. A common COA would be used for the project which would help in better reporting. FM staff will be trained in the manual and there will be regular monitoring by SPMU. Adequate staffing would be employed. | H |
| Internal Controls | The project has four implementing agencies. In most cases the FM capacity is basic and internal audit arrangements weak. | Project accounts will be subject to internal audit by independent CA firms appointed at the state level under agreed TOR who will carry out quarterly audit of all state PEAs and SPMU. NPMU will also be subject to regular internal audit. | S |
| Funds flow | The number of entities involved with the fund flow requirement and tracking the funds could be an issue. | Funds will flow through minimum possible layers: from MoEF to NPMU through budget release; from NPMU to the SPMUs in the states based on forecasts. PEAs would use accounting through linked bank account. Separate project bank accounts will be maintained by NPMU/SPMU. | S |

| Risks | Remarks | Risk mitigating measures | Residual Risk |
|-----------------------------|--|--|----------------------|
| Financial Reporting | The number of entities involved with the requirement of timely reporting could be an issue. | Quarterly IUFRRs will be prepared at entity level and consolidated upwards – state and central and submitted to the Bank. | S |
| Auditing | The number of entities involved with the requirement of timely compilation of accounts and submitting the same for audit and getting the same audited could be an issue. | The project accounts would be kept separately from the entity accounts. This would facilitate in getting the project accounts audited separately. Annual project audit will be carried out by independent CA firm/s to be hired by NPMU to audit SPMUs and NPMU and submit detailed as well as consolidated report to the Bank by September 30 each year during the currency of the project. A reputed firm from the CAG list would be appointed to carry out the audit for the project across all levels. | S |
| OVERALL CONTROL RISK | | | S |
| RESIDUAL RISK RATING | | | S |

H – High S – Substantial M – Modest L – Low

39. **Outstanding audit reports:** As of now there are no pending audit reports from the implementing agency which would affect the processing of this project. The PPA audit report for this project would be due by 30th September 2010.

Annex 8: Procurement Arrangements

INDIA: Integrated Coastal Zone Management Project

A. General

1. Procurement of all works, goods and consultancy services under the project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004; revised October, 2006 and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, revised October, 2006 and the provisions stipulated in the Legal Agreement. For procurement under the project, the Ministry of Environment and Forests (MoEF) has developed a Procurement Manual conforming to the Bank's Procurement and Consultancy Guidelines, and acceptable to the Bank²⁷. In case of any inconsistency between the procurement manual and the Bank's Procurement/Consultant Guidelines dated May 2004, revised in October 2006, the latter shall prevail. For each contract to be financed by the Credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank in the Procurement Plan.

2. A description of the major works, goods and consulting services to be procured under the project is described in **Procurement Plan** for the project, available at the project's database, and which will also be published in the Bank's external website as well as the website of MoEF.

3. **Procurement of Works:** Major works to be procured under this project would include sewage treatment plants and sewer networks; buildings for the NCSCM, scientific laboratories, field research laboratories and small research stations, fish auction centre including cold storage and chilling plant; cyclone shelters; supply and installation of erosion protection structure; a marine research and conservation centre; biodiversity interpretation centers; improvement of a marine aquarium; restoration of cultural properties. None of the contracts for civil works is expected exceed US\$10 million except for the sewage treatment plant at Jamnagar in Gujarat which is estimated to cost at US\$12 million. All the civil works below US\$10 million will be procured following NCB procedures, and the one contract for the above-mentioned sewage treatment plant will be procured using ICB procedures. Some PEAs who have engineering capability identified in the procurement manual will be responsible for procurement of small works following shopping procedure.

4. **Procurement of Goods:** Major goods and equipment to be procured under this project would include a variety of laboratory equipment, small boats, deep-suction machines, generators, floating photogrammetric workstations, office equipment, computers, and furniture. Most of the laboratory equipment are sophisticated, high value and shall be carried out following ICB/NCB procedures depending on the value of the contract. Office equipment, computers and furniture would be procured following the Directorate General of Supplies & Disposals (DGS&D) rate contract or shopping method.

5. **Selection of Consultants:** The major consultancies would include preparation of ICZM plans in the three states; delineation of coastal sediment cells and sub-cells; detailed mapping of ecologically sensitive areas; financial management and procurement support consultants for three

²⁷ In the event any case of any inconsistency is discovered between the Project's procurement manual and the Bank's Procurement/Consultant Guidelines both dated May 2004, revised in October 2006, the Bank guidelines shall prevail.

SPMUs and NPMU; design and supervision consultants for sewage treatment plants, solid waste management, major buildings, area landscaping works; hazard mapping (aerial photography and photogrammetry, survey leveling, digitization, etc); internal and external audits, monitoring and evaluation including audits; and specialized scientific studies. Short lists of consultant firms for services estimated to cost less than \$ 500,000 or equivalent per contract may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Bank Guidelines for selection of consultants.

6. **Training:** Training will cover overseas and in-country study tours, workshops, training for staff, etc. These shall be carried out in accordance with staff development plans prepared by the NPMU and SPIMUs and agreed with the Bank.

7. **Operating Cost:** The project will support project implementation costs and such other project implementation related costs of recurring nature which will include costs of incremental staff hired on contract; incremental and operating costs for hiring of vehicles and boats; rent for incremental office spaces; advertisements; purchase of consumables, consumable chemicals and reagents; repairs of equipments, provided such expenditures are incurred following procedures as per the project's procurement manual.

8. **Direct Contracting:** The project will finance procurement of software, books and periodicals, etc., which are proprietary in nature, and would be procured using direct contracting method.

9. **Community Contracting:** Livelihood support and improvement activities, mangrove plantation and related small value civil works will be procured following the principles of "Community Participation in Procurement" as detailed in paragraph 3.17 of the Procurement Guidelines and following the Bank's Guidance Note for Management of Procurement Responsibilities in Community-Driven Development Projects dated January 2010. To ensure that such procurement meets the basic principles of economy, efficiency, equal opportunity, fairness and transparency of the process; the Procurement Manual includes the required simplified and flexible procedures and the corresponding simplified bidding and contract formats and applicable safeguards such as participatory monitoring.

10. **Force Account:** Restoration of cultural properties by the Department of Culture in Orissa, where the expertise for architectural restoration is not available in the open market; coral transplantation activities in Gujarat by the Gujarat Ecological Education and Research Foundation and the Marine National Park, where again the expertise is not available in the open market; and mangrove plantation in uninhabited islands and in villages where there is no active or effective community based organization, in Gujarat, Orissa and West Bengal will be implemented using force account. The procurement manual describes the appropriate controls for the work items proposed to be implemented using force accounts, including the appropriate measurements, production standards, and linkage of these to disbursements from SPMU to PEAs.

11. **Non-Consulting Services:** Gujarat Ecological Education and Research Foundation will hire boats for facilitating research activities, and this shall be procured using a bidding document for non-consulting services agreed with the Bank.

12. **Others:** The Survey of India will undertake the mapping, delineation and demarcation of the hazard lines all along the mainland coast of India. The project will finance the consulting and other services procured by the Survey of India as an agency implementing the subject activity and

the procurement of goods, works and consulting services necessary for this activity, all as per the procurement manual and the procurement plan. The project will not finance the salaries of the regular staff of the Survey of India.

13. **Ineligible expenditures:** During preparation it was noticed that in Gujarat the project requires satellite imagery from National Remote Sensing Agency (NRSA). The procurement from NRSA does not fulfill provision of paragraph 1.8 (c) of Bank's Guidelines for procurement of goods and works. It was agreed that this expenditure will be met from Government of Gujarat's own funds. There is no other expenditure which does not fulfill eligibility conditions of Procurement/Consultant Guidelines. During implementation if such requirements arise, those will be financed from the governments' own resources.

B. Assessment of the agencies' capacity to implement procurement

14. The project has four implementing agencies - MoEF at the national level with lead responsibilities, and the Departments of Environment and Forests (DoFE) of the three participating states in collaboration with other local government agencies involved in coastal zone management. The MoEF and the State DoFEs have the sole mandate and experience in coastal zone management and have been the obvious choice to lead project implementation. Each of these four main partners have set up special purpose vehicles in the form of registered societies (NPMU and SPMUs), to exclusively lead and achieve the PDOs; coordinate project activities on a full-time basis and directly implement some of the project sub components. Managing coastal zone development in an integrated manner would require diverse interventions ranging from mangrove plantations to installation and operation of complex underground sewerage systems, from building capacity of the communities in managing coastal resources to knowledge and capacity building at national level. The NPMU and SPMUs, therefore, will collaborate with a range of government departments/ specialized agencies called PEAs.

15. **Broader procurement related policies:** The Constitution of India (Seventh Schedule) lists specific subjects in which the Union Government or the State Government alone can make laws and concurrent subjects in which both the Union and State governments can make laws. Procurement falls in the concurrent list. Procurement of goods/works and services by MoEF and the State Governments (except for Tamil Nadu and Karnataka, who have passed their own procurement legislations) is regulated mainly by the General Financial Rules (GFR), 2005; State Finance Rules, Indian Contract Act 1872 as amended to date and the Sales of Goods Act. Other policy interventions of Central Vigilance Commission and the Right to Information Act also potentially impact government procurement systems.

16. **Country/State Procurement Assessments:** A Country Procurement Assessment Report (CPAR) was prepared in 2001, which provides an understanding/overview of GoI's National Procurement System. State Procurement Assessment Reports (SPAR) were prepared for the States of Karnataka, Tamil Nadu, Maharashtra and Uttar Pradesh in 2002 and 2003. Based on these assessments, the existing basic framework of public procurement rules and procedures in India requires open tenders to all qualified firms without discrimination, use of non-discriminatory tender documents, public bid opening, and selection of the most advantageous contractor/supplier. However, the various assessments (CPAR/SPAR) revealed significant weaknesses and lack of compliance with the basic framework of rules and procedures. These included the absence of a dedicated policy making department, a legal framework, credible complaint/challenge/grievance procedures, and the standard bidding documents. The assessments also highlighted cases of

preferential treatment in procurement, delays in tender processing and award decisions, use of two envelope system and incidents of inappropriate negotiations.

17. Procurement capacity assessment studies for various entities and procurement post reviews of projects in India have pointed out issues such as weak procurement organization, delays in finalization of annual procurement plans, ambiguous and incomplete specifications for equipment, delays in procurement decisions, piece-meal procurement by implementing entities, weak quality assurance and inspection of goods, low capacity of procurement personnel, absence of post-award reviews, and weak complaint handling mechanisms. The above findings are potentially applicable for the current project. The General Financial Rules 2005 aims to address these weaknesses, and requires improvement in implementation..

18. **Assessment of the capacity of MoEF to implement procurement:** An assessment of the capacity of MoEF to implement the procurement arrangements has been carried out by the Bank procurement staff which included (a) a review of the organizational structure for implementing the project, and (b) interaction with the concerned staff of MoEF. The MoEF has earlier handled Bank assisted projects, and during preparation of the current project has undertaken procurement following the Bank's Procurement Guidelines (as per the requirements of the project preparation facility and advance). MoEF follows the provisions contained in General Financial Rules (GFR) 2005. The approval process is multilayer and time consuming. Further, the staff involved in the earlier projects (completed before 2006) are no longer available to be involved in the current project. Based on the implementation requirements of the project, the MoEF has established the NPMU to manage and implement the project, with the required level of delegation of powers, and a streamlined approval process. NPMU has been established only recently, and as such there is no procurement capacity within the NPMU. Therefore, the NPMU (and the Survey of India) who are responsible for procurement of goods, works and consulting services for the national component will be supported by procurement support consultants. The procurement consultant shall be hired within 3 months of effectiveness, and will be continued throughout the project's life cycle. Based on the procurement capacity assessment of the Survey of India, it has been agreed that NPMU will be responsible for procurement of the Survey of India activities.

19. **Assessment of the capacity of the DoEFs in Gujarat, Orissa and West Bengal to implement procurement:** An assessment of the capacity of DoEF of states to implement the procurement arrangements has been carried out by the Bank procurement staff which included (a) a review of the organizational structure for implementing the project, and (b) interaction with the concerned staff of DoEFs. The DoEF in West Bengal has not handled Bank assisted projects, and are not familiar with Bank's procurement procedures. While the DoFE in Gujarat had implemented Bank assisted projects before 2006; but staff who were involved in procurement in those earlier projects are no longer available. Agencies of the DoFE in Orissa were involved in implementing earlier Bank projects, but procurement capacity of the DoFE itself (which was directly managing any procurement in earlier Bank projects) is weak. All the DoEFs follow the provisions contained in the State GFRs. The approval process is multilayered and time consuming. Based on the implementation requirements of the project, the DOEFs have set-up SPMUs to implement the respective parts of the project, with the required level of delegation of powers, and a streamlined approval process. All major procurement activities for the respective state components will be managed by the SPMUs. While each SPMU (which are housed in existing government societies – Gujarat Ecology Commission in Gujarat, Chilika Development Authority in Orissa, and the Institute of Environmental Studies and Wetland Management in West Bengal) has some nascent

capacity to implement procurement, such capacity will not suffice the needs of the project. Therefore, the SPMUs will be supported by procurement support consultants. The procurement consultant shall be hired within 3 months of effectiveness, and will be continued throughout the project's life cycle..

20. **The procurement capacity assessment carried out for the PEAs** reveals that (a) PEAs have capacity to procure small value items, small works following shopping procedures, or for community contracting; and (b) the PEAs, except in cases of the Orissa State Disaster Mitigation Authority and the West Bengal State Electricity Distribution Company Limited lack capacity to carry out major procurement using the Bank's procurement guidelines. The Orissa State Disaster Mitigation Authority (OSDMA) had handled an earlier Bank funded project, Orissa Water Resources Consolidation Project (which closed about three years ago) including a Cyclone Reconstruction Component, similar to the activity planned in this project. The procurement capacity assessment of OSDMA was also carried out as part of the proposed National Cyclone Risk Mitigation Project wherein OSDMA is the implementing agency. The procurement capacity of OSDMA is considered adequate. As far as the role of the West Bengal State Electricity Distribution Company Limited (WBSEDCL) is concerned, there is only one contract for low-voltage distribution network to be procured in the current project. WBSEDCL has already prepared bidding document using NCB procedures. A procurement capacity assessment was carried out, and the assessment determined that the WBSEDCL has capacity to procure this one contract.

21. All other PEAs will procure only small value equipment, office equipment, furniture and small works (of PEAs with engineering capacity identified in the procurement manual) following shopping procedure. The MOU between PEAs and SPMU includes the following distinct and specific agreements to handle procurement up to contract award by SPMU on behalf of PEA.

- Procurement of all works, goods and consultancy services under the Activity will be carried out in accordance with the Procurement Manual prepared by MoEF for the Project. The PEA will be fully responsible for the entire procurement cycle from bid document preparation and invitation to contract signing and contract management for (i) small value procurement of furniture and office equipment using shopping procedures, (ii) procurement of other incremental operating resources, such as contract staff and vehicle rentals, (iii) works to be carried out through force account, if any, (iv) all works to be procured through community participation, through community-based organizations and self-help groups, and (v) procurement of small works. For all procurement processes to be entirely managed by PEA, the PEA will ensure timely procurement as per the Procurement Plan prepared by the Project, or as per the Annual Action Plan. The first set of bid documents for each type of such procurement will be shared by the PEA with the SPMU such that SPMU is satisfied that all procurement is in conformity with the Procurement Manual of the Project and the chances of mis-procurement is absolutely minimized. Once the first set of bid documents are agreed by SPMU, the PEA will use these as a basis for each type of procurement during the entire Project period.
- For all other procurement for works, goods, equipment, and consulting services, procurement up to award will be done by SPMU, whereas the contract signing and the contract management, including payments and contract completion modalities will be done by PEA. In addition, the following will be complied with:

- The SPMU shall submit the Procurement Plan [PP] prepared by the PEA to the NPMU and the World Bank for review and clearance. All procurement shall be limited to the PP and the PEA or the SPMU shall procure items as per the PP.
- For all procurement to be undertaken by SPMU, PEA will ensure that the technical specifications and the bill of quantities, with due technical sanction, are sent to the SPMU in a timely manner, as per the Procurement Plan for the Project. PEA will participate in the finalization of the bid document or request for proposal. SPMU will organize the procurement process up to award of contract. The Award Committee for the contract will include up to 3 members nominated by the Nodal Officer of the PEA, and up to two members nominated by State Project Director of SPMU. Once award is finalized by SPMU, the PEA will sign the contract, without delay, and without subjecting the award to any repeat or de novo internal technical scrutiny by PEA.

22. Based on the above position as well as the actions proposed by MoEF, it is assessed that the project will have appropriate procurement capacity with the support of Procurement Support Consultants to handle the project procurement.

C. Procurement Risks and Mitigation Measures

23. **Procurement Risk Mitigation:** The main procurement risks that can be perceived at this stage, based on the general public financial management in the country and state and the assessment carried out, are that (i) procurement of goods, works and consulting services at state and district levels has normal fiduciary risks of transparency and fairness, (ii) inability to plan the procurement at community level, (iii) low capacity in developing right specifications, identifying right market, inability to influence the market in receiving appropriate pricing and delivery commitments, (iv) misuse and wastage in decentralized procurement undertaken by CBOs due to limited supervision and oversight capacity within the project; (v) inadequate record keeping; (vi) absence of an operating grievance/complaint monitoring system, (vii) lack of appropriate dispute resolution procedures and lack of established system of public disclosure of information on procurement actions, (viii) no single document which includes all rules, procedures and standard bid documents to be followed, (ix) corruption in procurement of goods, assigning field studies or study tours and selection of NGOs, (x) deficiencies in planning, monitoring, evaluation and reporting, and (xii) collusive practices in procurement of works. Further, the implementing agencies in the project (NPMU and SPMUs) are newly formed and have very limited experience or capacity in implementing procurement.

24. The above and the other applicable deficiencies have been addressed by the following risk mitigation measures:

| Risk Factor | Initial Risk | Mitigation Measure | Residual Risk |
|--|--------------|---|---------------|
| Record keeping and documentation | High | <ul style="list-style-type: none"> • At the beginning of the project a brief over view of the documents to be maintained and filed would be discussed with NPMU/SPMU. Subsequently during project implementation, the record keeping and documentation regarding procurement shall be monitored. • The project has prepared a procurement manual addressing these issues. | Substantial |
| Inadequate understanding of proc. procedures | High | <ul style="list-style-type: none"> • Use of the Procurement Support Consultants (as part of the firms procured to provide financial management and procurement support) to NPMU and SPMUs. | Substantial |

| Risk Factor | Initial Risk | Mitigation Measure | Residual Risk |
|--|---------------------|--|----------------------|
| No uniform procurement procedures and SBDs across the implementing agencies | High | <ul style="list-style-type: none"> Bank Procurement Guidelines, SBDs will be used by all the implementing agencies to have uniformity in procurement under the project. Preparation and use of Procurement Manual. | Moderate |
| Inefficiencies and delays in procurement process | High | <ul style="list-style-type: none"> Time line to finalize the tenders/selections has been specified in the Procurement Manual. Creation of NPMU and SPMUs as autonomous societies with adequate delegation of powers. Use of the Procurement Support Consultants to NPMU and SPMUs. | Substantial |
| Insufficient competition in procurement | High | <ul style="list-style-type: none"> Publishing the GPN close to project launch in the regional and national newspapers. Development of website for NPMU and SPMUs. Publishing all SPNs in the project website in addition to a national newspaper. Building-up the cost database. Publishing procurement Plan and specifications of equipments in the website early. Agreement to disclose all contract awards of NCB in the NPMU and SPMU websites. Publishing list of purchase orders/contracts placed following shopping procedure every month in the NPMU and SPMU websites. | Substantial |
| Contract management | High | <ul style="list-style-type: none"> Pre-dispatch and post dispatch inspections will be undertaken. A quarterly report of all the ongoing contracts: a detailed status report including contract management issues such as delays, payments, etc will be submitted to the NPMU Project Director for review (also submitted to the Bank). | Substantial |
| Probability of staff handling procurements being transferred | Substantial | <ul style="list-style-type: none"> Transfer of Procurement staff after they have undergone training is a possibility. MoEF, NPMU and SPMUs will endeavor that the trained procurement staff will normally not be transferred during the project's life. | Moderate |
| Fraud and corruption risks (including collusion and outside interference) in contracting process | High | <ul style="list-style-type: none"> Measures to improve competition such as broad technical specifications, realistic post qualification criteria, appropriate contract packaging. Better disclosure, complaint Handling, MIS, documentation. Training in detecting fraud and corruption indicators to NPMU/SPMUs staff by hiring a consultant with requisite skills by the NPMU. | Substantial |
| Weak complaint redress mechanism | High | <ul style="list-style-type: none"> A complaint handling mechanism has been specified in the procurement manual. A Half yearly report of all complaints received and action taken will be submitted to the NPMU Project Director for review (also submitted to the Bank). This will also be published in the project website. | Moderate |
| Corruption in procurement | High | <ul style="list-style-type: none"> Disclosure of contract opportunities, contract award decisions, internal/external procurement and financial audits | Substantial |
| Overall Risk | High | | Substantial |

25. In view of limited capacity and decentralized nature, the overall project risk for procurement is 'High'. After mitigation measures the residual risk will be 'substantial'.

26. **Disclosure:** The following documents shall be disclosed in the NPMU and SPMUs websites [until then in notice boards]: (i) procurement plan and updates, (ii) specification for goods and equipments as soon as these are prepared, (iii) invitation for bids for goods and works for all ICB and NCB contracts, (iv) request for expression of interest for selection/hiring of consulting services, (v) contract awards of goods and works procured following ICB/NCB procedures, (vi) list of contracts/purchase orders placed by NPMU, SPMUs and PEAs following shopping procedure on a quarterly basis, (vii) short list of consultants, (viii) contract award of all consultancy services, (ix) brief description of activity and amount sanctioned for CBOs using community contracting method, (x) brief description of activity and amount sanctioned using force account, as well as the details of expenditure for such force account activity after completion of the activity, (xi) list of contracts following DC or CQS or SSS on a quarterly basis, and (xii) action taken report on the complaints received on a half yearly basis.

27. The following details shall be sent to the Bank for publishing in the DgMarket and UNDB: (a) invitation for bids for procurement of goods and works using ICB procedures, (b) request for expression of interest for consulting services with estimated cost more than \$200,000, (c) contract award details of all procurement of goods and works using ICB procedure, (d) contract award details of all consultancy services with estimated cost more than \$200,000, and (e) list of contracts/purchase orders placed following SSS or CQS or DC procedures on a quarterly basis. The details are available in **Annex 8A**.

28. Further the NPMU and SPMUs will also publish in their websites, any information required under the provisions of suo moto disclosure as specified by the Right to Information Act.

29. **Complaint Handling Mechanism:** To deal with the complaints received from contractor or suppliers effectively, a complaint handling mechanism will be developed at all levels. On receipt of complaints, immediate action will be initiated to redress grievances. All complaints will be dealt with at levels higher than that of the level at which the procurement process was undertaken. If the complaint is received prior to award of the contract, the complaint shall be taken into account while considering the award of the contract and discussed and documented in the evaluation reports. If, after contract award, a protest or complaint is received from the bidders, it will be examined and if necessary, the contract award will be reconsidered.

D. Agreed Procurement Arrangements

30. **Procurement Plan:** The Borrower, at appraisal, developed a procurement plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the Borrower and the Bank's project team at appraisal, and is available at the office of the NPMU, and in the project files. For each major contract to be financed by the Bank, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are specified in the agreed procurement plan. The procurement plan will be updated in agreement with the Bank's project team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. It will also be available in the project's database, NPMU and SPMU websites, and in the Bank's external website.

31. **Procurement Manual:** MoEF has prepared a procurement manual to guide the implementing agencies at all the levels in handling the procurement conforming to the Bank Guidelines for Procurement. No amendment to the procurement manual shall be carried out without review and clearance from the Bank.

32. **Procurement Staff:** Most of the Procurement would be carried out at the NPMU and SPMUs who will recruit full-time procurement officers. The procurement officer will receive appropriate training for implementing procurement under the Bank assisted projects. In addition, the NPMU and SPMUs will procure services of a firm who will provide services of procurement specialists to be housed in the NPMU and SPMUs, and provide all required support to the national and state project directors.

33. **Standard Bidding Documents:** The Standard Bidding documents of the Bank as agreed with GoI task force (and as amended from time to time) for all procurement under NCB will be used. For ICB/ LIB contracts Bank’s latest Standard Bidding Documents (SBDs) only will be used. The following conditions must be met in order for the bidding process under NCB to be acceptable to the Bank

- (a) only the model bidding documents for NCB agreed with the GoI Task Force (and as amended from time to time) shall be used for bidding;
- (b) invitations to bid shall be advertised in at least one widely circulated national daily newspaper, at least 30 days prior to the deadline for the submission of bids;
- (c) no special preference will be accorded to any bidder either for price or for other terms and conditions when competing with foreign bidders, state-owned enterprises, small-scale enterprises or enterprises from any given state;
- (d) except with the prior concurrence of the Bank, there shall be no negotiation of price with the bidders, even with the lowest evaluated bidder;
- (e) extension of bid validity shall not be allowed without the prior concurrence of the Bank for the first request for extension if it is longer than four weeks; and for all subsequent requests for extension irrespective of the period;
- (f) re-bidding shall not be carried out without the prior concurrence of the Bank. The system of rejecting bids outside a pre-determined margin or “bracket” of prices shall not be used in the project;
- (g) rate contracts entered into by DGS&D will not be acceptable as a substitute for NCB procedures. Such contracts will be acceptable however for any procurement under Shopping procedures; and
- (h) two or three envelop system shall not be used.

34. For all procurement of Consultancy Services, the Bank’s latest Standard RFP as agreed with the Bank will be used.

35. **Methods of procurement:** The following methods of procurement shall be used for procurement under the project. Note that if a particular invitation for bid comprises of several packages, lots or slices, and invited in the same invitation for bid, then the aggregate value of the whole package determines the applicable threshold amount for procurement and also for the review by Bank.

| Category | Method of Procurement | Threshold (US\$ Equivalent) |
|-----------------------------------|-----------------------|--|
| Goods and Non-consultant services | ICB | >200,000 |
| | LIB | wherever agreed and with prior agreement with the Bank |
| | NCB | 200,000 or less |
| | Shopping | Up to 20,000 |

| Category | Method of Procurement | Threshold (US\$ Equivalent) |
|-----------------------------------|--|---|
| | DC | As per Para 3.6 of the Bank Guidelines, wherever agreed and with prior agreement with the Bank |
| Works and Supply and Installation | ICB | > 10,000,000 |
| | NCB | 10,000,000 or less |
| | Shopping | Up to 30,000. carried out through a qualified local contractor selected through shopping (after inviting a minimum of three quotations in response to a written invitation with a minimum of 15 days notice period) |
| | Force Account | wherever agreed and with prior agreement with the Bank |
| Consultants' Services | CQS | Up to 100,000 per contract |
| | SSS | with prior agreement of the Bank |
| | Individuals | No limit |
| | Use of NGO | As per Para 3.16 of Guidelines |
| | QCBS/QBS/FBS/LCS (i) International shortlist (ii) Shortlist may comprise national consultants only | No limit >500,000 Up to 500,000 |

36. **Prior review by the Bank for works and goods:** All ICB contracts and the first NCB contract of works and goods from NPMU and each participating SPMUs and subsequent contracts above US\$500,000 for works and US\$200,000 and above for goods; and all contracts awarded on direct contracting method irrespective of value will be subject to prior review by the Bank.

37. **Prior review by the Bank for consultancy services:** First contract of any value from NPMU or SPMUs; subsequent contract valued over US\$200,000 equivalent for firms including NGOs, and above US\$50,000 equivalent for individuals; all contracts to be awarded on single source selection basis irrespective of value will be subject to prior review by the Bank.

38. **Post Review by the Bank:** All contracts not covered under prior review will be subject to post review during supervision missions, and/or review by consultants to be appointed by the by Bank. The normal Bank requirement of procurement post review of 15 percent of the contracts for a project with a risk rating of 'substantial risk' will be followed, except for the activities undertaken using community contracting and force account methods.

39. A very large sample of the cases of community contracting and force account cannot be achieved in this project due to resource constraints. The NPMU and SPMUs will hire an independent monitoring consultant for the project, which will include special audit for community contracting and force account. The independent monitoring consultants will provide reports on expenditures incurred, asset verification, and technical quality of outputs. These, along with external and internal audit reports will be relied upon and/or triangulated for post-review of activities undertaken using community contracting and force account methods.

40. The prior review thresholds will be periodically reviewed and revised as needed during the project implementation period based on implementation of risk mitigation measures, reports from

procurement post-review, and improved capacity of NPMU and SPMUs to implement procurement. The objective for the periodic reviews during implementation is to increase the prior review thresholds up to \$10 million for works, turnkey and supply and installations, \$1 million for goods, \$500,000 for consulting services by firms, and \$200,000 for consulting services by individuals.

41. **Procurement Review by MoEF:** Independent review or audit will be undertaken for the project for MoEF's own internal due diligence, and as agreed in the implementation arrangements for the project.

- Procurement review/audit by independent internal audit consultants: NPMU and SPMUs will hire an independent agency for carrying out internal financial audit, based on terms of reference acceptable to the Bank. A part of the activities of the consultant will include carrying out post review of the contracts awarded by the NPMU, SPMU and PEAs. The report submitted by the consultant will be part of the quarterly progress reports.
- **External audit:** The external auditor appointed by the NPMU will conduct the audit of all implementing agencies. In case there is any procurement related observation made by the external auditor in their audit report, the same shall be shared with Bank along with the comments of NPMU and/or SPMUs.

E. Frequency of procurement supervision

42. Given the large number of contracts, geographical spread and the general risks involved, a minimum of two supervision missions a year is planned. In addition to supervisions missions, the Bank will also carry out an annual ex-post review of procurement that falls below the prior review threshold.

Procurement disclosure Requirements as per BANK's Guidelines dated May 2004, revised in October 2006

- 1. Contract Awards for ICB and LIB:** Within two weeks of receiving BANK's No Objection to the recommendation of contract award, the Borrower shall publish in UNDB on-line and in dgMarket the results identifying the bid and lot numbers and the following information:
- (a) name of each bidder who submitted a bid;
 - (b) bid prices as read out at bid opening;
 - (c) name and evaluated prices of each bid that was evaluated;
 - (d) name of bidders whose bids were rejected and the reasons for their rejection; and
 - (e) name of the winning bidder, and the price it offered, as well as the duration and summary scope of the contract awarded.

In the publication of Contract Award referred above, the Borrower shall specify that any bidder who wishes to ascertain the ground, on which its bid was not selected, should request an explanation from the Borrower. The Borrower shall promptly provide an explanation of why such bid was not selected, either in writing and /or in a debriefing meeting, at the option of the Borrower. The requesting bidder shall bear all the costs of attending such a debriefing. If after publication of the results of evaluation, the Borrower receives protest or complaints from bidders, a copy of the complaint and a copy of the Borrower's response shall be sent to BANK for information. If as result of analysis of a protest the borrower changes its contract award recommendation, the reasons for such decision and a revised evaluation report shall be submitted to BANK for no objection. The Borrower shall provide a republication of the contract award.

- 2. Contract awards for National Competitive Bidding:** Publication of results of evaluation and of the award of contract consisting of the same information as mentioned above for ICB/LIB.

- 3. Contract Awards for Direct Contracting:** After the contract signature, the Borrower shall publish in UNDB on-line and in dgMarket the:
- (a) name of the contractor;
 - (b) price;
 - (c) duration; and
 - (d) summary scope of the contract.

This publication may be done quarterly and in the format of a summarized table covering the previous period.

- 4. Contract Awards for Consultancies:** After the award of contract, the borrower shall publish in UNDB on-line and in dgMarket the following information:
- (a) the names of all consultants who submitted proposals;
 - (b) the technical points assigned to each consultant;
 - (c) the evaluated prices of each consultant;
 - (d) the final point ranking of the consultants;
 - (e) the name of the winning consultant and the price, duration, and summary scope of the contract.

The same information shall be sent to all consultants who have submitted proposals.

5. Contract Awards for Selection Based on the Consultants' Qualifications (CQS) and Single Source Selection (SSS): The Borrower shall publish in *UNDB on-line* and in *dgMarket* the

- (a) name of the consultant to which the contract was awarded,
- (b) the price
- (c) duration, and
- (d) scope of the contract.

This publication may be done quarterly and in the format of a summarized table covering the previous period.

Annex 9: Economic and Financial Analysis
INDIA: Integrated Coastal Zone Management Project

A9.1 Introduction

1. **Background:** The purpose of this Annex is to provide summaries of the economic and financial analyses of the India ICZM Project. The nature of the Project is such that it is essentially a combination of institutional capacity building, and a series of strategic pilot investments intended to demonstrate the viability of various strategies that can improve economic development and environmental sustainability within the coastal zone. To this extent, the analyses rely to some degree on environmental economic principles that attempt to capture more than just the marketable benefits arising from such interventions; the “Total Economic Value” can be reflected more broadly by including the value of environmental services such as erosion control or storm surge protection that may be more prevalent with climate change. The “economic” analyses reflected in this annex thus attempt to capture some portion of these unmarketed benefits in providing a more comprehensive assessment of the project viability.

2. While individual project investments that are intended to improve livelihoods or meet the demand for basic infrastructure services can be readily analyzed, the analysis of institutional investments including capacity building investments is more difficult because of the public good nature of such interventions. The approach taken to these, however, is still to assess some of the directly identifiable financial benefits (through cost savings or through generation of fees) while also ascribing some portion of broader benefits associated with coastal protection. It is acknowledged that the capture of some of these intangible (and at time sporadic) coastal benefits may be difficult but the analyses attempt to apply best available information to assess the potential expected value of these benefit flows. In India – as elsewhere – the analyses do demonstrate that the institutional costs are far less than the benefits even if only a small fraction of the benefits can be somehow attributable to the institutional interventions.

3. **Assumptions and Basis of Information:** The analyses focus on the 5 national activities and a number of state activities and pilot investments as described in the Annex 4 of the PAD, taking the base costs within the five year project and also including the ongoing fixed and variable operating costs associated with each individual activity or sub-project. Project management costs are included but are only analyzed within the overall project context and not as a stand-alone activity. The basis for this information is the individual detailed project reports (DPR), as well as complementary feasibility studies prepared in support of the DPRs.

4. Common assumptions were applied to all investments for the financial and economic analyses but key assumptions are as follows:

- Economic analyses were conducted on the base cost and revenue streams with no provision for real or nominal price contingencies at either the investment stage or operational stage. Similarly, no contingencies were added to the revenue streams or the output levels. Rates of return calculated on this basis are thus real rates of return.
- Exchange rates are consistent with World Bank assumptions for India and reflect a rate of INR46/USD.
- Project analysis timeframe is taken as the investment period plus 25 years beyond project closing.

5. Benefit valuations of intangibles were based on literature reviews and selected valuation studies for mangroves, coral reefs, and water quality conducted as part of project preparation activities (see references at end of this Annex 9).

6. **A Note on Economic Risks:** There are a number of risks and uncertainties inherent in the project design; these are treated elsewhere in the PAD and most have been internalized where possible and are thus reflected in the project costs overall. It is relevant to note, however, that most of the mitigation measures for individual project measures are in fact inherent within the institutional processes and investments. For example, the development of ecotourism projects is done within the broader context of ICZM planning processes and research efforts that might help establish carrying capacities of local ecosystems. These are in turn coupled with participatory stakeholder consultation processes, and ongoing monitoring efforts that provide feedback into overall management. These same institutional processes also, however, inform other investments in the coastal zone and thus have a joint product nature.

7. The greatest economic risk in this project is thus not so much what one sees in conventional styles of economic analyses, which focus on cost over-runs or non-realization of benefit streams; such conventional analyses are conducted below to reflect variances of 10 percent from the base case assumptions. In this project, the greatest risks are in fact associated with widespread “decoupling” of the individual pilot investments with the broader institutional support underlying these pilot investments. Under such decoupling, a pilot investment might still function in isolation, but would fail to contribute to broader synergies that are inherent in ICZM. Reflecting this decoupling within an economic analysis is problematic because:

- (a) Over a longer term there is an inherent tendency of the system to replicate the successful rather than the failed pilot investments. The impact of a few failures is thus not that pronounced, as a niche is created for more successful projects.
- (b) There is seldom a technical basis for assessing the degree of correlation between sub-project failures or success. We generally assume that risks are uncorrelated, although real-world analyses of systems suggests that both positive and negative feedback loops exist that can result in highly correlated risks. At the stage of appraisal, it is impossible to quantify the potential degree of negative or positive correlation, so it is assumed that there is no correlation.

8. The way this economic risk is treated within the project is primarily through project design: it is clear from the project description that there exists a range of activities within each state that represents a portfolio of pilot investments. Within this portfolio of a dozen or so pilot investments, we can analyze the expected viability of each sub-project activity, but in reality some will do better than expected while others will do worse. Over the long term, the ones that do best are more likely to be replicated. Use of the expected values of individual pilot investment over a five year project timeframe is thus likely to inherently understate the performance of this initial portfolio selection. The most realistic sensitivity analysis for the project as a whole is thus to remove some proportion of the poor performers over the long term with a similar investment in better performers. We present the results of such an analysis further below to reflect the benefits of such a portfolio approach when conducted within the context of a broader ICZM institutional framework.

9. **A Note on Results:** To facilitate discussion of the projects and results, we introduce here Annex Table A9.1, which shows a summary of results for all individual activities as well as consolidated results by component and theme. The table is based on a comprehensive Excel

spreadsheet model, which provides a component-wise and activity-wise breakdown of the Project. Each Activity (47 in total) is accorded its own economic analysis template in which base costs, revenue and benefits are included to provide a stand-alone analysis of the sub-project activity. Table A9.1 summarizes these, and provides a financial internal rate of return (FIRR) and economic internal rate of return (EIRR) for each activity on a stand-alone basis. For institutional activities, stand alone analyses are not normally given (as they would generate negative rates of return) but for each component an estimate is provided of intangible benefits that can be attributed to the aggregate of institutional and pilot investments.

10. **Treatment of Safeguard Costs:** This Project has triggered a number of safeguards, notably environment assessment, natural habitats and involuntary resettlement (see PAD Annex 10). Costs of mitigation measures relating to these safeguards are entirely internalized within the pilot investments or supporting institutional interventions; the disclosed draft E&SA report indicates a budget of INR373 million (~US\$8.1 million) to accommodate the environmental and social management measures and associated monitoring costs.

11. Appraisal also identified cost provisions for compensation schemes (related to potential future chance involuntary resettlement) that may arise from the project. These transfer payments are included within the pilot investment costs as a proxy for the compensating variation in individual utility functions although we note that this is just an approximation of the economic losses and may somewhat understate or overstate the actual utility lost.

12. **Outline of Annex:** The following sections deal first with some additional assumptions relating to project costs (A9.2) and benefits (A9.3). An analysis of institutional activities is summarized (A9.4), which handles both the national and state level interventions. Because of the similarities among some activities among the different states and components, the economic analyses next provide a separate treatment of each theme including: conservation and protection of coastal resources (A9.5); environment and pollution management (A9.6); and, livelihood security for coastal communities (A9.7). The financial sustainability analysis (A9.8) focuses on fiscal impacts and long-term operational cost requirements.

A9.2 Costs

13. The total project costs as reported in Annex 5 show US\$285 million in total financing. Of this, the base costs over the five year period as analyzed in this Annex are US\$251 million with the US\$34 million gap representing price and physical contingencies. In capturing these costs, it is also noted that:

- (a) The analysis includes monitoring costs, knowledge management costs and associated overhead costs that facilitate adaptive management during project execution. These costs are also part of the institutional support costs at the national and state level.
- (b) Fixed and variable operating costs are estimated after project completion, but include the costs just for activities initiated under the project. They provide no provision for replication.
- (c) Scrap values for equipment are not reflected in the analysis as it is assumed that the project timeframe encompasses the useful economic life of the investments.

14. In addition, the project costs only include eligible costs for financing and not parallel financing that may be 100 percent government financed activities, which would have been incurred in any event. In this manner, sunk costs that have been incurred by Government are also

excluded. Notably, these include costs with some of the infrastructure investments such as transmission lines (Sagar, West Bengal) and household connections (Jamnagar, Gujarat).

A9.3 Benefits

15. **Types of Quantifiable Benefits:** The analysis distinguishes among a number of different types of benefits. Some of the benefits are direct financial flows from revenues generated by the sub-projects. This might occur where tariffs are levied, where community sub-projects generate saleable output, or where there are direct cost savings because the project results in more efficient processes. Within this project, such direct financial benefits are estimated to represent 36 percent of the flow of quantifiable project benefits. The remaining benefits are quantifiable but do not pass through any markets. The majority of these are associated with coastal protection functions of bio-shields; to estimate these we rely on techniques using environmental economic valuation.

16. **Environmental Economic Valuation of Benefits:** Many of the coastal systems that this project seeks to protect have ecological functions that have economic benefits, even though they do not directly generate revenues. These benefits have been estimated in India for various ecosystems and we use a mean estimate of about US\$0.4 million/km of coastline per year as a working estimate. The actual range of estimates varies considerably depending on ecosystem and methodology. For example, an opportunity cost approach of building coastal defense systems generates an estimate of US\$0.39 million/km/yr, while an estimate that values the likely impact on local incomes generates an estimate of US\$0.24-US\$0.56 million/km/yr in rural and peri-urban areas (urban areas would generate even higher values using this approach but in such cases it is thus justifiable to build coastal defenses).

17. These estimates are based on so-called “environmental economic” valuations that attempt to estimate the value of environmental goods and services. These estimates are the values to people of nature or of nature’s component species or natural functions. The values are not the values to nature itself, nor to the species; there is no methods available for quantifying such concepts. Put simply, the economic value of some environmental good or service is the contribution it makes to social welfare, expressed in monetary terms. The good or service can make contributions to social welfare through different avenues: through direct uses or consumption, as well as through non-consumptive uses. The complete collection of all of these contributions is often referred to as the Total Economic Value (TEV). The actual TEV is often decomposed to “use” versus “non-use” values, or to “active use” versus “passive use” values. One characterization of TEV is represented in Figure A9.1. The diagram shows that TEV can be regarded as a composite of reasonably well-defined direct uses (such as recreation) and indirect uses (including physical processes such as erosion control), as well as less well-defined concepts such as option value, bequest value, and existence value. These latter three are less tangible, but generally relate to the idea that environmental goods and services may have some future (perhaps unknown) uses or that they may have some intrinsic importance to individuals now or in the future that is independent of their direct use or consumption.

18. The actual meaning of TEV should not be taken too literally. A diagram such as Figure A9.1 implies that TEV is the sum of these parts but the different categories cannot, in fact, be summed. Strictly, the assumption of linear additivity is in most cases incorrect for a number of reasons:

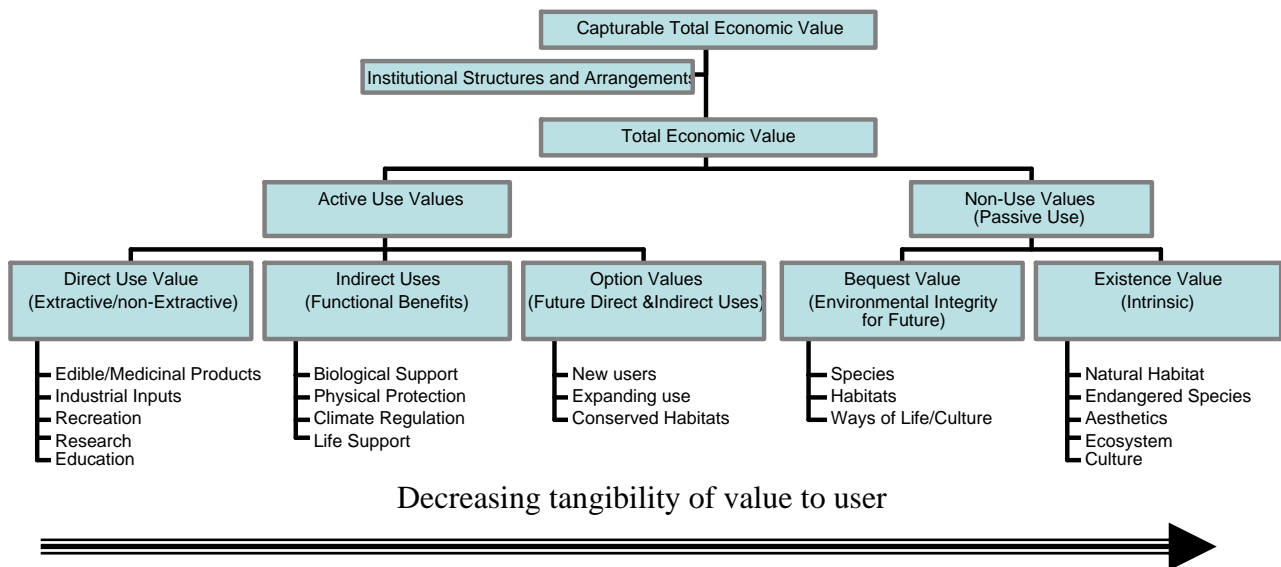
- (a) Use values are at times mutually exclusive. A fish may be eaten, or may be caught and released by an angler, or may simply be watched by a nature enthusiast. All of these events

have a bearing on social welfare, and thus have some imputed value. But they cannot be added because (for a single fish in a single period) not all three uses can be accommodated concurrently.

- (b) Values contribute in a non-linear fashion. Non-linearities are common in complex systems, especially if such systems are close to thresholds or if the system being valued is narrowly defined. The non-linearities may exist in the environmental system (that provides the good or service) or in the social welfare function of the society or individual that consumes the good or service. One hundred hectares of wetlands in one spot will likely have different functional attributes (and thus a different value) than ten smaller wetlands that add up to the same area. Or people may place a higher value on tigers in India if they believe that other rare cat species elsewhere are on the verge of extinction. Both of these simple cases nonetheless demonstrate complex behavior in the valuation function, or welfare function, of a good or service.
- (c) Value is often not readily captured through any mechanism. The actual value that is of policy relevance in decision-making is that associated with the reference society. Although those living in Europe may value Asian species such as tigers or marine turtles, unless there is a mechanism in place to capture this value, such a contribution to welfare may be of little relevance in decision-making. Adding it into the overall calculus may or may not have a bearing on what the actual tradeoffs might be.

Figure A9.1 – Total Economic Value (TEV).

The concept of TEV is often used to characterize the contribution that environmental goods and services make to society’s general well-being.



19. **Unquantifiable Benefits relating to Poverty Impacts and Life Expectancy:** In addition to the above benefits, the project generates unquantifiable impacts relating to improvements in life expectancy and poverty reduction. We do not explicitly estimate these, but note that the coastal areas being targeted in this project harbor some of the most impoverished populations in India. In

addition, the project puts in place institutional mechanisms and specific investments capable of saving lives; damage in May 2009 from cyclone Aila tragically resulted in the deaths of over 200 individuals in the Sundarbans as a result of embankment breaches and flooding. While such occurrences may never be entirely eliminated because hazards will persist, their impacts will be considerably mitigated by proper coastal zone planning and implementation of sound coastal management strategies and associated investments. The value of the lives potentially saved by these interventions is not included in this analysis.

A9.4 Analysis of National and State Institutional Support

20. The scope of national and state level institutional support broadly falls into the following areas:

- a) Mapping of Hazard Areas and Ecologically Sensitive Areas
- b) National Capacity Building (National Institute)
- c) National Capacity Building (General)
- d) State Level Institutional Capacity Building (Research Activities)
- e) State Level Institutional Capacity Building (ICZM Planning)
- f) Project Management and Associated Training

21. The costs of these five activities approach US\$109 million over the five year project life, of which about US\$38 million is at the state level in the three focal states. It is noted that the national level capacity building has beneficiaries in all coastal states in India. These institutional costs collectively impose long term operational costs of about US\$4 million country wide (mainly from the National Institute) and confer some US\$1.7 million in direct revenues or cost savings as well as almost US\$35 million annually in coastal zone benefits country-wide over the long term.

22. The analysis of the project as a whole shows a project EIRR of 20.2 percent when all institutional investments including project management costs are included; the FIRR in this case is about 1 percent²⁸. If project management costs are excluded, the FIRR approaches 2 percent and EIRR is 21.6 percent. This presumes capture of just over 1 percent of available unquantifiable benefits (which is typical for basic institutional capacity building although in some countries these estimates approach 5 percent with sustained capacity building over a 10-20 year program).²⁹ Sensitivity analyses showing 3 percent capture of such benefits increases EIRR of this project to 27.9 percent.

A9.5 State Level Pilot Investments: Conservation and Protection of Coastal Resources

23. Within the three states the Project supports 10 activities related to the theme of Conservation and Protection of Coastal Resources. These include projects as diverse as coral reef regeneration, mangrove plantation, a marine resources information centre, the protection of marine habitats, investments in cultural monuments, and shoreline protection through coastal erosion

²⁸ If one attributes an interest free period during project implementation the FIRR to India is in fact about 5 percent.

²⁹ Specifically, the analysis takes a target of 2% nationally, with one third attributable to any national level interventions and two-thirds attributable to state level interventions. If all states were involved, this implies that 2% would be captured. Because this project only targets three states, the full impact is less. Allocation of benefits by state is done based on kilometers with coastline, with Gujarat thus having the greatest impact. Including all three states, the total realized benefit is 1.3% based on this algorithm.

protection. The summary economics of all of these activities are provided in detail in Table A9.1. As a whole, these activities represent some US\$36 million of investments generating an aggregate financial rate of return of 8.8 percent and an economic rate of return of 20.9 percent. We here summarize the economic analysis of three of these activities in greater detail.

24. Gujarat – Marine Resources Information Center: This US\$6.5 million investment is expected to generate an FIRR/EIRR of about 25 percent, using a public-private partnership model of development. A detailed feasibility study indicated that the optimal size and location of such a facility would be a medium scale oceanarium located in Dwarka. This choice reflected proximity to existing cultural tourism assets, with many of the visitors stating that they would be keen to spend time at an oceanarium featuring various educational and recreational exhibits. Some constraints relating to the regulatory environment exists, but the feasibility study recommends a series of planning and compliance measures that permits a phase-in of the facility during the latter part of the Project.

25. Orissa – Conservation of Archaeological Heritage: This US\$1.6 million investment will conserve and restore identified monuments along the Orissa coast and develop them as Heritage Tourism Sites. A modest income will be generated through direct user fees as well as small scale enterprises in association with the sites. On aggregate, the activity is expected to generate an FIRR/EIRR of about 11 percent. At this stage, some 7 specific sites have been identified that will be implemented by the Culture Department (Govt. of Orissa). The architectural conservation and restoration works will be undertaken at the best professional standards, and are duly supervised; costs associated with this activity might thus be somewhat higher than those conventionally incurred by the Department which has operated on limited budgets. The economic analysis is based on costs associated with the higher international standards consistent with UNESCO guidelines for restoration.

26. West Bengal – Coastal Bio-shield in Purba-Medinipur: This US\$1 million investment explores management approaches for protection against coastal erosion through planting of mangroves as a bio-shields in hazard-prone areas. Preliminary assessments indicate a FIRR of 10.3 percent associated with direct financial benefits that accrue through use of products derived from the bio-shield. A much higher potential EIRR of 18.5 percent is realized when a broader range of unmarketed benefits is included through preventing coastal erosion and saltwater intrusion in agricultural areas. The project will be implemented by the Forest Department and if successful provides a potential model for replication throughout West Bengal's coastal areas. Note: An on-going study are attempting to establish the extent to which revenues from emission reduction monetization through Carbon Finance can help in improving the financial attractiveness for interventions related to additional mangrove plantation to be undertaken as part of the pilot investments in Gujarat, Orissa and West Bengal; and if carbon finance is available, the FIRR would also become more attractive.

A9.6 State Level Projects: Environmental and Pollution Management

27. Within the three states the Project supports 7 activities related to the theme of Pollution Management. These primarily include projects relating to environmental sanitation and pollution abatement, but also include some related infrastructure activities such as beach cleaning, a fish auction centre, and small distribution network for rural island electrification. The summary economics of all of these activities are provided in detail in Table A9.1. As a whole, these activities represent some US\$49 million of investments generating an aggregate financial rate of

return of 10 percent and an economic rate of return of 21.2 percent; these activities are among the most financially robust in the project as many are capable of generating fees for services through various tariff structures. We here summarize the economic analysis of three of these activities in greater detail.

28. Gujarat –Completing the Sewerage System at Jamnagar: This US\$19 million investment is the only one relating to this theme within Gujarat; it is expected to generate an FIRR of about 10.5 percent, and an EIRR of 20.3 percent when public health benefits are incorporated. The project aims to develop an underground sewerage system for Jamnagar, a city of about 500,000 persons (2001) which is one of the most rapidly expanding in the coastal area. The project is implemented by the Jamnagar Municipal Corporation, which has extensive experience in cost recovery mechanisms, and will include the laying of sewerage network and setting up of a sewerage treatment facility and pumping stations.

29. Orissa – Solid waste management in Paradeep: This US\$3.1 million investment is the only one relating to this theme within Orissa; it is expected to generate an FIRR of about 7 percent, and an EIRR of 27 percent when public health benefits are incorporated. The project aims to create public awareness among people in Paradeep regarding harmful effects of dumping solid waste on roads and streets, and also it will organize house to house collection of waste for delivery to a new solid waste landfill and treatment facility at Paradeep. The project is implemented by the Paradeep Municipality, which will develop cost recovery mechanisms related to solid waste management. The project also will generate marketable compost and, through methane destruction, may potentially contribute in carbon markets and capture additional global economic benefits through the Clean Development Mechanism or voluntary markets.

30. West Bengal – Completing the Sewerage System at Digha: This US\$6.5 million integrated activity will commission an engineered and well planned, centralized sewerage system at Digha by renovating existing works so they can discharge excess sullage and polluted water efficiently without causing any harmful effect on the environment. The system caters for the present population of 34,000 persons and future population of 61,000 persons as projected for year 2025, in addition to an anticipated tourist inflow of 14,000 persons in 2025. The activity will be implemented by the Public Health Engineering Department, and will include inter alia. 12km of sewerage network, a new pumping and lifting station, and phyto-remediation for handling semi-treated sewage; this will remove additional BOD, COD and heavy metals from the final treated waste. The high capital costs and limited scope for cost recovery will permit generation of only a FIRR of 7 percent (primarily because it is difficult to target tourists for direct payment of such facilities), but public health benefits associated with the project are substantial and the EIRR is expected to be in excess of 22 percent.

31. Note: An on-going study are attempting to establish the extent to which revenues from emission reduction monetization through Carbon Finance can help in improving the financial attractiveness for interventions related to sewerage system improvements or enhancements to be undertaken as part of the pilot investments in Gujarat and West Bengal; and if carbon finance is available, the FIRR for these interventions would also become more attractive.

A9.7 State Level Projects: Livelihood Security for Coastal Communities

32. Within the three states the Project supports 9 activities related to this theme. Most of these activities have income generating potential through providing livelihoods through ecotourism, fisheries, afforestation, or small scale enterprises. They are also supported through broader state-level disaster mitigation investments to protect people and livestock (such as cyclone shelters).³⁰ The summary economics of all of these activities are provided in detail in Table A9.1. As a whole, these activities represent some US\$39 million of investments generating an aggregate financial rate of return of 10.7 percent and an economic rate of return of 20.5 percent. We here summarize the economic analysis of three of these activities in greater detail.

33. Gujarat –Livelihood Improvement Activities in Non-Forest Villages of the Gulf of Kachchh: This US\$6 million activity is expected to generate an FIRR of about 10 percent, and an EIRR of 17 percent when additional unmarketed benefits are incorporated. The activity intends to achieve social and economic development of coastal communities with increased understanding and acceptance of the need to conserve and protect the environment including surrounding natural resources. It targets some 64,000 persons in 60 villages spread over 3 districts, and features livelihood generation for Maldharis, fishermen, the livestock owners, etc including poor women folk. The investment will be implemented by Gujarat Ecology Commission using CBOs in which local beneficiaries are expected to provide complementary funding in cash or kind of 5-20 percent of project costs.

34. Orissa – Biodiversity Based Livelihood Improvement: This US\$5.2 million activity is expected to generate an FIRR of about 8 percent, and an EIRR of 22 percent when additional unmarketed benefits are incorporated. The activity intends to develop eco-tourism in sensitive habitats by creating new facilities, augmenting existing ones, and providing local community training to operate and maintain the facilities created. It also provides complementary infrastructure through new tourist complexes at four sites in Bhitarkanika. In addition, it caters for purchase of new speed boats for tourists, and provides training to local communities to operate tourist boats and maintain other facilities.

35. West Bengal – Sagar Livelihood Improvement: This US\$6.5 million activity is expected to generate an FIRR of about 13 percent and an EIRR of 19 percent when additional unmarketed benefits are incorporated. It aims to improve the livelihoods of rural communities in Sagar Island, focusing on 71 villages over a three year period with a total target population of 15,000 of the poorest households. The activity will be spearheaded by the Sundarban Development Board by generating livelihood alternatives through organizing and training local communities in SHGs through pro-active natural resource enhancing activities like rain water harvesting, tourism and tourism based livelihood activities, skills and micro enterprises. The activity also facilitates extension of credit through providing banking linkages. One key complementary aspect is the provision of infrastructure to facilitate rural livelihoods; this is done through supporting of an Agriculture and Rural Technology Center and an Agricultural Produce Marketing complex at the

³⁰ For analytical purposes the cyclone shelters are included within the more general theme of state capacity building rather than being selected as an income earning investment. This is related to a design shift, which occurred after initial project identification, that favors the use of multi-purpose cyclone shelters, which also meet needs for schools, community gathering places, and similar social services. All cyclone shelter investments in this project (in West Bengal and Orissa) are now of this design; experience with other such facilities shows that this approach also decreases (or eliminates) incremental operational and maintenance costs.

village and block levels, as well as improvement of existing road and water transport facility to marketing various produce.

A9.8 Fiscal and Sustainability Analysis

36. The potential liability of the project to the National and State governments arises from expenditure on counterpart funding and on long-term financing needs. During the life of the project, contributions from the GoI are about US\$53 million or US\$11 million per year (see Table A9.2 for selected financing assumptions). This is a minor portion of the annual government outlay (e.g., 2009/10 budget outlay is US\$200 billion for the Indian Union Government alone) and it will not have a major fiscal impact. Most of the government's counterpart funding will finance recurrent costs and government seconded staff. In the long term, governments will bear incremental costs for government staff associated with the new institutional reforms; this is primarily at the national level and is estimated to be about US\$4 million annually.

37. Recurrent expenditures for the various state level pilot investments with targeted subsidies where needed, will be covered through tariff mechanisms through sub-project revenue, or through ongoing community contributions. An analysis of these subprojects shows that:

- (a) The project currently consists of some 7 activities that generate tariffs for provision of sanitation and related services. The aggregate long-term tariffs from these activities are estimated to be US\$12.6 million annually against operational costs of US\$5.9 million (excluding depreciation and return on capital). These tariffs are thus adequate to ensure long-term financial sustainability of these activities.
- (b) The project currently consists of 9 activities that generate own-revenue through community-based livelihood activities. The estimated annual revenue (after project completion) of these activities is estimated to be US\$9.1 million against operational costs of US\$3.3 million. These financial returns are thus adequate to ensure long-term financial viability of these activities. Moreover, the replication of the more successful activities is expected to generate average cash flows in excess of those generated by this project because of self-selection processes that will favor higher return pilot investments.

A9.9 Summary of Economic Analysis

38. The full cost of the project over the 5 year life span is US\$285 million with long-term recurrent costs of US\$17 million annually. Identifiable revenue streams associated with targeted investments at the state level are US\$31 million annually. Based on these figures, the project's minimum FIRR is 4.8 percent; this is a lower bound because it excludes other induced revenues that such investments will create. Also, the project structure is not readily amenable to a full stand-alone economic analysis because numerous unmarketed benefits arise from the project investments; a conservative estimate of such benefits generates an EIRR of 20.2 percent. Separate analyses of the institutional investments and some targeted pilot investments ensure that the chosen structure is economically efficient and financially sustainable over the long-term.

39. The downside sensitivity scenario involves simply a cost-over-run situation equivalent to a 10 percent increase in project costs. This results in an overall project EIRR of 18.6 percent. The expected upside sensitivity scenario arising from the portfolio approach is that the two lowest return activities in each state are phased out; this shift results in an EIRR of about 20.7 percent.

40. **Institutional Investments.** The project includes national level public institutional investments that will have broad-based benefits for all coastal states in India, as well as additional institutional investments in the focal states of Gujarat, Orissa, and West Bengal that confer economic benefits to the coastal areas of those states. Estimation of the benefits associated with the US\$109 million of institutional investments in this project is not readily done, although an indicative analysis suggests that these institutional investments will protect coastal values of about US\$400,000 annually for each kilometer of coastline affected. For the country as a whole, this translates to US\$2.1 billion annually for peninsular India; even if only about one percent of this value is captured under the project, the EIRR on the institutional investment exceeds 20 percent.

41. **Targeted Pilot Investments.** The project invests US\$131 million at the State level to address local priorities relating to conservation and protection of coastal resources, environment and pollution management, and livelihood security of coastal communities that will assist in adaptation to impacts of climate change.

- (a) **Conservation and protection of coastal resources.** Approximately US\$36 million in such investments have an estimated FIRR of 8.8 percent and EIRR of 20.9 percent. These investments provide a variety of economic benefits through reducing risks of flooding and through protecting businesses, public and private assets, agricultural output, and the health of residents in coastal areas. Based on analyses of the 1999 super-cyclone, for example, storm protection from a 10 percent increase in mangrove cover reduced human casualties by about 12 percent, and reduced livestock and related agricultural asset losses by 2-7 percent.
- (b) **Environment and pollution management.** To improve pollution management and public health, US\$49 million of interventions contribute to provision of power, sewerage, solid waste management and sanitation. These investments are treated as cost-of-service utilities; stand-alone analyses of tariffs show the projects are cost-effective in generating a FIRR of 10.0 percent, which is consistent with investor expectations and financing instruments available in the power and public utility sector in India. The EIRR is considerably higher (21 percent), as there remains an unmet demand for power in rural India; health benefits from improved water quality and sanitation also generate value to households. . The robust results also reflect cost recovery of some investments already made by State authorities; the additional investments within this project permit cost recovery on these assets that might not otherwise occur.
- (c) **Community livelihood activities.** About US\$39 million in community livelihood investments are expected to generate a FIRR of 10.7 percent and an EIRR of 20.5 percent. These community-managed sub-projects are developed in a participatory manner with typical contributions from communities of 5 to 20 percent in cash and kind, which provides in-built incentives to choose efficient and locally appropriate designs. These range from straightforward livelihood improvements associated with sustainable management of mangrove plantations to more complex integrated investment schemes relating to ecotourism development. Sub-project selection will follow a risk managed portfolio approach such that no single type of activity represents more than 50 percent of portfolio value, and no more than 90 percent for the top three activities in any given state. In addition to reducing risk through diversification, the portfolio approach provides a larger range of potential activity types that can lead to eventual replication.

A9.9 Economic Valuation Studies undertaken during Project Preparation

42. Benefit valuation work relied on literature reviews and primary analyses undertaken during the preparation of this project. Key documents include contributions through the following studies:

Banerjee, L.K. 2009 (September). *Mangrove (Bioshield) Zonation and Valuation along an Eroding Coastline in Mayagwalini, Western Part of Sagar Island, West Bengal*. Botanical Survey of India, Howrah. (updated supplement available for January 2010)

Cartier, C with HJ Ruitenbeek. 2008. *Introduction to Total Economic Value (TEV) and Valuation in India*. World Bank (includes annotated literature review)

Dixit, Arun T, with contributions by Pushpam Kumar, Lalit Kumar, Kinjal D Pathak, MI Patel. 2009. *Economic Valuation of Coral Reef Systems in Gulf of Kachchh*. Center for Environmental & Social Concerns, Ahmedabad.

Kumar, Ritesh. 2010 (preliminary draft, February). Chapter 2: *Ecosystem Services - valuation of goods and services in Chilika Lagoon, Orissa*. Wetlands International, Delhi.

Raychaudhuri, Ajitava. 2009 (preliminary draft, pers. comm.). *Household Survey of Local Use Values, Sagar Island*. Department of Economics, Jadavpur University, Kolkata.

Table A9.1a Summary of Project Economic Analysis

| Project | | India ICZM | | | | |
|-------------------------------|----------|------------|-------------|-------------|---------|---|
| Assumptions | | | | | | |
| Base Year Costs/Benefits | 2010 | | | | | BE SURE TO HAVE FOUR WORKBOOKS OPEN TO PERMIT AGGREGATION OF RESULTS |
| Start Year | 2010 | | | | | |
| Investment Period (y) | 5 | | | | | EDIT ASSUMPTIONS ON 'COMMON' SHEET OF NATIONAL TEMPLATE |
| Analysis Cycle (y) | 25 | | | | | |
| C Cost Global Escalator | 0% | | | | | |
| Op Cost Global Escalator | 0% | | | | | EDIT ACTIVITY INPUTS IN STATE TEMPLATES ACT01 AND NATIONAL TEMPLATE ACT01... |
| Revenue Capture Global | 100% | | | | | Document SOURCES/ASSUMPTIONS on ACTIVITY SHEETS |
| Benefit Capture Global | 100% | | | | | |
| Real Inflation Overlay (1,0) | 0 | | | | | |
| Exchange | 46.00 | | | | | EDIT ACTIVITY NAMES ON 'COVER' SHEET |
| Currency is thousands of US\$ | | | | | | SCROLL DOWN TO SEE NATIONAL AND STATE RESULTS |
| Project Summary | | | | | | |
| | | | | | | |
| | '000US\$ | | '000US\$/yr | | | |
| | Cap | Average Op | Average Rev | Average Ben | FIRR | EIRR |
| National Component | 77262 | 3995 | 1010 | 14400 | n/a | 11.082% |
| Gujarat Component | 64857 | 5548 | 13419 | 16796 | 8.235% | 26.163% |
| Orissa Component | 43831 | 2466 | 5419 | 10963 | 2.534% | 22.398% |
| West Bengal Component | 65274 | 5237 | 11116 | 13083 | 5.247% | 20.919% |
| Aggregate (All Components) | 251224 | 17245 | 30964 | 55242 | 0.731% | 20.202% |
| By Theme | | | | | | |
| PM | 18059 | 300 | 189 | 0 | n/a | n/a |
| HESAM | 32892 | 80 | 106 | 100 | n/a | n/a |
| CBNI | 36147 | 3615 | 904 | 0 | n/a | n/a |
| CBNL | 2174 | 0 | 0 | 0 | n/a | n/a |
| CBSL | 38223 | 1313 | 630 | 5219 | n/a | 7.999% |
| A-CRC | 36226 | 2718 | 7375 | 6240 | 8.799% | 20.936% |
| B-EPM | 48576 | 5912 | 12618 | 7766 | 10.015% | 21.208% |
| C-LS | 38928 | 3308 | 9142 | 5578 | 10.709% | 20.486% |
| UNATT | 0 | 0 | 0 | 30339 | n/a | n/a |
| ALL | 251224 | 17245 | 30964 | 55242 | 0.731% | 20.202% |

Table A9.1b Summary of National Component Economic Analysis

| National Component | | | | | | |
|---|--------------|-------------|-------------|--------------|------------|----------------|
| | '000US\$ | | '000US\$/yr | | | |
| | Cap | Average Op | Average Rev | Average Ben | FIRR | EIRR |
| A/PM - N: Project Management (General) (NPMU-MOEF; PM) | 6049 | 300 | 0 | 0 | n/a | n/a |
| A/HESAM1 - N: Hazard & ESA Mapping (incl Sed Cell) (NPMU-MOEF; HESAM) | 5716 | 80 | 106 | 100 | n/a | n/a |
| A/HESAM2 - N: Hazard & ESA Mapping (SOI) (Survey of India; HESAM) | 27176 | 0 | 0 | 0 | n/a | n/a |
| A/CBNI1 - N: Capacity Building - National Institute (NPMU-MOEF; CBNI) | 36147 | 3615 | 904 | 0 | n/a | n/a |
| A/CBNL1 - N: Capacity Building - National Level (General) (NPMU-MOEF; CBNL) | 2174 | 0 | 0 | 0 | n/a | n/a |
| A/UNATT - N: Unattributable Non-marketed Benefits (NPMU-MOEF; UNATT) | 0 | 0 | 0 | 14300 | n/a | n/a |
| PM | 6049 | 300 | 0 | 0 | n/a | n/a |
| HESAM | 32892 | 80 | 106 | 100 | n/a | n/a |
| CBNI | 36147 | 3615 | 904 | 0 | n/a | n/a |
| CBNL | 2174 | 0 | 0 | 0 | n/a | n/a |
| CBSL | 0 | 0 | 0 | 0 | n/a | n/a |
| A-CRC | 0 | 0 | 0 | 0 | n/a | n/a |
| B-EPM | 0 | 0 | 0 | 0 | n/a | n/a |
| C-LS | 0 | 0 | 0 | 0 | n/a | n/a |
| UNATT | 0 | 0 | 0 | 14300 | n/a | n/a |
| ALL | 77262 | 3995 | 1010 | 14400 | n/a | 11.082% |

Table A9.1c Summary of State Component Economic Analysis – Gujarat

| Gujarat Component | | | | | | |
|--|--------------|-------------|--------------|--------------|----------------|----------------|
| | '000US\$ | | '000US\$/yr | | | |
| | Cap | Average Op | Average Rev | Average Ben | FIRR | EIRR |
| B/PM - G: Project Management (General) (SPMU Gujarat S1; PM) | 4383 | 0 | 63 | 0 | n/a | n/a |
| B/CBSL1 - G: Capacity Building - State Level (ICZM Plan) (SPMU Gujarat S2; CBSL) | 2920 | 0 | 0 | 0 | n/a | n/a |
| B/CBSL2 - G: Capacity Building for Pollution Monitoring (GPBC S12; CBSL) | 5450 | 0 | 0 | 550 | n/a | 5.550% |
| B/CBSL3 - G: Gujarat Coastal Geo Spatial Information System (BISAG S3; CBSL) | 1253 | 0 | 0 | 0 | n/a | n/a |
| B/CBSL4 - G: Coral Transplantation (GEER Foundation S10; CBSL) | 3422 | 0 | 0 | 70 | n/a | n/a |
| B/A1 - G: Coral Reef Regeneration (Forest Department - MNP S7; A-CRC) | 2174 | 110 | 220 | 330 | n/a | 16.713% |
| B/A2 - G: Mangrove Restoration (Forest Department - MNP S6; A-CRC) | 5730 | 651 | 1302 | 1502 | 7.674% | 25.791% |
| B/A3 - G: Marine Oceanarium (Forest & Environment Department S8; A-CRC) | 6522 | 650 | 3250 | 0 | 24.862% | 24.862% |
| B/A4 - G: Mangrove Restoration (GEC) (Gujarat Ecology Commission S5; A-CRC) | 7495 | 788 | 1575 | 1565 | 6.986% | 22.953% |
| B/B1 - G: Environmental Sanitation – Jamnagar (JMC) (Jamnagar Municipal Corpora | 19308 | 2751 | 5502 | 2625 | 10.460% | 20.322% |
| B/C1 - G: Ecotourism & Livelihood Improvement (Forest Department - MNP S9; C-LS | 217 | 21 | 63 | 21 | 14.949% | 21.731% |
| B/C2 - G: Socio Economic Development of Villages (GEC) (Gujarat Ecology Commiss | 5983 | 578 | 1444 | 578 | 10.150% | 16.857% |
| B/UNATT - G: Unattributable Non-marketed Benefits (SPMU Gujarat; UNATT) | 0 | 0 | 0 | 9557 | n/a | n/a |
| PM | 4383 | 0 | 63 | 0 | n/a | n/a |
| HESAM | 0 | 0 | 0 | 0 | n/a | n/a |
| CBNI | 0 | 0 | 0 | 0 | n/a | n/a |
| CBNL | 0 | 0 | 0 | 0 | n/a | n/a |
| CBSL | 13045 | 0 | 0 | 620 | n/a | -0.377% |
| A-CRC | 21921 | 2199 | 6347 | 3396 | 13.723% | 23.959% |
| B-EPM | 19308 | 2751 | 5502 | 2625 | 10.460% | 20.322% |
| C-LS | 6200 | 599 | 1507 | 599 | 10.312% | 17.010% |
| UNATT | 0 | 0 | 0 | 9557 | n/a | n/a |
| ALL | 64857 | 5548 | 13419 | 16796 | 8.235% | 26.163% |

Table A9.1d Summary of State Component Economic Analysis – Orissa

| Orissa Component | | | | | | |
|--|--------------|-------------|-------------|--------------|----------------|----------------|
| | '000US\$ | | '000US\$/yr | | | |
| | Cap | Average Op | Average Rev | Average Ben | FIRR | EIRR |
| C/PM - O: Project Management (General) (SPMU Orissa S1; PM) | 3201 | 0 | 63 | 0 | n/a | n/a |
| C/CBSL1 - O: Capacity Building - State Level (ICZM Plan) (SPMU Orissa S2; CBSL) | 1570 | 0 | 0 | 0 | n/a | n/a |
| C/CBSL2 - O: Regional Coastal Studies (SPMU Orissa S3; CBSL) | 2393 | 0 | 0 | 0 | n/a | n/a |
| C/CBSL3 - O: Strengthening Pollution Monitoring & Labs (OSPCB S6; CBSL) | 2824 | 252 | 630 | 378 | 8.997% | 17.773% |
| C/A1 - O: Protection of Wetlands (CDA S4; A-CRC) | 3018 | 42 | 0 | 525 | n/a | 10.999% |
| C/A2 - O: Shoreline Protection at Pentha (WR Department S5; A-CRC) | 4110 | 126 | 0 | 840 | n/a | 12.364% |
| C/A3 - O: Mangrove Plantation & Wildlife Protection (Forest/WL Department S13; A-CRC) | 4025 | 221 | 441 | 1061 | 0.727% | 21.262% |
| C/A4 - O: Conservation of archaeological & cultural assets (Heritage Department S8) | 1614 | 126 | 378 | 0 | 11.299% | 11.299% |
| C/B1 - O: Pollution Abatement in Coastal Cities (Paradeep Mun S12; B-EPM) | 3128 | 263 | 604 | 1208 | 6.788% | 27.692% |
| C/CBSL4 - O: Multi-Purpose Cyclone Shelters (OSDMA S9; CBSL) | 3020 | 284 | 0 | 1113 | n/a | 21.199% |
| C/C1 - O: Fishery-based Livelihood Improvement (Fisheries Department S7; C-LS) | 5239 | 345 | 1382 | 1382 | 14.940% | 30.905% |
| C/C2 - O: Tourism-based Livelihood Improvement (Tourism Department S11; C-LS) | 3724 | 357 | 714 | 714 | 6.361% | 23.847% |
| C/C3 - O: Biodiversity-based Tourism/Livelihood Improvement (Forest/WL Department S13; C-LS) | 5179 | 397 | 992 | 992 | 7.767% | 21.811% |
| C/C4 - O: Small Scale Enterprise -based Livelihood Improvement (Industries Department S14; C-LS) | 785 | 54 | 216 | 0 | 16.392% | 16.392% |
| C/UNATT - O: Unattributable Non-marketed Benefits (SPMU Orissa; UNATT) | 0 | 0 | 0 | 2752 | n/a | n/a |
| PM | 3201 | 0 | 63 | 0 | n/a | n/a |
| HESAM | 0 | 0 | 0 | 0 | n/a | n/a |
| CBNI | 0 | 0 | 0 | 0 | n/a | n/a |
| CBNL | 0 | 0 | 0 | 0 | n/a | n/a |
| CBSL | 9807 | 536 | 630 | 1491 | n/a | 11.753% |
| A-CRC | 12768 | 515 | 819 | 2426 | n/a | 15.075% |
| B-EPM | 3128 | 263 | 604 | 1208 | 6.788% | 27.692% |
| C-LS | 14928 | 1153 | 3303 | 3087 | 10.724% | 25.276% |
| UNATT | 0 | 0 | 0 | 2752 | n/a | n/a |
| ALL | 43831 | 2466 | 5419 | 10963 | 2.534% | 22.398% |

Table A9.1e Summary of State Component Economic Analysis – West Bengal

| West Bengal Component | | | | | | |
|--|-----------------|-------------|----------------------------|--------------|----------------|----------------|
| | '000US\$ Cap | Average Op | '000US\$/yr Average Rev | Average Ben | FIRR | EIRR |
| D/PM - WB: Project Management (General) (SPMU W Bengal S1; PM) | D/PM - WB: Pr | 0 | 63 | 0 | n/a | n/a |
| D/CBSL1 - WB: Capacity Building - State Level (ICZM Plan) (SPMU W Bengal S2; CB) | 3412 | 0 | 0 | 0 | n/a | n/a |
| D/CBSL2 - WB: Capacity Building Forest/Env't Dept (SPMU - Forest/Env't S3; CBSL) | 2496 | 0 | 0 | 0 | n/a | n/a |
| D/CBSL3 - WB: Capacity Building for IESWIM (IESWIM S15; CBSL) | 1791 | 0 | 0 | 0 | n/a | n/a |
| D/CBSL4 - WB: Capacity Building for Climate Change, Kolkata University (Kolkata U) | 280 | 0 | 0 | 0 | n/a | n/a |
| D/CBSL5 - WB: Cyclone Shelters (Sundarban Dev Board S17 new; CBSL) | 7391 | 777 | 0 | 3108 | n/a | 22.981% |
| D/A1 - WB: Improvement of Marine Aquarium (ZSI) (Zoological Survey of India S7; | 583 | -40 | 29 | 58 | 8.926% | 18.532% |
| D/A2 - WB: Coastal Bio-shield in Purba-Medinipur (Forest Dept) (Forest Department | 955 | 45 | 181 | 361 | 10.268% | 31.904% |
| D/B1 - WB: Beach-Cleaning at Digha (DSDA) (DSDA S10; B-EPM) | 8898 | 662 | 1654 | 1654 | 7.488% | 21.021% |
| D/B2 - WB: Environmental Sanitation - Digha (PHED) (PHE Department S8; B-EPM) | 6484 | 704 | 1407 | 1407 | 7.119% | 22.279% |
| D/B3 - WB: Solid Waste Management at Digha (DSDA) (DSDA S11; B-EPM) | 2005 | 210 | 420 | 840 | 6.833% | 32.801% |
| D/C1 - WB: Environmental Improvement of Digha Beach (DSDA) (DSDA S12; C-LS) | 3247 | 336 | 672 | 672 | 6.706% | 21.913% |
| D/B4 - WB: Fish Auction Centre - Digha (Fisheries Department) (Fisheries Dev Corp | 1308 | 66 | 264 | 33 | 11.071% | 13.122% |
| D/B5 - WB: Distribution of Grid Electricity in Sagar (WBSEDCL) (WBSEDCL S5; B-EP | 7445 | 1258 | 2767 | 0 | 15.899% | 15.899% |
| D/C2 - WB: CBO Coordinated Livelihood Improvement at Sagar (Sundarban Dev Bo | 6543 | 650 | 1950 | 650 | 13.659% | 19.190% |
| D/C3 - WB: Ecotourism/Tourism & Local Community Development at Sagar (Sundar | 8009 | 570 | 1710 | 570 | 9.739% | 14.612% |
| D/UNATT - WB: Unattributable Non-marketed Benefits (SPMU W Bengal; UNATT) | 0 | 0 | 0 | 3730 | n/a | n/a |
| PM | 4427 | 0 | 63 | 0 | n/a | n/a |
| HESAM | 0 | 0 | 0 | 0 | n/a | n/a |
| CBNI | 0 | 0 | 0 | 0 | n/a | n/a |
| CBNL | 0 | 0 | 0 | 0 | n/a | n/a |
| CBSL | 15370 | 777 | 0 | 3108 | n/a | 11.336% |
| A-CRC | 1537 | 5 | 209 | 419 | 9.790% | 27.567% |
| B-EPM | 26140 | 2899 | 6512 | 3934 | 10.096% | 20.742% |
| C-LS | 17800 | 1556 | 4332 | 1892 | 10.836% | 17.719% |
| UNATT | 0 | 0 | 0 | 3730 | n/a | n/a |
| ALL | 65274 | 5237 | 11116 | 13083 | 5.247% | 20.919% |

Table A9.2 Economic Analysis – Miscellaneous Assumptions

| | |
|-----------------------------------|---------|
| Real Social Discount Rate for PV | 10.000% |
| Base Year Costs/Benefits | 2010 |
| Start Year | 2010 |
| Investment Period (y) | 5 |
| Analysis Cycle (y) | 25 |
| C Cost Global Escalator | 0% |
| Op Cost Global Escalator | 0% |
| Revenue Capture Global | 100% |
| Benefit Capture Global | 100% |
| Real Inflation Overlay (1,0) | 0 |
| Exchange | 46.00 |
| Simple Contingency 1 (Q) | 10% |
| Simple Contingency 2 (P) | 15% |
| WB Share 1 Cap Building | 80% |
| WB Share 2 Pilot Projects | 85% |
| WB Share 3 PM | 95% |
| GOI Share 1 State Cap Building | 10% |
| GOI Share 2 State Pilot Projects | 5% |
| GOI Share 3 State PM | 0% |
| WB Share 2 W Bengal Pilot Project | 73% |
| 3% Institutional Target ON (act06 | 0 |
| Suppress Two worst/state | 0 |

Annex 10: Safeguard Policy Issues

INDIA: Integrated Coastal Zone Management Project

Environment and Social challenges in coastal zones

1. The economic resilience of marine ecosystems has been subjected to great pressure through over-extraction of resources, enhanced pollution, and physical alterations in coastal ecosystems. Mangroves and coastal forests have declined in both area and composition as a result of over-harvesting for fuel-wood, construction materials and fodder. Shrimp aquaculture has, between 1991-2000AD, accounted for about 80 percent of the conversion of mangrove land, and 10-12 million litres/day of wastewater discharge to the sea. There is ample evidence of declining fish stocks, and rapid disappearance of endangered or commercially important marine species such as food fish, aquarium fish, sea cucumbers and corals. Sixty-one per cent of the coral reef areas in India are under threat due to causes such as coral mining, fishing with explosives, sedimentation, oil pollution, removal of reef organisms, anchoring, harbor construction and removal of coral for curio trade. The cities and towns located in the coastal areas of the country generate 5560 million litres of wastewater per day, of which only 9 percent is treated before being released to the coastal waters. Agricultural run-off laden with excessive chemicals and pesticides is huge, but its incidence has not been estimated yet. A variety of industries, including shrimp farming, tanneries, slaughterhouses and other chemical processes, contribute solid waste and wastewaters to the environment, often without adequate – or any – treatment. A large proportion of all industrial units in India (small, medium or large) are located along the coast, including most of the petrochemical complexes and thermal power plants. While coasts serve as a natural location for such industries, poor infrastructure, acute concentration, and lack of integrated planning have resulted in a threat to the environment.

2. *Degradation of coastal ecosystems* in India is rooted in systemic and institutional insufficiency, typified by – (i) a fragmented, uncoordinated and often conflicting sectoral planning and management in marine and coastal areas; (ii) lack of integrated planning of economic infrastructure; (iii) lack of livelihood improvement options for local communities; (iv) lack of adequate resources for conservation of ecologically sensitive areas; and (v) lack of adequate capacity, skill and knowledge for managing coastal and marine resources in a sustainable manner. These gaps and failures are expected to be accentuated by climate change induced risks. Sea level rise will potentially affect the coastal zone in multiple ways, including the inundation and displacement of wetlands and lowlands, coastal erosion, increased coastal storm floods, increased salinity in estuaries and freshwater aquifers, alteration of tidal ranges, as well as changes in sediment and nutrient transport. The ecological stability of the remaining mangroves and coral reefs would be at risk. Climate change has the potential to exacerbate water resource stresses all over the Indian coasts, affecting agriculture through declining production, as well as through reductions in arable land area and food supplies for fish. The most vulnerable communities will include those having maximum exposure to these stresses, as well as those with the least capacity to respond and ability to recover.

Environmental Contexts of the pilot investments

3. Gujarat: Gujarat has some major industries located in the coastal regions including cement, chemicals, petroleum and oil refineries, ship breaking, power plants, fertilizer, and fishing. Apart from this, establishment of cross-country pipelines may also cause disturbances particularly at the

time of their establishment. The increasing ports and jetties are also causes of serious concern for the conservation of marine life and call for serious attention and efforts for conservation of marine biodiversity. Accidental oil spills from various vessels ferrying in the Gulf of Kachchh is a matter of serious concern as it may also be a potential threat to the coastal flora and fauna. Destructive fishing practices using chemicals and pesticides like DDT have caused a lot of damage to the marine ecosystem.

4. Presently, the coastal habitats, especially wetlands, mangroves, salt marshes, sea grasses and areas near beaches are facing clearance or are used for urban, industrial and recreational development. Coasts of Jamnagar, Kachchh, Hajira and Umbergaon are glaring examples in Gujarat where large scale coastal border areas have been diverted for rapid industrialization. Measures of coastal habitat loss are difficult to assess due to inadequate availability of records.

5. The Gulf of Kachchh is marked by highly arid climate and very little freshwater inflows. Large patches of mangrove forests remain along the Gulf of Kachchh. The livelihoods of the marginalized communities in these regions are closely dependent on ecological resources. The livelihoods of these communities today are not only unsustainable but also threatened by various kinds of developments along the coast or in the coastal waters (oil exploration & drilling, ports and jetties, industries, etc.). With the present priorities of development and increasing emphasis on privatization, the future of both the livelihoods of the coastal communities and the integrity of the coastal environment are in jeopardy. Cyclones, Earthquakes, Storms and flood are the major natural disasters that occur in the Gujarat coast. Gujarat coast is prone to frequent cyclones.

6. Orissa: the Orissa coast is subject to extreme tidal variations. Water level has been known to rise to about 4m in certain stretches inundating up to 3km of coastal land. Recurring cyclones have caused physical destruction, flooding and saline intrusion. This sea erosion and surges of sea water cause heavy losses to agricultural production and dislocates life of a large number of poor agricultural and fishermen populations. Vulnerable population affected by cyclones (primarily in coastal belts) include people below poverty line, the fisherman families, mostly coastal inhabitants, primary workers, single women families, disabled persons, children in the age group of 0-6 years and the aged. Grass root level infrastructure at the community and panchayat level such as dispensaries, primary schools, village roads and plantation area, standing *kharif* crops which constitute the backbone of the rural economy and community support system are equally vulnerable to sometimes irreversible damage. Besides cyclones contributing to shoreline changes, the Orissa coast is subjected to strong littoral drift and long shore current from south to north due to oblique action of waves against the coast, causing an estimated 1.5 million tons of sand movement in a year from southwest to northeast direction.

7. Heavy metal (Mercury, Lead and Cadmium) concentration in the Orissa coastal water is very low and much below the standard prescribed for SW-I coastal waters (salt pan, shell fishing, mariculture, ecologically sensitive zone), notified under the Environmental Protection Act. In general, besides the sporadic incidents of abnormalities, the coastal waters of Orissa are not under stress. The only concern is with rising pathogens population that needs to be controlled by checking the untreated/semi-treated sewage discharge from the settlements along the coasts and waterways. Among all the estuaries of Orissa, the Mahanadi estuary is considered to be the most polluted and is still under potential threat from the future industrial expansion in its watershed. At the moment, it receives effluents from two phosphatic fertilizer plants i.e. Paradip Phosphate Limited and IFFCO, from other small industries and domestic sewages from Paradip Township. Apart from these, fishing harbor activities at the estuary also affect the water quality. Atharbanki

creek is heavily loaded with most of the municipal sewage of Paradip Township and effluents from the local industries. This creek leading to the Mahanadi estuary shows significant amounts of ammonia, nitrite, nitrate and total nitrogen, inorganic phosphate, total phosphate and BOD. Water of Atharbanki creek shows very low pH, which is below the permissible limit, and the water are harmful for aquatic lives. This has far-reaching impact on the biota of the estuary, the spawning and the migration of the fish, shrimp and crab also on the mangrove swamps. Due to the alteration of the flow and the pollution of the estuary the migration of the catadromous fish like Hilsa fish (*Tenualosha ilisha*) is adversely affected.

8. The uncontrolled mechanized fishing in areas of dense sea turtle population has resulted in large-scale mortality of Olive Ridley turtles. Das (2001) reported that more than 20,000 of these turtles died during 2000 alone due to mechanized trawling in prohibited areas and non-use of the Turtle Excluder Device (TEDs) by the trawlers. Due to beach erosion, it has been observed that the mass nesting site of Gahirmatha coast has been gradually shifting northward during the last 20 years. The mangrove forests are reclaimed not only for cultivation and for fuel and building materials but also in a large scale for shrimp farming. Additionally, the alteration of fresh water flow due to construction of hydrological structures upstream is also posing a major threat to the ecosystem of Bhitarkanika. The process is adversely affecting the ecosystem at various trophic levels.

9. West Bengal: A serious threat on the natural environmental balance, flora and fauna of the region is from land reclamation by people for agriculture and settlement, destroying forest area, construction of series of irrigation and drainage canals over centuries interfering with the natural gradients, setting up of fisheries in the rivers, canals, creeks and estuaries, raising embankments along the major river systems against insurgence of saline water, excessive exploitation of mangrove forest wealth like timbers and fire woods, poaching of animals of commercial importance, indiscriminate collection of prawn seedlings and excessive fishing round the year specifically in the Sundarbans. The gradual extinction of forests has given rise to less resistance of the land from the ravages of cyclonic storm and soil erosion. Several important fish and prawn species have been declining in the region due to deterioration of the mangrove vegetation and disturbances in the natural ecosystem. During the last two centuries, more than 5000 sq. km of mangrove forests in the Indian part of Sundarbans have been reclaimed.

10. The impacts of human activities are primarily due to (i) diesel driven fishing boats that release hydrocarbons (ii) fishing harbor activities (iii) aquaculture farms, (iv) agriculture and (v) tourism activity, which is the major economic activity, leading to increase in road transport, hotel industry and illegal encroachment by small traders. Each of these components has a direct impact on environment quality of land, water and air. The Digha-Junput coastal tract is being eroded by sea-water resulting in lowering of the beach and recession of the bank. The rate of erosion has been found to be about 17 meters per year at some parts.

11. Apart from coastal erosion caused by wave actions and storms, removal of sand for construction of roads and hotels, exploitation of *Casuarina* trees on the dune-tops for fuel wood and building materials also cause destruction of sand dunes and erosion of beach. Artificial methods of beach protection at some places also accelerate coastal erosion elsewhere. Coastal accumulation is occurring at Shankarpur.

12. Pollution of the coast is mainly caused by discharge of burnt oil from mechanized boats and oil tanker wash. Besides, 1,100 million litres of sewage per day arrives in the Sundarban area

from Kolkata Municipal Area through the East Kolkata Wetland, which provides some natural ecological treatment. Industrial pollution is rampant in river Hoogly. Studies (Central Pollution Control Board, 1991) indicate that there is an alarming rate of mercury pollution in the Saptamukhi River (0.121 mg/kg), arsenic pollution in Matla and Bidya rivers (4-18 mg/kg), and chromium pollution in Hoogly and Muriganga (16.23 mg/kg) rivers. At Haldia, apart from its harbor establishment of 1.52 km², 7 major polluting industries generate 21,660 MLD effluents and 25,015 MT of solid waste per day. Most of these pollutants end up in the coastal waters. The entire effluent of domestic and hotel sector of the largest coastal tourist resort of Digha is discharged untreated into the coastal waters. Another environmental problem in the coastal zone is changing quality of surface and ground water especially in Digha area due to incursion of salt water (Das, 1991). This is an indirect effect of shore line shifting in this region.

Environmental and Social Assessment Process in the project

13. A comprehensive Environment and Social Assessment (EA and SA) was conducted by MoEF through a specific consultancy, supported by systematic and wide spectrum stakeholder consultations. The principle was that environmental benefits of the project are associated with sound management of coastal habitats and protection of environmental resources and functions that provide services to coastal inhabitants. The EA and SA followed a robust methodology and identified the potential environmental and social risks arising out of the project interventions, recommended their management measures and incorporation of these in the project design; the capacity building initiatives that need to be undertaken at the national and state levels; appraised the national and state projects reports and stakeholder concerns; recommended measures to mainstream environmental and social impact management measures in the draft terms of reference for preparing ICZM plans in the three states; reviewed the environmental and social assessments for each of the state level priority investments; and ensured management measures are integrated in their design through appropriate inclusion in detailed project reports and bid documents. Specific attention was given to environmental issues and linkages to livelihoods; environmental risks and linkage to protection of people's health and enhancement of cultural heritage assets. The E&SA was also scoped to assess compliance of project investments with the GoI regulatory framework and the Bank's safeguard policies.

14. The E&SA was undertaken at two levels. At a macro level, the E&SA carried out a regulatory impact assessment, which delineated possible risks from the change in regulation, whether these would be adequately mitigated and managed by the proposed changes and management processes and issues that would be strengthened due to the projects interventions. One key process with the potential for strengthening is the preparation of ICZM plans. At a micro level, the project design and the E&SA examined the potential impacts at local and site levels, and proposed avoidance, mitigation and management measures. Each of the activities financed by the project is carefully examined and designed to avoid potential negative impacts, and provides for adequate mitigation and management measures for direct and indirect impacts. The overall environmental impacts of the project have been assessed to be positive, beneficial, and aimed at long term sustainability. At a cumulative level, also the impacts are assessed to be beneficial, and the ICZM plan process will further ensure that these beneficial impacts are enhanced. The avoidance, mitigation and management measures are being incorporated in detailed project reports and bidding documents, as required.

15. The E&SA was based on a detailed survey (primary and secondary) and review of study reports from various institutions relating to coastal zone management studies conducted in India;

Detailed Project Reports (DPRs) of pilot investments to be financed by the project; State Project Reports (SPRs) providing overviews of state coastal issues and their relevance in the development context; and field visits to the participating states and sites of the pilot investments. Additionally, consultations were held with key stakeholders, including senior officials of the State CZM Project authorities, and other relevant departments and line agencies and experts including MoEF officials. Further, considering that the major beneficiaries of the project are coastal communities including traditional dwellers and vulnerable communities such as the scheduled tribes, consultations included an assessment of the process of benefit sharing from the project within the local coastal community.

16. The E&SA, in turn the project design, benefited from **various studies commissioned by the MoEF**: (i) Study to determine the methodology of identification and mapping of the ecologically sensitive areas (ESAs), which identified the capacity of the relevant institutions in the country to identify and map the ESAs in the proposed coastal management zones; (ii) a management effectiveness study to appraise and examine the different investments and projects in conservation of the coastal environment in India in last 10 years, which summarized the lessons learnt in such projects/investment for the benefit of improved design of the project; (iii) a communication needs assessment and development of communication strategy for the project; (iv) a report describing the methods and tools for mapping and demarcation of hazard lines. Additionally, the E&SA sought inputs from the following studies/reports prepared by the three states: (i) State reports describing the status of coastal zone management, the need for interventions, implementation arrangements; (ii) the draft terms of reference for preparing ICZM Plans for the selected coastal stretches; (iii) the detailed project reports for each of the priority investments, which also contain sections on environmental and social assessments. The States also undertook studies to value the coastal ecosystems (coral reefs in Gujarat, mangroves in West Bengal and Orissa) to supplement the valuation studies already available.

Stakeholders Communication and Consultation

17. This project benefits from inputs derived from wide spectrum stakeholder consultations carried out over a period of time. These included consultations conducted by CEED (consultants for the E&SA); those initiated by MoEF, and their appointed organizations, other formulated committees, both at the State and National levels. Inputs were also derived from policy level consultations conducted specifically for the Draft CMZ Notification 2008.

18. **Stakeholder consultations for pilot investments** in the States were designed such that: (i) a wide cross section of people / communities/ including all categories specifically vulnerable groups were included in the decision making process; (ii) links between communities and their natural resource base, especially adjacent to project locations were explored; (iii) public awareness and information sharing on the overall project components and pilot investments, alternatives, benefits and entitlements where applicable were promoted; and (iv) views on designs and solutions from the communities were solicited. Outputs from this process were integrated into the design where technically feasible.

19. **Consultations undertaken for Project components by MoEF**: Consultations were held by MoEF pertaining to the National components of the project on mapping of hazard line (defining hazard line and parameters to be considered), Ecologically Sensitive Areas (criteria to be adopted for selection of ESA's) and capacity assessment to manage India's coastal zones in an integrated manner. This involved a national level workshop series of regional workshops, and brain storming

sessions involving national and international technical experts. In addition to the above, various consultations were conducted by the three participating states i.e. Gujarat, Orissa and West Bengal in each of the states involving various stakeholder groups in the form of formal and informal discussions. The various issues raised by the stakeholders were addressed by the state implementing agencies and integrated into the project design where relevant and to the extent possible.

20. Consultations undertaken for Project components by the Communication

Consultants: these consultants, appointed by MoEF for developing the communication strategy, aimed to use this forum to generate awareness about the project among various stakeholder groups, minimizing misconceptions and creating stakeholder buy-in for the Project and the ICZM approach; help create two-way channels of communications between stakeholder groups at various levels and the project authorities to help in the design and implementation of the ICZMP; help develop the strategic communication capabilities of agencies engaged in implementing the program at the national, state and local levels; help incorporate processes and mechanisms that enhance public disclosure and transparency within the project design and implementation activities. The key outcome from these consultations is mentioned below: - (i) all print media reports are on the MoEF's draft CMZ notification, and very little on the ICZMP has been reported; (ii) confirmed perception that regulations were not understood by the common coastal dweller, in particular the addressing fisher people's views and concerns; (ii) need for accurate information to counter belief that livelihoods are not really safeguarded by this project; (iii) confirmed confusion regarding the transformation of CRZ categories to CMZ zones; (iv) need for greater information sharing regarding concerns over lack of transparency in implementation, lack of mechanisms of monitoring and redress of grievances. Further these consultations helped to identify the gaps in communications that needed to be addressed for various stakeholder groups.

21. E&SA Study Consultations covering all three states: The Consultants (CEED) project team held with officials of State departments like forest, environment, fisheries, water resources etc and some other stakeholders like fishermen, boat workers and other coastal inhabitants. The main objective was to identify social and environmental issues in the project areas pertaining to the pilot investments. The key issues identified are summarized as follows:

- a. **Gujarat :** (i) pollution of water bodies, land and ground water contamination in the surrounding areas of the proposed STP at Jamnagar for collection, treatment and safe disposal of urban sewage; (ii) various construction activities for STP, lab buildings etc may cause water, air and noise pollution in the vicinity, if not mitigated properly; (iii) the proposed site for STP where some unauthorized cultivation reportedly existed before and needed examination so as to ensure that there is no adverse effect on livelihood³¹; (iv) selection of beneficiaries for planting and sustainable use of mangroves, various ecotourism activities and socioeconomic development activities may create conflict among the stakeholders; (v) the coral transplantation activity may have some consequences to the basic ecology of present reef systems (subsiding the growth of present reefs and loss of biodiversity due to one species dominance etc); (vi) if pollution is not checked properly, the survival of the transplanted species will be

³¹ This issue was examined in detail by the Jamnagar Municipal Corporation. Public notices were published to announce that the proposed site would now be used for construction of the STP, and no claims on the land were discovered. The site photographs since November 2007, covering all seasons, do not show any agricultural encroachment.

- affected; (vii) the transplantation activity may hinder the movement of fishing crafts; (viii) the eco-tourism development activities, if not properly planned and managed will create issues like air, water and noise pollution and biodiversity loss; (ix) the mangrove restoration activities, if not planned properly will cause loss of local species present in some areas; (x) there are chances for hike in land value due to eco-tourism and local people may be shifted; (xi) proper marketing and capacity building strategies needed for various economic activities associated with ecotourism.
- b. **Orissa:** (i) Adapting coastal protection measures in some areas and collection of sand for filling bags during the coastal protection activity may have some impact on coastal geomorphology and stability of beaches in the neighboring unprotected areas; (ii) the construction activities proposed for various activities like protection measures, regional laboratory etc, if not mitigated properly may cause water, air and noise pollution in the vicinity during construction phase; (iii) construction activities may cause temporary obstruction to passage ; (iv) selection of beneficiaries for various ecotourism and socioeconomic development activities may create conflict among stakeholders; (v) the Eco-tourism development activities, if not properly planned and managed will create issues like air, water (oil spill from boats) and noise pollution and biodiversity loss; (vi) proper marketing and capacity building strategies needed for various economic activities associated with ecotourism; (vii) the mangrove restoration activities, crab fattening, goat rearing etc, if not planned properly may cause loss of local species present in some areas; (viii) waste management in the ecotourism areas needs to be given high priority; (ix) the solid waste management unit may create pollution issues in nearby areas, during transportation and processing; (x) there are some kind of local informal groups in the surrounding villages of the ecotourism proposed areas (traders from only three islands come here and there is some sort of controlling mechanism among them), which can be strengthened and given livelihood and eco tourism trainings of their choice. Similarly tourist spots could be developed in other islands by such clusters; (xi) setting up food courts in disaster prone areas will/may create economic loss
- c. **West Bengal:** (i) pollution of water bodies, land and ground water contamination in the surrounding areas of STP proposed for collection, treatment and safe disposal of urban sewage; (ii) adapting coastal protection measures in some areas and collection of sand for filling bags during the coastal protection activity may have some impact on coastal geomorphology and stability of beaches in the neighboring unprotected areas; (iii) protection with RCC will adversely affect marine biodiversity and economic activities in nearby brackish water system; (iv) various construction activities for STP, sewerage lines, electrification, tourism facilities etc., may cause water, air and noise pollution in the vicinity, if not mitigated properly; (v) construction activities may cause temporary obstruction to passage ; (vi) selection of beneficiaries for shop rehabilitation, ecotourism and afforestation and other livelihood generation activities may create conflict among the stakeholders; (vii) proper marketing and capacity building strategies needed for various economic activities associated with ecotourism; (viii) the afforestation activities, if not planned properly will cause loss of locally important species ; (ix) chances of water body pollution from the fish auction centre; (x) the Eco-tourism Development activities, if not properly planned and managed will create issues like air, water and noise pollution and biodiversity loss; (xi) tourist accommodation and

Waste disposal system during festival periods is not managed properly now creating pollution. Special effort is needed in this regard; (xii) there is chances for hike in land value due to eco-tourism and local people may be shifted.

22. **Consultations undertaken for revision of CRZ and formulation of CMZ Policy** – As documented in the Swaminathan Committee report which primarily evolved from widespread consultations with various stakeholders and in-depth discussions with NGOs. The NGO's consulted were primarily of the opinion that CRZ Notification has been repeatedly "relaxed and amended, (about 17 times) and each time amendments/ relaxations have been made for taking up developmental activities, contrary to the principle of Environment (Protection) Act, 1986 and the objective of the CRZ Notification. Key suggestions included the need for stringent enforcement mechanisms, with greater transparency and accountability in implementation of the notification. Further, the notification should be strengthened by protecting the rights of the fishermen communities and others, who are dependent upon coastal resources.

23. Various other consultations were also conducted by different organizations in addition to the comments / suggestions received by MoEF on the draft notification. This was followed by an appointment of a specific high level review committee (again chaired by Prof. Swaminathan) to examine the comments received by MoEF on the draft CMZ notification, 2008 and to advise on the policy and legal framework for integrated coastal zone management. The expert committee concluded that the coastal zone management notification of 2008 be allowed to lapse. Thereafter, MoEF is advised to draft a revised notification maintaining the CRZ notification, 1991 as the basic framework, with suitable additions/ amendments taking into account the new challenges likely to arise from climate change induced sea level rise, and the growing pressure of population on coastal resources and biodiversity.

24. **Consultations with state officials on the Draft CMZ Notification:** The various state officials were positive towards the proposed approach for demarcation of the "hazard line" to be based on scientific data and principles. All the States agree that such a foundation for coastal management is necessary, although the return interval (on a 1 in a 100 years or lower) could be debatable. The concept of "Hazard Line" substituting the "Setback Line" was also welcomed by the State/ UT Governments, with general consensus that its basis should be re-visited after 5 to 10 years. Most of the coastal states preferred to retain the existing CRZ regulation with appropriate modifications. The States/ UTs insisted on a "Participatory Management", which is the essence of the Swaminathan Report – for the delineation of the Hazard Line and also the CMZ Notification before being implemented by the MoEF. The State Governments and the UTs opined that the local government must be vested with greater powers to implement coastal regulation and the ICZMP. The suggestion to strengthen the State Coastal Zone Management Authority was also made during the meeting. Suggestions and objections on the Draft CMZ Notification have been sent to the MoEF by all the State/ UT Governments and are awaiting a follow up by the Ministry.

25. **Consultations undertaken by an appointed NGO on behalf of MoEF** regarding the proposed CMZ Notification: CEE conducted 35 consultations across 13 coastal states and UTs (from July to August, 2008), with representatives of local communities and NGOs, and submitted a report to MoEF in September 2008. The key issues and concerns raised in the consultations held by the Center for Environment Education are summarized as follows: (i) retention of the Coastal Regulation Zone with the incorporations of improvements; (ii) improving clarity regarding the setback line, ecologically sensitive areas, integrated coastal zone management and the methodologies of management, etc.; (iii) improvements and penalties to existing violations

regarding the CRZ Notification, 1991 which has enough scope to manage coastal zones efficiently if implemented effectively; (iv) involvement of stakeholder groups particularly from local communities for drafting the CMZ Notification, 2008 framework; (v) caution regarding the CMZ Notification, 2008 introducing new management methodologies which are open to subjective interpretation and can/ could be used to promote and legalize corporate activities, promote Special Economic Zones (SEZ), thus opening up the coastal space and resources to the industrial sector without considering the basic rights of the local community; (vi) adequate addressal of the roles of the local authorities and state governments in the proposed CMZ Notification, 2008 management methodology and structure, to ensure basic rights and opportunities for local communities and their representatives (Panchayat Members) to participate and plan the activities in their local environment and settlement areas; (vii) apprehensions of further dilution of the CRZ Notification, 1991 especially regarding interests of fisher folk; (viii) need for a legislation or an Act on coastal management to ensure protection of the coastal ecology and the basic rights of the traditional coastal communities.

26. Additional consultation with non-government organizations, community organizations and experts by the MoEF and the states of Gujarat, Orissa and West Bengal: Each of the above agencies undertook substantial consultation at state capitals and at community level with several non-government agencies, community agencies and experts. Altogether 122 non-government agencies or community organizations were consulted (86 at national level, 22 in Gujarat, 14 in Orissa and 18 in West Bengal), and a total of 118 expert consultation sessions were organized during January 2008 to September 2009. Before finalization of the project, stakeholder consultations are proposed in New Delhi, Gandhinagar, Bhubaneswar and Kolkata (in December 2009 – January 2010). Consultations will continue throughout the project period.

Potential impacts, avoidance and mitigation

27. The Environment and Social Assessment (E&SA) process adopted for the project took a holistic approach, assessed environmental and social issues at a macro and micro level, identified associated risks, potential impacts and recommended management measures. At a more macro level, the GoI proposed (as per the national Environmental Policy, 2005) a program to shift to adopting ICZM approaches from the current partially effective regulatory regime. Although the project has not in itself caused a change in the policy or regulation, it does support implementation of any changed policy and regulation. Therefore, at a macro level, the E&SA carried out a regulatory impact assessment. The assessment clearly delineated the areas (management processes and issues) that would be strengthened due to the projects interventions, possible risks from the change in regulation, and whether the risks will be adequately mitigated and managed by the proposed changes in policy and regulations. Key issues are highlighted as follows – (i) the major issue is the exposure of the currently protected ecologically sensitive areas to exploitation if decentralized planning and management of coastal zones is accepted. However, the proposed changes in policy and regulations do not dilute the current protection regime, but strengthen it; (ii) further strengthening is envisaged through the project's support for the identification and delineation of all ecologically sensitive areas (many of which are not protected currently), and zoning these for protection by MoEF. The ICZM approach will also facilitate investment in financing conservation of the ecologically sensitive areas, a major benefit over the current state of regulatory protection only; (iii) Another apparent issue is whether integrated management will result in loss of traditional and customary access to coastal and marine resources for the vulnerable coastal communities that are dependent on such resources (or whether these communities or their

access will be displaced/ captured by the elite). As per the GoI policy, one of the three prime objectives of ICZM plans will be to ensure that livelihood of the coastal communities is secured. This project, as part of its support for the preparation of ICZM plans as (sustainable management processes) for – Gulf of Kachchh, Gopalpur-Chilika, Paradip-Dhamra, and West Bengal coast, will ensure that the ICZM plan processes are fully participatory, with identification and involvement of all stakeholder groups, especially vulnerable communities dependent on coastal and marine resources. This would further ensure that the concerns related to equitable share and protection of traditional access to coastal and marine resources will be adequately incorporated in the ICZM plans and decision-making processes.

28. The potentially direct environmental issues identified in the project areas included (i) effect on small local natural habitats from mangrove and shelterbelt plantation, (ii) introduction of alien species from plantation activities; (iii) impediment to site level natural drainage created by small infrastructure works, such as cyclone shelters; (iv) conversion of grazing and pasture land for plantation or for small infrastructure works such as laboratories at remote places. Each of these direct impacts has been avoided by careful project design.

29. A second set of potentially direct impacts include (i) unplanned and uncontrolled disposal of construction debris; (ii) unplanned disposal of solid wastes; (iii) soil and water pollution from implementation and operation of planned activities such as eco-tourism or alternative livelihood works; (iv) tree felling and land clearance for small facilities such as cyclone shelters, laboratory buildings, new national institute; (v) noise pollution and local oil spill from patrolling boats, and (vi) lack of workers' safety. Each of the activities financed by the project is providing for adequate mitigation and management measures for such direct impacts – for example by ensuring sufficient provision for water supply, sanitation, sewage treatment, planned debris disposal etc.

30. The project may also have indirect impacts on the environment such as (i) impacts on neighboring natural habitats, or edge deterioration of protected forests, (ii) impacts from entry level activities in villages where community mobilization is planned for mangrove and shelterbelt plantation or other ecological conservation works, (iii) soil pollution and offensive smell around the planned sewage treatment plans, (iv) impacts on avifauna from beach illumination, (v) instability of neighboring coastline from the pilot coastal protection works, and (vi) accelerated environmental deterioration at the source of construction materials. Each activity is being carefully examined and designed, and site selection has been done carefully to avoid these potentially indirect impacts. In cases where the possibilities of such indirect impacts cannot be fully discounted (e.g., as related to sourcing of construction materials), management actions are proposed in the EMP as well as part of the implementation requirements of the activities.

31. At a cumulative level, the impacts are beneficial, and the ICZM plan process will ensure that these beneficial impacts are enhanced. The avoidance, mitigation and management measures are being incorporated in the bidding documents, as required.

Environment and social management plan

32. A comprehensive environment and social management plan (ESMP) has been prepared for all identified environment and social issues and potential impacts due to the project interventions. The ESMP covers the specific project activity; the key environment issue associated with it; the proposed management measure (preventive, avoidance or minimization, compensation); the monitoring measure proposed to ensure its continued implementation and sustainability, institutional responsibility, budget; and the timeline for implementation.

33. A **detailed environmental and social management plan (ESMP)** has been prepared along with the reporting responsibility and monitoring indicators for all project components. Each of the sub-components or activity has been designed to maximize long-term benefits and institutional sustainability, and to avoid the avoidable impacts. The ESMP includes (i) monitoring to ensure that the avoided issues does not recur; (ii) mitigation and management plans, (ii) Monitoring & Evaluation including social audit and third-party audits, (iv) grievance redress process, (v) adequate budget, (vi) adequate staffing to oversee project implementation.

34. **Integration of environmental issues into project design:** This project is essentially designed to address the aforementioned environmental and social issues, by supporting the GoI's program on conservation and sustainable management of coastal zone. Therefore, the overall environmental impacts of the project are expected to be positive, beneficial, and aimed towards long term sustainability. However, at a local and transient scale, the activities proposed under the project may result in damage to environmental resources, unless carefully planned. Therefore, during the design of the project, adequate attention was placed on avoidance and mitigation of any potentially damaging environmental affects. Each of the sub-components or activity has been designed to maximize long-term benefits and institutional sustainability. All investments are designed to preserve the natural heritage of the coastal areas. Environmental benefits of the project are associated with sound management of coastal habitats and protection of environmental resources and functions that provide services to coastal inhabitants.

35. **Natural Habitats, National Parks, Wildlife Sanctuaries:** No project activity will involve any (significant or insignificant) conversion or degradation of natural habitats (whether protected or not). No activity in the project will include anything to affect (i) the integrity of the natural habitats (by land use or water use).(ii) No land clearing;(iii) no replacement of natural vegetation; (iv) no permanent or temporary flooding of natural habitats; (v) no drainage, dredging, filling or channelization of wetlands;. The project does not promote any infrastructure to induce ribbon development at all. Possibilities, howsoever distant, of impacting the native vegetation have been carefully avoided. Activities within protected areas have been carefully designed to avoid even remote chances of impacts on micro-habitats. Project activities are designed to enhance capacities required to manage long-term conservation needs. Project will monitor the chances of third-party impacts on ecological resources of the coastal zone, and in the event of any such third party impacts, quick actions will be taken during project implementation period, including, for example, mobilizing resources from the undisbursed balances to facilitate and undertake, as and when necessary the requisite mitigation or impact reduction measures.

36. **Forests, flora and fauna:** The project (i) does not include any logging, (ii) does not impact the health or quality of any forest, (iii) does not either increase or decrease access or rights of communities to forests or minor forest produce; (iv) does not propose to bring about any changes in management, protection and utilization of forests. All mangrove and shelterbelt plantations are proposed in areas which do not have any forest cover for a long time. No activity linked to the project is likely to (i) have impact on health or quality of the forests (including mangrove and shelterbelt); or (ii) adversely affect the rights and welfare of people and their dependence upon or interaction with the forests in the project area. All possibilities of edge deterioration have been carefully examined and avoided. All possibilities, however remote, of introducing invasive exotic species have been carefully avoided. For all mangrove and shelterbelt plantations, the project uses community management approaches, which is the established practice in India promoted by Bank projects. Mangrove plantation will take place on "revenue land" and "forest land". No "forest"

area, i.e., any land with forest cover will be used for mangrove or shelterbelt plantation (whether owned by the revenue department or the forest department). No regulatory clearance under the Forest (Protection) Act ("forestry clearance") will be required for the project activities including for mangrove and shelterbelt plantation. No synthetic or chemical pesticide or herbicide will be used in any plantation or during deweeding or clearing operations.

37. **Cultural Properties:** The project does not have any direct adverse impact on any known physical cultural property. The project does not involve excavation works, or polluting activities that might potentially impact. The project supports conservation, renovation and restoration of seven dilapidated cultural properties (although none of these are listed as national heritage). The project also supports renovation and restoration of a marine aquarium at Digha (West Bengal) and establishment of an oceanarium-cum-research centre at Dwarka (Gujarat). All architectural conservation and restoration works will be undertaken by specialized supervisors and craftsmen. The policy is triggered to ensure that the architectural conservation and restoration works are undertaken at the best professional standards, and are duly supervised. In addition to the activities listed here, the project will ensure that cultural values are preserved while planning and implementing all project financed activities through a variety of measures included in the design of these activities.

38. **Inclusion of poor, vulnerable groups living in coastal communities is a project priority.** Inclusion, participation of coastal communities, and issues and constraints faced by women were integrated in the design of the project since project reconnaissance. Each of the activities proposed by the state PEAs examines options for addressing these issues. These issues also formed the basis of stakeholder consultation at national, state and village levels. A number of priority investments target these groups, and support their options for improved livelihood, and involve CBOs for implementation of these investments. The agenda on inclusion is expected to continue in the design of ICZM plans. The project is also designed to provide livelihood security to local communities. Beneficiary selection will be guided by pre-determined criteria such as inclusion of vulnerable groups. To ensure transparency, the criteria used will be publicly disclosed using local vernacular media and other tools. Project will ensure that scheduled tribe population and their aspirations are represented adequately in village level planning related to local conservation and livelihood improvement activities in the project. Finally, gender mainstreaming is a focus area in the project. Based on borrower commitment, activities are being integrated under each proposed pilot investment to address women's needs. For instance, among the priority investments contemplated in West Bengal and Orissa, efforts are being made to advance opportunities for fisherwomen to market their wares (raw fish, more value added products like fish pickles or traditional handicrafts) in areas where relevant forward linkages for marketing exist.

39. Social analysis undertaken (as part of E&SA) identified the different **scheduled tribe groups** who could be among the potential beneficiaries. Based on all relevant cultural anthropological studies, culturally appropriate benefits can be extended to a tribal community only when the scheduled tribe (ST) communities live in a tribal settlement in India. A screening of the 267 villages where the project activities will be implemented suggested that no separate plans for ensuring that the activities are culturally appropriate to the STs are required. As per result of the screening, no village contains any distinct IP settlement (or a distinct tribal habitat). Of the 267 villages in the project area, only one village in Gujarat has substantial tribal population (87%) and in itself a tribal settlement. The village plan prepared by villagers is itself will ensure cultural appropriateness. In all other villages, the ST population is too low - 1% or less in 205 villages; 1-

5% in 36 villages; 5-10% in 9 villages; 10-25% in 12 villages; and 25-50% in 4 villages. In none of these villages the scheduled tribe population can live in a distinct tribal settlement that characterize the scheduled tribe community with respect to collective attachment to distinct habitats, or with respect to distinct cultural, economic, social or political institutions. Naturally, no meaningful separate plan can be prepared in these villages to ensure that these plans are culturally distinct from what is culturally appropriate to these village communities as a whole. However, each village level plan will ensure that the ST people are distinctly represented in the planning exercises, and that the project activities are planned and implemented in full prior information and consultation with all sections of the vulnerable social groups including the scheduled tribe population.

40. **Involuntary Resettlement:** The project design has ensured that potential of involuntary resettlement is absolutely minimized. No land acquisition is involved. The project design has ensured that potential of involuntary resettlement is absolutely minimized, and all known possibilities have been avoided. The project will support mangrove and shelterbelt plantation on forest or revenue land; or in the case of Orissa, shelterbelt plantations on 105 hectare of private land with consent of landowners and without any land acquisition. Site verification has been conducted for 15,500ha of revenue and forest land; and no squatter or encroachment has been identified. All cases of voluntary land donation will be clearly documented and disseminated in village *panchayat* offices. Therefore, all the potential impacts had been examined and not found. But experience suggests that unless all project activities are complete, the potential chance of squatter or encroachment cannot be totally ruled out. To take care of possible (even if unlikely) cases, the project has prepared a resettlement policy framework (RPF), consistent with the National Resettlement and Rehabilitation Policy (NRRP 2007) and the Bank's OP 4.12. Note that the RPF is made only for unidentified problems which cannot be absolutely ruled out; and not because such impacts have not been examined. The RPF consists of (i) a monitoring mechanism to identify potential, even if unlikely, cases of (non-building) squatters and encroachers; (ii) an entitlement framework to compensate and assist for possible types of losses; and (iii) a three-tier grievance mechanism to be widely publicized. As the number of attributable cases is not known, notional numbers were used to define a resettlement and rehabilitation budget of INR 134 million, which will be updated as these chance cases are discovered during the implementation period.

41. The project will also finance preparation of ICZM plans for the Gulf of Kachchh (Gujarat), Paradip-Dhamra and Gopalpur-Chilika coastal stretches in Orissa, and the entire West Bengal coast. The primary objective of ICZM plan is to protect life and property of vulnerable coastal communities. Each of these plans will be prepared at a regional scale. It is unlikely that the planning exercise will be able to identify directly attributable cases of involuntary resettlement. However, the plan process will include an examination of the final plan for its consistency with the World Bank OP 4.12, the applicable national policy and legislation on displacement from or loss of access to traditional and customary rights and assets; as well as with the objective of ICZM plans.

42. The project also has the **social accountability mechanisms** within the implementation and monitoring processes of its priority investments across the components 2, 3 and 4. The key approaches that would be adopted for ensuring social accountability would be any or a combination of participatory processes guiding social audit, citizen score card and report card to acquire feedback on performance of the priority investments and record citizens' recommendations for improvement. The social accountability mandate will be further strengthened through a strong

grievance redress mechanism. Grievance redress cells will be established both at the NPMU and SPMU level that will register user complaints using various mediums (e.g. a dedicated, toll free phone line, web based complaints, written complaints and open public days) and address them in a time bound system. The project will abide by the RTI Act of 2005 and under provisions of Section 4 of the Act, it will commit itself for proactive disclosure and sharing of information with the key stakeholders, including the communities/beneficiaries. The project will have a communication strategy focusing on efficient and effective usage of print and electronic media, bill boards, posters, wall writing, and adoption of any other method suiting local context, logistics, human and financial resources.

43. In addition to the above, the project will provide assistance for aggrieved persons belonging to vulnerable groups for accessing legal recourse if they remain unsatisfied with the projects three-tier grievance redress system. SPMUs in this project will establish a partnership with respective State legal Aid Center to provide legal services to the aggrieved persons claiming impact from the project, and will reimburse all additional costs that accrue to the State Legal Aid Centres.

44. The project has prepared a tentative budget considering the various components for implementation of the environmental and social management measures and associated monitoring costs. The estimated budget is INR 373 million.

Environment Monitoring and reporting plan

45. A detailed component wise monitoring plan has been prepared for the project. Monitoring involves periodic assessment to ascertain whether activities are being undertaken according to the plan. It includes component wise activities, monitoring indicator, tools and frequency, responsibility for carrying out monitoring and reporting.

Institutional capacity for safeguard management

46. The project will be implemented by the Ministry of Environment & Forests, GoI (MoEF), and the Departments of Environment (DoE) in the states of Gujarat, Orissa and West Bengal. The mandate and primary function of these implementing agencies is to protect and conserve the environment, through a mix of regulatory, institutional and financial tools. These agencies employ the best environmental professionals in the country, and have invested for a long time in specialized institutes for research and development of application tools on environmental conservation and pollution management. Many of these institutions (such as the Botanical Survey of India; the Zoological Survey of India; the Wildlife Institute of India; the Forest Research Institute established and financed by MoEF; the Gujarat Ecology Commission, the Gujarat Ecology and Environmental Research Foundation, Gujarat Institute for Desert Ecology established and financed by DoE, Gujarat; Chilika Development Authority established and financed by DoE, Orissa) are world class institutes and/or are recognized internationally. In each state, the DoE is assisted by its State Pollution Control Boards (SPCBs), while at the national level the pollution control norms are set by the Central Pollution Control Board (CPCB). Since 1996, relevant regulations on coastal zone have been enforced by the MoEF and the National Coastal Zone management Authority (NCZMA) (at the national level) and the DoE and the State Coastal Zone Management Authorities (SCZMAs) (at the state level).

47. Each of these institutions, admittedly face considerable resource gaps to fulfil the needs of a rapidly emerging economy. However there is no obvious capacity gap, particularly with respect

to institutional arrangements for addressing environmental safeguard issues that may arise in relation to the project in general. On social safeguard issues though (which are the domain of separate ministries in GoI and separate departments in state governments), the MoEF and the DoEs do not have adequate capacity, and depend on the relevant state departments, particularly those that address issues of land acquisition and consequent resettlement and rehabilitation. Note that there are no known cases of land acquisition in the project. Therefore, this is not a significant gap in relation to implementation of the project.

48. This project promotes ICZM approaches to address the relevant environmental and social issues in the coastal zones of India, and as such environmental and social (safeguard) issues are at the core of the ICZM approach. Evidently, MoEF and the DoFEs do not have the requisite capacities to fully plan and implement ICZM approaches. Therefore, the project is specifically designed to create capacity for adopting and implementing ICZM approaches at the national level, and for building capacity and demonstrating benefits of ICZM in three pilot states of Gujarat, Orissa and West Bengal. At the national level, the role for the project is to create enabling capacity, tools, and requisite knowledge building institutions. At the pilot state level, the role is to support preparation and subsequent adoption of ICZM plans, in addition to pilot activities to demonstrate integrated and joint actions. As part of these capacity building initiatives, all relevant environmental and social management issues will be addressed. Specifically, for managing the project the NPMU and the SPMUs are being set up. Each of these will have an “operations” cell which will have one environment specialist as manager and six technical specialists to manage and coordinate project activities. These specialists will include (i) an ecologist/environmentalist, (ii) a marine scientist/oceanographer, (iii) a fisheries specialist, (iv) a social development specialist, (v) an M&E specialist, and (vi) an engineer/planner. In addition, a “communications and capacity building” cell will be created and will be headed by a communications manager, who will be supported by a communications officer and a capacity building specialist.

49. The SPMUs and the NPMU will also be able to draw on other institutions for resolving issues related to environmental and social safeguards. The project management component includes sufficient resources for managing both known and unforeseen issues. On the management of social issues, over and above managing social safeguards, the NPMU/SPMUs will operationalize effective grievance and redress systems, social audits, and a fully participatory process for preparation of ICZM plans. For management of larger environmental issues, they will undertake special studies and evaluation, as part of the evaluations on achieving ICZM objectives.

Disclosure

50. National and state level in-country disclosure of the E&SA Reports, including Executive Summary was completed on 27 November, 2009. MoEF and the three states have received public comments on the E&SA. None of these comments pointed out any gap in the E&SA Reports (while pointing out possible interventions to be added in future to expand the project), and as such the final version of E&SA is no different in content from the draft E&SA Reports disclosed.

51. The documents were uploaded to the websites of the MoEF (www.moef.nic.in), Gujarat (www.gec.nic.in), Orissa (www.chilika.com) and West Bengal (www.ieswm.org) on November 27, 2009, and they have also been available for public reference in offices of the MoEF (New Delhi), the Gujarat Ecology Commission (Gandhinagar), the Chilika Development Authority (Bhubaneswar), and at the Institute of Environment and Wetland Management (Kolkata) on November 27, 2009. The reports were disclosed to the Bank Info-Shop on November 28, 2009.

Annex 11: Governance and Accountability Action Plan

INDIA: Integrated Coastal Zone Management Project

NOTE – The last column on budget includes budget provision mainstreamed in relevant budget for project management.

LEGEND: “P&I” = throughout project preparation and implementation; “A3” = Project management budget in National Component; “A3” = Project management budget in Gujarat Component; “C3” = Project management budget in Orissa Component; “D3” = Project management budget in West Bengal Component; “NEG” = Negotiations; “BB”= Bank Budget; “PPA” = Project preparation advance.

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|--|---|----------------|--|--|-----------|--------------------|
| | | | <i>Achieved by appraisal/need strengthening</i> | <i>To be achieved during project implementation</i> | | |
| 1. Implementation arrangements | | | | | | |
| Lack of clarity on roles and responsibilities between NPMU and SPMUs leading to problems of coordination and failure to meet an ‘integrated’ approach to coastal zone management | NPMU serves as the coordinating body between different SPMUs. | NPMU | NPMU already functional | Monitor regularly approval annual action plans, budgets, and advance fund flow from NPMU to SPMU | P&I | 0.07 (A3) |
| | Roles and responsibilities of NPMU and SPMUs are described in respective MoA, and also described in the PIP | NPMU/SPMUs | MOUs developed and signed | | Done | - (PPA) |
| | NPMU monitors and evaluates (M&E) intermediate outputs of SPMUs each year; findings are used to reallocate state funding from non-performing to performing states | NPMU | | M&E findings on intermediate outputs of SPMUs made available and used for budget reallocation | Annual | 0.67 (A3) |
| | NPMU develops an overall project report, states prepare state project reports; PIP links all activities and outcomes across states into an integrated project implementation plan; PIP also specifies agreements on tasks to be achieved, timeframe for achieving them and roles and responsibilities of each state | NPMU | PIP and national and state reports prepared with details on roles and responsibilities, timeframe for each sub-project | | Done | - (PPA) |
| Lack of clarity on roles and responsibilities between SPMUs, PEAs and institutions <i>other than</i> the PEAs (state departments of planning, municipal offices and other local bodies). | SPMUs serve as coordinating bodies between PEAs and other state departments (municipalities, gram <i>panchayats</i> and other local bodies) | SPMUs | SPMUs created; MoA and bylaws prepared | | P&I | 0.12 (B3, C3, D3) |
| | MOUs are put in place between SPMUs and PEAs for efficient implementation | SPMUs/PEAs | | MOUs developed and signed | NEG | - (PPA) |
| | SPMUs monitor and evaluate (M&E) intermediate outputs of PEAs each year; findings are used to reallocate funding from non-performing sub-projects to performing sub-projects | SPMUs | | M&E findings on intermediate outputs of PEAs available, used for budget reallocation | Annual | 2.52 (B3, C3, D3) |

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|--|--|---|--|--|--|----------------------|
| | | | <i>Achieved by appraisal/need strengthening</i> | <i>To be achieved during project implementation</i> | | |
| | M&E findings feed into corrective measures that are re-evaluated for at least the second, third and fourth year of the project | SPMUs | Key monitoring indicators, institutional responsibilities identified and agreed | Corrective measures undertaken and re-evaluated for four years into the project | Annual | 6.12 (B3, C3, D3) |
| | Consultations are held with all PEAs and other local institutions while preparing ICZMPs | SPMUs | | Consultations held, documented and disclosed on project website(s) | Regular as per design | 0.39 (B1, C1, D1) |
| | SPMU develops a state project report, PEAs prepare DPRs for their respective activity; State project report and PIP link all activities and outcomes across states into an integrated project implementation plan; PIP also specifies agreements on tasks to be achieved, timeframe for achieving them and roles and responsibilities of each PEA. | SPMUs | PIP, state reports and the DPRs prepared with details on roles and responsibilities, timeframe for each sub-project, etc | | Done | - (PPA) |
| | SPMUs prepare PERT charts mapping progress on processes and outcomes across PEAs | SPMUs | PERT charts prepared by SPMUs | | Done | - (PPA) |
| | Coordination between SPMUs, PEAs and other state departments is institutionalized through a Steering Committee in each state; committee includes representatives from various PEAs who take up issues related to coordination between different departments and address them. | SPMUs | Steering Committees formed | Steering Committees meet at least once in three months | At every quarter | 0.12 (B3, C3, D3) |
| | NPMU sponsors specific studies on sub-projects; SPMUs agree to take corrective measures based on study findings | NPMU | | Studies commissioned; results documented and corrective actions undertaken by SPMUs | As per study schedule | 0.53 (A3) |
| | Bureaucratic hurdles delay the project | Societies are set up at the national and state levels to facilitate transfer of funds and overall administration of the project | NPMU/SPMUs | Societies established and operationalized | Effective functioning of societies to be monitored | P&I |
| Powers, roles and responsibilities of societies are adequately described in PIP/PM/FM/MoUs | | NPMU/SPMUs | PIP/PM//FM/MoUs discuss power and roles of societies | Effective functioning of societies to be monitored | P&I | 0.05 (A3) |
| Efficiency and effectiveness of fund flow is reviewed by project management team during supervisions | | NPMU/SPMUs | | Supervision missions (World Bank) review fund flow; observations noted in aide-memoire | Quarterly | 0.2 (A3) |
| Low implementation capacity of staff | Training plans/programs are developed for building capacity of staff in specific technical areas | SPMUs | Training and capacity building plans developed | Regular monitoring of the implementation of these plans | P&I | 0.6 (A3, B3, C3, D3) |

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|--|---|----------------|---|--|-------------------------|-------------------------------|
| | | | <i>Achieved by appraisal/need strengthening</i> | <i>To be achieved during project implementation</i> | | |
| HR constraints (delays in recruitment, induction and placement of staff; pressures and interference in appointments) | Staffing plan is developed for systematic and timely recruitment of staff (both full-time and part time); plan is agreed upon before appraisal; key people are recruited before negotiations | NPMU/SPMUs | Staffing plan developed and agreed upon before appraisal | Monitoring availability and continuity of key staff | P&I | 0.1 (A3, B3, C3, D3) |
| | Selection and appointment process is made transparent through development of a comprehensive HR management manual (this is already part of society rules) | NPMU/SPMUs | PIP covers process of transparent and accountable recruitment of both full-time and part-time staff; their job description; compensation offered; contract policy; training and capacity building systems; and sample contracts | | Done | - (PPA) |
| | All selections and appointments are disclosed on project website(s) | NPMU/SPMUs | Project website(s) created | Project websites give details on all recent selections/appointments | P&I | 0.25 (A3, B3, C3, D3) |
| | Induction and placement plans are developed for immediate establishment of project offices | NPMU/SPMUs | Project offices already established. PD to be appointed by Negotiation | Monitoring availability and continuity of key staff | NEG | - (PPA) |
| | For specific high turnover posts, time-based consultancy contracts are used | NPMU/SPMUs | Contracts in place for high turnover posts | Time based consultancy clause ensured in contracts for high turnover posts | Per schedule | - (A3) |
| Poor operations and maintenance of assets proposed as pilot investments | Each DPR includes an O&M plan; cost estimates include O&M resources | SPMUs | DPRs include O&M plans; cost estimates factor in O&M resources | | DOne | - (PPA) |
| | State governments assume full financing for 100 percent O&M after installation; resources are allocated for community maintenance fund; where public assets are transferred to CBOs on performance based renewable maintenance contracts, CBO members are trained on O&M. | SPMUs | State governments allocate resources to bear post -installation O&M costs; agree to do so in the legal document | Monitoring O&M performance of completed facilities. | Per completion schedule | 1.59 (B3, C3, D3) |
| | For community level assets to be created, resources allocated in DPRs for maintenance fund | SPMUs | Resources allocated for O&M in DPR | Regular monitoring of creation and sufficiency of maintenance funds created. | Per completion schedule | As per above |
| | Some public assets are transferred to CBOs or <i>panchayats</i> on maintenance contracts, renewable at performance against standards | SPMUs | | CBOs formed for O&M; performance-based O&M contracts in place for CBOs | On completion | Included in PEA activity cost |

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|--|--|----------------|---|--|-----------------------------------|------------------------------------|
| | | | Achieved by appraisal/need strengthening | To be achieved during project implementation | | |
| | Training and capacity building for O&M is undertaken for CBO members | SPMUs | | Capacity building of CBOs undertaken | Before completion | Included in DPR |
| Site selection for ICZMPs influenced by elites and vested interests | The sites for ICZMPs have already been agreed upon at the PCN stage. Boundaries for investments will be determined on a scientific basis (coastal sediment + <i>panchayats</i> through which hazard line passes) | SPMU | None | Coordinate with completion of the hazard line and ESA mapping | YR 2,3,4 | 0.09 (part of B1, C1, D1) |
| Site selection for pilot investments influenced by elites and vested interests | Pre-determined criteria (specified in PIP) are used to select sites | NPMU/SPMUs | Site-selection criteria specified in PIP | | Done | - (PPA) |
| | Criteria for selection are publicized at appropriate levels (<i>gram panchayat samitis</i> or at the block level) | SPMUs | | Selection criteria advertised at GP using appropriate/ vernacular media | P&I | 0.01 (part of Communication plans) |
| | Changes in site selection criteria are endorsed by steering committees | SPMUs | | Minutes of steering committee recorded, noting endorsement of changes to criteria | P&I | - (A3, B3, C3, D3) |
| | Changes to site-selection criteria are re-publicized at appropriate levels (<i>gram panchayat samitis</i> or at the block level) | SPMUs | | New criteria advertised at GP using locally appropriate, vernacular media | P&I | - (A3, B3, C3, D3) |
| 2. Transparency and accountability (civic oversight) | | | | | | |
| Lack of citizen voice in formulation of ICZMPs | TORs for ICZM Plans include (a) stakeholder analysis; and (b) results from consultations (at least 5-6 rounds) with each stakeholder group | SPMUs | Several stakeholder consultations organized at the design stage | | Done | - (PPA) |
| | ICZMPs are endorsed by the respective <i>Gram Sabhas</i> (where relevant) | SPMUs | | Endorsements received from Gram Sabhas (where relevant) | YR 3, 4 | 0.99 (B1, C1, D1) |
| | All consultations/endorsements, along with actions taken or proposed, are documented, reported and disclosed in local vernacular media at relevant levels (<i>panchayat/municipality/block/district</i>) | SPMUs | | Results from consultations/endorsement documented and publicly disseminated | YR 4, 5 | 0.2 (B1, C1, D1) |
| Lack of citizen voice in implementing pilot investments | Local stakeholders (communities, civil society etc) and are consulted to acquire their informed consent while preparing and implementing pilot investments | SPMUs | | Several stakeholder consultations organized at the design and implementation stage | Regular, at least one in 6 months | Cost included in DPRs |
| | All consultations are documented, reported and disclosed with actions taken or proposed in local vernacular media as relevant at state/district level | SPMUs | | Results from consultations documented and disclosed publicly | Quarterly | Part of Communication plan |

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|--|---|----------------|---|---|-----------------------------|--|
| | | | <i>Achieved by appraisal/need strengthening</i> | <i>To be achieved during project implementation</i> | | |
| | Community based organizations (CBOs) are formed for implementing sub-projects (as and where applicable) | SPMUs | | CBOs formed for implementation (as and where applicable) | Per sub-project schedule | Cost included in DPRs |
| | Quarterly updates are provided on progress of pilot investments in local newspapers and websites | SPMUs | | Quarterly updates published in local newspapers/other media | Quarterly | Part of Communication plan |
| Cooption of project benefits by local elites | List of beneficiaries is developed as per criteria mentioned in the PIP/COM | SPMUs | Beneficiary selection criteria specified in PIP | | Done | - (PPA) |
| | Draft beneficiary lists are reviewed and monitored by GPs/CBOs at the local level | SPMUs | | Lists displayed at GPs | P&I | 0.026 (in DPRs) |
| | List of beneficiaries is finalized following endorsement by the <i>Gram Sabha</i> and is signed by project officer | SPMUs | | Final list of beneficiaries endorsed by the Gram Sabha | P&I | Cost included in DPRs |
| | Final list of beneficiaries (signed by project officer) is displayed on project websites and also at all concerned <i>gram panchayats</i> and is maintained/replaced every 3 months for the entire duration of the project | SPMUs | | Final list of beneficiaries displayed on project websites and at GPs throughout the duration of the project | P&I | Cost included in DPRs and Communication plan |
| Inadequate disclosure measures | An independent website is being designed for the project to disseminate information. The project will also be subject to all provisions outlined in the RTI Act. | | Websites designed | Websites functioning as intended. Monitor compliance to RTI Act | YR 1 and regularly | 0.04 (A3, B3, C3, D3) |
| | Project communication strategy is institutionalized | NPMU/SPMUs | Communication strategy partially developed | Communication plan implemented | YR1 | 0.54 in Communication plan |
| | Project information officers (PIOs) are designated at all levels (as mandated under the RTI Act) and trained | NPMU/SPMUs | PIOs appointed | PIOs trained | P&I | 0.03 in above |
| | Locally appropriate awareness building and disclosure processes like bulletin boards, local information nodes and translation of project materials in local vernaculars are planned and elaborated in the Communication Plan | SPMUs | Communication plan prepared | Communication plan implemented using locally appropriate methods | Per Communication plan | 0.54 (A3, B3, C3, D3) |
| | Disclosure and accountability at the community level is ensured through other tools such as social audits (facilitated by M&E consultants); pre and post project indicators (e.g. satellite images of mangrove sites pre and post plantation; mid-term and end-term project evaluation) | NPMU/SPMUs | | M&E done through third party consultants; social audits, regular M&E of the project; corrective measures undertaken by NPMU/SPMUs | Per Implementation schedule | 4.91 (M&EL budget, special studies) |

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|--|---|----------------|--|--|------------------------|---------------------------------------|
| | | | <i>Achieved by appraisal/need strengthening</i> | <i>To be achieved during project implementation</i> | | |
| Poor monitoring of project progress | Processes are concurrently monitored by project officials (e.g. a separate finance person in the field) and key experts as and when required (i.e. process monitoring is institutionalized) | SPMUs | | Process monitoring system developed and operationalized | P&I | 1.59 (A3, B3, C3, D3) |
| | Technical monitoring: Work standards are detailed; quality assurance consultants and auditors engaged, as required: QA Consultants (for large contracts) M&E and Social Audit; Environment Audit; Action taken reports – periodic review included in QPRs Annual ATR – submitted for review of steering committee along with clearance of AAP | NPMU/SPMUs | These monitoring, M&E, Quality Assurance, Social Audit arrangements agreed; reflected in project budget. | Quality assurance consultants and auditors appointed; M&E consultant reports submitted; findings reflected in quarterly progress reports and annual ATRs submitted | P&I | 1.86 (Project's M&EL budget) |
| | Independent 'community relation' monitoring: Independent consultants from civil society are appointed by SPMUs. Appointed consultants specialize in the field of social audit or community participation, and monitor project processes on a day-to-day basis and whether they include/address community concerns | SPMUs | These are agreed and reflected in project budget. | Social audit and community relations' consultants appointed; findings reflected in quarterly progress reports and annual ATRs | P&I | 1.59 (A3, B3, C3, D3) |
| 3. Grievance redress and dispute resolution | | | | | | |
| Weak grievance and complaint handling system | Grievance redress systems are established both at the NPMU and SPMU level | NPMU/SPMUs | Grievance redress system agreed | Grievance redress system operationalized | P&I | - (PPA) |
| | Procedures for users' access to register complaints at national/state levels through various mediums such as a dedicated, toll free phone, web based complaints and written complaints -- are published and notified | NPMU/SPMUs | | Dedicated toll-free telephone line installed; complaints page in website functioning | Continuous and regular | 0.05 (A3, B3, C3, D3) |
| | One dedicated staff is appointed in each grievance redress cell to register complaints; if absent responsibilities are undertaken by another staff | NPMU/SPMUs | | Staff appointed and/or designated for registering complaints | Continuous and regular | 0.12 (A3, B3, C3, D3) |
| | A time bound system is established for grievance redress – complaints within 10 days; finalize meeting with relevant project staff within 15 days | NPMU/SPMUs | Grievance redress system agreed | Monitor time taken for addressing grievances | Annually | - (A3, B3, C3, D3) |
| | Open days are organized for the public at the NPMU/SPMU level on a fixed date of each month (say first Tuesday of each month) | NPMU/SPMUs | | Open days organized every month | Monthly | Included in PEA cost |
| | Regular progress reviews are conducted during M&E/supervision missions (reviews cover how complaints have been handled and what actions have been taken); action taken reports are filed as part of QPRs | NPMU/SPMUs | | M&E report/QPRs contain a section on number of complaints received; their nature; and actions taken to redress | Quarterly | Included in project's reporting costs |

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|---|---|----------------|--|--|------------------------|-----------------------|
| | | | <i>Achieved by appraisal/need strengthening</i> | <i>To be achieved during project implementation</i> | | |
| | Documentation division commissions a computerized database on complaint received and action taken | NPMU/SPMUs | | Computerized system for database functional | Continuous and regular | 0.12 (A3, B3, C3, D3) |
| | All guidelines and documents including bidding instructions to include details of complaint management systems | NPMU/SPMUs | | Templates for bidding instructions include details on complaint management | Continuous and regular | - (A3, B3, C3, D3) |
| 4. Procurement | | | | | | |
| Low procurement capacity | Project provides for dedicated procurement consultant at the central and state level to deal with procurement | NPMU/SPMUs | Procurement consultant hired | | Done | - (PPA) |
| | Training is provided to all project procurement staff on World Bank procurement procedures | NPMU/SPMUs | | Training of 5-8 days duration completed | YR1 | |
| Inconsistent procurement procedures | A Procurement manual is developed that meets Bank requirements, with standard bidding documents, evaluation templates etc. to be used across the project | NPMU | Procurement manual developed | Manual updated and modified, as needed | | |
| | Appropriate thresholds are agreed with Project for various methods to be used | NPMU/SPMUs | Throughout the project | | | |
| | Internal procurement is reviewed by the consultant /Procurement specialist and Bank prior review | NPMU/SPMU | Throughout the project | | | |
| Lack of transparency in procurement decisions | Record keeping is made mandatory through maintaining data and records for all contracts at state and district level (including through computerization of procurement data). | SPMUs | Throughout the project | | | |
| | All tender notices, bid documents, status of contracts, are disclosed on the project website and local print media at the national and state levels, every quarter | NPMU/SPMUs | | Tenders and award notices published in local print media and project website every quarter | | |
| | Lists of contracts, procurement plan, EOI , RFP, Bid documents etc are compiled and made available on the project website | | | Throughout the project | | |
| | Social oversight is built in through requirement of approval of all micro plans by and <i>suo moto</i> disclosure of contract award data and material procurement data, including cost of procurement, and labor employment at the place of work | SPMUs | | Social audits are organized throughout the project; SPMUs use findings for corrective measures | | |
| | To ensure reasonable price and support community level procurement, SPMUs undertake periodic market surveys and provide standard specifications and indicative price ranges for the common user items to be purchased by the community for reference. | SPMUs | Project cost estimates are based on current market price | Schedule of rates updated and finalized once every year | | |

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|---|---|------------------|---|---|-----------|--------------------|
| | | | <i>Achieved by appraisal/need strengthening</i> | <i>To be achieved during project implementation</i> | | |
| Poor quality of physical assets constructed | Regular supervision by PEAs / SPMUs. Project provides for third party quality assurance, where required | SPMUs / PEAs | Arrangements agreed, and reflected in project budget | Continuity of PEA supervision and third party audits, as relevant | | |
| | Post review and verification of physical assets is done by internal auditors | | | Internal quality audits organized every year | | |
| 5. Financial Management | | | | | | |
| Fund flow and disbursement | The project will avail funds through budget releases which will be reimbursed by the Bank on the basis of quarterly IUFs. Subsequent disbursement by Bank will adjust for disallowances, if any, by independent third-party audit. | Bank/ GoI/ NPMU | Fund flow arrangements finalized | Regular internal and independent third party audit conducted | | |
| Weak FM capacity | Project FM capacity will be strengthened through outsourcing to experienced CA firm/ individuals at NPMU and SPMU levels. Implementing agencies will earmark adequate FM personnel (own/ hired) for the project who will be trained in project FM practices by SPMU on a regular basis. | NPMU/ SPMU/ PEAs | FM personnel (individuals/ firms) earmarked at entity levels | Availability and continuity of FM staff to be monitored | | |
| Weak FM systems | Project FM controls and procedures will be documented in a project FM manual covering the project FM structure, roles and responsibilities; budget preparation; accounting, payment controls and procedures (including certification of work prior to payments); periodic reporting on the project with formats etc. NPMU/ SPMU train project FM staff, ensure quality assurance. | NPMU/ SPMU | Project FM manual ready and training schedule approved/ training commenced. | Training conducted; Internal audits; Audit Committee functioning adequately. | | |
| Weak internal controls | Delegation of powers for the project and the various entities will be laid down. NPMU/ SPMU will appoint experienced CA firms as internal auditors for the project. The internal auditors and the TOR for the internal audit will be approved by the Bank. Internal audit manuals will be developed for the project which will lay down audit coverage, audit instructions, reporting formats and follow up on action taken on the internal audit observations. Internal audit will be quarterly and consolidated internal audit reports for the project with status of action taken will be shared with the Bank. | NPMU/ SPMU | Internal audit manual ready; internal audit ToR approved by Bank; project delegation of power is ready. | Quarterly internal audit carried out; Audit Committee monitors this regularly; Action Taken report prepared and attached with next quarter QPR. | | |

| Risk Description | Mitigation Steps | Responsibility | Specific Milestones | Specific Milestones | Time-line | Budget ('000 US\$) |
|--|--|----------------|---|--|-----------|--------------------|
| | | | <i>Achieved by appraisal/need strengthening</i> | <i>To be achieved during project implementation</i> | | |
| Delayed statutory audits | Annual project audit by experienced CA firm will be carried out during the currency of the project and consolidated report submitted to the Bank by September 30 each year. NPMU will appoint experienced CA firm as project auditor to carry out annual project audits. The project auditor and the TOR for the project audit will be approved by the Bank. | NPMU | Project audit ToR prepared and approved by Bank | Review of Audit Reports by SPMU/NPMU. Submitted to Bank by September 30 of each year. Submitted to next annual action plan meeting at MoEF/State SCs | | |
| Lack of community capacity to account for and manage project funds | Communities will be rated on their readiness to receive funds based on achievement of milestones like opening of bank account, regular book-keeping etc; appropriate training programs will be undertaken to enhance financial skills | SPMUs/PEAs | Accounting and reporting procedures prepared and finalized; Training and support plan by PEAs ready and reflected in project cost | Communities rated on their readiness to receive funds; appropriate training programs undertaken; PEA staff available continuously | | |

Annex 12: Poverty and Gender Analyses
INDIA: Integrated Coastal Zone Management Project

Poverty Analysis

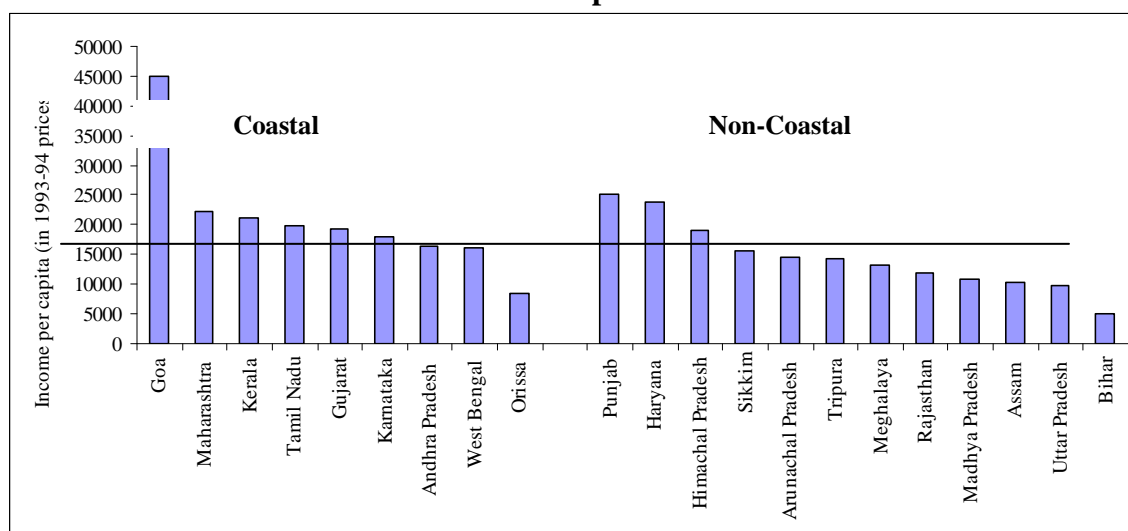
1. The project aims to support the Government of India (GoI) and selected states to develop and implement an improved strategic and integrated management approach for India's coastal zones. A key component of the project is to undertake pilot activities in three coastal states – Gujarat, Orissa and West Bengal – applying integrated coastal zone management approaches with on-going and/or new experiences. In West Bengal for instance, two pilot investments are contemplated: (a) ecological restoration, beach cleaning, sewage treatment, and provision of amenities, all with close livelihood linkages in villages along Digha-Shankarpur; and (b) provision of grid power, tourism development and local livelihood activities such as those related to eco-tourism in Sagar Island in the Sundarbans. Lessons from such demonstration investments will subsequently be documented for scaling-up in the future.
2. While some pilot investments will be undertaken in pre-selected sites (e.g. villages along Digha beach), in yet others there was room for selection of villages/sites based on some criteria like poverty levels. For instance, in Gujarat the pilot activities will include plantation and conservation of mangroves along the Gulf of Kachchh. The project proposed therefore that the headcount ratio (i.e. proportion of people below poverty line) or some other proxy for poverty be used to select districts, blocks and villages for the mangrove plantation (or other pilot investments where selection is possible). Using poverty as a criterion for selection serves two purposes. First, it increases the potential impact of the project in reaching out to poorer areas. One of the key objectives of the Swaminathan Committee Report is to facilitate conservation of ecosystems in the coastal zone, promoting simultaneously economic development and poverty reduction in coastal areas. The project's potential impact on poverty reduction is likely to increase if selection is set up in a manner that relatively poorer areas are identified to begin with. Second, targeting of pilot investments is a possible leakage point, as sites may be selected to appease political patronage. Application of a pre-determined, well-documented criterion (e.g. poverty) that all stakeholders are aware of can help reduce such leakages, if not completely eliminate them.
3. This Annex documents the methodology that was shared with state project management units (SPMUs) for selection (or ratification) of districts, blocks and villages chosen for the pilot investments, using poverty as a criterion. It did not guarantee selection of "all" the poorest sites in a coastal stretch. As mentioned above, some villages were pre-selected based on client need and priority (e.g. ecological restoration of villages along Digha beach). However, the methodology helped in ratifying such choices, as well as in setting up priorities for selection.
4. Section I of the Annex provides a broad profile of poverty and human development in coastal states in India. A comparison is made with land locked states along several indicators – growth rates; poverty levels etc. – using secondary data. While coastal states on the whole tend to do better on most indicators, not all regions within them do well. There is a need therefore to look at more disaggregated data. Section II provides details on the methodology that guided selection of project districts, blocks and villages. Section III lists the project sites that were proposed to SPMUs based on the methodology described.

Section I: The Coastal Dividend

5. India's coastline is 7,517 kilometers long of which 5,423 kilometers belong to peninsular India, and 2,094 kilometers to the Andaman, Nicobar, and Lakshadweep Islands³². A very significant share of India's economic infrastructure, including maritime facilities, petroleum industries, and import-based industries is located in the coastal zone, as are some of its important trade centers including Mumbai, Kolkata, Surat, and Vishakhapatnam.

6. Coastal states, in general, by virtue of access to more economic (ports, etc.) and natural resources, are known to be richer than their counterparts in the mainland. Analysis of different indicators – income, growth rates, poverty levels etc – suggests that the coastal dividend holds true to an extent for India. It is estimated that most coastal states in India (not including Union Territories) had an average income per capita between 2000-2003 that was higher than the average for India (figure 1). Only the coastal state of Orissa was below the national average of Rs. 16,072 income per capita (horizontal line in figure 1). In contrast, nearly all land-locked states except Punjab, Haryana and Himachal Pradesh were below this average.

Figure 1: Coastal states registered higher income per capita between 2000-03, but Orissa was an exception



Source: World Bank. 2008. *Accelerating Growth and Development in the Lagging Regions of India*;

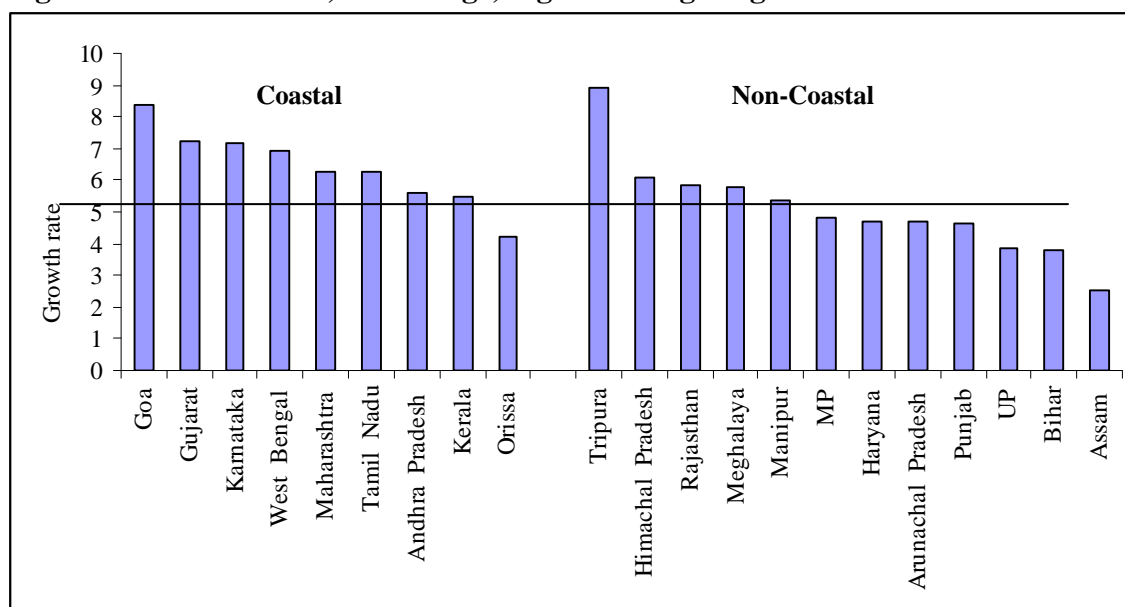
Notes: Income per Capita (estimated at 1993-94 prices), average of 2000/01-02/03

7. States along the coastline also grew faster in the 1990s than land-locked states (at an average of 6.4 percent compared to 5 percent for the latter; see figure 2).

8. By 2000-01, coastal states had a lower share of agricultural workers in the population than mainland states (41 percent compared to 61 percent), had better road density i.e. length of roads per hundred square kilometers (144 versus 65) and had higher credit available per capita – approximately Rs. 8400 compared to Rs. 2400 for land-locked states (World Bank, 2008).

³² Kumar, V. Sanil; K. C. Pathak & P. Pednekar et al. (2006), "Coastal processes along the Indian coastline", *Current Science* 91 (4): 530-536

Figure 2: Coastal states, on average, registered higher growth in GSDP in the 1990s



Source: www.indiastat.com, Selected state-wise trend growth rate of GSDP (1990-91 to 2001-02) at constant (1993-94) prices

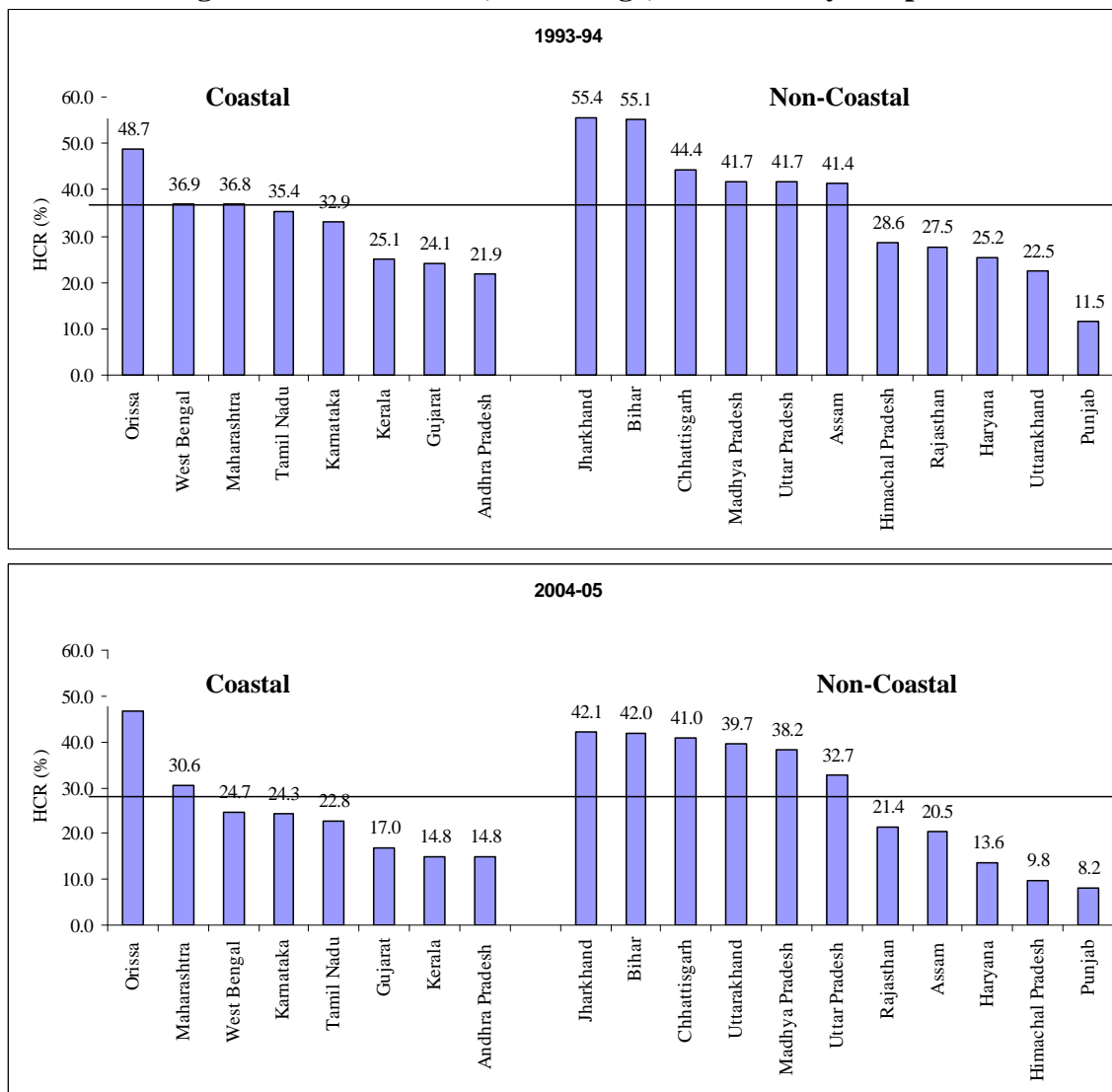
9. Perhaps because of the coastal dividend, states along the coastline in India also recorded relatively lower poverty levels than those in the mainland. Figure 3 gives headcount ratios i.e. the percentage of population below the official poverty line³³ in major coastal and non-coastal states in 1993-94 and 2004-05. The figure leads us to three interesting observations. First, with the exception of Orissa, West Bengal and Maharashtra, coastal states in 1993-94 registered poverty levels that were lower than the national average (35.8 percent of population) – identified by the horizontal line in the figure. In contrast, poverty levels in many more inland states were greater than this average. More than half the population in states like Jharkhand and Bihar, for instance, was below the poverty threshold in 1993-94. Second, while headcount poverty in India as a whole reduced considerably from 35.8 percent in 1993-94 to 27.5 percent in 2004-5, more inland states perhaps of their initial disadvantage were still relatively poorer in 2004-05 when compared to their coastal counterparts. Third, there were variations in the measure of success in reducing poverty even within coastal states. West Bengal for instance registered a relatively faster decline in poverty (a 12 percentage point reduction compared to an 8 percentage point reduction in the national average), so much so that headcount poverty in the state in 2004-05 (24.7 percent) became lower than the national average (27.5 percent).

10. Despite better income and lower poverty, the gap between coastal and inland states on indicators of human development was only marginal. In 2001, the former recorded an average

³³ The Indian Government and the Planning Commission of India specifies poverty thresholds that are different for different sectors (rural/urban) and states i.e. there is no single poverty line that is applicable nationally. The lines are revised every five years or so by the Planning Commission based on the consumer price index (CPI). The two CPIs used are the Consumer Price Index for Industrial Workers (CPIIW) and the Consumer Price Index for Agricultural Laborers (CPIAL). Reweighted versions of each are used to update the urban and rural poverty lines. For purposes of measuring poverty for our analysis, we use the latest official poverty line, whatever that be for urban/rural nationally or urban/rural areas within a particular state.

human development index (HDI)³⁴ of 0.49 compared to an average HDI of 0.42 in non-coastal states (National Human Development Report 2001 and www.indiastat.com). While Kerala ranked first among the 13 states ranked in 2001, Andhra Pradesh and Orissa pulled down the coastal average with a rank of 10 and 11 respectively.

Figure 3: Coastal states, on average, are relatively less poor



Source: TT estimates based on 'Consumption Expenditure Survey' (CES) of respective NSS rounds.

11. Admittedly a coastline offers geographic advantages. But the hypothesis that all coastal regions in India do uniformly better than non-coastal regions can be rejected for the following reasons. First, Orissa is a clear exception to the rule. Despite having a long coastline and being abundantly rich in natural resources, the state is among the poorest in India. Second, coastal states do not necessarily rank high on human development, despite ranking high on income and other economic indicators. Third, not all districts, blocks and villages or population groups within coastal states do well. Some are relatively poorer than the state average.

³⁴ The Human Development Index (HDI) is an index combining normalized measures of life expectancy, literacy, educational attainment, and GDP per capita for countries worldwide.

12. Co-inhabiting richer industrial clusters like Mumbai and other coastal cities, for instance, are a large number of coastal villages that depend on fishing for their livelihood. It is estimated that about 6.7 million people in India depend on fishing for a livelihood, of which about 2 million depend on marine fishing.³⁵ While there is no comprehensive poverty data available on coastal fishing communities in India, scattered evidence in the literature suggests that such communities, in general, are extremely poor, have lower levels of literacy, a lower sex ratio, and poorer conditions of housing, as compared to state and national averages (IFAD, 2003). Coastal families are characterized by large numbers and poor quality of life. Even small children participate in income generating activities, and it is argued that with decline in resource base, the coastal poor feel a need to have large families that can extract enough for survival (Sharma, 1997). The FAO notes: “In purely income terms, small-scale fishers may often compare favorably with small scale farmers or agricultural laborers. But in terms of educational, health and nutritional status, participation in political decision-making, and vulnerability, small-scale fishers and fishing communities often appear to rank lowest in society” (FAO, 2001).

13. Other studies such as that of Kurien (2000), find that fishing communities along the Kerala coast are poorer on several indicators (including human development indicators) than the state average. Research undertaken by the M.S. Swaminathan Research Foundation in coastal villages in Andhra Pradesh reports that a majority of households spend up to 90 percent of their earnings on food alone, indicating high levels of poverty (MSSRF, 1998).

14. In a sense, coastal communities suffer from “ecological poverty” making the need for an integrated approach to coastal management all the more critical. They usually live in remote and dense pockets, with little access to education and health services³⁶. A majority of them depend on fishing and allied activities to earn their livelihood and therefore try and live close to the sea, open to natural elements like cyclones, tidal waves and most recently tsunamis. And when these disasters strike, it is the poor who are most affected³⁷. Poor fishermen and fisherwomen in coastal villages also face pressures of displacement from industry, tourism, development of ports and urban growth.³⁸ Finally, the marine resources they rely on are fast dwindling in the face of destructive fishing practices, unplanned tourist development, intensive coastal aquaculture, chemical pollution from land and sea, illegal and unregulated fishing and impact of climate change.

15. Clearly there are variations in outcomes at the sub-state level and the conjecture that coastal states in India do better universally is not the end of the story. Section III digs deeper into disaggregated poverty data for the three pilot states – Gujarat, Orissa and West Bengal. It illustrates the wide variation in poverty and human indicators within these states. In doing so, it focuses specifically on districts pre-identified by the project for pilot livelihood activities. Finally, and on the basis of a selection of indicators, Section III tries to identify “pockets of poverty” in

³⁵ Government of India, 2001a. Handbook of Fisheries Statistics 2000. Ministry of Agriculture. New Delhi.

³⁶ On average, nearly 1232 people lived per square kilometer of coastal districts in India in 2001, in comparison to the average of 697 people in coastal states and 313 people all-India, making them the most densely populated coastal regions of the world (Source: Census 2001).

³⁷ A study on the impact of the Orissa cyclone showed for example that the poor had the least ability to cope with environmental shocks as they had fewer assets (most had lost their boats and nets in the cyclone) and still fewer options of earning an income elsewhere (Praxis, 2002).

³⁸ Nayak (1997) documents the experience of a fishing village in Orissa that was displaced twice: once to make way for a port at Paradip and then to make way for a university

districts where the project proposes to undertake pilot activities, so project impact is maximized. However, we first discuss the indicators used to do so and their data sources.

Section II: Data and Methodology

16. Preliminary analysis of coastal states in section I suggests that two of the three project states (Orissa and West Bengal) are the poorest from among other coastal states. However, as stressed above, one could expect to find pockets of poverty even within the three states, including Gujarat which is a relatively richer state. The attempt then was one of identifying coastal districts, blocks and villages within the three states that were relatively poorer compared to the state average.

17. Several indicators can be used to do so. The most commonly used is the headcount ratio that accounts for the proportion of people that fall below a mandated, predetermined official poverty line. However, poverty is not merely poverty of consumption but is multidimensional. Poor people not only lack income, but lack resources and access to resources like education, health, land, justice, credit, and social and political institutions. To identify backward districts in each state, a methodology adopted by Debroy and Bandhari (2003) was used. The authors use six indicators of deprivation to identify the most backward districts in India. The indicators include:

- a. Poverty headcount ratio (HCR): The HCR is a measure of the percentage of population living below the poverty line specified by the Planning Commission, Government of India in 1979 at 1973-74 prices³⁹. The HCR data is based on the information on household expenditure collected by the National Sample Survey Organization (NSS) through a representative survey of approximately 12,000 households across India in 1999-00.
- b. Hunger/food sufficiency: estimates the proportion of households that do not have sufficient food for all members in some parts of the year using NSS data for 1999-00
- c. Infant Mortality Rate (IMR): is computed as the ratio of deaths of children under one year of age to the total number of live births in the same year (Source: Sample Registration System)
- d. Immunization rate: is the percentage of children getting complete immunization (Source: National Commission on Population, NCP, District Wise Indicators, 2001)
- e. Literacy rate: measures the percentage of those aged 7 years and above who are literate (Source: Census 2001)
- f. Gross enrollment ratio (elementary level): refers to the ratio of number of children enrolled at the elementary level (Class I-VIII) to the population of 6-14 year olds (Source: : Selected Educational Statistics, 2001)

18. These six indicators were used to sort districts in each of three selected states. First, we identified the districts that were in the bottom most quartile (bottom 25 percent) on a given measure. This is an absolute benchmark. However, most “coastal” districts did not fall into this bottom-most category. Thereafter relative benchmarks were used, comparing indicators for coastal districts against the state average and the average specifically for coastal districts within the state.

³⁹ The poverty line is the cost of a bundle of commodities that can provide a little over 2400 kilo calories to an average Indian living in rural areas. The average food requirement is a little lower at 2100 kilo calories in urban India.

This ascertained whether coastal districts were backward or not relative to other districts or the state.

19. After identification of districts, a poverty profile was constructed for coastal blocks and villages within the selected districts. Unfortunately, there is no recent, comprehensive data on poverty and human development at administrative levels lower than the district. The latest NSS round (2004-05) tracks the incidence of poverty only for a sample of households. Use of NSS data therefore does not assure that all indicators for our target blocks and villages along the coast will be covered. The next best source of comprehensive data is the data from the 2001 census. However, the census data does not include direct measures of poverty like the headcount ratio. The following 12 indicators were used instead as proxies for poverty at the block level:

- i. Proportion of ST population to total population
- ii. Literacy rate
- iii. Marginal workers as percent of total workers
- iv. Sex ratio (0-6 years) females per 1000 males
- v. Percentage of households with no assets
- vi. Percentage of households cooking in the open
- vii. Percentage of households with drinking water source outside premises
- viii. Percentage of households using cowdung cakes as fuel for cooking
- ix. Percentage of households using crop residue as fuel for cooking
- x. Percentage of households using firewood as fuel for cooking
- xi. Percentage of households within no drainage in the house
- xii. Percentage of households with no latrine within the house

20. Once data on the above indicators was obtained on all coastal blocks in the selected states (Gujarat, Orissa and West Bengal), they were divided into terciles with the aim of identifying blocks in the bottom tercile or bottom 33 percent of all coastal blocks on each indicator. This addressed the issue of scale i.e. if one was to include all blocks below the median (bottom 50 percent), more blocks would be classified as backward. However, if only those blocks that ranked in the bottom tercile in all 12 indicators were considered as backward, one would have ended up with very few blocks. Thus blocks that ranked in the bottom 33 percent in at least 5 of the 12 indicators were classified as poor blocks. Of course, some coastal blocks did even worse. For example Lakhpat in the district of Kachch in Gujarat was in the bottom 33 percent of all coastal blocks in Gujarat on 7 indicators.

21. The next step was to identify poor coastal villages from among the selected blocks. While census data is available at the village level, it is hard to determine which villages are located along the coast. District level maps were used for this purpose. Once the identification of coastal villages is complete, they can be ranked similarly along the following 9 indicators to select the relatively poorer ones among them. Coastal villages in the selected blocks can be divided into terciles and then selected if they feature in the bottom tercile in at least 4 of the 9 indicators.

- i. Percentage of households with no assets owned

- ii. Percentage of households cooking in open
- iii. Percentage of households using cow dung cakes as fuel for cooking
- iv. Percentage of households using crop residue as fuel for cooking
- v. Percentage of households with no latrine in the house
- vi. Percentage of households with no drainage in the house
- vii. Percentage of households with drinking water source outside premises
- viii. Percentage of households with no source of lighting
- ix. Percentage of households with mud, wood or bamboo as material for roof

22. The next section presents the findings. The ranking exercise is discussed separately for each state, as are its implications for project design and targeting in each.

Section III: Findings

23. Using the Debroy and Bhandari (2003) methodology, it was found that coastal districts on average outperformed non-coastal districts across the coastal states (West Bengal., Orissa, Gujarat, Daman and Diu, Dadra, Maharashtra, A.P., Karnataka, Goa, Laskhadweep, Andaman and Nicobar, Kerela, Tamil Nadu, Pondicherry). Table 1 lists the district averages for 14 coastal states for the six indicators chosen:

Table 1: Coastal districts in coastal states have lower poverty levels and fare better on human development indicators

| | HCR | percent of hungry households | IMR | percent of children getting complete immunization | Literacy rate | Gross Enrollment ratio (elementary) |
|---------------------------------|------|------------------------------|------|---|---------------|-------------------------------------|
| Coastal Districts' Average | 15.9 | 1.9 | 52.0 | 76.2 | 75.7 | 81.0 |
| Non- Coastal Districts' Average | 30.1 | 3.2 | 69.7 | 71.4 | 66.4 | 84.5 |

Source: Debroy and Bhandari (2003)

24. However, as discussed earlier, even among coastal districts in the three selected states, some were relatively worse-off.

Gujarat

25. *The context.* Gujarat was created out of the 17 northern districts of the former State of Bombay. These districts were further subdivided later on. As of 2001, there were 25 administrative districts in the state (Census 2001). Of these 13 are coastal districts and include the districts of Kachchh, Rajkot, Jamnagar, Porbandar, Junagadh, Amreli, Bhavnagar, Ahmadabad, Anand, Bharuch, Surat, Navsari and Valsad.⁴⁰

26. The Gujarat coast is endowed with a variety of eco-systems including mangroves, sea weeds, coral reefs, salt marshes, marine life and wetlands. It is also a center of economic activities

⁴⁰ Gujarat has a long coastline of about 1600 kilometers, one of the longest in the country

including ports⁴¹, shipping and trade, ship building and ship breaking, fisheries and aquaculture, salt production, mining industries, tourism, navy and defense. The coastal districts, particularly in Kuchch and Saurashtra (Rajkot, Jamnagar, Porbandar, Junagadh, Amreli and Bhavnagar) account for about 48 percent of industrial investment in the state in 1996 (Gujarat State HDR).

27. However the pressure of industrial activity, together with the density of population has created severe environmental challenges in this zone. The state government is cognizant of such problems and has taken the lead in the country in preparation of a Coastal Zone Management Plan (CZMP) and a Coastal Zone Management Information System (CZMIS) tracking weather and environment related information through a geographic information system (GIS).

28. *Proposed project sites.* It has been proposed that project activities under the ICZM focus on the southern coast of the Gulf of Kachchh, which presents a range of pollution-related challenges, due to concomitant presence of oil based industries, marine parks, fishing activities, urban areas (Jamnagar), etc. The pilot activities include conservation and restoration of mangroves, including a few particularly relevant ones as a natural protection to valuable economic infrastructure.

29. *Poverty profile.* Table 2 summarizes the district level data on our chosen six indicators in Gujarat. As evident from the table, the average coastal district was better than those in the worst quartile in every indicator.

Table 2: Coastal districts in Gujarat fare better

| | HCR | percent of hungry households | IMR | percent of children getting complete immunization | Literacy rate | Gross Enrollment ratio (elementary) |
|---------------------------------|-----------|------------------------------|--------|---|---------------|-------------------------------------|
| Worst quartile | 28.2-36.5 | 2.1-2.8 | 74 -80 | 20.9-34.8 | 45.6 -54.2 | 10.5- 32.9 |
| State Average | 13.6 | 0.5 | 69 | 58.5 | 67.1 | 65.4 |
| Coastal Districts' Average | 8.7 | 0.6 | 64 | 62.3 | 70.5 | 61.8 |
| Non- Coastal Districts' Average | 19.3 | 0.3 | 74 | 54.3 | 63.8 | 69.3 |

Source: Debroy and Bhandari (2003)

30. However, there were a few exceptions. The coastal district of Surat for instance recorded a high proportion of hungry households (2.8 percent), falling in the worst quartile of districts in the state on this indicator. The gross enrollment ratio in Surat was also very low (25.7 percent). Likewise, Anand, Kuchchh and Ahmadabad, all coastal districts, recorded relatively high infant mortality levels (80, 77 and 80 per 1000 live births respectively). The coastal districts of Porbandar and Junagadh were low on gross enrollment (10.5 percent in each); and Amreli, also along the coast, had a relatively higher proportion of hungry households (2.4 percent)⁴².

31. In general though, Kachch and Jamnagar (the coastal districts chosen for the project) performed relatively well, both against the state average and average for coastal districts using the

⁴¹ It is estimated that on average a port exists for every 40 km of the seacoast in Gujarat (Gujarat State HDR **)

⁴² Coastal areas in Gujarat are not immune to food insecurity. In a survey of over a 1000 households in two blocks in the coastal district of Rajkot, Chakravarty and Dand (2006) find that only 15 percent of the sampled households were food secure for all 12 months.

selected indicators. As noted earlier, Kachch did worse only on the infant mortality rate. Jamnagar did not feature in the worst quartile on any indicator. Only on one indicator of education i.e. literacy was it relatively worse off compared to the state average (63.2 percent compared to the state average of 67.1 percent).

32. The block level analysis however suggested that there were pockets of poverty even within Kachch and Jamnagar. Lakhpat, Bachau and Abdasa, all coastal blocks in Kachch, ranked in the bottom 33 percent on at least 5 of the 12 indicators from the census data (see Table 3, the numbers in parentheses give the number of indicators on which the block ranked in the bottom 33 percent). Similarly, Khambhalia and Kalyanpur were relatively poorer coastal blocks in Jamnagar. In contrast, none of the coastal blocks in Navsari, Porbandar and Surat ranked poor by this method (i.e. the block featuring in the bottom tercile in at least 5 indicators). This despite Surat having a relatively high proportion of hungry households suggesting that poverty in Surat was mostly concentrated in the inland blocks.

Table 3: Pockets of Poverty in Coastal districts in Gujarat

| District | Poor blocks (poor on x of the 12 indicators) |
|-----------|---|
| Kachch | Lakhpat (7 indicators), Bhachau (6), Abdasa (6) |
| Ahmadabad | Dhandhuka (6) |
| Rajkot | Maliya (5) |
| Jamnagar | Khambhalia (5), Kalyanpur (5) |
| Junagadh | Sutrapada (5), Kodinar (5), Una (5) |
| Amreli | Jafrabad (7), Rajula (5) |
| Bhavnagar | Talaja (6), Mahuva (6) |
| Anand | Borsad (7), Anklav (7) |
| Bharuch | Jambusar (5), Vagra (5), Hansot (7) |
| Valsad | Umbergaon (6) |

Source: Census (2001) and TT calculations

Orissa

33. *The context.* Located on India's eastern coast, between West Bengal and Andhra Pradesh, Orissa is placed strategically with a 480 kilometer long coastline facing East Asia. Of its 30 districts, seven lie along the coast and include Baleshwar, Bhadrak, Kendrapara, Jagatsinghapur, Puri, Khorda and Ganjam. This geographic advantage, together with the fact that it also has nearly a quarter of India's mineral wealth, gives the state substantial growth potential.

34. Yet, Orissa remains among the poorest of India's major states, an exception to the otherwise robust finding in the growth literature that coastal countries (states) tend to grow faster than land-locked ones (World Bank 2008, also see figure 3). Poverty rates in Orissa remain almost twice as high as rates in the rest of India varying from 87 percent in the Southern interior region to 50 percent in the Northern interior region to 32 percent in the Coastal region (Table 4). Although Scheduled Tribes represent about 22 percent of the population of Orissa, they constitute more than

40 percent of the poor. Economic growth also lagged behind the all-India average during the 1990s, with the interior lagging further behind the coastal districts.

Table 4: Poverty Headcount Index in Regions of Orissa, by Social Group, 1999–2000

| Region | Rural | | | | Urban | | | |
|----------|------------------|------------------|-------|------|------------------|------------------|-------|-----|
| | Scheduled tribes | Scheduled castes | Other | All | Scheduled tribes | Scheduled castes | Other | All |
| Coastal | 66.6 | 42.2 | 24.3 | 31.7 | 63.5 | 75.7 | 34.3 | 41 |
| Southern | 92.4 | 88.9 | 77.7 | 87.1 | 72.3 | 85.0 | 24.6 | 43 |
| Northern | 61.7 | 57.2 | 34.7 | 49.8 | 54.4 | 63.1 | 37.8 | 46 |
| Orissa | 73.1 | 52.3 | 33.3 | 48.0 | 59.4 | 72.0 | 34.2 | 43 |

Source: National Sample Survey Data, as calculated by A. Dubey and referenced in De Haan (2005) (Cited in World Bank, 2006)

35. On indicators of human development too, most of the districts in Southern Orissa fared poorly on the HDI as of 2001. The districts in the North and North-east, which are rich in mineral resources, tended to have relatively high per-capita income, but performed a little below the Coastal districts in HDI. However, most coastal districts performed well on human development indicators.

36. Between 1993-94 and 2004–05 however, poverty rates in Orissa declined marginally from 49 percent to 47 percent.⁴³ The latest NSS data (2004-05) also suggested that real per capita expenditure in the Southern Region increased between 2000 and 2005, closing to a certain extent the gap with the coastal regions.

37. *Proposed project sites.* In Orissa, the project has proposed that pilot initiatives focus on the Bhitarkanika sanctuary in the coastal district of Kendrapara and the Chilika Lake bordering the coastal districts of Puri, Khorda and Ganjam. Both are wetlands designated as Ramsar sites.

38. Bhitarkanika is the second largest mangrove forest in the country, next only to the Sunderbans of West Bengal. The sanctuary spreads over 650 square kilometers with a forest cover of 380 square kilometers, of which mangroves cover 115 square kilometers. The mangrove habitat acts as a nursery ground for many fish and shellfish species of commercial importance. A range of port developments are taking place here, potentially threatening the fragile ecosystem. In addition, there is rising competition between local people's natural resource dependent livelihood needs and major economic growth initiatives.

39. Chilika is a large coastal lagoon spread over approximately 800 square kilometers. It covers around 132 fishing villages with nearly 125,000 fisherfolk depending on it for their livelihood (DOF 2002: 46)⁴⁴. It also serves as habitat for millions of migratory and shore birds and marine, brackish and freshwater species.

40. *Poverty profile.* Our district level findings using the six indicators described in the methodology corroborate with those in the literature i.e. coastal districts in Orissa tend to do much

⁴³ See Government of India Press Information Bureau (<http://planningcommission.nic.in/news/prmar07.pdf>) for the latest poverty estimates and details of its estimation. Poverty estimates based on a uniform recall period suggest that poverty rates have fallen from 36 percent in 1993-94 to 27.5 in 2004

⁴⁴In 2001, Orissa was estimated to have a total of 589 marine and 3289 inland fishing villages (Source: Handbook on Fisheries Statistics (2000-1)).

better than their inland counterparts. Table 5 summarizes the district level data for Orissa on our chosen six indicators.

Table 5: Coastal districts in Orissa fare better

| | HCR | percent of hungry households | IMR | percent of children getting complete immunization | Literacy rate | Gross Enrollment ratio (elementary) |
|---------------------------------|-----------|------------------------------|---------|---|---------------|-------------------------------------|
| Worst quartile | 65.5-80.1 | 18.6-24.8 | 117-125 | 28.1-48.1 | 31.3-43.5 | 9.7-32.3 |
| State Average | 49.0 | 7.9 | 100 | 59.5 | 60.7 | 85.9 |
| Coastal Districts' Average | 33.8 | 4.4 | 92 | 55.0 | 70.7 | 80.1 |
| Non- Coastal Districts' Average | 54.5 | 9.2 | 103 | 61.1 | 57.1 | 88.1 |

Source: Debroy and Bhandari (2003)

41. On average, coastal districts performed better on most indicators except two – the percentage of children getting complete immunization and the gross enrollment ratio. Five of the seven coastal districts (Baleshwar, Bhadrak, Kendrapara, Jagatsinghapur and Ganjam) scored lower than the state average on the immunization indicator, Ganjam even falling in the lowest quartile with a proportion of only 37.5 percent children immunized. Of these, Kendrapara, Jagatsinghapur and Ganjam also did worse than the state average enrollment ratio. The worst off district however seemed to be Jagatsinghapur which in addition to low enrollment and immunization ratios; also recorded relatively high levels of hunger (10.9 percent compared to the state average of 7.9 percent).

42. At the block level too, six of the seven districts featured coastal blocks that ranked in the bottom 33 percent on at least 5 of our selected 12 indicators from the census data (see table 6). The Bhitarkanika sanctuary for instance fell in one such block – Rajnagar in Kendrapara. Chilika on the other hand is bordered by blocks like Balugaon in Khorda and Rambha and Khalikote in Ganjam, which were also classified poor by this method. No coastal block in Jagatsinghapur by contrast ranked poor by this criterion, implying that poverty in the district was mainly concentrated in the inland blocks.

Table 6: Pockets of Poverty in Coastal districts in Orissa

| District | Poor blocks (poor on x of the 12 indicators) |
|------------|---|
| Baleshwar | Singla (5), Basta (5) |
| Bhadrak | Bansada (5), Naikanidhi (6), Basudebpur (5) |
| Kendrapara | Rajkanika (5), Rajnagar (6) |
| Khorda | Balugaon (5) |
| Puri | Bhramagiri (5), Krushna Prasad (5) |
| Ganjam | Khalikote (6), Rambha (7), Chhatrapur (5), Golanthara (7) |

Source: Census (2001) and TT calculations

West Bengal

43. *The context.* West Bengal is one of India's most densely populated states with nearly 82 million residents or about 7.8 percent of India's total population (Source: Census 2001). The state ranked behind only Gujarat and Karnataka among the major Indian states on growth recorded in GSDP in the 1990s.

44. Three of West Bengal's 18 districts lie along the coast. They include the North and South 24 Parganas and Medinipur. Per capita income levels in all three ranked below the average for West Bengal, which was estimated to be approximately Rs. 16000 in 2000-01 (in 1993-94 prices). Of the three, South 24 Parganas fared the worst ranking 14 among the 18 states on per capita income. The district also ranked 14 on rural monthly per capita consumption in the year 2000 (Chaudhuri et al 2003, using NSS data, 55th round, 1999-00). Further, only half of the fully covered habitations in the district had access to drinking water in 2001 – far lower than the state average of 83.2 percent. On most indicators of human development however (HDI, literacy, gender development index etc), the three districts mirrored the state averages at the turn of the century (DPD, West Bengal 2004).

45. *Proposed project sites.* In West Bengal, two pilot investments stretches are contemplated: (a) integrated restoration of Digha Beach in the district of Medinipur, and (b) improved livelihoods on the Sagar island in the Sundarbans, combined with medium- to long-term Sundarban coastal zone ecosystem studies that would lay the foundations for a future strategic state program. This would include support to developing medium and small-scale coastal tourism facilities and networks, with linkages to improve the economic earning opportunities of the poor.

46. The Sundarbans is located at the mouth of the Bay of Bengal, in the South 24 Parganas. It is the largest mangrove forest in the world. While the forests act as natural fish nurseries, they also house a large diversity of flora and fauna systems, including many endangered species such as the Royal Bengal tiger and the Gangetic dolphin. The human settlements in the Sundarbans are protected by embankments which are known to collapse given frequent tides in the region. Infrastructure is poor with only 42 km of railway line and around 300 km of metalled roads, half of which is inaccessible in the monsoons (DPD, West Bengal 2004). It is estimated that three in every four villages in Sundarbans has no access to electricity. Basic health services, while available, are considered to be of poor quality (ADB 2003).

47. In 2001, the Sundarbans had 3.8 million people across 19 administrative blocks with an average household size of 7 persons⁴⁵. Population pressures have reduced the per capita availability of land in the region. Further, only two-fifth of the agricultural land is multi-cropped. While 85 percent of the population depends on agriculture, it only absorbs 10-12 percent of the labor supply, leading to serious underemployment. Most inhabitants therefore (about 2 million) depend on natural resources for a living. Activities like shrimp farming post larva provide extra cash income and earn about five times more revenue per capita than rice farming. Most households therefore send their women and children to work in pisciculture that includes activities like water shrimp farming and cultivating prawn seeds with adverse ecological effects. It is estimated that about 171 villages of the Sundarbans have fishing as their predominant livelihood. Most fishermen and fisherwomen live below the official poverty line, with few working alternatives in the off-season. Much of the fishing is done on a small scale, by poor fisherfolk. Furthermore, since the

⁴⁵ Studies estimate that the population in Sundarbans will increase to about 4.5 million people by 2012

work requires standing in water for several hours at end, skin diseases risks of bites and other health hazards are common. Prior research work on the Sundarbans estimates poverty levels to be around 40 percent of the population. The quality of housing too is generally considered poor. Ninety percent of houses are non-permanent, *kutch*a type and vulnerable to natural disasters (ADB 2003).

48. Given the extent of dependence of the population on natural resources, future activities in the Sundarbans would need to maintain a balance between enhancing development, while not threatening the ecosystem which is already at threat from overexploitation of marine resources and activities like eco-tourism and offshore drilling for oil in the region.

49. Sagar Island is the largest island of the Bay of Bengal and has 44 villages with a total population of approximately 155,000 people and an average family size of 7-8 members (Mondal 2003). Gangasagar, the largest village in Sagar (Saha 1999), is a center for pilgrimage as it is the point at which the Ganges meets the sea. Each year, on the day when the Ganges is believed to have come to the island, Gangasagar hosts a *mela* (large fair). The fair is visited by pilgrims from all over India. While this makes Gangasagar a center for tourism (albeit for only a few days during the year), a majority of households in Sagar island as a whole (about 94 percent) remain engaged in agriculture as farmers or agricultural laborers. Only a minority is engaged in the pursuit of non-agricultural activities like trade and business (Mondal 2003).

50. *Poverty profile.* Except for the gross enrollment ratio, coastal districts in West Bengal did better than inland ones on all other Debroy and Bhandari (2003) indicators (Table 7). Among coastal districts however, the South 24 Parganas (Sagar Island, Sundarbans) and Medinipur (Digha Shankarpur) emerged relatively poorer than the North 24 Parganas. The South 24 Parganas had more households hungry compared to the state average (13.7 percent compared to 9.7 percent) and Medinipur did worse than the state average on health indicators. Poverty headcounts in both districts while better than the state average, were worse compared to the other coastal district i.e. North 24 Parganas. Medinipur has a head count ratio of 23.8 percent and South 24 Parganas had an HCR of 24.9 percent. In contrast, only 13.8 percent of the population in the North 24 Parganas was below the poverty line in 1999-00.

Table 7: Coastal districts in West Bengal fare better

| | HCR | percent of hungry households | IMR | percent of children getting complete immunization | Literacy rate | Gross Enrollment ratio (elementary) |
|---------------------------------|-----------|------------------------------|-------|---|---------------|-------------------------------------|
| Worst quartile | 51.1-66.7 | 17.3-21.9 | 58-62 | 28.5-42.1 | 48.6-56.8 | 63.9-72.9 |
| State Average | 31.7 | 9.7 | 56 | 53.3 | 66.7 | 84.9 |
| Coastal Districts' Average | 20.8 | 7.9 | 51 | 57.0 | 74.6 | 82.1 |
| Non- Coastal Districts' Average | 33.9 | 10.1 | 57 | 52.5 | 65.1 | 85.5 |

Source: Debroy and Bhandari (2003)

51. Table 8 below lists the relatively poorer coastal blocks in the three districts.

Table 8: Pockets of Poverty in Coastal districts in West Bengal

| District | Poor blocks (poor on x of the 12 indicators) |
|-------------------|--|
| North 24 Parganas | Sandeskhali-II (7) |
| Medinipur | Khejuri-II (5) |
| South 24 Parganas | Canning-II (6), Kulpi (5), Jaynagar-I (5), Kultali (5), Basanti (6), Sagar (5) |

Source: Census (2001) and author calculations

Gender Analysis

52. Prior research indicates that women play important roles in the use, traditional management and conservation of coastal zones. Around 80 percent of women in the working age group in coastal communities in India are engaged in small-time, retail fishing and similar vocations. Yet they exercise little control over household resources (MSSRF 1999) and face considerable occupational health hazards (gynecological and skin diseases, snake and shark bites to name a few). Moreover, a woman's stepping out to work to undertake a 'polluting' activity like fishing, is often perceived as an indicator of her low status and poverty, inviting much social derision from her community (Rubinoff 1999). It has been recognized therefore that any ecosystem conservation or livelihood initiative developed as part of the ICZM project should address and integrate such gender issues and inequalities.

53. Mainstreaming gender equity and empowerment is already a focus area in the ICZM project preparation. Based on borrower commitment, pilot investments have been identified in the three states and activities are being integrated under each proposed investment to address women's needs. For instance, among the pilot investments contemplated in West Bengal and Orissa, efforts are being made to advance opportunities for fisherwomen to market their wares (raw fish, more value added products like fish pickles or traditional handicrafts) in areas where relevant forward linkages for marketing exist. In another pilot investment in West Bengal, which intends to improve the income of the local fisherpersons by upgrading a fish auction centre so as to enable benchmarking the fish products at international standards, prominent spaces will be allocated to fisher women and fisherwomen groups. In Gujarat, a number of women-led community based organizations will undertake and manage investments on redevelopment and conservation of mangroves along the Gulf of Kachchh. Similar implementation arrangements are under discussion for regeneration of mangroves in Orissa and West Bengal. Further, in each of the states, where the Bank will finance preparation of integrated coastal zone management plans, women stakeholders will be involved in the planning and decision-making processes as distinct stakeholder groups.

54. In addition to the above project activities, the Bank task team is also conducting in-house analysis of existing data sets (National Sample Survey 2004-05; National Family and Health Survey 2005-06) to develop a comprehensive profile of employment, and human development outcomes for women in the three pilot states. Findings from the profile, including on indicators such as women's employment, their education and aspirations for work are expected to influence the implementation of pilot investments further.

Annex 13: Communication Strategy and Action Plan
INDIA: Integrated Coastal Zone Management Project

1. The need for an effective communication strategy for the Integrated Coastal Zone Project (ICZMP) has been occasioned by several significant imperatives: (i) the integrated management approach depends heavily on close communication and collaboration between various stakeholders, including implementing agencies, coastal communities, NGOs and community-based organizations, technical experts and academicians, local industry and policymakers; (ii) the need to integrate systems of enhanced information-sharing and transparency into the design and implementation of the various participatory activities being planned and; (iii) to communicate the aims, objectives and benefits of the proposed approach in order to address any relevant misconceptions or concerns among various stakeholder groups.
2. The Bank and the Ministry of Environment and Forests have, accordingly, agreed to systematically address this need for enhanced and effective communications in a phased manner.
3. **Consultations:** The design of the ICZMP and its various components, including the several pilot investment activities proposed on the ground in the three states entailed wide-ranging consultations with various stakeholder groups. In addition to stakeholder consultation at overall project level, and at the level of pilot investments, the MoEF and the states of Gujarat, Orissa and West Bengal organized additional consultation with non-government organizations, community organizations and experts. Each of the above agencies undertook substantial consultation at state capitals and at community level with several non-government agencies, community agencies and experts. Altogether 122 non-government agencies or community organizations were consulted (86 at national level, 22 in Gujarat, 14 in Orissa and 18 in West Bengal), and a total of 118 expert consultation sessions were organized during January 2008 to September 2009. During November 2009 to March 2010 a total of 10 large regional stakeholder workshops were organized by MoEF in different parts of the country to discuss with a wide range of stakeholders including NGOs and communities on the coastal zone conservation and protection. Five of these 10 workshops were attended and led by the Union Minister of State for Environment and Forests. In each such stakeholder workshops, this project was discussed in detail. Consultations will continue throughout the project period. See Annex 10 for details.
4. **Communications Needs Assessment:** MoEF hired a communications consultant firm in mid-2009 to conduct a Communications Needs Assessment at the national level and in the three states hosting pilot activities, viz Gujarat, Orissa and West Bengal. The consultants met with a wide range of stakeholders and surfaced the major gaps in communications that needed to be filled and also examined the existing communication capabilities of the implementing institutions to see how they could be strengthened.
5. According to the findings of this study, the major need for information centered on aspects such as: (i) despite the implementing agencies' consultation efforts some misconceptions about what the Project seeks to do remain, especially among coastal communities; (ii) given the low levels of awareness, basic and sustained information-sharing will be needed if the participatory planning processes envisaged for the new coastal management approach are to be successful; (iii)

the project implementing agencies have good levels of understanding of the ICZMP concept but lack the requisite skills to communicate with stakeholders.

6. **Strategic Communications Approach:** Based on the diagnostics of the Communications Needs Assessment, the consultants, in collaboration with the Project implementing agencies, have suggested a strategic approach to communications that aims to:

- a. Generate awareness about the Integrated Coastal Zone Management Project and its aims and activities among various stakeholder groups with the objective of removing misconceptions and creating stakeholder buy-in for the Project and the ICZM approach;
- b. Help create two-way channels of communications between stakeholder groups at various levels and the project authorities to help in the design and implementation of the ICZMP;
- c. Help develop the strategic communication capabilities of agencies engaged in implementing the program at the national, state and local levels;
- d. Help incorporate processes and mechanisms that enhance public disclosure and transparency within the ICMP project design and implementation activities.

7. **Communication Action Plan:** An Action Plan has been drawn up and will be finalized by national and state-level implementing agencies within three months of effective date for the project, and before the activities would be implemented on ground. The Action Plan will be periodically reviewed to assess its efficacy and fine tune activities to respond to evolving ground situations. The major thrust areas of the Action Plan include the following:

- a. Mass Communications Campaign: In order to ensure that all stakeholders have a clear understanding about integrated coastal zone management, mass communication tools will be used to simplify and explain the basic concept and principles. These targeted tools will include audio-visual films/spots aimed at mass circulation; toolkits aimed at coastal communities; pamphlets and brochures aimed for general audiences; and website dissemination for wider stakeholders. These will be rolled out at both the national and state levels.
- b. Improving Institutional Communications Capacity: Given that the participation and involvement of stakeholders will be integral to the success of comprehensive coastal management approach being piloted under the Project, emphasis has been placed on trying to facilitate this by integrating the communication function into the institutional set-up overseeing implementation. A separate Communications and Documentation unit has been set up in the three state-level project implementing units and at the national level. Each such unit at the SPMU level will be staffed by a communications officer who will be responsible for the communication plan and will act as the hub for all communications activities being carried out at the sub-project/priority investment levels. At the national-level, too, the NPMU will have one professional communications specialist who will oversee the implementation of the project-wide communication plan. In order to strengthen the capacities of these officials to communicate with stakeholders, the Communication Action Plan also details some basic training and capacity building initiatives.

8. The Action Plan also places emphasis on a sustained internal communications' exercise to ensure that the various agencies involved in the Project have a shared understanding of the ICZM approach and can convey the same to the stakeholders they interact with.

9. **Ongoing Initiatives to Enhance Transparency and Accountability:** Apart from the strategic communications approach outlined in the Action Plan, efforts are being made to ensure that mechanisms to ensure transparency are embedded within the design and implementation of various project activities. At the national level, the MoEF is in the process of creating webpages for the National Coastal Management Program which will include the Bank-supported ICZM project. State-level implementing agencies are also in the process of scaling up their own websites, and have already put substantial information about the project on their websites. All documents and reports and other information pertaining to the project will be posted on the relevant websites as and when generated. At the grassroots level, locally-appropriate disclosure processes and transparency mechanisms like wall-writing, local information nodes and translation of materials are planned and elaborated in the implementation plans of various activities. All tenders and contract award notices will also be displayed on the project websites to ensure transparency in the procurement process.

10. Efforts will also be made to help the project implementing agencies enhance their compliance obligations under the Right to Information legislation through RTI training for officials, RTI camps for communities etc. A rapid assessment of the Ministry of Environment and Forests' compliance of its disclosure obligations under Section 4 of the RTI Act shows a high level of *suo motu* disclosure of information already.

11. **Grievance Redress Mechanisms:** The project will establish three tiers of Grievance Redress Mechanism. The project will abide by the RTI Act of 2005 and under provisions of Section 4 of the Act, it will commit itself for proactive disclosure and sharing of information with the key stakeholders, including the communities/ beneficiaries. The project will have a communication strategy focusing on efficient and effective usage of print and electronic media, bill boards, posters, wall writing, and adoption of any other method suiting local context, logistics, human and financial resources. The Communication Specialist at the SPMUs and NPMU will register user complaints using various mediums (e.g. a dedicated, toll free phone line, web based complaints, written complaints and open public days). The website of NPMU and SPMU will have a page for registering grievances. The NPMU, SPMU and PEA will take note of the grievance and will also upload the decision taken on each of the grievances registered on the website. Any grievance registered with NPMU, SPMU or PEA will be addressed within 30 days from the date of registration.

12. **First-tier Grievance Redress:** The community organizers at the village / project site, for each activity implemented at village level, will be the first level contact for any aggrieved person. On a fixed date of every month, individuals / community can approach the community organizer to register their grievance. That apart, the project sites will have information board with the (i) name of the PEA; (ii) name of the nodal grievance redress/social development officer of SPMU; and (iii) a toll free number to register grievances. The community organizer will prepare a monthly report on these cases, and submit to the respective PEA. Wherever the nature of the project activity does not include a community organizer, the Nodal Officer of the PEA will assume the same responsibility.

13. Second-tier Grievance Redress: Any grievance of the community / individual addressed to the community organizer, if remains unresolved will be passed on to the higher level by the community organizer. At the SPMU level, the grievance redress mechanism will comprise of the (i) grievance registration system as described above, (ii) a dedicated staff of the Communication and Capacity Building Cell of SPMU to prepare monthly reports on grievances and escalate specific grievances within a day of receiving a complaint or grievance to the SPMU Grievance Committee, and (iii) a Grievance Committee of the SPMU which will include the Additional project Director, the Social Development Specialist of SPMU and the Communications Specialist of the SPMU. This committee will prepare a quarterly report on grievances received and resolved, and provide specific detailed description of the cases where the issues were escalated, and submit to the State Project Director, within 10 days of completion of each calendar quarter. The mechanism at NPMU will be exactly the same.

14. Third-tier Grievance Redress: In case grievance is not addressed at this tier as well, the aggrieved person can approach the State Coastal Zone Management Authority or the National Coastal Zone Management Authority, as the case may be. The National and State Coastal Zone Management Authorities have, apart from representation from the Government agencies, members who are either experts independent of the Government or representatives of NGOs working on coastal zone management issues. The State/National Project Director, through the Department of Environment of the State or the MoEF will place the case in the agenda of the SCZMA/NCZMA meeting. The SPMU/NPMU Social Development Specialist will be responsible to prepare all background documentation for the SCZMA/NCZMA to consider the case with all required information. The Communication Specialist in SPMU/NPMU will be responsible to inform the aggrieved person the process of contacting the SCZMA/NCZMA, and the date and time of meeting of the SCZMA/NCZMA at least 3 days in advance of the meeting.

15. Assistance for aggrieved persons belonging to vulnerable groups for accessing legal recourse: If an aggrieved person is not satisfied with the results of grievance redress by the SCZMA/NCZMA, such a person can approach the Courts, under the laws of the Country, and the verdicts of the Courts will be final, as per the judicial processes established in India. In general, the legal system is accessible to all such aggrieved persons. However, there might be cases where vulnerable sections of the citizens of India face hurdles in accessing the legal recourse system. These hurdles usually include the cost of litigation, knowledge about the legal system, or the lack of awareness about formal legal procedures. To help citizens to access the legal recourse system, each State has an operational mechanism called the Legal Aid Center, which provides free services including services of lawyers without any cost to the litigants. SPMUs in this project will establish a partnership with respective State legal Aid Center to provide such services to the aggrieved persons claiming impact from the project. As part of the partnership, the project will reimburse all additional costs that accrue to the State Legal Aid Centres. This facilitation will be available to the aggrieved person(s) if they fulfill the following two conditions: (1) that such aggrieved person(s) belong to any of the following vulnerable sections of the society - “below poverty line” families, scheduled castes, scheduled tribes; or is disabled, handicapped, orphaned or destitute person; and (2) such a person or persons have at least accessed both the second and third tier grievance redress mechanism offered by the project. The table below summarizes the grievance mechanism in the project.

Grievance Redress Mechanism in the Project

| Tiers of Grievance Redress Mechanism | Nodal Person for Contact | Contacts, Communication and Other Facilitation by Project | Timeframe to address grievance |
|---|--|---|--|
| First Tier: Project Site or Village | Community Organizer or Nodal Officer of PEA | Each Project Site or Village will have Information Board listing the names and contact telephones. One public meeting day with regular pre-decided schedule organized every month. | 15 days |
| Second Tier: SPMU / NPMU | Social Development Specialists and Communication Specialists NOTE: The NPMU/SPMU Grievance Redress Committee also includes the Additional Project Director (as head of the committee), and the staff from the respective Finance and Administration Cell. | A toll-free dedicated telephone number to register grievances, advertised in each Information Board at Project Site or Village. Website advertisement, public notices in print media. Additional means include the social audit and surveys undertaken by the third-party monitoring consultants; or annual stakeholder meetings. In-house monitoring of the project activities by the NPMU/SPMU technical, communication and capacity building cells are also expected to assist in the process of grievance registration and management. The Social Development Specialist will be responsible to ensure that there is no cost imposed on the aggrieved person due to the grievance redress mechanism at the first and second tier (as an example, the aggrieved person should not be requested to travel to SPMU/NPMU offices at his/her own cost). | 30 days |
| Third Tier: SCZMA or NCZMA | State or National Project Director, with assistance from SPMU/NPMU Social Development Specialists | Only after exhausting the first and second tiers Website advertisement, public notices in print media. State Project Director will place the specific grievance and the background documentation in the agenda of the SCZMA/NCZMA meetings. The aggrieved person can attend the hearing by SCZMA/NCZMA in person. The Social Development Specialist will be responsible to ensure that there is no cost imposed (such as for travel, etc) on the aggrieved person if the person belongs to the vulnerable groups. If required, the Social Development Specialist of the concerned Community Organizer shall represent the aggrieved vulnerable persons. Further, the project will assist the vulnerable aggrieved person if such a person is requested to attend the hearing in person by any of the following - SCZMA/NCZMA, Secretary, State Department of Environment, or Secretary, MoEF. | 60 days |
| Assistance to Vulnerable Persons beyond the Project's Grievance Redress Mechanism | State Project Director with assistance from SPMU Social Development and Communication Specialists | Only for vulnerable person(s) as per the grievance redress mechanism of the project. Only after exhausting at least both of the second and third tiers of the grievance redress mechanism of the Partnership agreed with State Legal Aid Center to facilitate the vulnerable aggrieved persons, and the process and schedules of reimbursement of incremental cost to the State Legal Aid Center. At the start of every quarter of a calendar year, State Project | As per established judicial procedures |

| Tiers of Grievance Redress Mechanism | Nodal Person for Contact | Contacts, Communication and Other Facilitation by Project | Timeframe to address grievance |
|---|---------------------------------|--|---------------------------------------|
| | | <p>Director will send a list of vulnerable aggrieved persons who should be supported by the State Legal Aid Center.</p> <p>The Communication Specialist will ensure that such information reaches the concerned vulnerable aggrieved person without delay.</p> <p>The Social Development Specialist will contact all such persons listed by the State Project Directors to confirm that the persons are receiving assistance from the State Legal Aid Center, and submit this as part of the project's quarterly implementation progress report.</p> | |

Annex 14: Project Preparation and Supervision
INDIA: Integrated Coastal Zone Management Project

| | Planned | Actual |
|---------------------------------|--------------------|-------------------|
| PCN review | 11/20/2006 | 02/13/2007 |
| Initial PID to PIC | 12/15/2006 | 02/26/2007 |
| Initial ISDS to PIC | 12/15/2006 | 02/26/2007 |
| Appraisal | 07/13/2009 (start) | 03/16/2010 |
| Negotiations | 08/17/2009 (start) | 05/03/2010 |
| Board/RVP approval | 11/17/2009 | 06/15/2010 |
| Planned date of effectiveness | | |
| Planned date of mid-term review | | |
| Planned closing date | | |

Key institutions responsible for preparation of the project:

Borrower

Government of India
 Ministry of Finance, New Delhi

Responsible Agencies for Preparation

Government of India, Ministry of Environment, New Delhi
 Government of Gujarat, Department of Forests and Environment, Gandhinagar
 Government of Orissa, Department of Environment, Bhubaneswar
 Government of West Bengal, Department of Environment and Forests, Kolkata

Bank staff and consultants who worked on the project included:

| Name | Title | Unit |
|--------------------|--|-------|
| Tapas Paul | TTL, Senior Environment Specialist | SASDI |
| Sonia Chand Sandhu | Co-TTL, Senior Environment Specialist | SASDI |
| G V Abhyankar | Senior Operations Consultant | SASDU |
| Jack Ruitenbeek | Consultant – Economic & Financial Analysis | SASDI |
| Jane T. Nishida | Senior Environment Institutions Specialist | SASDI |
| Prof. John Pethick | Consultant – Coastal Geomorphology & ICZM | SASDI |
| Kishor Uprety | Senior Counsel | LEGES |
| Khwaja Minnatullah | Senior Water & Sanitation Specialist | SASDI |
| Nagaraju Dotaluri | Senior Procurement Specialist | SARPS |
| Parthapriya Ghosh | Social Development Specialist | SASDI |

| Name | Title | Unit |
|-------------------------------|---|-------------|
| S. Krishnamurthy | Financial Management Specialist | SARFM |
| Shankar Narayanan | Senior Social Development Specialist | SASDI |
| Santhanam Krishnan | Consultant: Senior Procurement Specialist | SARPS |
| Siet Meijer | Knowledge Management Analyst | SASDI |
| Sona Thakur | Communications Specialist | SAREX |
| Soumya Kapoor | Social Development Specialist | SASDI |
| Surbhi Goel | Financial Analyst (Energy) | SASDE |
| Rachel Susan Palmer | Program Assistant | SASDI |
| Roshni Sarah John | Program Assistant | SASDI |
| Arun Kumar Kolsur | Procurement Specialist | SARPS |
| Atul Deshpande | Financial Management Specialist | SARFM |
| Binny Varma | Program Assistant | SASDI |
| Charles E. Di Leva | Chief Counsel | LEGEN |
| D J Baxi | Senior Procurement Specialist | SARPS |
| Damanjit Singh Minhas | Consultant: Environment Specialist | SASDI |
| Debabrata Chakraborty | Senior Procurement Consultant | SARPS |
| Dhruba Purakayastha | Senior Private Sector Development Specialist | SAFPS |
| Jeffery Balkind | Consultant | SAROQ |
| Jonathan Mills Lindsey | Senior Counsel | LEGEN |
| Katherin George Goltzen | Consultant | OPCQC |
| Kumar Amarendra Narayan Singh | Social Development Specialist | SASDI |
| G. Muralidharan | Consultant: Coastal Community Livelihood | SASDI |
| Guenter Heidenhof | Governance Advisor | SACIN |
| Ramola Bhuyan | Senior Financial Management Specialist | SARFM |
| Indumathie Hewawasam | Peer Reviewer; Senior Coastal Specialist | ENV |
| Marea Hatziolos | Peer Reviewer; Senior Coastal & Marine Specialist | ENV |
| Richard Damania | Peer Reviewer; Lead Environmental Economist | SASDI |
| Sofia Bettencourt | Peer Reviewer; Lead Operations Officer | AFTEN |
| Warren Waters | Peer Reviewer; Regional Safeguard Advisor | AFTQK |
| William Kingdom | Peer Reviewer; Lead Water Specialist | SASDU |
| Laura Tlaiye | QER Reviewer- Chair; Sector Manager | LCSN |
| Steven Lintner | QER Reviewer; Senior Advisor | QACU |
| Prof. Biliانا Cecin-Sain | External QER Reviewer | n.a |
| Prof. Damodaran | External QER Reviewer | n.a |
| Prof. M. S. Swaminathan | External QER Reviewer | n.a |

Bank funds expended to date on project preparation:

- Bank resources: US\$ 807,801
- Trust funds: US\$ 313,606
- Total: US\$ 1,121,406

Estimated Approval and Supervision costs:

- Remaining costs to approval: US\$ 10,000
- Estimated annual supervision cost: US\$ 260,000

Annex 14A: Strategy for Project Implementation Support

Overall Implementation Support Strategy

1. The project will be mainly supervised by the client (NPMU/MoEF and SPMUs at the State). They will be primarily responsible for project implementation such that the PDO is achieved in a timely manner. The implementation of the pilot investments in the areas of conservation and protection of natural resources, environment and pollution management and livelihood security of coastal communities. The MoEF and the SPMUs already have significant experience and expertise in their respective fields and the proposed investments, which the project will further build upon.
2. The implementing agencies will be facilitated by a range of management tools that have been developed during project preparation such as: inter and intra agency institutional coordination mechanisms; detailed project reports for execution of pilot investments, including relevant environment and social impact management measures and outcome monitoring; FM and Procurement manuals, detailed governance and accountability action Plan (GAAP), communication strategy and action plan; and MOUs between agencies at national and State level outlining role and responsibilities, staffing plans and reporting and accountability requirements. Additionally, a monitoring, evaluation and learning mechanism has been designed to learn continuously from implementation experiences and introduce changes and modifications in the implementation strategy as the project progresses.
3. The strategy will be multi pronged, balancing routine and periodic needs with specific implementation support where required.

Role of the Borrower's Team

4. A very diligent effort has been made through project preparation assisted by the PPA to create multi disciplinary teams as part of the project preparation cells at MoEF and the States. These are now well versed with Bank's fiduciary, safeguard and governance related requirements. These project preparation cells will be transformed into the NPMU and SPMUs. These will be further strengthened in the areas of coastal planning, project management (including environment and social management), procurement, financial management, monitoring and evaluation.
5. The NPMU and the SPMUs, each include three dedicated cells for project management, supervision and monitoring (see Annex 5). The NPMU/SPMUs are explicitly responsible for (a) overall project planning and management, and monitoring implementation performance, (b) ensuring compliance with agreed financial management and procurement manuals, internal audits for all state components, and ensuring compliance with audit observations, (c) ensuring compliance with the project's safeguard policies, and implementing the Governance and Accountability Action Plan, and (d) regular monitoring and evaluation of project performance/ achievements, including regular review of strategies and implementation arrangements in the context of implementation experiences and for ensuring course corrections as needed.
6. The NPMU and SPMUs are headed by a Project Director, and will each have about 10 full time key professional staff. The staff will be multi-disciplinary including specialists in environment, ecology, ocean engineering, finance, operations, M&E, procurement and communications disciplines. While some of the professional staff will be drafted from within the National/State government offices/ agencies, the rest would be filled from private sector on

contract basis. In addition, NPMU and SPMUs will recruit private sector consultants/ experts (individuals, institutions or firms), including international experts from time to time as necessary to strengthen their project monitoring, evaluation and management capacity.

7. In addition to the planned routine and periodic supervision, the MoEF will undertake review of the project. At the highest level of the MoEF, at least one review workshop will take place each year. Similar high level reviews will also take place at the state level. NPMU and SPMU will facilitate these high-level reviews, and incorporate the review findings in the remaining period of the project implementation.

Role of the Bank Team

8. The Bank team will consist of multidisciplinary specialists experienced in coastal planning, regional/urban planning, procurement, financial management, social, environment, civil engineering, and MIS/Monitoring. International consultants will be deployed particularly for the formulation of ICZM plans in the selected stretches, mapping for environment sensitive areas, mapping of coastal sedimentation cells as a planning unit, capacity building and/or creation of the national centre for integrated coastal zone management. It is expected that the Bank task team that has been closely associated with project preparation will continue extending implementation support to the project at least during the first two years of the project. In addition, Bank team will employ consultants to be fielded on ground to pick up early signs of implementation barriers, public concerns and grievances, and any other issues involving reputational risks.

Focus areas of supervision

9. Implementation support will primarily focus on innovative areas, such as mapping of the hazard line, ESA mapping, preparation of integrated coastal zone management plans, development of the national centre of integrated coastal zone management etc. All of these will be done for the first time in the country. Additionally, the process side will be routinely supported to ensure smooth funds flows and procurement decisions.

10. India /states and the Bank have extensive experience implementing most of the pilot investments such as mangrove plantations, livelihood programs, sewage treatment, and pollution monitoring. However the institutional integration to achieve integrated coastal zone management and common outcome indicators will be challenging and require particular attention.

11. Implementation will be complemented by periodic assessments and project updates which will be sought through independent third party quality supervision; grievance redress (reports on grievances and redress); and social audits and beneficiary assessments through household surveys (as and if required).

12. A strong monitoring system would assist in monitoring sustainability of investments. Apart from concurrent monitoring of physical, financial and process indicators, regular results and outcome surveys will be carried out for each of the projects interventions. Environmental protection and social development impact indicators have been developed for the pilot investments to prevent and /or mitigate adverse impacts.

Instruments of supervision

13. The following are the major tools:
 - a. Project launch, soon after the project approval. This will announce the project scope, objective, and institutional responsibilities. It is expected that this will be a high profile event to be attended by Chief Ministers from participating states, senior representatives from other coastal states and relevant international experts.
 - b. Two full regular supervision missions every year.
 - c. Intermediate technical missions as needed to cover innovative areas.
 - d. Regular/ review meetings in Delhi with MoEF and SoI, particularly to review progress in the innovative areas
 - e. Quarterly implementation progress reports prepared by MoEF and the States. Preparation of annual action plan to be approved by MoEF. This will need to outline the action plan for the following year. Regular flow of implementation progress reports from states to MoEF to Bank containing targets, achievements issues and forward looking adjusted implementation plans.
 - f. Impact evaluation surveys
 - g. Expert panel evaluations (by national and international experts procured by MoEF)
 - h. Midterm review to take stock of the validity of the PDO and assess the need for any project restructuring Intermediate impact evaluation surveys
 - i. Communication and advocacy workshops (once in two years) with participation of the key stakeholders.
 - j. Exposure and learning visits related to good practice examples of integrated coastal zone management worldwide.
 - k. Detailed ICR at the end of the project to assess achievement of PDO and lessons learned.

Budget

14. The estimated Bank Budget (BB) required for the supervision is 380,000 USD in Year 1, and US\$260,000 annually thereafter.
15. In developing the supervision strategy, the task team drew on the lessons learnt from the ongoing projects as well as the learning from the India Health sector DIR.

Annex 15: Documents in the Project File
INDIA: Integrated Coastal Zone Management Project

1. Overall Project Management

1. Project Implementation Plan
2. SICOM : Memorandum of Association
3. Financial Management Manual
4. Procurement Manual
5. Environment & Social Assessment Report
6. Report on the Management Effectiveness Study
7. Communication Strategy & Plan

2. Project Component One

1. Detailed Project Report for Hazard Mapping
2. Detailed Project Report for Mapping of Environment Sensitive Areas
3. Detailed Project Report on Design of National Center for Sustainable Coastal Management
4. Capacity Building Plan for Ministry of Environment and Forests

3. Project Component Two

1. Gujarat Overall State Report
2. Gujarat State Capacity Building Plan
3. Detailed Project Report on Mangrove Plantation by Marine National Park
4. Detailed Project Report on Mangrove Plantation by Gujarat Ecology Commission
5. Detailed Project Report on Coral Reef Generation & Improving Research Capacity by GEER Foundation
6. Detailed Project Report on Environmental Sanitation – Jamnagar by Jamnagar Municipal Corporation
7. Detailed Project Report on Pollution Monitoring by Gujarat State Pollution Control Board
8. Detailed Project Report on Studies on shoreline changes, biological changes by BISAG
9. Detailed Project Report on Marine Aquarium

10. Detailed Project Report on Improved Livelihood of Coastal Communities by Gujarat Ecology Commission

4. Project Component Three

1. Orissa Overall State Report
2. Orissa State Capacity Building Plan
3. Detailed Project Report on Multi-Purpose Cyclone Shelters by OSDMA
4. Detailed Project Report on Protection of Olive Ridley Turtles & Aquatic Wildlife by CDA
5. Detailed Project Report on Shoreline Protection at Pentha by Water Resources Department
6. Detailed Project Report on Mangrove Plantation by Forest Department
7. Detailed Project Report on Species & Wetland Research by CDA
8. Detailed Project Report on Fishery-based Livelihood Improvement by Fisheries Department
9. Detailed Project Report on Tourism based Livelihood Improvement by Tourism Department
10. Detailed Project Report on Biodiversity-based Livelihood Improvement by Forest Department
11. Detailed Project Report on Strengthening Pollution Monitoring & Labs by Orissa State Pollution Control Board
12. Detailed Project Report on Pollution Abatement in Coastal Cities by Department of Housing & Urban Development
13. Detailed Project Report on Small Scale Enterprise-based Livelihood Improvement by Department of Industries
14. Detailed Project Report on Conservation of archaeological & cultural assets by Department of Culture

5. Project Component Four

1. West Bengal Overall State Report
2. West Bengal State Capacity Building Plan
3. Capacity Building of West Bengal Biodiversity Board
4. Capacity Building for IESWM
5. Capacity Building for Marine Science Department, Calcutta University
6. Detailed Project Report on Coastal Erosion Protection at Digha Shankarpur by Irrigation Department

7. Detailed Project Report on Beach Cleaning at Digha by DSDA
8. Detailed Project Report on Environmental Sanitation- Digha by PHED
9. Detailed Project Report on Solid Waste Management at Digha by DSDA
10. Detailed Project Report on Environmental Improvement of Digha Beach (DSDA)
11. Detailed Project Report on Distribution of Grid Electricity in Sagar Island by WBSMEDCL
12. Detailed Project Report on Fisheries Improvement at Sagar by Fisheries Department
13. Detailed Project Report on Livelihood Improvement at Sagar by Sundarbans Development Board
14. Detailed Project Report on Afforestation based Livelihood Improvement by Sundarbans Development Board
15. Detailed Project Report on Ecotourism/Tourism & Community Development at Sagar by Sundarbans Development Board
16. Improvement of Marine Aquarium by ZSI
17. Detailed Project Report on Coastal Bioshield in East Medinipur by Forest Department
18. Detailed Project Report on Fish Auction Center in Digha by Fisheries Department

Annex 16: Statement of Loans and Credits
INDIA: Integrated Coastal Zone Management Project

| Project ID | FY | Purpose | Original Amount in US\$ Millions | | | | Cancel. | Undisb. | Difference between expected and actual disbursements | |
|------------|------|--|----------------------------------|----------|------|------|---------|----------|--|------------|
| | | | IBRD | IDA | SF | GEF | | | Orig. | Frm. Rev'd |
| P096021 | 2010 | AP Road Sector Project | 320.00 | 0.00 | 0.00 | 0.00 | 0.00 | 304.20 | -15.00 | 0.00 |
| P101650 | 2010 | A. P. RWSS | 0.00 | 150.00 | 0.00 | 0.00 | 0.00 | 131.23 | -15.00 | 0.00 |
| P102549 | 2010 | Tech Engr Educ Quality Improvement II | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 286.00 | 0.00 | 0.00 |
| P102771 | 2010 | IIFCL - India Infrs Finance Company Ltd | 1,195.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,192.01 | 0.00 | 0.00 |
| P110051 | 2010 | Haryana Power System Improv Project | 330.00 | 0.00 | 0.00 | 0.00 | 0.00 | 302.21 | -26.97 | 0.00 |
| P110371 | 2010 | Sustainable Urban Transport Project | 105.23 | 0.00 | 0.00 | 0.00 | 0.00 | 105.23 | 0.00 | 0.00 |
| P071250 | 2010 | Andhra Pradesh Municipal Development | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 279.25 | -20.00 | 0.00 |
| P116020 | 2010 | Banking Sector Support Loan | 2,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,995.00 | 0.00 | 0.00 |
| P115566 | 2010 | POWERGRID V | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 988.00 | -12.00 | 0.00 |
| P094360 | 2009 | National VBD Control&Polio Eradication | 0.00 | 521.00 | 0.00 | 0.00 | 0.00 | 404.69 | 43.35 | 0.00 |
| P096023 | 2009 | Orissa State Roads | 250.00 | 0.00 | 0.00 | 0.00 | 0.00 | 235.36 | 1.74 | 0.00 |
| P100101 | 2009 | Coal-Fired Generation Rehabilitation | 180.00 | 0.00 | 0.00 | 0.00 | 0.00 | 179.55 | 13.50 | 0.00 |
| P093478 | 2009 | Orissa Rural Livelihoods Project | 0.00 | 82.40 | 0.00 | 0.00 | 0.00 | 73.46 | 3.82 | 0.00 |
| P100735 | 2009 | Orissa Community Tank Management Project | 56.00 | 56.00 | 0.00 | 0.00 | 0.00 | 103.57 | 0.97 | 0.00 |
| P102331 | 2009 | MPDPIP-II | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 87.66 | -13.56 | 0.00 |
| P112033 | 2009 | UP Sodic III | 0.00 | 197.00 | 0.00 | 0.00 | 0.00 | 189.93 | -3.18 | 0.00 |
| P101653 | 2008 | Power System Development Project IV | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 374.68 | -146.32 | 41.68 |
| P102547 | 2008 | Elementary Education (SSA II) | 0.00 | 1,350.00 | 0.00 | 0.00 | 0.00 | 740.48 | -142.49 | 0.00 |
| P095114 | 2008 | Rampur Hydropower Project | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 290.82 | 49.32 | 0.00 |
| P100789 | 2007 | AP Community Tank Management Project | 94.50 | 94.50 | 0.00 | 0.00 | 0.00 | 170.77 | 51.54 | 0.00 |
| P078539 | 2007 | TB II | 0.00 | 170.00 | 0.00 | 0.00 | 0.00 | 90.69 | -16.76 | 0.00 |
| P096019 | 2007 | HP State Roads Project | 220.00 | 0.00 | 0.00 | 0.00 | 0.00 | 195.63 | 60.98 | 0.00 |
| P083187 | 2007 | Uttaranchal RWSS | 0.00 | 120.00 | 0.00 | 0.00 | 0.00 | 100.92 | 62.78 | 0.00 |
| P099047 | 2007 | Vocational Training India | 0.00 | 280.00 | 0.00 | 0.00 | 0.00 | 193.85 | 25.70 | 0.00 |
| P071160 | 2007 | Karnataka Health Systems | 0.00 | 141.83 | 0.00 | 0.00 | 0.00 | 67.63 | -3.57 | 0.00 |
| P078538 | 2007 | Third National HIV/AIDS Control Project | 0.00 | 250.00 | 0.00 | 0.00 | 0.07 | 162.26 | 134.07 | 0.00 |
| P090768 | 2007 | TN IAM WARM | 335.00 | 150.00 | 0.00 | 0.00 | 0.00 | 362.37 | 114.26 | 0.00 |
| P090764 | 2007 | Bihar Rural Livelihoods Project | 0.00 | 63.00 | 0.00 | 0.00 | 0.00 | 47.95 | -7.69 | 0.00 |
| P090592 | 2007 | Punjab Rural Water Supply & Sanitation | 0.00 | 154.00 | 0.00 | 0.00 | 0.00 | 129.56 | 99.74 | 0.00 |
| P090585 | 2007 | Punjab State Roads Project | 250.00 | 0.00 | 0.00 | 0.00 | 0.00 | 135.79 | 19.84 | 0.00 |
| P075060 | 2007 | RCH II | 0.00 | 360.00 | 0.00 | 0.00 | 0.00 | 208.83 | 121.91 | 0.00 |
| P102768 | 2007 | Stren India's Rural Credit Coops | 300.00 | 300.00 | 0.00 | 0.00 | 0.00 | 223.97 | 133.50 | 0.00 |
| P078832 | 2006 | Karnataka Panchayats Strengthening Proj | 0.00 | 120.00 | 0.00 | 0.00 | 0.00 | 59.59 | -48.15 | 0.00 |
| P079675 | 2006 | Karn Municipal Reform | 216.00 | 0.00 | 0.00 | 0.00 | 0.00 | 168.05 | 107.05 | 0.00 |
| P079708 | 2006 | TN Empwr & Pov Reduction | 0.00 | 120.00 | 0.00 | 0.00 | 0.00 | 57.66 | 30.13 | 0.00 |
| P086414 | 2006 | Power System Development Project III | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 14.72 | -55.28 | 0.00 |
| P092735 | 2006 | NAIP | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 148.13 | 62.18 | 0.00 |
| P093720 | 2006 | Mid-Himalayan (HP) Watersheds | 0.00 | 60.00 | 0.00 | 0.00 | 0.00 | 27.09 | 7.03 | 0.00 |
| P083780 | 2006 | TN Urban III | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 167.43 | 118.18 | 6.83 |
| P073651 | 2005 | DISEASE SURVEILLANCE | 0.00 | 68.00 | 0.00 | 0.00 | 8.31 | 41.14 | 43.89 | -1.46 |

| | | | | | | | | | | |
|---------|------|---|-----------|----------|------|------|--------|-----------|----------|--------|
| P084632 | 2005 | Hydrology II | 104.98 | 0.00 | 0.00 | 0.00 | 0.00 | 78.99 | 72.68 | 53.37 |
| P073370 | 2005 | Madhya Pradesh Water Sector Restructuring | 394.02 | 0.00 | 0.00 | 0.00 | 6.62 | 258.61 | 227.04 | 0.00 |
| P094513 | 2005 | India Tsunami ERC | 0.00 | 465.00 | 0.00 | 0.00 | 0.00 | 360.58 | 358.93 | -36.05 |
| P077977 | 2005 | Rural Roads Project | 99.50 | 300.00 | 0.00 | 0.00 | 0.00 | 54.73 | 46.19 | 0.00 |
| P084790 | 2005 | MAHAR WSIP | 325.00 | 0.00 | 0.00 | 0.00 | 0.00 | 188.73 | 143.73 | 0.00 |
| P077856 | 2005 | Lucknow-Muzaffarpur National Highway | 620.00 | 0.00 | 0.00 | 0.00 | 0.00 | 133.52 | 93.52 | 0.00 |
| P086518 | 2005 | SME Financing & Development | 520.00 | 0.00 | 0.00 | 0.00 | 0.00 | 248.03 | -150.97 | -50.97 |
| P075058 | 2005 | TN HEALTH SYSTEMS | 0.00 | 110.83 | 0.00 | 0.00 | 20.06 | 4.75 | 20.13 | -2.77 |
| P084792 | 2005 | Assam Agric Competitiveness | 0.00 | 154.00 | 0.00 | 0.00 | 0.00 | 56.14 | 49.11 | 0.00 |
| P050655 | 2004 | RAJASTHAN HEALTH SYSTEMS DEVELOPMENT | 0.00 | 89.00 | 0.00 | 0.00 | 0.00 | 32.57 | 28.69 | -0.60 |
| P078550 | 2004 | Uttar Wtrshed | 0.00 | 69.62 | 0.00 | 0.00 | 0.00 | 23.65 | 1.04 | 0.00 |
| P082510 | 2004 | Karnataka UWS Improvement Project | 39.50 | 0.00 | 0.00 | 0.00 | 0.00 | 6.76 | 6.76 | 0.00 |
| P071272 | 2003 | AP RURAL POV REDUCTION | 0.00 | 315.03 | 0.00 | 0.00 | 0.00 | 86.48 | -96.21 | -31.21 |
| P050649 | 2003 | TN ROADS | 398.70 | 0.00 | 0.00 | 0.00 | 0.00 | 71.16 | 20.46 | 0.00 |
| P067606 | 2003 | UP ROADS | 488.00 | 0.00 | 0.00 | 0.00 | 0.00 | 68.88 | 68.88 | 0.00 |
| P050647 | 2002 | UP WSRP | 0.00 | 149.20 | 0.00 | 0.00 | 40.11 | 45.42 | 57.14 | 0.00 |
| P050653 | 2002 | KARNATAKA RWSS II | 0.00 | 151.60 | 0.00 | 0.00 | 15.04 | 11.98 | -0.19 | 0.00 |
| P050668 | 2002 | MUMBAI URBAN TRANSPORT PROJECT | 463.00 | 79.00 | 0.00 | 0.00 | 0.00 | 178.67 | 166.13 | 179.13 |
| P040610 | 2002 | RAJ WSRP | 0.00 | 159.00 | 0.00 | 0.00 | 25.84 | 52.75 | 21.79 | 0.00 |
| P069889 | 2002 | MIZORAM ROADS | 0.00 | 78.00 | 0.00 | 0.00 | 0.00 | 2.69 | -26.91 | -2.94 |
| P071033 | 2002 | KARN Tank Mgmt | 32.00 | 130.90 | 0.00 | 0.00 | 25.07 | 107.38 | 47.01 | -6.37 |
| P072539 | 2002 | KERALA STATE TRANSPORT | 255.00 | 0.00 | 0.00 | 0.00 | 0.00 | 70.73 | 70.73 | 0.00 |
| Total: | | | 12,991.43 | 7,658.91 | 0.00 | 0.00 | 141.12 | 13,180.56 | 2,005.19 | 148.64 |

INDIA
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

| FY Approval | Company | Committed | | | | Disbursed | | | |
|-------------|----------------|-----------|--------|-------|---------|-----------|--------|-------|---------|
| | | IFC | | | | IFC | | | |
| | | Loan | Equity | Quasi | Partic. | Loan | Equity | Quasi | Partic. |
| 2005 | ADPCL | 39.50 | 7.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2006 | AHEL | 0.00 | 5.08 | 0.00 | 0.00 | 0.00 | 5.08 | 0.00 | 0.00 |
| 2005 | AP Paper Mills | 35.00 | 5.00 | 0.00 | 0.00 | 25.00 | 5.00 | 0.00 | 0.00 |
| 2005 | APIDC Biotech | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 | 2.01 | 0.00 | 0.00 |
| 2002 | ATL | 13.81 | 0.00 | 0.00 | 9.36 | 13.81 | 0.00 | 0.00 | 9.36 |
| 2003 | ATL | 1.00 | 0.00 | 0.00 | 0.00 | 0.68 | 0.00 | 0.00 | 0.00 |
| 2005 | ATL | 9.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2006 | Atul Ltd | 16.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2003 | BHF | 10.30 | 0.00 | 10.30 | 0.00 | 10.30 | 0.00 | 10.30 | 0.00 |
| 2004 | BILT | 0.00 | 0.00 | 15.00 | 0.00 | 0.00 | 0.00 | 15.00 | 0.00 |
| 2001 | BTVL | 0.43 | 3.98 | 0.00 | 0.00 | 0.43 | 3.98 | 0.00 | 0.00 |
| 2003 | Balrampur | 10.52 | 0.00 | 0.00 | 0.00 | 10.52 | 0.00 | 0.00 | 0.00 |
| 2001 | Basix Ltd. | 0.00 | 0.98 | 0.00 | 0.00 | 0.00 | 0.98 | 0.00 | 0.00 |
| 2005 | Bharat Biotech | 0.00 | 0.00 | 4.50 | 0.00 | 0.00 | 0.00 | 3.30 | 0.00 |
| 1984 | Bihar Sponge | 5.70 | 0.00 | 0.00 | 0.00 | 5.70 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | |
|------|------------------|--------|-------|------|--------|--------|-------|------|--------|
| 2003 | CCIL | 1.50 | 0.00 | 0.00 | 0.00 | 0.59 | 0.00 | 0.00 | 0.00 |
| 2006 | CCIL | 7.00 | 2.00 | 0.00 | 12.40 | 7.00 | 2.00 | 0.00 | 12.40 |
| 1990 | CESC | 4.61 | 0.00 | 0.00 | 0.00 | 4.61 | 0.00 | 0.00 | 0.00 |
| 1992 | CESC | 6.55 | 0.00 | 0.00 | 14.59 | 6.55 | 0.00 | 0.00 | 14.59 |
| 2004 | CGL | 14.38 | 0.00 | 0.00 | 0.00 | 7.38 | 0.00 | 0.00 | 0.00 |
| 2004 | CMScomputers | 0.00 | 10.00 | 2.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2002 | COSMO | 2.50 | 0.00 | 0.00 | 0.00 | 2.50 | 0.00 | 0.00 | 0.00 |
| 2005 | COSMO | 0.00 | 3.73 | 0.00 | 0.00 | 0.00 | 3.73 | 0.00 | 0.00 |
| 2006 | Chennai Water | 24.78 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2003 | DQEL | 0.00 | 1.50 | 1.50 | 0.00 | 0.00 | 1.50 | 1.50 | 0.00 |
| 2005 | DSCL | 30.00 | 0.00 | 0.00 | 0.00 | 30.00 | 0.00 | 0.00 | 0.00 |
| 2006 | DSCL | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2005 | Dabur | 0.00 | 14.09 | 0.00 | 0.00 | 0.00 | 14.09 | 0.00 | 0.00 |
| 2003 | Dewan | 8.68 | 0.00 | 0.00 | 0.00 | 8.68 | 0.00 | 0.00 | 0.00 |
| 2006 | Federal Bank | 0.00 | 28.06 | 0.00 | 0.00 | 0.00 | 23.99 | 0.00 | 0.00 |
| 2001 | GTF Fact | 0.00 | 1.20 | 0.00 | 0.00 | 0.00 | 1.20 | 0.00 | 0.00 |
| 2006 | GTF Fact | 0.00 | 0.00 | 0.99 | 0.00 | 0.00 | 0.00 | 0.99 | 0.00 |
| 1994 | GVK | 0.00 | 4.83 | 0.00 | 0.00 | 0.00 | 4.83 | 0.00 | 0.00 |
| 2003 | HDFC | 100.00 | 0.00 | 0.00 | 100.00 | 100.00 | 0.00 | 0.00 | 100.00 |
| 1998 | IAAF | 0.00 | 0.47 | 0.00 | 0.00 | 0.00 | 0.30 | 0.00 | 0.00 |
| 2006 | IAL | 0.00 | 9.79 | 0.00 | 0.00 | 0.00 | 7.70 | 0.00 | 0.00 |
| 1998 | IDFC | 0.00 | 10.82 | 0.00 | 0.00 | 0.00 | 10.82 | 0.00 | 0.00 |
| 2005 | IDFC | 50.00 | 0.00 | 0.00 | 100.00 | 50.00 | 0.00 | 0.00 | 100.00 |
| | IHDC | 6.94 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2006 | IHDC | 7.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2006 | Indecomm | 0.00 | 2.57 | 0.00 | 0.00 | 0.00 | 2.57 | 0.00 | 0.00 |
| 1996 | India Direct Fnd | 0.00 | 1.10 | 0.00 | 0.00 | 0.00 | 0.66 | 0.00 | 0.00 |
| 2001 | Indian Seamless | 6.00 | 0.00 | 0.00 | 0.00 | 6.00 | 0.00 | 0.00 | 0.00 |
| 2006 | JK Paper | 15.00 | 7.62 | 0.00 | 0.00 | 0.00 | 7.38 | 0.00 | 0.00 |
| 2005 | K Mahindra INDIA | 22.00 | 0.00 | 0.00 | 0.00 | 22.00 | 0.00 | 0.00 | 0.00 |
| 2005 | KPIT | 11.00 | 2.50 | 0.00 | 0.00 | 8.00 | 2.50 | 0.00 | 0.00 |
| 2003 | L&T | 50.00 | 0.00 | 0.00 | 0.00 | 50.00 | 0.00 | 0.00 | 0.00 |
| 2006 | LGB | 14.21 | 4.82 | 0.00 | 0.00 | 0.00 | 4.82 | 0.00 | 0.00 |
| 2006 | Lok Fund | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2002 | MMFSL | 7.89 | 0.00 | 7.51 | 0.00 | 7.89 | 0.00 | 7.51 | 0.00 |
| 2003 | MSSL | 0.00 | 2.29 | 0.00 | 0.00 | 0.00 | 2.20 | 0.00 | 0.00 |
| 2001 | MahInfra | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.79 | 0.00 | 0.00 |
| | Montalvo | 0.00 | 3.00 | 0.00 | 0.00 | 0.00 | 1.08 | 0.00 | 0.00 |
| 1996 | Moser Baer | 0.00 | 0.82 | 0.00 | 0.00 | 0.00 | 0.82 | 0.00 | 0.00 |
| 1999 | Moser Baer | 0.00 | 8.74 | 0.00 | 0.00 | 0.00 | 8.74 | 0.00 | 0.00 |
| 2000 | Moser Baer | 12.75 | 10.54 | 0.00 | 0.00 | 12.75 | 10.54 | 0.00 | 0.00 |
| | Nevis | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 | 4.00 | 0.00 | 0.00 |
| 2003 | NewPath | 0.00 | 9.31 | 0.00 | 0.00 | 0.00 | 8.31 | 0.00 | 0.00 |
| 2004 | NewPath | 0.00 | 2.79 | 0.00 | 0.00 | 0.00 | 2.49 | 0.00 | 0.00 |
| 2003 | Niko Resources | 24.44 | 0.00 | 0.00 | 0.00 | 24.44 | 0.00 | 0.00 | 0.00 |
| 2001 | Orchid | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | 0.73 | 0.00 | 0.00 |
| 1997 | Owens Corning | 5.92 | 0.00 | 0.00 | 0.00 | 5.92 | 0.00 | 0.00 | 0.00 |
| 2006 | PSL Limited | 15.00 | 4.74 | 0.00 | 0.00 | 0.00 | 4.54 | 0.00 | 0.00 |
| 2004 | Powerlinks | 72.98 | 0.00 | 0.00 | 0.00 | 64.16 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | |
|------------------|------------------|--------|--------|-------|--------|--------|--------|-------|--------|
| 2004 | RAK India | 20.00 | 0.00 | 0.00 | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 |
| 1995 | Rain Calcining | 0.00 | 2.29 | 0.00 | 0.00 | 0.00 | 2.29 | 0.00 | 0.00 |
| 2004 | Rain Calcining | 10.00 | 0.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 |
| 2005 | Ramky | 3.74 | 10.28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2005 | Ruchi Soya | 0.00 | 9.27 | 0.00 | 0.00 | 0.00 | 6.77 | 0.00 | 0.00 |
| 2001 | SBI | 50.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1997 | SREI | 3.21 | 0.00 | 0.00 | 0.00 | 3.21 | 0.00 | 0.00 | 0.00 |
| 2000 | SREI | 6.50 | 0.00 | 0.00 | 0.00 | 6.50 | 0.00 | 0.00 | 0.00 |
| 1995 | Sara Fund | 0.00 | 3.43 | 0.00 | 0.00 | 0.00 | 3.43 | 0.00 | 0.00 |
| 2004 | SeaLion | 4.40 | 0.00 | 0.00 | 0.00 | 4.40 | 0.00 | 0.00 | 0.00 |
| 2001 | Spryance | 0.00 | 1.86 | 0.00 | 0.00 | 0.00 | 1.86 | 0.00 | 0.00 |
| 2003 | Spryance | 0.00 | 0.93 | 0.00 | 0.00 | 0.00 | 0.93 | 0.00 | 0.00 |
| 2004 | Sundaram Finance | 42.93 | 0.00 | 0.00 | 0.00 | 42.93 | 0.00 | 0.00 | 0.00 |
| 2000 | Sundaram Home | 0.00 | 2.18 | 0.00 | 0.00 | 0.00 | 2.18 | 0.00 | 0.00 |
| 2002 | Sundaram Home | 6.71 | 0.00 | 0.00 | 0.00 | 6.71 | 0.00 | 0.00 | 0.00 |
| 1998 | TCW/ICICI | 0.00 | 0.80 | 0.00 | 0.00 | 0.00 | 0.80 | 0.00 | 0.00 |
| 2005 | TISCO | 100.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2004 | UPL | 15.45 | 0.00 | 0.00 | 0.00 | 15.45 | 0.00 | 0.00 | 0.00 |
| 1996 | United Riceland | 5.63 | 0.00 | 0.00 | 0.00 | 5.63 | 0.00 | 0.00 | 0.00 |
| 2005 | United Riceland | 8.50 | 0.00 | 0.00 | 0.00 | 5.00 | 0.00 | 0.00 | 0.00 |
| 2002 | Usha Martin | 0.00 | 0.72 | 0.00 | 0.00 | 0.00 | 0.72 | 0.00 | 0.00 |
| 2001 | Vysya Bank | 0.00 | 3.66 | 0.00 | 0.00 | 0.00 | 3.66 | 0.00 | 0.00 |
| 2005 | Vysya Bank | 0.00 | 3.51 | 0.00 | 0.00 | 0.00 | 3.51 | 0.00 | 0.00 |
| 1997 | WIV | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 0.37 | 0.00 | 0.00 |
| 1997 | Walden-Mgt India | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| 2006 | iLabs Fund II | 0.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total portfolio: | | 956.52 | 249.41 | 42.30 | 536.35 | 604.74 | 175.91 | 38.60 | 236.35 |

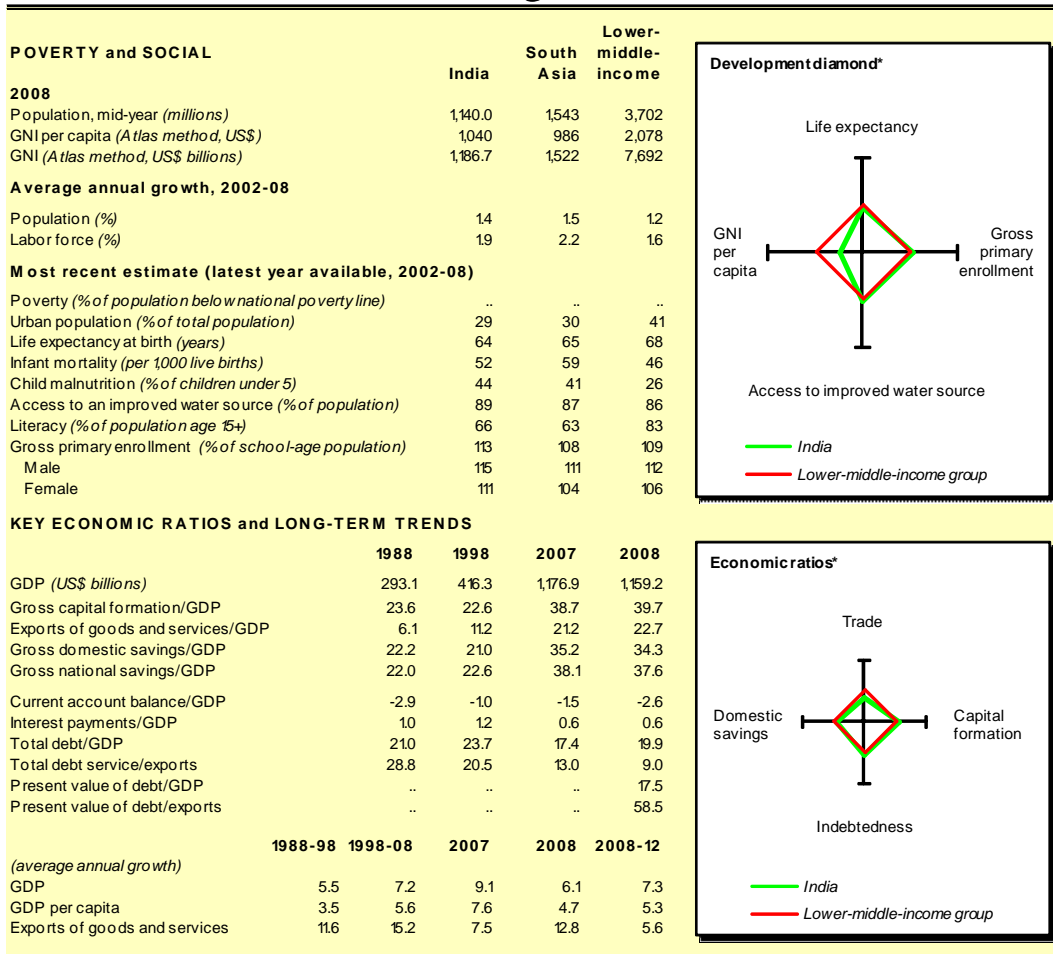
| Approvals Pending Commitment | | | | | | |
|------------------------------|-----------------|------|--------|-------|---------|--|
| FY Approval | Company | Loan | Equity | Quasi | Partic. | |
| 2004 | CGL | 0.01 | 0.00 | 0.00 | 0.00 | |
| 2000 | APCL | 0.01 | 0.00 | 0.00 | 0.00 | |
| 2006 | Atul Ltd | 0.00 | 0.01 | 0.00 | 0.00 | |
| 2001 | Vysya Bank | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2006 | Federal Bank | 0.01 | 0.00 | 0.00 | 0.00 | |
| 2001 | GI Wind Farms | 0.01 | 0.00 | 0.00 | 0.00 | |
| 2004 | Ocean Sparkle | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2005 | Allain Duhangan | 0.00 | 0.00 | 0.00 | 0.00 | |
| Total pending commitment: | | 0.04 | 0.01 | 0.00 | 0.00 | |

Annex 17: Country at a Glance

INDIA: Integrated Coastal Zone Management Project

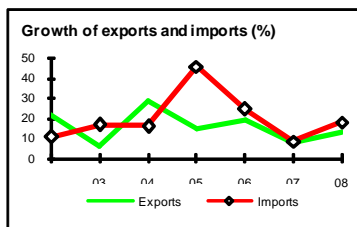
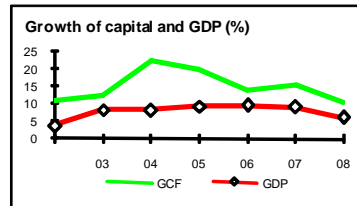
India at a glance

12/9/09



STRUCTURE of the ECONOMY

| | 1988 | 1998 | 2007 | 2008 |
|---|------|------|------|------|
| <i>(% of GDP)</i> | | | | |
| Agriculture | 30.5 | 26.0 | 18.1 | 17.5 |
| Industry | 26.2 | 26.1 | 29.5 | 28.8 |
| Manufacturing | 16.2 | 15.5 | 16.3 | 15.8 |
| Services | 43.4 | 47.9 | 52.4 | 53.7 |
| Household final consumption expenditure | 65.8 | 66.7 | 54.7 | 54.1 |
| General gov't final consumption expenditure | 12.0 | 12.3 | 10.1 | 11.6 |
| Imports of goods and services | 7.5 | 12.8 | 24.7 | 28.0 |
| <i>(average annual growth)</i> | | | | |
| Agriculture | 3.1 | 2.7 | 4.9 | 1.6 |
| Industry | 6.1 | 7.6 | 8.1 | 3.9 |
| Manufacturing | 6.6 | 7.2 | 8.2 | 2.4 |
| Services | 7.0 | 8.9 | 10.9 | 9.7 |
| Household final consumption expenditure | 5.6 | 6.0 | 6.0 | 3.6 |
| General gov't final consumption expenditure | 4.9 | 4.5 | 8.4 | 20.2 |
| Gross capital formation | 6.4 | 12.6 | 15.6 | 10.7 |
| Imports of goods and services | 13.6 | 16.1 | 8.6 | 17.9 |



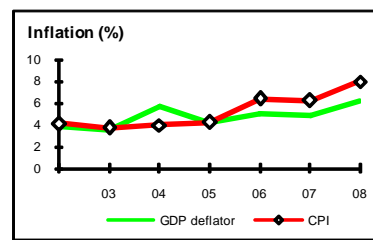
Note: 2008 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

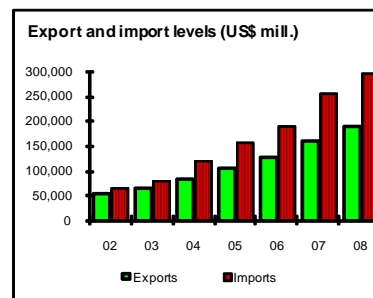
* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

PRICES and GOVERNMENT FINANCE

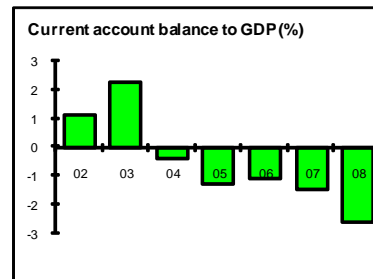
| | 1988 | 1998 | 2007 | 2008 |
|--|------|------|------|------|
| Domestic prices (% change) | | | | |
| Consumer prices | 11.2 | 13.1 | 6.2 | 8.0 |
| Implicit GDP deflator | 8.2 | 8.0 | 4.9 | 6.2 |
| Government finance (% of GDP, includes current grants) | | | | |
| Current revenue | 19.0 | .. | 21.9 | 20.9 |
| Current budget balance | -2.8 | .. | -3.2 | -7.6 |
| Overall surplus/deficit | .. | .. | -6.0 | -9.6 |

**TRADE**

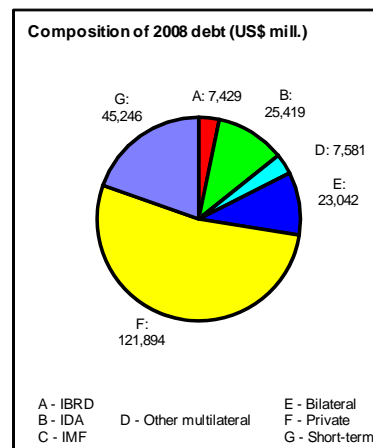
| | 1988 | 1998 | 2007 | 2008 |
|-------------------------------|--------|--------|---------|---------|
| <i>(US\$ millions)</i> | | | | |
| Total exports (fob) | 14,257 | 33,219 | 159,007 | 190,000 |
| Tea | 435 | 1,038 | 1,703 | .. |
| Iron | 825 | 893 | 9,005 | .. |
| Manufactures | 10,110 | 25,792 | 102,943 | 108,281 |
| Total imports (cif) | 23,618 | 47,544 | 257,789 | 296,614 |
| Food | 1,304 | 2,524 | 4,575 | .. |
| Fuel and energy | 3,009 | 6,399 | 79,641 | .. |
| Capital goods | 4,803 | 10,064 | 58,393 | 71,237 |
| Export price index (2000=100) | .. | .. | 152 | 161 |
| Import price index (2000=100) | .. | .. | 162 | 182 |
| Terms of trade (2000=100) | .. | .. | 93 | 89 |

**BALANCE of PAYMENTS**

| | 1988 | 1998 | 2007 | 2008 |
|---|--------|---------|---------|---------|
| <i>(US\$ millions)</i> | | | | |
| Exports of goods and services | 18,210 | 47,484 | 256,240 | 276,408 |
| Imports of goods and services | 26,842 | 58,565 | 310,301 | 345,993 |
| Resource balance | -8,632 | -11,081 | -54,061 | -69,585 |
| Net income | -2,519 | -3,544 | -4,917 | -4,511 |
| Net current transfers | 2,652 | 10,280 | 41,944 | 44,279 |
| Current account balance | -8,499 | -4,345 | -17,273 | -30,049 |
| Financing items (net) | 7,495 | 8,174 | 109,437 | 9,969 |
| Changes in net reserves | 1,004 | -3,829 | -92,164 | 20,080 |
| Memo: | | | | |
| Reserves including gold (US\$ millions) | 4,802 | 32,490 | 309,287 | 351,259 |
| Conversion rate (DEC, local/US\$) | 14.5 | 42.1 | 40.1 | 45.9 |

**EXTERNAL DEBT and RESOURCE FLOWS**

| | 1988 | 1998 | 2007 | 2008 |
|--|--------|--------|---------|---------|
| <i>(US\$ millions)</i> | | | | |
| Total debt outstanding and disbursed | 61,659 | 98,774 | 204,992 | 230,611 |
| IBRD | 5,590 | 7,991 | 6,680 | 7,429 |
| IDA | 12,186 | 18,562 | 25,378 | 25,419 |
| Total debt service | 6,055 | 12,039 | 39,036 | 31,076 |
| IBRD | 777 | 1,377 | 702 | 703 |
| IDA | 179 | 423 | 894 | 970 |
| Composition of net resource flows | | | | |
| Official grants | 700 | 490 | 1,145 | 1,169 |
| Official creditors | 2,661 | 948 | 2,565 | 3,539 |
| Private creditors | 5,679 | 3,187 | 29,798 | 11,782 |
| Foreign direct investment (net inflows) | 91 | 2,635 | 25,127 | 41,169 |
| Portfolio equity (net inflows) | 0 | -601 | 34,986 | -15,030 |
| World Bank program | | | | |
| Commitments | 2,648 | 1,755 | 3,309 | 1,200 |
| Disbursements | 2,478 | 1,399 | 1,805 | 2,083 |
| Principal repayments | 383 | 1,129 | 1,050 | 1,159 |
| Net flows | 2,095 | 270 | 754 | 924 |
| Interest payments | 573 | 671 | 546 | 514 |
| Net transfers | 1,522 | -401 | 208 | 410 |



Note: This table was produced from the Development Economics LDB database.

12/9/09