



# REQUEST FOR CEO ENDORSEMENT/APPROVAL

PROJECT TYPE: FULL SIZED PROJECT

THE GEF TRUST FUND

Submission Date: May 19, 2011

## PART I: PROJECT INFORMATION

**GEFSEC PROJECT ID:** 3941

**GEF AGENCY PROJECT ID:** 4242

**COUNTRY:** India

**PROJECT TITLE:** Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Sindhudurg (Malvan) Coast, Maharashtra State, India

**GEF AGENCY:** UNDP

**OTHER EXECUTING PARTNER:** Ministry of Environment & Forests (MoEF), Government of India / Wildlife Wing, Revenue and Forest Department, State Government of Maharashtra

**GEF FOCAL AREA:** Biodiversity

**GEF-4 STRATEGIC PROGRAM:** SO-2, SP-4 Strengthening policy and regulatory frameworks for mainstreaming biodiversity

**NAME OF PARENT PROGRAM/ UMBRELLA PROJECT:** India GEF Coastal and Marine Program (IGCMP)

Expected Calendar	
Milestones	Dates
Work Program (for FSP)	Nov 2009
CEO Endorsement/ Approval	June 2011
GEF Agency Approval	August 2011
Implementation Start	August 2011
Mid-term Evaluation	March 2014
Implementation Completion	August 2016

## A. PROJECT FRAMEWORK

**Project Objective:** To mainstream biodiversity conservation considerations into those production sectors that impact coastal and marine ecosystems of the Sindhudurg Coastal and Marine Ecosystem (SCME)

Project Components	Type	Expected Outcomes	Expected Outputs	GEF financing		Cofinancing		Total (\$)
				(\$)	%	(\$)	%	
1. Cross-sectoral planning framework that mainstreams biodiversity conservation considerations	TA	Pressures on the coastal and marine biodiversity of SCME (primarily from commercial and subsistence fisheries and other production sectors) are significantly reduced and enabling environment created for mitigating the impacts of production sectors on the biodiversity of the SCME over a landscape/seascape area of 6,327 sq km. (2,327 sq km as area of direct influence and 4,000 sq km as area of indirect influence). (This is manifested in indicators such as: Extent of coral cover (369 sq. km.) remains at least stable or increasing; Population status of Olive Ridley turtle and Indo-pacific hunch back dolphin is stable or increasing; compliance of existing and new developments related to tourism, fisheries, ports, mining and agricultural activity in the target landscape with the LP)  Malvan Marine Sanctuary (29.12 km <sup>2</sup> ) under improved conservation status as measured by the Management Effectiveness Evaluation tool developed by the Government of India.	Landscape-level land use and marine use zoning plan (referred to as the Landscape Plan or LP) that identifies areas critical for conservation, and areas where production activities can take place and with special requirements for ensuring sustainability. (This will be informed and supported by a) baseline data collected and assessed for marine biodiversity and ecosystem services and their values to feed into land use planning and decision making; and b) awareness generation targeting public and private sector to communicate economic and social value of coastal and marine ecosystems)  Cross-sectoral stakeholder consultation committee is in place to foster cross-sectoral dialogue in the development and implementation of the LP, and with capacities for monitoring  Policies and regulations of fisheries and conservation sectors incorporate better	386,200	22%	1,400,000	78%	1,786,200

Project Components	Type	Expected Outcomes	Expected Outputs	GEF financing		Cofinancing		Total (\$)
				(\$)	%	(\$)	%	
			coastal and marine biodiversity conservation considerations and are in line with LP					
2. Enhanced capacity of sector institutions for implementing biodiversity-friendly fisheries management plan, ecotourism management plan and MMS management plan	TA	<p>Increased capacity for mainstreaming biodiversity conservation into production sectors as measured by UNDP Capacity Development Scorecard<sup>1</sup></p> <p>Increased capacities for implementation of biodiversity-friendly practices in the fisheries sector that, in turn, reduces pressure on biodiversity as measured by the following: 50% of trawlers follow the mesh size norms set up by Mesh Regulation Committee of 1983; fishing activity complies with zoning specified in LP and there are no reports of encroachment; 50% reduction of trawlers from outside SCME</p> <p>Increased capacity for community-based, low-impact tourism as measured by an increase in community-based ecotourism operations from a baseline of 25% of all tourism operations to 50% in project area</p> <p>Increased capacity for enforcing the MMS Management Plan as measured by a 50% decline in number of violations of MMS Management Plan</p>	<p>Implementation of an ecosystem based sustainable fisheries management plan by trained staff and through strengthened tools and methods</p> <p>Implementation of sustainable tourism management plan that mainstreams biodiversity considerations supported by trained staff and effective tools and methods</p> <p>Implementation of management plan of Malvan Wildlife Sanctuary that strengthens biodiversity conservation (This includes capacity development of staff from the wildlife sanctuary for enforcing regulations within the sanctuary and for participatory planning, including community mobilization and conflict resolution)</p>	1,535,500	24%	4,880,000	76%	6,415,500
3. Sustainable community livelihoods and natural resource use in the SCME	TA	<p>Traditional fishing communities reinforce their low-impact practices and manage their fishing effort in line with the EAF-based Fisheries Management Plan, measured by a 50% increase in rampani fishing cooperatives</p> <p>Traditional fishing communities become effective partners in conservation actions initiated by the Forestry and Fisheries Departments as measured by an increase in the number of active EDCs in the SCME</p> <p>Communities have diversified income-generation options as measured by indicators such as</p>	<p>Support for traditional fishing practices and capacity building for conservation management</p> <p>Community-led resource management plan for fisheries resource base (including zoning, season based fishing, monitoring and enforcement)</p> <p>Implementation of livelihood diversification strategy and related socio-economic interventions based on market and community needs</p>	1,304,000	21%	4,880,000	79%	6,184,000

<sup>1</sup> This scorecard has been designed specifically for this project, as a tool to measure success in terms of developing national capacity to mainstream biodiversity conservation considerations into production sectors. While, the tool is conceptually based on the UNDP Capacity Development Scorecard, it is different in its substantive focus and the indicators because the UNDP Capacity Development Scorecard is meant to assess the development of capacities vis-à-vis the management of protected areas. During project development, the Capacity Scorecard has been applied at a general level to all production sectors operating in the SCME. However, during the 1<sup>st</sup> 6 months of project implementation, it will be applied separately to different sectors, and within each sector, separately to state, private sector and community institutions.

Project Components	Type	Expected Outcomes	Expected Outputs	GEF financing		Cofinancing		Total (\$)
				(\$)	%	(\$)	%	
		doubling of income from community-based ecotourism activities; increase in number of people shifting to alternative livelihood options that reduce pressure on biodiversity						
Project management				212,594	20%	840,000	80%	1,052,594
Total project costs				3,438,294		12,000,000		15,438,294

## B. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT

Name of Co-financier (Source)	Classification	Type	Amount (\$)
Government of Maharashtra	Confirmed with letter	Cash (partner-managed)	12,000,000
<b>Total Cofinancing</b>			<b>12,000,000</b>

## C. FINANCING PLAN SUMMARY FOR THE PROJECT (\$)

	Project Preparation a	Project b	Total c = a + b	Agency Fee d	Total (c + d)	For comparison: GEF and Co-financing at PIF
GEF financing	0	3,438,294	3,438,294	343,829	3,782,123	3,850,000
Co-financing	100,000 (UNDP)	12,000,000 (govt.)	12,100,000		12,100,000	10,200,000
Total		15,438,294	15,538,294	343,829	15,882,123	14,050,000

## D. GEF RESOURCES REQUESTED BY AGENCY, FOCAL AREA(S) AND COUNTRY (IES): NOT APPLICABLE

## E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Cost Item	Estimated person weeks	GEF (\$)	Other sources (\$)	Project total (\$)
Local consultants	3,000	393,900	2,100,000	2,493,900
International consultants	14	25,000	0	35,000
<b>TOTAL</b>	3,010	428,900	2,100,000	2,528,900

Detailed information regarding the consultants is in [Annex C](#).

## F. PROJECT MANAGEMENT BUDGET/COST

Cost Items	Total Estimated person weeks (GEF only)	GEF amount \$	Co-financing (\$)	Project total (\$)
Local				
Project Coordinator (LLPMU)	216	75,600		75,600
Financial cum Admin Assistant (LLPMU)	216	43,200		43,200
2 Office Assistants (LLPMU)	432	32,400		32,400
Personnel			300,000	300,000
International	none	none	none	none
Office facilities, equipment and communications		18,394	200,000	218,394
Travel (for NPMU to visit project site)		25,000	50,000	75,000
Travel (local, within District, for LLPMU)		18,000	25,000	43,000
Miscellaneous			25,000	25,000
Total		<b>212,594</b>	<b>600,000</b>	<b>812,594</b>

Detailed information is provided in [Annex C](#) and notes on other cost items are provided in Annex E.

## G. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? NO

## H. DESCRIBE THE BUDGETED MONITORING AND EVALUATION PLAN:

1. Monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures. The Project Results Framework (in Section 3) provides performance and impact indicators for project implementation along with their corresponding means of verification. The GEF SO-2 Tracking Tool will also be used to monitor progress on

mainstreaming biodiversity considerations in production sectors (see Annex 9 of the UNDP Project Document). The following sections outline the principle components of the M&E plan and indicative cost estimates related to M&E activities. The project's M&E plan will be presented to all stakeholders at the Project's Inception Workshop and finalized following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

#### *Project start*

2. A Project Inception Workshop will be held within the first three months of project start-up involving those with assigned roles in the project organization structure, UNDP country office, and, where appropriate/ feasible, regional technical policy and programme advisors, as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year's AWP. The Inception Workshop report will be a key reference document and will be prepared and shared with participants to formalize various agreements and plans decided during the meeting. The Inception Workshop will address a number of key issues including:

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis-à-vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the GEF SO-2 Tracking Tool, finalize the first AWP. Review and agree on the indicators, targets and their means of verification, and re-check assumptions and risks.
- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule Project Steering Committee (PSC) meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first PSC meeting should be held within the first six months following the Inception Workshop.

#### *Quarterly monitoring*

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS.
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions will be a key indicator in the UNDP Executive Balanced Scorecard.

#### *Annual monitoring*

3. *Annual Project Review/ Project Implementation Reports (APR/PIR)*: This key report will be prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements. The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual)
- Lessons learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. SO-2 Tracking Tool)

### *Periodic monitoring through site visits*

4. UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/ Annual Work Plan to assess first hand project progress. Other members of the Project Steering Committee may also join these visits. A Field Visit Report/ BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Steering Committee members.

### *Mid-term of project cycle*

5. The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation. The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#). The GEF SO-2 Tracking Tool will also be completed during the mid-term evaluation cycle.

### *End of project*

6. An independent Final Evaluation will take place three months prior to the final Project Steering Committee meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/ goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to UNDP-GEF's Project Information Management System (PIMS) and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#). The GEF SO-2 Tracking Tool will also be completed during the final evaluation.

7. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

### *Learning and knowledge sharing*

8. Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/ or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

**Table 1. Project Monitoring and Evaluation Plan and Budget**

Type of M&E activity	Responsible Parties	Budget US\$	Time frame
Inception Workshop (IW)	NPD, SPD, Project team, UNDP, UNDP GEF	7,000	Within first three months of project start up
Inception Report	Project Team PSC, UNDP CO	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	Project Associate and Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	To be finalized in Inception Phase and Workshop. Cost to be covered by targeted survey funds.	Start, mid and end of project
Measurement of Means of	Oversight by Project GEF Technical Advisor,	TBD as part of the Annual	Annually prior to

Type of M&E activity	Responsible Parties	Budget US\$	Time frame
Verification for Project Progress and Performance (measured on an annual basis)	Project Associate and Project Coordinator Measurements by regional field officers and local IAs	Work Plan's preparation. Cost to be covered by field survey budget.	APR/PIR and to the definition of annual work plans
PIR	Project Team PSC UNDP-GEF	None	Annually
Project Steering Committee meetings	Project Associate and Project Coordinator	None	Following IW and annually thereafter.
Technical and periodic status reports	Project team Hired consultants as needed	6,000	TBD by Project team and UNDP-CO
Mid-term External Evaluation	Project team PSC UNDP-GEF RCU External Consultants (evaluation team)	22,800	At the mid-point of project implementation.
Final External Evaluation	Project team, PSC, UNDP-GEF RCU External Consultants (evaluation team)	32,200	At the end of project implementation
Terminal Report	Project team PSC External Consultant	None	At least one month before the end of the project
Audit	UNDP-CO Project team	10,000	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	UNDP-CO, UNDP-GEF RCU Government representatives	None	Yearly average one visit per year
TOTAL indicative COST Excluding project and UNDP staff time costs		USD 78,000	

## **PART II: PROJECT JUSTIFICATION:**

### **A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:**

#### *A.1 Geographic and biodiversity context*

India is endowed with a long coastline of about 7,500 kilometers, an exclusive economic zone (EEZ) of 2.02 million square kilometers and a continental shelf of 468,000 square kilometers. It has extremely diverse coastal and marine ecosystems on account of unique geomorphologic and climatic variations. The coastal and marine habitats include gulf waters, creeks, tidal flats, mud flats, coastal dunes, mangroves, marshes, wetlands, seaweed and sea grass beds, deltaic plains, estuaries, lagoons and coral reefs. As per the Fourth National Report to CBD (2009), more than 13,000 species of flora and fauna have been recorded from India's coastal and marine areas.

Located on the western side of the Indian Peninsula, the state of Maharashtra is among the top five states in India (out of 29 states and 6 Union Territories) in terms of overall species diversity<sup>2</sup>. The state has a coastline (720 km; 9% of India's coastline) that extends from Dahanu and Bardi in the north to Goa in the south and falling in the 5 coastal administrative districts of Thane, Mumbai, Raigarh, Ratnagiri, and Sindhudurg (from north to south). The coastal geo-morphology is variegated due to indentation by a number of estuaries, creeks and bays with rocky cliffs, promontories and sandy beaches in-between. The narrow coastal plain, barely 30 kilometers wide, is squeezed between the Sahyadri Range in the east and the Arabian Sea to the west.

Towards the southern end of Maharashtra's coastline lies the Sindhudurg coastal district. Situated between latitudes 15<sup>o</sup>37 and 16<sup>o</sup>40 north and longitudes 73<sup>o</sup>19 and 74<sup>o</sup>18 east, Sindhudurg district is bordered by the Arabian Sea on the West and the Sahyadri Range to the East. It has a total area of 5,207 square kilometers and a coastline of 121 kilometers (17% of the total coastline of Maharashtra). The district comprises of eight talukas: Deogad, Malvan, Vengurla (these three are on the coast), Vaibhavwadi, Kankavali, Kudal, Sawantwadi and Dodamarg (these five are inland). The district derives its name from the Sindhudurg fort constructed by King Shivaji in the 16th century on an

<sup>2</sup> 5,220 species of animals, including 86 mammals, 466 birds, 581 fishes, 97 reptile species and 3,025 plant species are recorded in Maharashtra (BNHS, 2005).

island near Malvan. This region along the Sahayadri Range on India's west coast is internationally acclaimed for its sun and sand. Apart from the beautiful beaches and island forts, the coast is also well known for fruits—mangoes, cashew nuts and kokum—which in turn attracts a lot of tourists and traders, making this a busy stretch all through the year.

The area is also notable for its unique coastal and marine biodiversity. The ecological significance of the coastal and marine resources of the Sindhudurg region, particularly the Malvan coast, has been recognized and documented in various publications dating as far back as 1947<sup>3</sup>. The National Institute of Oceanography (NIO) has undertaken several scientific studies in the Sindhudurg region. The importance of the region's biodiversity was highlighted in their first report published in 1980 in which Malvan, in particular, was identified as one of the most biologically diverse areas of Maharashtra. Further, under the Integrated Coastal and Marine Area Management (ICMAM) programme of India's Department for Ocean Development (DOD), 11 ecologically and economically critical habitats have been identified along India's west and east coast. Malvan is one of these 11 areas, on the basis of its biodiversity value.

The Sindhudurg coast has distinct geo-morphological features from the rest of the Indian coast (Chandra Mohan, Anand, and Nayak, 1992). The coastal ecosystem is distinctive owing to the diverse geological processes (such as tectonic, fluvial, coastal, and Aeolian processes), which have acted in varying degrees and duration during the Quaternary Period, and have left their imprints in the form of various geomorphic features along the coast such as beach ridges, backwater lagoon systems, estuary and creek systems, spit and bar systems, etc. (Hanamgod & Mitra, 1998). The district has six seasonal rivers namely, *Waghota*, *Deogad*, *Karli*, *Gadnadi*, *Tillari* and *Terekhol*, which are small in length and are active with flow of water in the monsoon season. There are four creeks namely, *Kalawal*, *Achara*, *Mochamad* and *Deogad* that are used for anchoring ships, fishery and local transport. The rivers and creeks bring sediment input for the coast.

The Sindhudurg coast is considered to be the richest in diversity and habitat types along the coast of Maharashtra. (Details on the flora and fauna of the project area are provided in Annex 1 of the UNDP Project Document.) Critical habitats include: rocky shore, sandy shore, rocky islands, estuaries, mud flats, marshy land, mangrove habitats, coral reefs, sargassum forests (seasonal occurrence), as well as congregation sites for groupers and sharks. There are 367 species of marine flora and fauna reported for the Malvan coast which include 73 species of marine algae (*Ernodemis verticilata*), 18 species of mangrove trees and shrubs, 11 species of coral, 73 species of mollusks, 47 species each of polychaetes and arthropods, 18 species of sea anemones and 74 species of fish. Pearl oysters are also found in the area. Sharks (including the Whale shark that is not only a globally important species but also listed under Schedule I of India's Wildlife (Protection) Act, 1972), rays, seahorses and Indo-pacific humpback dolphins have been sighted along the coast. Further, three globally significant species of turtles namely, Olive Ridley (*Lepidochelys olivacea*), Green (*Chelonia mydas*) and Leatherback (*Dermochelys coriacea*), have been reported from the district. In addition, the avifauna of the area is also rich, with 121 species including 66 residents, 24 true migrant and 28 residents with migratory population. Vengurla Rock is an Important Bird Area (IBA) site<sup>4</sup> and has a good population of edible-nest swiftlet (*Aerodramus fuciphagus*).

Due to its high ecological importance, an area of 29.12 square kilometers of Malvan coastal waters was designated as the Malvan Marine Sanctuary (MMS) in 1987, under the national Wildlife (Protection) Act, 1972, with subsequent notifications in the following years. As per India's National Report to CBD (2009), there are thirty one marine and coastal Protected Areas (PAs) in the country. However, out of these, only seven PAs can be categorized as true representatives of marine PAs. Malvan Marine Sanctuary is one among them, the others being Gulf of Mannar National Park (Tamil Nadu), the Gulf of Kutch Marine National Park and the Gulf of Kutch Marine Sanctuary (Gujarat), the

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<sup>3</sup> MacDonald, A. (1947), A fishing trip to Karwar and Malvan (15th Oct to 10th Nov. 1946.), J. Bombay Nat. Hist. Soc.: 47(1-2); Ranade, M.R. (1977), Occurrence of pearl oysters in Ratnagiri district J. Bombay Nat. Hist. Soc.: 74(3); 553-554; Kulkarni, P.K.; Bhosale, L.J. (1990) Mangrove afforestation in Ratnagiri and Sindhudurg Districts; Proceedings of the National Seminar on "Mangrove Awareness in India, at Bombay; 21-23 Feb 1990); Sathe, S.S.; Bhosale, L.J. (1991) Distribution and composition of mangrove in Malvan Tahsil (Maharashtra); Proceedings of the National Seminar on Conservation & Management of Mangrove Ecosystem, West Bengal, December 6-8, 1991; Pathani, R.A.(1993) Coastal geological studies around Malvan, Sindhudurg district; Maharashtra, Shivaji University India; Anon (2007), Coastal habitats atlas of selected marine protected areas, Indian Space Research Organ, Ahmedabad; Kumaran, K.P.N.; Shindikar, M.; Limaye (2004), Mangrove associated lignite beds of Malvan, Konkan: Evidence for higher sea-level during the Late Tertiary (Neogene) along the west coast of India: Curr. Sci.: 86(2); 2004; 335-340.

<sup>4</sup> Important Bird Area (IBA) is an area recognized as being globally important habitat for the conservation of bird populations. (Birdlife International)

Mahatma Gandhi Marine National Park and the Rani Jhansi Marine National Park (Andaman & Nicobar islands) and the Gahirmatha National Park (Orissa)<sup>5</sup>.

A notable feature of the Sindhudurg coast is the corals reefs that have been recorded at Vengurla Rock Islands, Malvan and Angria Bank. Of these sites, corals are most abundant at Malvan and along a shallow sunken atoll on the continental shelf in the area called the Angria Bank. Eleven species of corals are reported from Malvan waters (ICMAM Project Directorate Report, 2002). Corals are found attached on rocky substratum in inter-tidal and sub-tidal regions. *Cosoinarea* sp., *Cyphastrea* sp., *Favites* sp., *Goniastrea* sp., *Goniopora* sp., *Porites lichen*, *Porites lutea*, *Pseudosiderastrea* sp., *Synerea* sp., *Tubastrea* sp. and *Turbinaria* sp. are the coral species recorded from the region. Among them *Turbinaria*, *Tubastrea*, *Porites lutea* and *Porites lichen* were the most dominant.

The occurrence of coral reefs off the west coast has been reported by Scientists from NIO and the Central Marine Fisheries Research Institute (CMFRI) in various cruise reports<sup>6</sup>. A detailed analysis of echo sounding and side-scan sonar data revealed the presence of prominent shelf edge reefs, concentrated mostly in the central and southern parts. Their depth of occurrence varied between 85 and 136 m. The reefs were reported to be 1–12 m high and 0.1–2.6 km wide (average 700 m). Morphologically, they may be classified into simple and complex types. The former are single and broad or narrow (average width 350 m), while the latter are generally massive (average width 950 m) with several superimposed peaks. Sub-bottom profiles indicated the presence of paleolagoons. This reef system, more than 1 000 km long, trends NNW-SSE i.e., sub parallel to the present-day shoreline. It is surmised that coral/algal reef growth commenced with the advent of the Holocene transgression and favorable antecedent topography, and continued until early Holocene. Subsequently, rapid sea level rise drowned the reefs. These shelf edge reefs, therefore, are part of “relict, submerged” barrier reef system and reflect late Pleistocene/early Holocene shoreline.<sup>7</sup>

Located within this reef system is the Angria Bank – a submerged, sunken atoll at the edge of the continental shelf off India’s west coast, located approximately 105 kilometers west of Vijaydurg. The Bank has a depth of 20.1 meters and its dimensions are around 40 km from north to south and 15 km from east to west. It is a thriving coral habitat. The bottom is composed of sand, shells, and coral. The Bank is steep-to on all sides, with great depths surrounding it. The coral community is said to have started developing after the Holocene sea-level rise few thousand years ago and coral growth continues today. Although the composition of the foundation of this reef is not studied, a few scientists believe it could be basalt rock, the submerged continuation of the continental flood basalts that are exposed all over Maharashtra. It could also be older Cenozoic sediment or even Pleistocene reefs developed during the interglacial phases of the Pleistocene glaciations when sea-level was high.<sup>8</sup> Whatever view one takes of the formation and mode of origin, whether one regards it as a drowned portion of the continent or as an accumulation of mud and debris derived by a process of erosion from the land, it seems not improbable that the Angria Bank has a definite foundation and represents a further continuation towards the north of Maldives and Laccadive ridge. But at this point the chain has become obscured by the deposits of silt along the coast of India.<sup>9</sup>

Detailed ecological exploration of Angria Bank is yet to be undertaken. However, initial studies by various scientists and organizations such as NIO, CMFRI and Forest Survey of India (FSI) have confirmed the occurrence of extensive corals in the region. A preliminary survey by Science and Technology Park, Pune estimated the coral extent to over 350 square kilometers providing ideal habitat and refugia for other divergent reef flora and fauna. Angria Bank and surrounding areas are reported to be a congregation site for migrating marine animals like whales and whale sharks. The area has significant fish diversity and is a rich spawning and nursery ground for many fish. During the months of February to March, a large number of fish larvae and eggs were observed indicating that the Angria Bank is a rich

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<sup>5</sup> <http://pib.nic.in/release/release.asp?relid=32348>

<sup>6</sup> NIO initiated a well-defined programme of reconnaissance surveys off the western continental margin of India. Echo sounding, side-scan sonar and shallow seismic data, together with seabed samples have been collected at 20 km intervals. During the 29th cruise of R.V. Gaveshani in March 1978, eleven E-W tracks were surveyed on the continental shelf between Vengurla and Vijaydurg and supplementary echo-sounding and side-scan data on three N-S tracks were obtained during the following O.R.V. Sagar Kanya cruises: SK-5 in December 1983, SK-21 in December 1986 and during the Trial Cruise in August 1988. The purpose of these surveys was to establish the presence of a series of submerged reefs (depth range 60 to 110 m) parallel to the shore on the western continental shelf of India. A brief account of the geomorphology of the area has been published by Nair (1972, 1975) and Siddiquie and Rajamanickani (1974). The presence of ridges had been previously inferred; however no details on their occurrence were available (Vora and Almeida, 1990). The report “Sagar Sampada Cruise Highlights 1985-86” (a CMFRI publication) mentions exploration by scientists of the Angria bank area and observations of a large number of fish larvae and eggs in the months of February-March.

<sup>7</sup> Vora, K.H and Almeida, F. Marine Geology, 91 (1990) 255—262

<sup>8</sup> Kher, S., Coral ecosystems of India’s west coast, 2008

<sup>9</sup> RBS Sewell, 1994, ‘Geographic and Oceanographic Research in Indian Waters’, Science

spawning ground for several fish species.<sup>10</sup> Prior to the 1980's, in a few expeditions to the area, sharks of 10-15 feet length were encountered by the scientists and a fish catch of 40 tons was caught on the first day of the 8-10 day expedition carried out by fisheries scientists in 7-8 boats<sup>11</sup>.

## A.2 Demographic and socio-economic context

With less than 0.25 percent of the world's coastline, India's coastal areas are 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 50 km 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.<sup>12</sup>

The marine and coastal environment of India plays a vital role in the nation's economy by virtue of its resources, productive habitats and rich biodiversity. Production activities in coastal and marine areas – such as fishing (India is the 3<sup>rd</sup> largest producer of fish in the world) and harbors, aquaculture, agriculture, tourism, oil and mineral exploitation – contribute about 10% of the national GDP<sup>13</sup>.

Estimates of potential fishery resources from the EEZ of India are about 3.5 to 4.7 mt (million tonnes)<sup>14</sup>. The recent estimates on annual marine landings from the Indian coast show that they fluctuate between 2.2 and 2.8 mt<sup>15</sup>. Of this, about 73% of the catches originate from the west coast of India. The annual marine fish landing of Maharashtra State exceeds 420,000 metric tonnes<sup>16</sup>.

The landscape and seascape where the project is going to be implemented is the Sindhudurg Coastal and Marine Ecosystem (SCME), which includes the coastal talukas of Deogad, Malvan and Vengurla, the Malvan Marine Sanctuary, the Angria Bank and the marine waters that connect the MMS and Angria Bank (Map in Annex 2 of the UNDP Project Document). The total population of the project area is estimated at 400,000 persons<sup>17</sup>. There are 166 Panchayats and 316 villages (including 80 fishing villages) in the project area. The per capita income of the district in 2005-06 was INR 32,862 against the state average of INR 42,056. The district income in 2005-06 stood at INR 2,996 crores, when State Domestic Product was INR 438,058 crores, which is just 0.68 percent of the state's income. The population below the poverty line is 29.80 percent in Deogad, 35.49 in Malvan and 41.15 in Vengurla which averages 35.48. The literacy rate is 80 percent with a female literacy rate of 71.2 percent and male literacy rate of 90.3 percent. Population density is 161 in Deogad, 190 in Malvan and 305 which averages around at 218 persons per square kilometer. (See Annex 3 of the UNDP Project Document for the demographic details.)

Landscape and seascape use in the SCME is dominated by fisheries. Tourism is a growing economic activity. The area also has some minor ports. A few mining units are in operation in the district. Livelihood activities, other than fishing, include animal husbandry and agriculture (food crops, mango, cashew, spices). These main economic sectors are described in further detail below.

### Fisheries sector

The principal economic activity on the Sindhudurg coast is fishing. The continental shelf up to 40 fathoms is being exploited. This amounts to an area of 55,529 square kilometers (or 50% of the total continental shelf). The Sindhudurg district contributed 4.7% of the total fish production for Maharashtra State in 2008-09, which was 395,963 tons. Within the SCME, the top two contributors were Malavan and Anandwadi (38.4% and 26.2% of the total fish production of the district, respectively).

About 40 varieties of fish are found in the coastal and marine waters of Maharashtra State, out of which an odd 33 varieties are caught in the SCME. Of the 33 varieties of fish harvested from the Sindhudurg coast, the prominent are

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<sup>10</sup> Sagar Sampada, Cruise highlights 1985-86, CMFRI publication

<sup>11</sup> Personal communication (Dr. Chapgar, Bombay Natural History Society)

<sup>12</sup> World Bank Project Appraisal Document, Integrated Coastal Zone Management Project, May 14, 2010

<sup>13</sup> From various publications of Planning Commission, Government of India

<sup>14</sup> Sudarsan, S., John, S. and Somavanshi, V. S., *Bull. Fish. Surv. India*, 1990, **20**, 1–37; Bhargava, R. M. S., in *India's Exclusive Economic Zone* (eds Qasim, S. Z. and Roopal, G. S.), Omega Scientific, New Delhi, 1996, pp. 122–131; Goswami, S. C., *ibid*, pp. 94–104; Desai, B. N., Bhargava, R. M. S. and Sarupria, J. S., *Estuarine Coastal Shelf Sci.*, 1990, **30**, 635–639.

<sup>15</sup> Central Marine Fisheries Research Institute (CMFRI), *Mar. Fish. Infor. Serv.*, Technical and Extension series, 1995, vol. 136

<sup>16</sup> Maharashtra Fisheries Department Statistics

<sup>17</sup> Census Report 2001, the Maharashtra Government's Decadal Growth Projection and Census 2003, Department of fisheries, Maharashtra

ribbon fish, sardines, mackerel, and otolithes species. In Deogad, Malvan and Vengurla *talukas*, mackerel is the most caught variety, followed by sardines and otolithes. The highest catch by gear is as follows: variety most caught by gillnets is seer fish, and in the case of rampans the highest catch is sardines, followed by mackerels. Vengurla records the highest number of gillnet catches followed by Malvan. It also has the highest number of rampans catch followed by Makrebag. However, data for 2004-2009 (Fish Production Report for 2008-09) indicates that there has been an overall decline in fish catch including declines in prominent species such as sardines, mackerels, seer fish and otolithes in the SCME. (Statistics on fish catch composition by varieties, fishing gear, etc. are in Annex 4 of the UNDP Project Document.)

As per the State Fisheries Census (2003), there are 80 fishing villages, and 4,992 fishing households with a total fisher-folk population of 24,630 in the SCME. Fishery-allied production activities give livelihoods to many more.

There are eight major fishing centers in the district – Vijaydurg, Deogad, Achara, Malvan, Sarjekot, Kochara, Vengurla and Shiroda – and 35 landing centers. New fishing harbors with modern infrastructure facilities have been proposed for Anandwadi and Tal-Deogad. Renovation and improvements to the Sarjekot fishermen jetty is currently underway. The district has one fisheries training center, 15 ice plants and two cold storages. There is one district fisheries federation, and 30 primary societies with 13,963 members. Besides, there are 98 *rampans sanghs*.

There are around 1,529 mechanized fishing vessels and 490 non-mechanized vessels operating in the SCME. Ninety two percent of fish production in Sindhudurg comes from the mechanized sector. The mechanized fishing vessels of Maharashtra are registered with the Maharashtra Maritime Board (R. Rajagopalan, Marine Protected Areas in India, Samudra Monograph, 2008). Greater detail on the numbers of different fishing vessels and gear being used for fishing are available for Malvan taluka. There are 1,068 fishing vessels, which include 186 mechanized vessels, 390 motorized vessels<sup>18</sup> and 492 non-motorized vessels (CMFRI, 2006). The fishing gear is mainly composed of trawl nets, gillnets and hooks-and-line. Mechanized fishing vessels are anchored in the Sindhudurg fort area, and the catch is transported to the shore by carrier vessels. The mechanized fishing vessels undertake one-day fishing operations. The traditional fishermen from the region own 50 trawlers and outsiders also own trawlers. Besides the trawlers, there are fiber-glass boats that use different kinds of gillnets. *Rampans*<sup>19</sup> are the traditional fishing gear used in the region.

### Tourism Sector

Tourism is considered to have good potential in Sindhudurg and is being explored by the government and private sector. The district was declared a “tourism district” by the Maharashtra government in 1997. The district has the best beaches in the state, and the abundance of marine biodiversity (particularly corals) and cultural attributes significantly enhances the tourism potential. Maharashtra Tourism Development Corporation (MTDC) has included the scenic Konkan coastline for developing a national tourism circuit<sup>20</sup>.

Annual tourist inflow to Sindhudurg district stands at more than 700,000 in 2010 as compared to 100,000 in 2006<sup>21</sup>. Most of the tourist activities are located around the coast, amongst which the popular tourist attractions are the forts (forts of Sindhudurg, Vijaydurg, Deogad, Yeshwantgad, and Teracol), beaches, dolphin watches, backwater cruises, houseboat stays, snorkeling and scuba diving. The concept of home-stay has also been introduced but this is in a nascent stage. Apart from coastal tourism, SCME has several historical and religious places mainly in Deogad and Malvan. Estimates of tourists visiting these places are 225,000 and 205,000 respectively (Records of Government of Maharashtra). The district has 2 hill resorts offering thick forests and cool weather, waterfalls, lakes, etc. The district offers distinctive cuisine, traditional arts and craft, and local folk theater.

Tourism has opened new employment avenues for coastal communities. In the absence of bigger players, the benefits of tourism are percolating to local communities at the grass-roots level. Currently around 3,000 people in the project area

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<sup>18</sup> Mechanized fishing vessels are small and medium sized boats, 10-15 m long, constructed with engines operated by oil for venturing to distant coastal areas in search of fishing grounds, e.g. line boats, trap boats, dol-netter, gill netter and trawlers; whereas motorized fishing vessels are a traditional craft fitted with out board engine.

<sup>19</sup> The *rampans* is a shore-seine net operated along the Goa, southern Maharashtra, Karnataka and Malabar coasts. During its operation, one extremity of the net remains on the shore, while the rest of the net is carried out to sea in a boat, paid out in a semi-circular path and the other extremity brought to another point on the shore. The two ends are then slowly dragged towards the beach from both sides.

<sup>20</sup> Maharashtra development report, 2004

<sup>21</sup> The only record of numbers is of tourists visiting Sindhudurg Fort.

are involved in/ benefiting from tourism. The estimated annual earning by local people on account of tourism is about USD 2.5 million<sup>22</sup>. Main beneficiaries are coastal communities that were earlier engaged in fishing.

### Ports and Maritime Traffic

Maharashtra's coast hosts 49 of India's 140-odd minor intermediate ports. Together, these ports handle a significant volume of the total traffic passing through non-major ports in India. In the Sindhudurg area, minor ports are located at Malvan, Deogad, and Vengurla (target talukas of the project), and also at Vijaydurg and Redi. Of these, there are major expansion plans for Redi and Vijaydurg.

There is a major port located in the neighboring State of Goa to the south – Mormugao Port. This is one of 13 major ports in India. It is the premier iron ore exporting port of India with an annual throughput of around 26.74 million tonnes of iron ore traffic. Though ore is the predominant cargo, there has been a steady increase in liquid bulk and general cargo traffic ever since it was declared a major port in 1963. It is gathered that ships calling on Mormugao port use the sea route passing through Malvan waters.

### Agriculture and Animal Husbandry

Agriculture and animal husbandry are the other livelihood activities taking place in the project area, Agriculture is mainly rain-fed and employs 31 percent of the workforce and accounts for 36 percent of the land use, followed by horticulture and plantation that accounts for 32 percent of land use. Rice and *nagali* (a type of millet) are the principal food crops of the Sindhudurg district. Improved rice varieties are sown but methods are still traditional. Pulses like *tur*, *udid*, *waal*, *pawta*, *kulith* and *moong* are also grown. Main oilseeds grown are *karala*, *sesamum* and groundnut. Mango, coconut and cashew are the major cash crops grown in the district. About 760 hectares is under spice crops such as black pepper (the major crop), nutmeg, cinnamon and clove. The district grows traditional floriculture along with new flowers over an area of 236 hectares. The cultivation of medicinal and aromatic plants was started in early 2000 in the district, and around 3,380 hectares are under medicinal plant cultivation.

Rearing of local cows and buffaloes for milk and milk products is a secondary occupation to agriculture. Farmers have both non-descript cows and buffaloes and cross breed cows. Goats are reared for meat and milk, and poultry for meat and eggs.

### Mining and Industrial Activities

Sindhudurg is primarily an agricultural district with industrial areas accounting for less than 1% of the total area of the district. There is an industrial estate at Kudal and two “Udyamnagars” at Kudal and Majgaon in Sawantwadi taluka. The core industries are plastic engineering, aluminum utensils, cashew processing, oil paints, cement pipe manufacturing, sleepers manufacturing and a pig iron factory at Redi in Vengurla taluka.<sup>23</sup> At present, there are four mining units operating from this area, comprising of two iron ore mining units, one unit that processes imported iron ore and another involved in silica sand mining.

## *A.3 Legislative, policy, and institutional context*

### Policies and legislation

To promote conservation and sustainable use of biodiversity and natural resources, India has an extensive body of constitutional provisions, laws and policies. The Indian Constitution clearly assigns the responsibilities between the Union and State governments (Part XI and article 246) on various subjects. Responsibilities for coastal and marine environmental protection are allocated as follows:

**Union List:** entering agreements with foreign countries and implementation of treaties; agreements and conventions with foreign countries; maritime shipping and navigation; regulation and development of inter-state rivers and river valleys; fishing and fisheries beyond territorial waters; and environment protection and management. The Union/ Central Government have control over the EEZ - beyond 22 km, stretching up to 200 km limit.

**State List:** public health and sanitation, hospitals and dispensaries; land; fisheries; and water. The maritime states of India have control of the seas up to a distance of 22 km from the shore (also referred to as “territorial waters”).

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<sup>22</sup> Estimated through local consultations

<sup>23</sup> District Disaster Management Plan: Sindhudurg (updated in May 2010)

Concurrent List: forests and wildlife conservation; shipping and navigation on inland waterways with mechanically propelled vessels; and factories.<sup>24</sup>

India is signatory to various international conventions and treaties related to environmental protection and has also taken numerous initiatives towards implementation. The table below summarizes the key international conventions and treaties relevant to coastal and marine management signed by India<sup>25</sup>.

**Table2.: International conventions and treaties related to coastal and marine management signed by India**

Convention/ Treaty	Year effective	Year signed and enforced
Convention Relating to the Preservation of Fauna and Flora in their Natural State	1936	1939
International Plant Protection Convention (1951)	1952	1952
International Convention for the Prevention of Pollution of the Sea by Oil (1954)	1974	1974
The Antarctic Treaty (Washington, 1959)	1998	1983
Ramsar Convention on Wetlands of International Importance (Ramsar, 1971)	1982	1971
Convention Concerning the Protection of the World Cultural and Natural Heritage ( 1972)	1978	1977
Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973)	1976	1974
Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979)	1982	1979
Convention on the Conservation of Antarctic Marine Living Resources (Canberra, 1980)	1985	1980
United Nations Convention on the Law of the Sea (Montego Bay, 1982)	1995	1982
Convention on Control of Transboundary Movements of Hazardous Wastes & Disposal ( 1989)	1992	1990
Protocol on Environmental Protection to the Antarctica Treaty (Madrid, 1991)	1998	1992, 1996
United Nations Framework Convention on Climate Change (Rio de Janeiro,1992)	1994	1993
Convention on Biological Diversity (Rio de Janeiro, 1992)	1994	1992
Agreement relating to the Implementation of Part XI of the UNCLOS 1982 (1994)	1996	1995
Protocol to the United Nations Convention on Climate Change (Kyoto,1997)	2005	1997

There are a number of national policies and legislation that have a bearing on coastal and marine biodiversity conservation. These are summarized in the tables below (see Annex 5 of the UNDP Project Document for more details).

**Table3.: National policies relevant to coastal and marine biodiversity conservation**

National Policy	Main features
National Wildlife Action Plan, 1983	<ul style="list-style-type: none"> <li>- Outlines the strategies and action points for wildlife conservation</li> <li>- Revised in 1988 after the formulation of the National Forest Policy.</li> <li>- Categorical with respect to strengthening PA management (both marine and non marine), conservation of biological diversity especially critical species, and peoples' participation in planning</li> <li>- Promotes activities such as mapping of ecologically sensitive areas (ESAs); identification of marine PAs; restoration of mangroves; research programmes on corals, Olive ridley turtles, mangroves, etc, with the aim being to enhance the knowledge and capacity of institutions tasked with conservation</li> </ul>
National Water Policy, 1987, 2002	<ul style="list-style-type: none"> <li>- Reaffirms the objective of maintaining the quality of surface and ground water</li> <li>- Control of pollution and periodical monitoring of water quality</li> </ul>
National Forest Policy, 1988	<ul style="list-style-type: none"> <li>- Ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which is vital for sustenance of all life forms, human, animals and plants</li> <li>- The derivation of direct economic benefit must be subordinated to this principal aim</li> </ul>
Policy Statement on Abatement of Pollution, 1992	<ul style="list-style-type: none"> <li>- Variety of regulatory instruments, fiscal incentives and educational and outreach methods to promote the application of best technologies to reduce pollution.</li> <li>- Emphasis is on increased use of regulations and an increase in the development and application of financial incentives.</li> </ul>
National Conservation Strategy and Policy Statement on Environment and Development, 1992	<p>The major objectives of the policy with respect to marine and coastal zones are:</p> <ul style="list-style-type: none"> <li>- Ensure that the environment and productivity of coastal areas and marine ecosystems are protected</li> <li>- Conserve and nurture the biological diversity, gene pool and other resources through environmentally sustainable development and management of ecosystems, with special emphasis on our mountain, marine and coastal, desert, wetlands, riverine and island ecosystems</li> <li>- Protect the scenic landscapes, areas of geomorphological significance, unique and representative biomes and ecosystems and wildlife habitats, heritage sites/ structures and areas of cultural heritage importance.</li> </ul>
National Environment Policy 2006	In terms of the coastal and marine environment , the policy suggests the following:

<sup>24</sup> When a central law conflicts with a state law on a subject in the concurrent list, the former prevails.

<sup>25</sup> Annual Report, Ministry of Environment and Forests, India, 2008-09.

National Policy	Main features
(NEP)	<ul style="list-style-type: none"> <li>- Mainstream the sustainable management of mangroves into the forestry sector regulatory regime ensuring that they continue to provide livelihoods to local communities</li> <li>- Disseminate available techniques for regeneration of coral reefs, and support activities based on application of such techniques</li> <li>- Explicitly consider sea-level rise and vulnerability of coastal areas to climate change and geological events, in coastal management plans, as well as infrastructure planning and construction norms</li> <li>- Adopt a comprehensive approach to Integrated Coastal Management by addressing linkages between coastal areas, wetlands, and river systems, in relevant policies, regulation, and programs</li> <li>- Develop a strategy for strengthening regulation, and addressing impacts, of ship-breaking activities on human health, and coastal and near marine resources</li> </ul>
Deep Sea Fishing Policy, 1991	<ul style="list-style-type: none"> <li>- Aimed to augment India's fish production from deep sea areas within its EEZ.</li> <li>- A number of vessels under Joint Venture, Test Fishing and Leasing arrangements were permitted and some vessels started operating from 1993 onwards.</li> <li>- However, in the wake of agitation by traditional fishermen groups over the adverse impacts on the fisheries resource base essential to the existence of their large coastal communities, a committee was constituted to review the policy, and its recommendations accepted in principle.</li> <li>- The decision is to rescind the Deep Sea Fishing Policy of 1991 and the charter policies are already being phased out.</li> <li>- The Ministry has initiated action for formulation of a New Deep Sea Fishing Policy and legislation to regulate operations of Indian fishing vessels in the Indian EEZ in consultation with Maritime States and Union Territories.</li> </ul>
National Agricultural Policy, 2000	<ul style="list-style-type: none"> <li>- To promote technically sound, economically viable, environmentally non-degrading, and socially acceptable use of land, water and genetic endowment to promote sustainable development of agriculture</li> </ul>
Marine Fishing Policy 2004	<p>The theme of comprehensive marine fishing policy is enshrined in the National Agriculture Policy. The objective is to bring the traditional and coastal fishermen also in to focus, together with stakeholders in the deep-sea sector so as to achieve harmonized development of marine fishery both in the territorial and extra territorial waters. The policy objectives are:</p> <ul style="list-style-type: none"> <li>- To augment marine fish production of the country up to the sustainable level in a responsible manner so as to boost export of sea food from the country and also to increase per capita fish protein intake of the masses</li> <li>- To ensure socio-economic security of the artisanal fishermen whose livelihood solely depends on this vocation</li> <li>- To ensure sustainable development of marine fisheries with due concern for ecological integrity and biodiversity</li> </ul>
National Tourism Policy 1998	<ul style="list-style-type: none"> <li>-To foster understanding between people, to create employment opportunities and bring about socio-economic benefits to the community, particularly in the interior and remote areas</li> <li>- To strive towards balanced and sustainable development and preserve, enrich and promote India's cultural heritage</li> <li>- One of the major objectives is the preservation and protection of natural resources and environment to achieve sustainable development.</li> </ul>

Source: Information drawn from Environmental and Social Assessment of the World Bank Assisted Integrated Coastal Zone Management Program, Center for Environment and Development (Thiruvananthapuram), 2009

**Table4.: National legislation relevant to coastal and marine biodiversity conservation**

National Legislation	Main features
Following Acts enforced/ implemented by Ministry of Agriculture:	
Indian Fisheries Act, 1897	<ul style="list-style-type: none"> <li>- Establishes two sets of penal offences whereby the government can sue any person who uses dynamite or other explosive substance in any way (whether coastal or inland) with intent to catch or destroy any fish or poisonous fish in order to kill</li> </ul>
Marine Fishing Regulation Act, 1978	<ul style="list-style-type: none"> <li>- Provides guideline to the states in India for enacting laws meant for protection of marine fisheries by regulating fishing in the territorial waters</li> <li>- Measures include regulation of mesh size and gear, reservation of zones for various fishing sectors and also declaration of closed seasons</li> </ul>
Following Acts enforced/ implemented by Ministry of Shipping:	
Indian Ports Act, 1908	<ul style="list-style-type: none"> <li>- Provides enactment relating to ports and port charges and rules for safety of shipping and conservation of ports</li> </ul>
Merchant Shipping Act, 1958	<ul style="list-style-type: none"> <li>- Aims to deal with waste arising from ships along the coastal areas within a specified radius</li> </ul>

National Legislation	Main features
Following Acts enforced/ implemented by Ministry of Defence:	
Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1976	- Describes the various zones such as territorial waters, EEZ, continental shelf and provides for the regulation of fishing by foreign vessels in certain maritime zones of India and for matters connected therewith.
Coast Guard Act, 1950	- Provisions for levying heavy penalties for the pollution of port waters - Coast guard (under the Ministry of Defence) is responsible for combating marine pollution.
Following Acts enforced/ implemented by Ministry of Environment and Forests:	
Wildlife Protection Act, 1972 (amended in 2001)	- Amendment of the act in 2001 included several species of fish, corals, sea cucumbers and sea shells in Schedule I and III - The Whale Shark was placed in Schedule I
Forest Conservation Act, 1980 (amended in 1988)	- Provides a regulatory framework for the protection of the forest areas, resources, diversion of forestry land for non-forestry reasons - Requires the state government in question to get approval from the central government before de-gazetting or de-notifying reserved forests, leasing reserved forest lands to private persons or corporations or clearing land for reforestation
Biological Diversity Act 2002	- Provides for the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising out of the use of biological resources and knowledge associated with it
Environment (Protection) Act, 1986	- Authorizes central government to protect & improve environmental quality, control and reduce pollution from all sources, prohibit/ restrict the setting and/ or operation of any industrial facility on environmental grounds - The Environment (Protection) Rules lay down procedures for setting standards of emission or discharge of environmental pollutants
Coastal Regulation Zone (CRZ) Notification 2011 ( <a href="http://envis.maharashtra.gov.in/envi_s_data/files/CRZNotification2011.pdf">http://envis.maharashtra.gov.in/envi_s_data/files/CRZNotification2011.pdf</a> )	- This Notification codifies the 25 amendments made to CRZ 1991 over the period 1991-2009 and includes several new features - Most notable among these new features for this project is the special provision for Critically Vulnerable Coastal Areas (CVCAs), which includes Malvan; these areas will be declared through a process of consultation with local fisher and other communities inhabiting the area and depend on its resources for their livelihood with the objective of promoting conservation and sustainable use of coastal resources and habitats. Integrated Management Plans are to be developed for the CVCAs - It defines the CRZ and imposes with effect from the date of the notification restrictions on the setting up and expansion of industries, operations or processes and the like in the CRZ - It classifies the CRZ into zones – CRZ I, II, III, IV - It prohibits certain activities in the CRZ - It provides for regulation of certain permissible activities in the CRZ, and norms for such regulation.
Water (Prevention and Control of Pollution) Act, 1974	- Establishes an institutional structure for preventing and abating water pollution - Establishes standards for water quality and effluent - Polluting industries must seek permission to discharge waste into effluent bodies - The CPCB (Central Pollution Control Board) was constituted under this act
Environment Impact Assessment Notification, 2006	- to protect and conserve the environment through regulation of the new developments taking place via ensuring environmental compliance causing least/ negligible adverse impacts on the environment - EIA has been made mandatory for all the investment and development projects in the coasts

*Source: Information drawn from Environmental and Social Assessment of the World Bank Assisted Integrated Coastal Zone Management Program, Center for Environment and Development (Thiruvananthapuram), 2009*

Policies at the Maharashtra State level that provide a framework for the project include the Maharashtra Biotechnology Policy (2001), the State Forest Policy (2008), the State Tourism Policy (2006), and the State Eco Tourism Policy (2008). The Biotechnology Policy states as one of its objectives the improvement of marine stock to improve the productivity of the fishing industry. The State Forest Policy aims to raise forest cover in the state to a minimum of 33% of total land, as per the recommendations of the Planning Commission and the National Forest Policy, 1988. The State Tourism Policy provides for a special package of incentives for promoting tourism in declared “tourism areas” Sindhudurg district (and other declared tourism areas) for a period of ten years<sup>26</sup>. The State Eco Tourism Policy defines ecotourism as the “experience of local culture, observation of wild flora and fauna in natural and pollution-free environment, understanding and experience of nature”, and establishes a Maharashtra Eco Tourism Promotion Board.

<sup>26</sup> [http://www.maharashtratourism.gov.in/mtdc/HTML/Maharashtratourism/images/PDF/TourismPolicy\\_2006.pdf](http://www.maharashtratourism.gov.in/mtdc/HTML/Maharashtratourism/images/PDF/TourismPolicy_2006.pdf)

The key legislative act at the state-level is the Maharashtra Marine Fishing Regulation Act (MFRA) of 1981 that provides for protection, regulation, conservation and development of fisheries in Maharashtra, within territorial waters<sup>27</sup>. The MFRA declares waters up to a depth of 5-10 fathoms as reserved for fishing only by traditional craft. The notification, dated 13 October 1999, declared that no purse-seine shall be operated by mechanized fishing vessels within the territorial waters (12 nautical miles) of Sindhudurg District (among other areas along Maharashtra's coast) and that the catch of vessels operating purse-seines outside the 12 nautical mile zone can be landed only in Ratnagiri District<sup>28</sup>. Another notification bans the use of trawl gear with mesh size less than 35 mm in the waters of Sindhudurg District (among other areas along Maharashtra's coast)<sup>29</sup>. The MFRA provides for penalties to be imposed on fishing vessels that are found to be in contravention of the MFRA.

### Institutions

The governance of marine and coastal areas in India, covering issues of economic development and environmental safeguards, takes place under diverse institutional arrangements at three levels of government: national, state, and local. Activities are coordinated by the relevant ministry, depending on whether the subject is within the Union, State or Concurrent list. Based on the description of key economic activities in coastal areas of Sindhudurg District (see section on socio-economic context above), the key institutions responsible for implementing and regulating economic activities in these sectors are the Ministry of Agriculture (Fishing, Agriculture, Horticulture, Animal Husbandry), Ministry of Shipping (Ports), Ministry of Defence (Maritime Traffic), and Ministry of Tourism (Tourism). The Ministry of Environment and Forests is the main institution entrusted with ensuring that environmental safeguards are being met.

**Ministry of Environment & Forests** (MoEF) is the nodal agency in the administrative structure of the Central Government for planning, promoting, coordinating and overseeing implementation of India's environmental, forestry and wildlife policies and programmes. MoEF's work is guided by the set of legislative and regulatory measures aimed at the preservation, conservation and protection of the environment, as well as by the [National Conservation Strategy and Policy Statement on Environment and Development, 1992](#); [National Forest Policy, 1988](#); [Policy Statement on Abatement of Pollution, 1992](#); [National Environment Policy, 2006](#), National Action Plan on Climate Change, 2008, National Biodiversity Action Plan, 2008 and the National Wildlife Action Plan (2002-2016). While implementing these policies and programmes, the Ministry is guided by the principle of sustainable development and enhancement of human well-being.<sup>30</sup>

Other **Union Ministries** whose mandate has a bearing on coastal and marine management issues are **Ministry of Agriculture** (Deep Sea Fishing Policy, 1991, Indian Fisheries Act, 1987, Marine Fisheries Regulation Act); **Ministry of Shipping** (Indian Ports Act, 1908, Merchant Shipping Act, 1958), the **Ministry of Defence** (Coast Guards Act, 1978, Maritime Zone Act, 1976) and the **Ministry of Tourism** (National Tourism Policy, 2002).

At the state-level, **Maharashtra Forest Department** (MFD) is mandated to protect, conserve and manage the state's forests (including mangrove forests and coral reefs) and wildlife resources. The main functions of the Department are to manage forest resources, implement Joint Forest Management (JFM) programmes by involving the local villagers in managing and protecting forests, undertake forestry research, and conserve wildlife. MFD is responsible for management of the Malvan Marine Sanctuary (MMS) that falls under the jurisdiction of the Deputy Conservator of Forests, Sawantwady Forest Division.

The **Maharashtra Coastal Zone Management Authority** (MCZMA) was constituted by the MoEF under the Environment (Protection) Act, 1986. The Authority has the power to take the necessary measures for protecting and improving the quality of the coastal environment and preventing, abating and controlling environmental pollution in the coastal areas. The Authority deals with environmental issues relating to the Coastal Regulation Zone which may be referred to it by the State Government, the National Coastal Zone Management Authority or the Central Government.

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<sup>27</sup> Apart from fishing, regulation of other economic activities such as tourism, other industries, mining, and ports and maritime traffic occur under national environmental legislation (see table above on national legislation relevant to coastal and marine biodiversity conservation).

<sup>28</sup> [http://www.icsf.net/icsf2006/uploads/resources/legalIndia/pdf/english/state/1112240339823\\*\\*\\*Maharashtra Notification dated 13th October, 1999.PDF](http://www.icsf.net/icsf2006/uploads/resources/legalIndia/pdf/english/state/1112240339823***Maharashtra Notification dated 13th October, 1999.PDF)

<sup>29</sup> [http://www.icsf.net/icsf2006/uploads/resources/legalIndia/pdf/english/state/1112240287095\\*\\*\\*Maharashtra Notification dated 12th December 1997.PDF](http://www.icsf.net/icsf2006/uploads/resources/legalIndia/pdf/english/state/1112240287095***Maharashtra Notification dated 12th December 1997.PDF)

<sup>30</sup> More information at <http://moef.nic.in/index.php>

**Maharashtra Pollution Control Board (MPCB)** is a statutory authority entrusted to implement environmental laws and rules within the jurisdiction of the state. National pollution control norms are set by the Central Pollution Control Board (CPCB). MPCB ensures proper implementation of the statutes, judicial and legislative pronouncements related to environmental protection within the State. MPCB has the responsibility of implementing the following environmental Acts and Rules, either directly or indirectly: Water (Prevention & Control of Pollution) Cess Act, 1977, Air (Prevention & Control of Pollution) Act, 1981, Environment (Protection) Act, 1986 and Rules and notifications made there under (including EIA notifications), Hazardous Waste (Management & Handling) Rules 1989, Manufacture, storage and Import of Hazardous Chemicals Rules, 1989, Bio-medical Waste (Management & Handling) Rules, 1998, Municipal Solid Waste (Management & Handling) Rules, 2000, Plastics Wastes Rules, 1999, Coastal Regulation Zone Rules, 1991, and the Public Liability Insurance Act, 1991.

In addition to state-level agencies entrusted with environmental protection functions, there are a number of government agencies that facilitate consumptive resource uses in the landscape. Of these, the Department of Fisheries, Department of Tourism (Maharashtra Tourism Development Corporation), and the Maharashtra Maritime Board are important state actors regulating fishing, tourism, ports and maritime traffic in the SCME.

The **State Department of Fisheries (DOF)** is the nodal agency responsible for formulation of policy, development and management of programmes and their implementation related to the fisheries sector. The DOF provides direct support for increasing supply from both capture and culture fisheries. It monitors and promotes improved management of the resources, and actively promotes the involvement of small-scale and poorer participants in the sector. Its main activities include construction of fishing harbors and setting up marketing and processing infrastructure, technical support, training and extension, subsidies and credit assistance to fishermen for acquiring fishing equipment, support to fishermen cooperatives, compiling fisheries statistics, and implementing various welfare measures and activities for the fishers. The DOF is also responsible for enforcing the MFRA and, at the ground level, this function is performed by the Assistant Commissioner of Fisheries having jurisdiction over the area.

**Maharashtra Tourism Development Corporation** (established under the Companies Act of 1956) is fully owned by the Government of Maharashtra. It was established for systematic development of tourism on commercial lines and is the primary government agency responsible for implementing the state's tourism policy. The Corporation receives from the State Government financial assistance in the form of share capital and grants. The State Government has entrusted all commercial and promotional tourism activities to MTDC. Since its inception, it has been involved in the development and maintenance of various tourist locations in Maharashtra. They have a key presence in SCME.

The **Maharashtra Maritime Board (MMB)**, established in 1996 is mandated to enforce Maritime Rules & Regulations for administration and conservancy of ports, regulating traffic and tariff structure and licensing of crafts (mechanized fishing vessels of Maharashtra are registered with the MMB), and carrying out hydrographic surveys and other allied investigations along the west coast of Maharashtra, in the creeks as well as in the rivers of the Konkan region. The MMB has 5 Regional Port Offices. The Vengurla Regional Port Office (located in Vengurla taluka of Sindhudurg District) covers the ports in the District namely, Vijaydurg, Deogad, Achara, Malvan, Nivati, Vengurla, Redi, and Kiranpani.<sup>31</sup>

The **District Administration** is headed by the District Collector/ Magistrate<sup>32</sup>, and includes functionaries responsible for different aspects of district governance. Of note to this project are functionaries responsible for district planning (District Planning Officer), fisheries (Assistant Commissioner of Fisheries), agriculture (District Agriculture Officer), Deputy Conservator of Forests, Sawantwady, and tourism (General Manager, MTDC). At the taluka level there are Panchayat Samitis, and at the village level there are Gram Panchayats. The taluka-level Panchayat Samitis work for the villages within the taluka and are the link between the Gram Panchayat and the district government. These three levels of local government are responsible for the preparation of plans for economic development and social justice and also for the implementation of schemes as entrusted to them by the respective state governments and also by the central government.

At the village level there are also several **Village Level Institutions (VLIs)** that are supported by the government as well as non-governmental organizations. These are community or user-group based organizations such as Self Help

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<sup>31</sup> Maharashtra Maritime Board website (<http://www.mahammmb.com/vengurla-group-of-ports.htm>)

<sup>32</sup> District Collectors are officers of the Indian Administrative Service and are the most powerful government officials of the district. They are entrusted the task of handling law and order, revenue collection, taxation, the control of planning permission and the handling of natural and man-made emergencies.

Groups (SHGs), Women’s Groups, Dairy Cooperatives, Fishermen’s Associations, Youth Groups, JFM Committees – Ecodevelopment Committees (EDCs), and Vana Samrakshana Samities<sup>33</sup> (VSS).

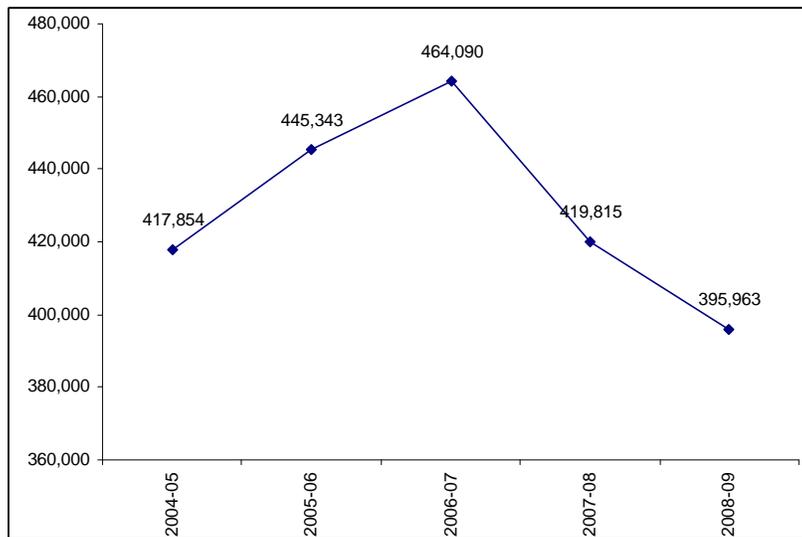
#### A.4 Threats to coastal and marine biodiversity of the SCME

In spite of the above-described legal, policy and institutional framework, the coastal and marine ecosystems in the SCME are under increasing threat. The Sindhudurg coast, like many other resource-rich regions in India, has been subjected to unsustainable resource use. Economic activities in coastal and marine areas are having an adverse impact on the status of biodiversity. A survey conducted under the Department of Ocean Development’s ICMAM program for Malvan (Critical Habitat Information System for Malvan, July 2001) found an overall decline in biodiversity as compared to previous studies. During the project preparation phase, a threat-analysis was undertaken in consultation with stakeholders. The result of this analysis is given below, with threats being listed in diminishing order of impacts.

#### Unsustainable fishing

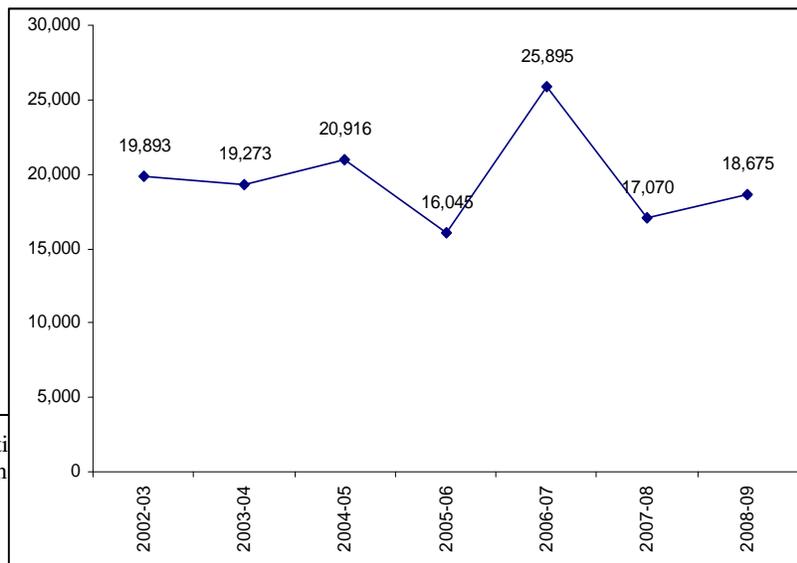
Sindhudurg is an important fishing center for Maharashtra and, of all other economic activities taking place in the coastal zone, fishing places the most pressure on coastal and marine biodiversity of the district. Data from the state’s Fish Production Report for 2008-09 indicate that marine capture fish production for Maharashtra state shows a declining trend since 2006; fish production for Sindhudurg district has also declined since it peaked in 2006 (see charts below). The number of mechanized boats has increased from 1,196 in 2006-07 to 1,275 in 2008-09, and the number of non-mechanized boats has increased from 388 to 419 over the same period<sup>34</sup>.

**Figure 5. Marine capture fish production for Maharashtra State in tonnes**



Source: Fish Production Report 2008-09, Department of Fisheries, Maharashtra

**Figure 6. Marine capture fish production for Sindhudurg District**



**capture fish production in tonnes**

<sup>33</sup> Translation: Forest Protection

<sup>34</sup> Comparison of data in Fish Production Report 2008-09, Department of Fisheries, Maharashtra)

*Source: Fish Production Report 2008-09, Department of Fisheries, Maharashtra*

Fisheries are the major source of livelihood in the SCME. Traditional fishermen from the region fish within territorial waters using trawlers, fiber-glass boats and *rampans*. However, the main threat to the coastal and marine ecosystem comes from intensive trawling operations by trawlers from outside the SCME. These trawlers operate in territorial waters as well as beyond in the EEZ.

The sea is effectively an open access resource. The Marine Fishing Regulation Act, 1981 (MFRA) provides rules and regulations with reservations related to depth and distances for different gear and vessels to operate along the coastline, but the rules are often violated. More than 200 violations of the MFRA are registered every year<sup>35</sup>. There is encroachment by mechanized vessels into traditional fishing grounds that reduces access of traditional fishermen. Despite bans on mechanized fishing in near shore waters (10 fathoms) off the coast, trawlers continue to operate leading to an increase in turtle mortality over the past years<sup>36</sup>. The fishermen (mainly trawlers and gill net operators) mostly encounter marine turtles entangled in their gear in the morning or at night. Mortality also occurs due to 'ghost fishing'<sup>37</sup> in rocky regions of the sea where fishermen use old nets for lobster fishing, and leave their nets when trapped in rocks. Further, there are interstate conflicts wherein vessels from other states fish close to the Malvan coast. The monsoon ban on fishing, although followed strictly by fishermen on the Sindhudurg coast, is often violated by trawlers from outside. **Ineffective** implementation of regulation related to mesh size and gear results in the removal of juvenile fish that compromises future recruitment of fish stocks. In addition, due to limited economic opportunities, local people are forced to depend on mangrove areas intensively during the off-season and this adversely affects recruitment and distribution of juvenile fish stock.

#### Pollution from fishing vessels and other maritime traffic

The Sindhudurg coast experiences oil pollution mainly from the movement of fishing trawlers. This is particularly prominent at Malvan harbor and Deogad. A large number of trawlers congregate in Malvan port because of the sheltered nature of the bay and fish-marketing infrastructure. The sheltered nature of the bay means that flushing of water is poor, and this compounds the impact on the surrounding environment. Ships calling on the major port at Mormugao, located in the neighboring state of Goa, use the sea route passing through Malvan waters and are known to discharge ballast waters in the sea. Some vessels also anchor near the Angria Bank. There is therefore the risk of introduction of Invasive Alien Species (IAS) through ships' ballast water, but the magnitude of the problem is not known. There is also the risk of oil spills, as Maharashtra handles some 23% of India's crude oil imports. Till date there have been 24 incidences of major oil spills along Maharashtra's coast.

#### Pollution and habitat disturbance related to tourism

The SCME is witnessing a rapidly emerging tourism sector offering good potential for income augmentation of local communities. However, unplanned/ irresponsible tourism development can put further pressure on the delicate ecological fabric of SCME due to overbuilt destinations and intensive use of hitherto untouched coastal fringes like corals, sand dunes, and mangroves. Irresponsible tourism development and tourist behavior can disturb endangered animals like turtles and dolphins. Since tourism has started picking up in the district, allied businesses such as tourist souvenirs, snorkeling and diving have also started mushrooming. Sporadic incidences of coral and shell collection and trade have also come to light. Unplanned tourism can also have serious social implications (marginalization and

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<sup>35</sup> Consultations during the MPA Workshop in 2009 in Chennai by International Collective in Support of Fishworkers (ICSF), 2009 and also local Consultations

<sup>36</sup> Indian Ocean Turtle Newsletter No. 9 (January 2009)

<sup>37</sup> This is the entrapment of fish and marine mammals in lost or abandoned nets, posts, fishing line, bottles, and other discarded objects.

dislocation of local people, unequal distribution of benefits, etc) thus disrupting the social balance. However, on the positive side, over the years, there is perceptible change in the attitude of local communities towards tourism who have started viewing it more as an economic opportunity than a threat.

#### Agrochemical pollution from agriculture

Sindhudurg district has a highly favorable environment for growing a large number of fruits like mango; cashew nut, areca nuts and coconut, which are the main cash crops. Alphonso mango, known as the king of the mangoes, hails from this district, and is the major foreign exchange earner for the district. There appears to be a change in cultivation patterns with cash crops gaining popularity. This could have significant impacts, in the medium and long-run, on the ecological profile of SCME, due to the use of pesticides. It is said that approximately 25% of agricultural input applications (fertilizers, pesticides) finds its way to the sea as runoff and through riverine discharges. However, a full understanding of the impact of this on SCME's biodiversity is lacking at present.

#### Illegal trade in marine species

Trade in turtle products does occur along the Sindhudurg coast and some fishermen and local people participate in it. Most of the people who consume turtle eggs do so for the taste of the eggs. The eggs are sold at approximately INR 2 to 5 per egg. Turtle meat is also consumed but meat is usually not sold due to fear of the law. However, in some places a whole turtle is sold for INR 250 to 500; this has been reported mainly from the fishing town of Malvan. There are also superstitions about its medicinal value in treating bone disorders. The leatherback turtle is mostly not harmed due to religious beliefs that it is the incarnation of Vishnu.<sup>38</sup>

#### Pollution from industrial activity

As mentioned earlier, Sindhudurg is primarily an agricultural district with industrial areas accounting for less than 1% of the total area of the district<sup>39</sup>, and industrial activity has limited impact on coastal and marine biodiversity of the SCME. However, the limited mining activity in the SCME needs attention since these are open cast mines and the extracted ores and the waste, if not handled properly, will accumulate on land, and ultimately flow into the sea. Further, if the mining activity is extended northwards beyond Vengurla, it could have adverse impacts on the ecology of SCME<sup>40</sup>.

#### Impacts of climate change

Climate change has serious impacts on coastal and marine ecosystems, especially mangroves, estuaries and coral reefs, which are already under stress because of population growth and coastal developments. Climate change induced temperature rise affects plant and animal physiology, abundance, and distributions; salinity levels, aquatic oxygen concentrations; flooding of wetlands, shoreline erosion, and enhanced storm surges. Coral reefs, which are already threatened by multiple stressors such as destructive fishing practices, pollution, increased disease outbreaks, and invasive species, would also be severely hit.

The IPCC Report (2007) predicts sea level rise of at least 40 cm by 2100 that shall inundate vast areas on the coast, and up to 88 per cent of the coral reefs, termed the "rainforests of the ocean", may be lost. Increased warming would also lead to coral bleaching. Apart from the loss of critical biodiversity, damage to coral reefs would mean irreparable loss to fisheries and the recreational opportunities they provide.

The SCME too faces the impending threat of climate change, and the impacts are particularly significant for corals and turtle nesting sites. A warmer ocean affects breeding, migration and sexual maturity of marine fauna and flora. Sea level rise, salinity intrusion and, changes in sea surface temperature and pH will have significant impacts on the coastal ecosystems particularly on corals (subjected to coral bleaching) along the Malvan coast of Maharashtra<sup>41</sup>. The biodiversity of coral reefs include a variety of marine organisms, like sea grasses, corals, several invertebrate groups, fishes, amphibians, birds and mammals, which will in turn be impacted. The coastal and marine ecosystems are already

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<sup>38</sup> Indian Ocean Turtle Newsletter No. 9 (January 2009)

<sup>39</sup> District Disaster Management Plan: Sindhudurg, May 2010

<sup>40</sup> Recent reports in the Indian press indicate that a moratorium has been declared on mining in Sindhudurg district and the State Government has been asked to review mining leases due to the ecological sensitivity of the region.

<sup>41</sup> [www.ccmaharashtra.org/about\\_Impacts](http://www.ccmaharashtra.org/about_Impacts)

under threat from several anthropogenic and natural factors, including destructive fishing, mining, sedimentation, and invasion by alien species. Impacts of climate change shall compound this scenario.

Climate change impacts on the SCME would not only have serious consequences for the integrity of the coastal environment, but also in terms of livelihoods of people. Coastal and marine resources play an important role in the economy of this region, especially in fisheries. Mangroves and coral reefs in particular are important nurseries for several fishes, prawns and crabs. Of India's annual fish catch of about 5.6 million tonnes, about half is marine fisheries; the coral reefs and associated shelves and lagoons alone have the potential for about 10 per cent of the total marine fish yields.

Literature regarding the impacts of climate change on the Sindhudurg coast is scanty. However, available information suggests that the sea level along the Maharashtra coast has gone up by 5–6 centimeters in the past 20 years and this rise is affecting the flatlands more than the areas with rocky coast. For instance, in the SCME, approximately 40 hectares of land has been lost in the last 15 years due to rising tides.<sup>42</sup> Coastal villages will be directly impacted by sea level rise since the presence of table top land around the coast will limit migration further inland.

#### *A.5 Baseline efforts to conserve coastal and marine biodiversity of the SCME*

##### Regional Plan for Ratnagiri-Sindhudurg Resource Region

One of the earliest attempts for developing an integrated planning framework for the Sindhudurg coast was the “Regional Plan: Ratnagiri-Sindhudurg Resource Region (1981-2001)” prepared by the Ratnagiri-Sindhudurg Regional Planning Board. The Plan recognizes that the Ratnagiri-Sindhudurg region is an ecologically sensitive region and therefore any development activity undertaken in this region has to take into account ecological considerations. Some of the key recommendations of the plan included, among other things:

- Dispersal of small-scale units and rural industries based on local resources such as agriculture, horticulture, minerals etc.
- Development of transportation facilities between major industrial areas and small and large population settlements. This would prevent migration of workers from one part of the area to another.
- Barring water polluting industries from setting-up near a sweet water catchment area.
- Controlling river navigation to eliminate oil discharges in the creeks as these are harmful to marine life.
- Development of industrial estates exclusively for polluting industries which would have a common effluent treatment plant and to ensure proper pollution control
- Legislative support could be provided to ensure that the rich ecosystem of the area is further enriched by industrial developments and not destroyed.
- Minimizing the environmental damage resulting from mineral extraction and institution of appropriate protective measures to increase the benefits/cost ratio of the project and the well being of the community.

Though the Regional Resource Plan for Ratnagiri-Sindhudurg was a well-conceived and legally binding instrument, it failed to take off the drawing board and was never implemented in true spirit in the SCME.

##### Establishment and management of the Malvan Marine Sanctuary (MMS)

Designated in 1987, the sanctuary area is 2,912 hectares, with a core zone of 318 hectares. However, the MMS is not an effectively functioning MPA for several reasons. The core area includes Sindhudurg fort, Padamgad Island and other submerged rocky structures that are used for anchoring vessels and fishing by hook and line fishermen (although small in terms of numbers). The core zone includes three main villages – Sindhudurg fort, Padamgarh, and a part of Malvan town. The north eastern border of the buffer zone is 50 m from the seashore near Malvan port, while on the east it is a semi-circular sandy beach 500 m parallel to the shore of Malvan, in the south it is near Mandel rock, and in the west touches Malvan rock. The Sanctuary boundary at present does not encompass all the major biodiversity rich areas in the Sindhudurg coast.

Several provisions under the Wildlife (Protection) Act, 1972, including the setting up of a sanctuary advisory committee, settlement of rights and delineation of areas within territorial waters, etc are yet to be completed. The management structure for the sanctuary is further complicated by the fact that the Sindhudurg fort in the core zone is

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<sup>42</sup> Down to earth, 2010

under the management of the Archaeological Survey of India (ASI), and that land in the core zone is still privately owned. This has posed practical problems in implementing regulations and was also one of the reasons for the lack of a management plan for the sanctuary until recently (the Management Plan is yet to be formally approved).

The proposed Management Plan identifies the following staff needs for MMS: Assistant Conservator of Forests/ Wildlife Warden (1), Range Forest Officer (1), Research Assistant (2), Forester (3), Forest Guards (10), Boat operator (3), Boat Attendant (6), Accountant (1), Clerk (1), and Driver (2). However, at present, the MMS has neither assigned full-time staff nor sufficient budget. This has adverse implications on the effectiveness of overall management and enforcement. The staff who have been given ad-hoc responsibility (on working arrangement) is also inadequately capacitated/ trained in specific aspects of marine protected area management such as the conservation of corals and mangroves, participatory resource governance systems, conflict resolution, environmental law, etc.

Furthermore, the sanctuary has not been fully accepted by the local communities. Since its establishment, the fishing communities have had social friction with the sanctuary. Communities feel that consultation with them initially was insufficient, and later efforts were weak. The potential benefits of the sanctuary vis-à-vis livelihood options are not perceived as substantial by the communities, leading to violations of sanctuary rules and regulations and resultant conflicts. Having said that, communities are pro-conservation and awareness level is high, but the opportunities to bring them on board in conservation initiatives need concerted efforts.

Thus, the second major attempt in the Sindhudurg district to conserve coastal and marine biodiversity (establishment of the MMS), which aimed primarily at the conservation of marine and coastal resources, is also found to be inadequate in view of the management challenges of the region. While the MMS is envisaged to anchor conservation efforts in the SCME, it is constrained mainly on two fronts. Firstly, despite its existence over two decades, it is yet to evolve a congenial environment for the effective management of the marine protected area. In the absence of any headway in the primary mandate, the conservation of biological diversity that falls outside the boundaries of MMS in SCME has got very little attention. Secondly, the MMS is impacted by development models and growth strategies in the wider land/seascape. The main sectors operating in the SCME that have an impact on the coastal and marine resources are – fishing, tourism, ports and maritime traffic, industries and manufacturing units, and agriculture. Development and resource management models of these key sectors, while observing some environmental safeguards, are unlikely to effectively take into account the special conservation needs of the SCME in the future.

#### *A.6 Desired long-term solution and barriers to achieving it*

The Malvan Marine Wildlife Sanctuary is an important tool for conserving Sindhudurg's coastal and marine biodiversity. However, the sanctuary alone is unlikely to ensure the maintenance of biodiversity and ecosystem processes given the complex ecological dynamics of coastal and marine ecosystems that operate at the landscape level (beyond MPA boundaries), as well as the nature and scale of the direct and indirect drivers of ecosystem degradation, many of which originate outside the sanctuary, and their compounded effect.

In order to improve the conservation prospects of the unique flora and fauna along the Sindhudurg coast, long term solutions need to be anchored in several key areas: establishing a robust database on the biodiversity profile of the region as a foundation for informed decision making, improving the management effectiveness of MMS, creating an institutional mechanism for cross-sectoral dialogue and action that promotes integrated management of the SCME, improving spatial planning in the coastal zone by pursuing closer integration between management of the sanctuary and land use decisions in the surrounding area, taking an ecosystem approach to fisheries (EAF), minimizing the environmental impacts of growing coastal tourism, strengthening the internal capacities of conservation and production sector staff and managers in environment-friendly production practices, and ensuring that local populations can meet livelihood needs while being effective stewards of the resource base by diversifying incomes (added value processing of fishery-based products, cultural and nature-based tourism). Further, coastal communities need to internalize and be active participants in the kind of management plan necessary for EAF, such as the concept of fish refugia/ no-take zones. There are, however, a number of barriers to realizing this long-term solution.

#### Weaknesses in cross-sectoral and sectoral planning

*Weak coordination between sectors.* Currently, there is a distinct disconnect between the governance of the MMS and production and livelihood activities in the wider coastal landscape, even though there should be linkages between these two processes. While pursuing individual growth objectives, the sectors work in vertical 'silos' with weak lateral

linkages that creates limited opportunities for the sound management of the SCME. Resource use decisions are not adequately coordinated across the different sectors, most notably between management of the marine sanctuary (led by the Forest Department) and the fisheries (led by the Fisheries Department) and tourism (led by the MTDC) sectors. Better coordination would help in maximizing synergies, minimizing adverse impacts, and reconciling competing objectives.

*Inadequate information base for decision-making.* At the sectoral level, better information is needed on the impacts of economic activities (agriculture, fishing ports, tourism, and mining) on the biodiversity of the SCME so that viable, alternative, sustainable options can be identified, and these should inform sector development strategies. Sectoral planning is constrained by the fact that decision-makers from relevant departments and agencies do not have access to appropriate information, tools and other mechanisms for analyzing trade-offs when making choices about resource use. Notable knowledge gaps in this context include issues such as threatened and/ or vulnerable habitats and stocks, sustainable fisheries catch, impacts of climate change, economic valuation of the full range of goods and services provided by coastal and marine resources of the SCME, impacts of agricultural run-off on SCME's biodiversity, and impacts of maritime traffic. Hence, there is a critical need to build better scientific and technical understanding in a number of areas in the SCME.

Interests of coastal communities in the planning and decision-making process are not well represented, even though they are important actors and stakeholders in the coastal and marine zones. This is particularly manifested in the persistent feeling among the fisher-folk that their interests have not been taken into consideration during the formation and subsequent management of the MMS. This weakness stems partly from a) the absence of a cross-sectoral institutional mechanism with a mandate not only for cross-sectoral dialogue but also for representing community interests, and b) due to the lack of a codified, holistic planning process that looks above individual sector interests and with a long-term landscape perspective.

*Wildlife Act is inadequate for effective planning and implementation of marine protected areas.* Despite having strong provisions for biodiversity conservation in land-based protected area systems, there are weaknesses in the legislative framework that compromise effective conservation of coastal and marine biodiversity. For instance, the Wildlife Act largely follows a terrestrial approach to protected area management, which is built around the premise of excluding resource use. This approach, however, is inadequate in the context of the MMS. The escalated social rift between the management objectives of MMS and the interests of local fisher-folk is a result of this. Dovetailing the peculiarities of coastal and marine resource management into the legal and policy framework of the conservation sector needs to be a priority.

*Weaknesses in fisheries legislation.* The MFRA regulates fishing activity in territorial waters. Fishing beyond territorial waters falls within the ambit of the central government and is regulated by the Maritime Zones of India Act, 1976. However, this Act applies to regulation of fishing by foreign-built vessels. There is thus a legal vacuum in relation to the regulation of Indian fishing vessels of Indian build in the EEZ, so far a category with no legal responsibility, or accountability, except the requirement to follow the seasonal monsoon ban and the prohibition on taking certain endangered or protected species under the 1972 Wildlife (Protection) Act. Consultations on a Fisheries Bill are under underway mainly to address such issues.

#### Inadequate capacities in sectoral institutions for minimizing adverse impacts on biodiversity

Production sector institutions are the engines of growth in development planning and will continue to be so. Mainstreaming conservation into production sectors has to be contextualized against this background. Currently, government institutions representing production sectors have limited capacities for biodiversity-friendly management of sector operations. Absence of opportunities to look critically at coastal and marine biodiversity issues within individual sectors, inaccessibility to the know-how on best practices and models on sound environmental practices, limited availability of financial resources, and absence of appropriate incentives and triggers for initiating change are key barriers in individual sectors to mainstreaming biodiversity conservation into their respective production operations. Getting production sectors to factor in biodiversity conservation into their operations is going to require a significant change in thinking and practice. It is partly about giving the appropriate push by enshrining this thinking in the policy and legal framework, but it is equally about engaging the sectors into discussions, providing training, tools, and technical and financial support to demonstrate the new paradigm, in turn, absorbing some of the perceived risks in changing current practices. At present, there is no mechanism to steer this crucial process in the SCME.

Institutional capacities are particularly weak in the enforcement of an ecosystem approach to fisheries, planning for sustainable tourism, as well as to better enforce the regulations pertaining to the marine wildlife sanctuary. The capacity to enforce and monitor existing regulations is restricted due to staff not having the requisite information, tools, equipment, internal systems and incentives. To take the example of fisheries, sectoral legislation covers issues such as mesh size and gear, reservation of zones for various fishing sectors and also declaration of closed seasons. However, fisheries sector staff lack experience with designing and implementing an Ecosystem Approach to Fisheries (EAF) management. In the tourism sector, while there is a general ecotourism policy in Maharashtra, implementation of the policy is constrained by the fact that staff from MTDC, the District government and MMS have little guidance on how to plan and manage ecotourism in the District to reduce adverse impact on the MMS and surrounding biodiversity; involve stakeholders (local communities, eco-tourists, local government, tour operators) in the planning, development, implementation and monitoring phases; respect local culture and tradition; generate sustainable and equitable income for local communities; and generate income for management of the MMS. Similarly, even in the conservation sector, capacities for effective management of the MMS are very weak, characterized by limited staff, equipment, technical know-how and funding.

#### Insufficient incentives and know-how at the community level for alternative livelihoods and sustainable uses of the resource base

Barriers to integrating conservation concerns into the economic activities of local resource users include the inability of traditional fisher-folk to get out of the vicious cyclical conundrum of ‘diminishing natural stock-increasing poverty’, weak capacity to access new economic opportunities and develop alternatives to traditional sources of livelihood that are no longer viable as a result of degradation of the natural resource base. While there are sector-based interventions and schemes to help such disadvantaged and differentially abled communities, there is a need to better engage the communities through their own resource management systems and governance structures to promote EAF and explore other markets, such as value-added processing of fishery-based products and employment associated with nature-based and cultural tourism. Revitalizing the existing community institutions in the SCME is another priority.

The project will focus specifically on removing the above mentioned barriers and constraints to mainstreaming environmental management considerations into major production activities that are impacting the Sindhudurg Coastal and Marine Ecosystems, with a special focus on the Malvan Marine Sanctuary.

#### *A.7 Stakeholder analysis*

The key stakeholder group for the project is the local fishing community that is highly vulnerable to resource depletion in the coastal and marine environment due to their dependency on the quality and accessibility to coastal resources. The primary entry-point for engaging communities in the project will be Community Based Organizations (CBOs) such as district fisheries federation, fisheries cooperatives, and women’s groups.

In terms of government representatives, the Forest Department is an important stakeholder given its mandate for environmental protection and biodiversity conservation. Other government entities that are important stakeholders include the State Fisheries Department and Tourism Department. The Archaeological Survey of India is a key stakeholder because it has jurisdiction over the Sindhudurg fort that is within MMS boundaries. The State Departments for Industry, Agriculture, Pollution Control Board, and Maritime Board (ports and maritime traffic) are key stakeholders insofar as the landscape-level zoning plan aims to zone for optimal use of land and marine resources by these production sectors.

Local government institutions such as Municipal Corporation, District Government, Gram Sabhas and other Panchayati Raj Institutions<sup>43</sup> are another group of stakeholders inasmuch as they can influence the development plans and interaction of local communities within the SCME.

The private sector is another important stakeholder that will be an important partner as opportunities arise for the development and implementation of initiatives that have the potential to be commercialized. In particular, more cost-effective and pragmatic approaches will require the evolution of customized technologies and specific services that can

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<sup>43</sup> A Panchayati Raj Institution (PRI) is a local-level institution for self-government in rural areas that are recognized by the Constitution of India. PRIs are elected bodies and operate at three levels, a cluster of villages, a block and at the district level. PRIs are responsible for the preparation of plans for economic development and social justice and also for the implementation of schemes for economic development and social justice as entrusted to them by the state and central government.

be developed and refined by the private sector as investment and business opportunities. For example, eco-tourism, small- and medium-scale rural enterprises will require active involvement of the private sector. The project will aim to develop collaboration with the private sector at an early stage of project implementation, based on intervention areas where private sector engagement and support can occur.

Research Institutions (Marine Biological Research Station (MBRS), Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist.: Ratnagiri.) and NGOs (The Applied Environmental Research Foundation (AERF), Bombay Natural History Society (BNHS), World Wide Fund for Nature (WWF), etc) will have a significant stakeholder role in promoting awareness on integrated coastal zone management, especially in project sites and in developing linkages both to human welfare and to sustainable resources, ecosystem and environmental management.

Representatives from TV, radio and print media are important partners in highlighting the need to mainstream biodiversity conservation in the wider landscape around the SCME. Annex 6 of the UNDP Project Document provides a more detailed analysis of stakeholders and their role in the project.

#### *A.8. Project Strategy*

The Government of India is requesting GEF support to remove these barriers and put in place an enabling environment for achieving progressive mainstreaming of biodiversity conservation considerations in the activities of production sectors operating in the SCME. Based on assessments and consultations undertaken during the project development phase, the project strategy will pursue actions at two levels:

- Systemic level – through a focus on strategic landscape-level planning as well as sectoral planning that explicitly mainstreams biodiversity conservation considerations, and by building the technical knowledge base, cross-sectoral institutional structure (that is currently lacking), and policy environment that can effectively support such strategic planning.
- Demonstration of mainstreaming actions – through targeted support to implementation of select activities in the sectoral plans and MMS Management Plan, as well as implementation support to a sustainable community fisheries management plan and alternative livelihoods plan.

Activities at the systemic level will help ensure that the enabling environment is in place for progressive mainstreaming actions even after project-end. Demonstration activities will enable stakeholders to “ground truth” the new planning and policy frameworks for the SCME and test and develop new tools for mainstreaming.

The area where most of the project activities will be focused is around 2,327 sq. km. This area includes the Malvan Marine Sanctuary (29.12 sq. km.), the coastal talukas of Deogad, Malvan and Vengurla (1,653 sq. km.), and the Angria Bank (645 sq. km.) (Map is in Annex 2 of the UNDP Project Document). In addition, the project area will include the marine waters that connect the MMS and Angria Bank (another 4,000 sq. km.), mainly under the zoning exercise under Output 1.1. Thus, the total area intended to be covered under the project is around 6,327 sq. km. The coordinates for the project area are latitudes 15<sup>0</sup>43 and 16<sup>0</sup>44 north and longitudes 71<sup>0</sup>50 and 73<sup>0</sup>43 east.

The long-term goal to which the project will contribute is the sustainable management of the globally significant coastal and marine biodiversity of India by mainstreaming biodiversity conservation considerations into production activities in the coastal and marine zones, while also taking into account development imperatives, need for sustaining livelihoods and addressing retrogressive factors such as the anticipated impacts of climate change. The immediate objective of the project is to mainstream biodiversity conservation considerations into production sectors that impact the coastal and marine ecosystems of the Sindhudurg Coast of Maharashtra. The project objective will be achieved through the following outcomes and outputs.

Outcome 1: Cross-sectoral planning framework that mainstreams biodiversity conservation considerations

Outcome 2: Enhanced capacity of sector institutions for implementing biodiversity-friendly fisheries management plan, ecotourism management plan and MMS management plan

Outcome 3: Sustainable community livelihoods and natural resource use in the SCME

#### **Outcome 1: Cross-sectoral planning framework that mainstreams biodiversity conservation considerations**

As has been mentioned earlier, the current development paradigm in the coastal and marine environment is characterized by plurality of policies, legal instruments, institutions, sectors and stakeholder interests that often work in isolation. In the absence of appropriate opportunities for integrated planning and management, the sectoral agencies

pursue their own development agenda that often contradicts with the objectives and goals of other sectors and in the long run may jeopardize the overall ecological, economic and socio-cultural integrity of the landscape. The contrasting objectives of sectoral institutions are not only negating the opportunities for synergy among diverse stakeholders but also, instead of acting as a force multiplier, lead to negative outputs. One of the key barriers for ensuring comprehensive and integrated landscape management is the absence of appropriate institutional arrangements for participatory planning that takes into account diverse stakeholder interests and negotiates trade-offs in competing claims and objectives. The scenario is exacerbated by the weak knowledge base on coastal and marine resources, processes, impact analyses and management options that would have been useful for policy makers, planners, managers and stakeholders for taking informed decisions. In view of this, this outcome suggests strategies for ensuring more effective cross-sectoral planning for the SCME, wherein the interests of conservation, livelihood and production sectors are effectively integrated for long term sustainable environmental management of the SCME. The following outputs are envisaged under this project component.

#### *Output 1.1 Landscape-level Zoning Plan is developed*

In view of the existing and potential threats and challenges, the Sindhudurg Coast requires an integrated approach for the conservation of coastal and marine biological diversity, cultural attributes, and wise use of natural resources for sustainable livelihoods. There is a need to make better linkages between the management of the MMS and the use of land and marine areas outside the MMS. Given the jurisdictional overlaps within the MMS boundary<sup>44</sup> and competing resource use interests within and outside the MMS boundary, there is a need for piloting a cross-sectoral spatial planning process that balances biodiversity conservation, economic and sustainable livelihoods objectives. In the absence of mega industrial projects in the area and the present pristine and unique natural environment, the SCME presents an ideal case for this approach. Landscape-level planning at this stage will provide a good opportunity to prevent some threats before they do their damage, or simply by locating them in a way that minimizes the impact on the environment to an acceptable level. This will reduce the costs required to restore the environment to the state prior to the impact.

Under this output, a landscape-level land use and marine use zoning plan will be developed (henceforth referred to as the Landscape Plan or LP) that identifies areas critical for conservation, and areas where production activities can take place but with special requirements for ensuring sustainability. Broadly, the area to be covered under the Landscape Plan is the Sindhudurg Coastal and Marine Ecosystem (SCME) that includes the Malvan Marine Sanctuary, coastal talukas of Deogad, Malvan and Vengurla, and the Angria Bank (as key focal areas) and the marine waters that connect the MMS and Angria Bank. The objective is to make the optimal allocation of coastal and marine areas to different uses based on ecological carrying capacity and socio-economic needs over the long-term.

To support development of the zoning plan, the project will undertake several diagnostic studies such as (a) comprehensive biodiversity profiling and mapping of SCME, particularly the MMS and Angria Bank; (b) economic assessment of ecosystem goods and services of the SCME in general and the Malvan Marine Sanctuary and Angria Bank in particular; (c) impact of land use practices, especially agricultural run-off, on the SCME; (d) impacts of maritime traffic in the SCME on coastal and marine biodiversity; (e) impacts of climate change on coastal and marine resource of the SCME; and (f) a financial sustainability strategy for the LP that will look at a mix of approaches such as re-alignment of existing government budgetary resources, re-allocation of user fees generated within the conservation and production sectors to conservation of the resource base on which these sectors depend, and/ or mobilizing new resources to mainstream biodiversity conservation considerations in the SCME.<sup>45</sup>

In terms of areas critical for conservation, the project will examine current boundaries of the MMS, and evaluate the feasibility of securing conservation objectives under the status quo wherein several provisions under the Wildlife (Protection) Act of 1972 are yet to be completed such as settlement of rights and zoning. Based on consultations with government staff, research institutions and local communities, recommendations will be made for rationalizing existing boundaries and zoning of the MMS so that a pragmatic and effective conservation strategy is in place. Given the conflicts with the fishing community in the SCME with the MMS, particular emphasis will be placed on the zonation of

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<sup>44</sup> A case in point is that Sindhudurg fort that lies in the core zone of the MMS is under the management of the Archaeological Survey of India (ASI), and that land in the core zone is still privately owned.

<sup>45</sup> In addition to serving as direct inputs into the development of the plan, findings will be converted into various formats (such as print, audio and video documentation) and will be developed for different audiences. Materials will also be translated into local and regional languages. This will help in creating awareness among the different stakeholders directly or indirectly affecting the SCME. Findings will be fed into the knowledge management system being established under the Godavari project for the overall India GEF Coastal and Marine Program (IGCMP).

the sanctuary and regulation of fishing activity by local fishermen in ways that do not compromise livelihoods but rather support the rights of traditional and small-scale fishing communities.

Marine and coastal areas that fall outside the MMS boundaries will also be considered for zonation for optimal allocation. Zoning will be undertaken with a view to minimize the adverse impacts of production sectors on the SCME including sectors that are currently having a major impact on biodiversity (fisheries), those that are a growing concern (tourism), those that have a medium impact (ports and maritime traffic), and those sectors that have a lesser impact at present but a precautionary approach is still warranted (agriculture/ horticulture, mining and other industrial activities). The zoning activity is likely to include aspects such as delineation of traditional fishing grounds for local communities, areas for intensive trawling, areas where only ecotourism or low-impact fishing is permitted, optimal location of fishing ports and fisheries-related processing facilities, conservation of mangroves and estuarine systems as spawning grounds for fish<sup>46</sup>, thruways for maritime traffic that avoid sensitive areas, maritime traffic corridors where oil-spill contingency plan and ballast water discharge plan need to be in place, settlement areas with related facilities such as schools and dispensaries, and areas where agriculture, plantations and mining activities need to be carefully planned for their effluent discharge into coastal and marine waters.

The landscape level zoning plan will build on the Regional Plan: Ratnagiri-Sindhudurg Resource Region 1981-2001, and will take into account its methodology and findings. Zoning will also comply with national and state legislation, notably the CRZ Notification 2011 that defines a coastal regulation zone (CRZ I, II, III and IV), and the Maharashtra MFRA. Most importantly, the zoning plan will support implementation of an important requirement under the new CRZ Notification of 2011 that calls for the development of Integrated Management Plans (IMPs) in Critically Vulnerable Coastal Areas (CVCAs), and Malvan has been identified under this Notification as a CVCA.

The preparation of the LP will be based on a consultative process involving private sector stakeholder representatives from the fisheries sector (traditional fisher-folk, commercial operators), tourism sector, agriculture/ horticulture, and mining and other industrial activities. Government departments that will be actively engaged in the preparation of the plan include Department of Forests, Fisheries, Tourism, Agriculture, Industry, Mining, and the Maritime Board. Inputs from Research Institutes (National Institute of Oceanography, Science and Technology Park of Pune University, Wildlife Institute of India, Central Marine Fisheries Institute, etc) and NGOs (Sahyadri Nisarga Mitra, Applied Environmental Research Foundation, Bhagirath Gramvikas Pratishthan, etc) will also be involved. The preparation of the LP will be led by the cross-sectoral Stakeholder Consultation Committee (Output 1.2), and technical experts will be engaged to support the process.

#### *Output 1.2 Cross-sectoral stakeholder consultation committee is established*

Going by the past experience in the region (Regional Plan, Ratnagiri- Sindhudurg Resource Region, 1981-2001) and elsewhere in the country, it seems that while preparation of a sound LP is crucial as the first step towards integrated management of the SCME, equally important will be the strategy for its effective execution. Currently, in India, the development process is driven largely by individual sectors and the only mechanism that even remotely looks at a region/ landscape in a holistic perspective is the district planning process. However, the existing district planning process is not based on ecosystem/ landscape approach, as boundaries of districts are delineated largely based on administrative convenience. Moreover, the district planning process is again largely sector driven with a weak outlook on integration and sound environment management. Notwithstanding this, to benefit from an existing institutional mechanism (howsoever inadequate it may be), it would be of strategic importance to align the preparation and implementation of the LP with the district planning process.

Cross-sectoral dialogue will be critical for the development and implementation of the LP to (i) ensure that planning and allocation of resources by each individual sector are in line with the management and zoning requirements recommended by the LP, (ii) enable identification of any jurisdictional overlaps, (iii) enable the identification and resolution of conflicting interests, and (iv) promote harmonization of sector-based actions to remove duplication of effort. This dialogue needs to take place among the conservation and livelihood sectors and all other key production sectors operating in the target landscape, but most critically between the MMS, fisheries, tourism, and ports sectors.

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<sup>46</sup> Sindhudurg District has 200 hectares of moderately dense mangroves and 100 hectare of open mangroves (State of Forests Report, 2009, Forest Survey of India). These mangroves serve as an important area for recruitment and distribution of juvenile fish stock. Historically, major loss of mangrove forest area occurred due to conversion to paddy cultivation and aquaculture.

At present, a formal forum for such a focused dialogue is lacking. At the same time, the conditions in the Sindhudurg area are not ripe (inadequate capacities) for establishing a Trust or Foundation type mechanism that is being proposed under the Godavari project<sup>47</sup>. The project will, therefore, support the establishment of a cross-sectoral stakeholder consultation committee under the chairmanship of the Conservator of Forests in charge of the MMS. Apart from the Additional Collector in charge of the area, key sector department officials at the district/ local level will be represented on this committee (including forests, fisheries, tourism, ports and maritime traffic, agriculture/ horticulture, pollution control, mining and industries). The Committee shall also have representation from private sector, local communities and other key stakeholders in the SCME.

The committee will meet at least twice a year and its mandate will be to (i) improve coordination and information sharing among the sectors related specifically to the development and implementation of the LP, (ii) ensure that technical expertise from each department/ sector is made available to the process, (iii) identify potential jurisdictional overlaps in the implementation of the LP and recommend strategies for addressing these, and (iv) coordinate sector support provided at the community/ local level to maximize synergies.

The committee will be supported by the Project Management Unit (to be set up under the project in the SCME) and, at a later stage, as the committee grows into its wider cross-sectoral coordination role, the project will consider the feasibility of establishing a trust/ foundation-type institution akin to the one being established under the Godavari project. The PMU will support the stakeholder consultation committee in carrying out monitoring and evaluation of the project strategy. A monitoring, reporting and evaluation system shall be developed to assess the impacts of biodiversity mainstreaming activities on the SCME. This will be developed in coordination with the second project under the IGCMP in the East Godavari Estuary in Andhra Pradesh. The system will initially be used as a tool for monitoring and evaluating project results and impacts, and over the long-term can be used for monitoring implementation of the Landscape Plan for the SCME. Project monitoring and evaluation will follow the UNDP/GEF quality guidelines as described in detail in the project's M&E Plan and M&E Budget. Indicators and the associated baseline and target values from the project's log frame will be integrated in the system and tracked. The Project's annual reports, monitoring reports, and results of field visits will also be integrated in the system, as will the findings of independent mid-term and final evaluations. The system will be able to generate reports on different indicators at any time, depending on the frequency of information upload, which will provide for greater accountability and transparency. Necessary software support for reporting purpose will be made available to sector agencies to facilitate the process. In terms of field-level data collection on impacts of project actions, Community-Based Impact Assessment and other techniques will be employed. Monitoring groups will be formed among the local communities and participants will be trained in documenting and mapping village level natural resource use and collecting data on change realized as a result of project interventions (capacity building to take place under Outcome 3). Technical advice and guidance will be provided by competent support agencies.

*Output 1.3 Recommendations for strengthening fisheries legislation and conservation sector legislation to better incorporate coastal and marine biodiversity conservation considerations*

The legislative framework for conservation and sustainable use of coastal and marine biodiversity is fairly strong and discussions during the project development phase have shown that the major challenges lie in capacities to enforce the legislation rather than in gaps in the legislation itself. However, it was found that there are two areas where legislation can be strengthened to better reflect the needs of coastal and marine biodiversity conservation. These are the Wildlife Protection Act and the MFRA.

Under this output, recommendation will be made on strengthening the provisions of the Wildlife (Protection) Act, 1972, in terms of Marine Protected Area management. The Act was developed largely in the context of terrestrial protected areas and its focus is on resource-use exclusion. This approach is less successful when it comes to marine protected areas and an assessment will be undertaken on how this can be addressed. Specific recommendations will be made for modifications to the legislation that better reflect provisions in existing international legal instruments supporting the rights of traditional and small-scale fishing communities with respect to conservation initiatives.

The second area where legislative reform is warranted is in the fisheries sector where there are 2 main issues that adversely affect conservation of coastal and marine biodiversity. Firstly, the MFRA needs more explicit mention of regulating destructive fishing practices. Therefore, based on a study conducted under Output 2.1 on the relative impact

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<sup>47</sup> Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the East Godavari River Estuarine Ecosystem which is the sister project being developed under the India GEF Coastal and Marine Program (IGCMP).

of trawlers that use commercial nets, this output will develop appropriate recommendations for reforms to the MFRA. Secondly, the MFRA regulates all fishing activity within territorial waters (12 nautical miles) but there is ambiguity in the regulation of fishing activity beyond this area in the EEZ. The Maritime Zones of India Act regulates activities of foreign fishing vessels in the EEZ. However, there is a lacuna when it comes to fishing by Indian-built vessels operating outside territorial waters. Further, the existing legal framework is weak in safeguarding the interests of artisanal fisherfolk vis-à-vis commercial trawlers. This output will support this legislative reform process by developing specific recommendations based on the experience in the SCME on legal provisions that need to be made to ensure that fishing activity in the EEZ is also sustainable.

With the help of experts, the project will work closely with sector staff from the relevant line Departments and stakeholders on this. International best practices will also be reviewed. The analytical review will be followed by a consultative dialogue involving government, non-government, communities and research institutions, in order to facilitate legislative reform. The dialogue and follow-up process will be facilitated by the cross-sectoral stakeholder consultation committee and the Project Management Units at the national, state and site level.

## **Outcome 2 Enhanced capacity of sector institutions for implementing biodiversity-friendly fisheries management plan, ecotourism management plan and MMS management plan**

This outcome focuses on translating the elements of the Landscape Plan (LP) into implement-able actions on the ground, by developing institutional capacities for sustainable fisheries management, sustainable ecotourism management and effective management of the marine sanctuary. Building these capacities will require a combination of methodological guidance, training, consultation, and provision of equipment so that sector institutions can effectively monitor sector activities and enforce existing regulations to minimize adverse impacts on coastal and marine biodiversity. The outputs to be realized under this outcome are described below.

### *Output 2.1 Implementation of sustainable fisheries management based on an ecosystem approach*

The fisheries sector is at present having the biggest impact on Sindhurg's coastal and marine biodiversity. As described under the threats section, fishing activity is conducted by both traditional fisher-folk and commercial fishing vessels, but the major threats to biodiversity come from the latter. Therefore, under this output, priority will be given to the development of a sustainable Fisheries Management Plan (FMP) that is based on the Ecosystem Approach to Fisheries (EAF). During project design consultations a number of issues were highlighted for consideration in a Fisheries Management Plan including no-take zones, fishing gear restrictions in different zones, regulation of deep sea fishing, addressing oil pollution and habitat disturbance in Malvan bay from congregated fishing vessels insofar as this impacts fisheries, modifying navigational routes of maritime traffic to minimize habitat disturbance, strategies for retrieving discarded lobster fishing nets from rocky areas that are the cause of "ghost fishing", preservation of juvenile fish stocks in mangrove areas during the off-season to ensure future recruitment, consideration of MSC certification to secure a premium for sustainably harvested fisheries, among others.

The development of the EAF-based Fisheries Management Plan will be based on FAO guidelines<sup>48</sup>. Application of EAF implies a balanced approach to addressing ecosystem well-being, governance and human well-being, including social development and poverty alleviation. EAF is very useful in situations where conflict resolution is required, and could be valuable in the present scenario in SCME. In addition, research undertaken in the Sindhurg region shows that indigenous and traditional knowledge (ITK) of local fisher-folk on various fisheries management aspects are based on scientific rationale and efficacy in the use of local resources<sup>49</sup>. Thus, ITK will be blended with modern approaches to develop a system of fisheries management that is locally acceptable, ecologically sustainable and financially viable. The Fisheries Management Plan will ensure that the traditional, low-impact, fisheries-based livelihoods of local communities is secured.

To support development of the Fisheries Management Plan, several studies will be undertaken such as (a) the assessment of relative impacts of trawlers from within SCME versus those that come from outside to fish in the SCME; (b) assessment of relative impact of trawlers using Persian nets; (c) assessment of fisheries potential/ carrying capacity

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<sup>48</sup> Garcia, Zerbi, Aliaume, Do Chi, Lasserre. (2003) The ecosystem approach to fisheries. Issues, terminology, principles, institutional foundations, implementation and outlook. *FAO Fisheries Technical Paper*. No 443. Rome, FAO.

<sup>49</sup> Assessment of Indigenous Knowledge of Coastal Fisherfolk of Greater Mumbai and Sindhurg District of Maharashtra, Nirmale and others, *Indian Journal of Traditional Knowledge*, January 2004

in the SCME (for territorial waters and for the EEZ) to establish appropriate fishing quotas so that fishing intensity does not lead to collapse of fisheries. The findings of these assessments will inform development of the FMP.<sup>50</sup>

To provide economic incentives to fishermen for complying with the EAF-based Fisheries Management Plan, the use of MSC certification will be assessed. If found appropriate, the project will support the Fisheries Department in pursuing certification in collaboration with MPEDA (Marine Products Exports Development Authority), SEAI (Seafoods Exports Association of India), as well as WWF-India which is supporting certification for small-scale fisheries. Candidate fisheries from the SCME will be identified for MSC certification<sup>51</sup>. Certification of the fisheries would take place in two stages – Pre-assessment and Final Assessment (with the latter occurring only after the candidate fishery qualifies in a pre-assessment) to be undertaken by certification agencies accredited by MSC. A recent GEF-STAP report has highlighted the importance of monitoring the threats to the effectiveness of the certification programme and measuring the certification program's impacts<sup>52</sup>. Resources will be allocated under the M&E system of the project to this end.

In order to implement EAF-based fisheries management, certain prerequisites need to be met such as effective coordination among stakeholders, agreement on respective roles, and an agreement on goals and objectives. Improved stakeholder communication must underpin this. The local fishing communities have been of the strong opinion that control of destructive fishing practices, if effectively enforced, would have beneficial conservation impacts<sup>53</sup>. Development of the FMP will therefore be based on extensive consultation and participation. Research agencies will also be involved to assist in the initiation of EAF-based fisheries management, such as the Wildlife Institute of India, Science & Technology Park of Pune University, and Central Marine Fisheries Research Institute. The cross-sectoral stakeholder consultation committee, supported by the Project Management Unit, will play a lead role in this consultative process. The consultative committee will bring together the expertise and experience of the Fisheries Department in dealing with fishing communities and fisheries management with the expertise of the Forest Department in conserving coastal and marine biodiversity. After obtaining the concurrence of relevant stakeholders, the FMP shall be placed before the State Project Steering Committee for approval.

To develop capacities for implementation of the FMP, training will be provided to staff from the Fisheries Department and Forest Department, as well as to local representatives of the Maharashtra Maritime Board that oversees maritime traffic and ports, and the Coast Guard. The training program will cover issues related to (a) global biodiversity significance of the SCME; (b) impacts of current fishing practices on coastal and marine biodiversity and links with the long-term sustainability of the fisheries sector; (c) ecosystem approach to fisheries management; (d) national and state environmental regulatory framework with a primary emphasis on fisheries legislation and secondary emphasis on other environmental legislation that has an impact on fisheries such as CRZ Notification; (e) monitoring, control and surveillance of fishing activity (including accountability and reporting); (f) best practices in mainstreaming biodiversity considerations into fisheries sector drawing from experience in the Asia Pacific region and internationally; (g) methods for conflict resolution in natural resource use; (h) eco-certification issues and options for sustainable marine and coastal fishing.

Implementation of the FMP will be undertaken by the Fisheries Department with the cooperation of the Forest Department, Maritime Board, Coast Guard, District Government, and local fishermen's associations. The costs of implementation will largely be covered by Department budgets. GEF resources will be used to identify and address key bottlenecks to effective implementation and enforcement of existing fisheries regulations and the new FMP, such as (a) clarification of enforcement responsibilities, designated surveillance areas of different agencies, agreement on an accountability and reporting system; (b) equipment needs for monitoring and surveillance, (c) internal incentive mechanisms for staff to carry out enforcement responsibilities.

Further, the project will contribute lessons and experience to the replication activities planned under the Godavari project. Under the latter phase of the project, efforts will be made to replicate good practices in India's other coastal states, by training stakeholders from other coastal States/Union Territories (Kerala, Tamil Nadu, Goa, Maharashtra,

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<sup>50</sup> In addition to serving as direct inputs into the development of the plan, findings will be converted into various formats (such as print, audio and video documentation) and will be developed for different audiences. Materials will also be translated into local and regional languages. This will help in creating awareness among the different stakeholders directly or indirectly affecting the SCME. Findings will be fed into the knowledge management system being established under the Godavari project for the overall India GEF Coastal and Marine Program (IGCMP).

<sup>51</sup> The top landing of marine fisheries in the SCME includes Indian Mackerel, Oil Sardine and other Sardines, Penaeid prawns, Croakers, Ribbon fishes, Stomatopods, scads, etc. Top catch of rampans include Sardines, Otolithes, Ribbon Fish and Mackerel. Gillnet catch includes Shark & Rays, Cat Fish, Pomfret, seer fish and others.

<sup>52</sup> Environmental certification and the Global Environment Facility: A STAP Advisory Document, 2010

<sup>53</sup> R. Rajagopalan, Marine Protected Areas in India, April 2008, SAMUDRA Monograph

Karnataka, Orissa, West Bengal, Lakshadweep, Andaman & Nicobar islands, Dadra Nagar Haveli and Pondicherry) on various aspects of mainstreaming biodiversity conservation in coastal production sectors.

### *Output 2.2 Implementation of sustainable tourism that mainstreams biodiversity considerations*

Coastal tourism, more than any other activity that takes place in coastal zones and the near-shore coastal ocean, is increasing in both volume and diversity. Both the magnitude and the dynamic nature of this sector demand that it be actively taken into account in community, industry, and government plans, policies, and programs related to oceans and coasts. Tourism is a rapidly growing sector in the SCME. Maharashtra government has plans to infuse more investments for the development of tourism in Sindhudurg district (which was declared a tourism district in 1997). MTDC has included the scenic Konkan coastline for developing a national tourism circuit. There are plans to develop beach tourism and promote coastal cuisine<sup>54</sup>. As of 2008, the Angria Bank is accessible to tourists by a four-hour boat trip from Goa. It is being promoted as a thriving coral ecosystem about 80 nautical miles from Panjim in Goa and tourists are already visiting the area. The Maharashtra Government has announced an initiative to further explore Angria Bank in order to determine the feasibility of expanding marine tourism in the area. The expectation is that the extensive coral reef that provides habitat for a variety of fish could make the area one of India's best recreational diving destinations and the MTDC hopes to make it an eco-tourism hot spot.<sup>55</sup> Noteworthy among the plans is a proposal to set up a Scuba Diving Training Centre at Malvan<sup>56</sup>.

The rapid growth of recreational, cultural and eco-tourism present the coastal communities of the SCME with opportunities and challenges. In the worst case scenario, tourism growth in the SCME shall be driven by unplanned investments and perverse benefit-sharing arrangements that have little regard for ecological considerations and cultural sensitivities of the local people. Apart from the socio-cultural impacts, this will exert further pressure on the delicate ecological fabric of the SCME due to overbuilt destinations and intensive use of hitherto untouched coastal fringes like corals, sand dunes, mangroves etc. This could also lead to illegal collection of coral and other marine products for allied businesses such as tourist souvenirs. However, the present trend of tourism development in the SCME is promising. Local communities have started benefiting from the economic potential of sustainable and responsible tourism. This has emerged from the consultations with the local people who were earlier apprehensive and critical about the social impacts of tourism that might disrupt the social balance of society. This behavioral transformation among local communities is a significant opportunity to realize mutual interests in directing the growth of tourism in the SCME.

The project will therefore support the development of planned, low-impact, less intrusive, community-driven tourism that can significantly reduce negative dependency on bio-resources, boost the local economy and help in developing a strong constituency for marine and coastal biodiversity conservation. In collaboration with MTDC and the Forest Department, the project will support development of a Sustainable Tourism Management Plan for the SCME. The plan will take a two-pronged approach: (a) a focus on enhancing the sustainability and minimizing the adverse impact of beach and cultural tourism on coastal and marine biodiversity, and (b) a focus on ecotourism where the target is visitation to unique biodiversity attributes such as the MMS and Angria Bank<sup>57</sup>. To support development of the Sustainable Tourism Plan, the project will support several diagnostic studies such as (a) assessment of visitor patterns, interests and existing infrastructure; and (b) the impacts of current and projected levels of beach, cultural and ecotourism on biodiversity.<sup>58</sup> The Sustainable Tourism Management Plan will specify goals, objectives and activities for mainstreaming biodiversity conservation consideration in both types of tourism. The plan will also establish appropriate norms and standards for development of both types of tourism in the SCME given the ecological significance of the area and the designation of Malvan as a Critically Vulnerable Coastal Area by the new CRZ Notification of 2011.

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<sup>54</sup> Maharashtra Development Report, 2004

<sup>55</sup> Consultations, 2010

<sup>56</sup> Times of India, October 17, 2010.

<sup>57</sup> This part of the Sustainable Tourism Management Plan will effectively function as an Ecotourism Management Plan that is closely tied in with the Management Plan of the MMS.

<sup>58</sup> In addition to serving as direct inputs into the development of the plan, findings will be converted into various formats (such as print, audio and video documentation) and will be developed for different audiences. Materials will also be translated into local and regional languages. This will help in creating awareness among the different stakeholders directly or indirectly affecting the SCME. Findings will be fed into the knowledge management system being established under the Godavari project for the overall India GEF Coastal and Marine Program (IGCMP).

Consultations with different tourism sector stakeholders will be critical for the development and implementation of the Sustainable Tourism Management Plan. Consultations will be led by the cross-sectoral stakeholder consultation committee and will include representatives from the local tourism industry (home-stay, hotels, tour operators, boat operators), MTDC, Administration of the MMS, District Administration, as well as research institutes (such as Wildlife Institute of India, Science & Technology Park of Pune University).

To facilitate implementation of the Sustainable Tourism Management Plan, extensive training will be provided to staff from MTDC, Forest Department, and the local tourism industry on issues related to (a) global biodiversity significance of the SCME; (b) impacts of current and projected tourism patterns on coastal and marine biodiversity and links with the long-term sustainability of the tourism product; (c) visitor carrying capacity of vulnerable areas such as the Angria Bank; (d) special requirements such as prohibiting visitation in certain areas during specified periods to minimize disturbance to vulnerable habitat, flora and fauna; (e) best practices in providing sustainable tourism services geared to the local tourism industry including sustainable design, resource use, waste management; (f) strategies for providing environmental interpretation services and guidance to tourists on responsible tourism behavior; (g) best practices in visitor management to minimize impacts on biodiversity; (h) certification issues and options for biodiversity-friendly tourism .

Implementation of the Sustainable Tourism Management Plan will be undertaken by MTDC in collaboration with the District Administration. The costs of implementation will largely be covered by Department budgets. GEF resources will be used to support the activities outlined above for ensuring that biodiversity conservation considerations are mainstreamed in the Plan and that it is based on consultations with all stakeholders.

### *Output 2.3 Strengthened management effectiveness of the Malvan Marine Sanctuary*

The MMS is currently not an effectively functioning marine protected area and key biodiversity rich areas fall outside the existing boundary. As part of the zoning exercise under Output 1.1, the issue of rationalization of boundaries will be considered. This output will focus on strengthening management effectiveness by putting in place an improved Management Plan, strengthening collaboration between MMS staff and local communities on conservation activities, and providing training and logistical support for implementation of the Management Plan.

While a Management Plan has recently been prepared, this has not yet been officially approved, and there would be practical problems in effectively implementing it. Several provisions under the Wildlife (Protection) Act, 1972 are yet to be completed such as the constitution of a Sanctuary Management Committee, the settlement of rights of local communities, and guarantee of the occupational interests and innocent passage of fishers in territorial waters that are under protection. The project will, therefore, support the Forest Department in strengthening the management planning process (by revisiting the Management Plan), through a more participatory approach, with sound technical inputs, so as to capture the context of the SCME and also to address the emerging threats and management challenges. The process will place particular emphasis on effective participation of communities in management and conservation activities, given the understanding and knowledge of local communities about their ecosystems and social environment. The lack of local community involvement in the decision to establish the MMS has been a major stumbling block. With greater involvement of communities in the decision making process, better outcomes can be expected vis-à-vis compliance with conservation measures<sup>59</sup>. Codification of access rights of the communities and incorporation into the Management Plan shall also be attempted under this output. In addition, the role of the Fisheries Department in supporting the Forest Department in managing the MMS will be clarified, given the expertise of the Fisheries Department in fisheries-management issues and the social dimensions of the fisheries sector. Collaboration with the ASI, which has jurisdiction over the fort that lies within MMS boundaries, in improved management of the MMS will also be clarified.

Another factor constraining effective management of the PA is that the staff of MMS is inadequately capacitated/trained on specific aspects of marine protected area management such as the conservation of corals and mangroves, participatory resource governance systems, conflict resolution, environmental laws, etc. An assessment of the needs of the conservation institutions (primarily the Forest Department but also the Fisheries Department insofar as their fisheries management expertise can support conservation of the MMS) for effectively conserving the SCME in general, and the MMS in particular will be undertaken. While the specific training needs will be defined after the needs assessment is complete, it is expected that training content will relate to the following areas: (a) PA Management Planning; (b) Environmental Protection Laws and Acts; (c) Habitat improvement techniques with focus on marine

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<sup>59</sup> A case study on the Malvan Marine Sanctuary has noted that “a change in mindset, from viewing communities as encroachers, to communities as allies, is needed” (R. Rajagopalan, Marine Protected Areas in India, April 2008, SAMUDRA Monograph).

biodiversity; (d) Business Planning (Financial Planning, Budgeting by Results); (e) Project Management (including operational planning); (f) Monitoring and Evaluation (including accountability and reporting); (g) Conservation of corals, mangrove forests; (h) Participatory governance systems for effective resource management in collaboration with local communities.

Implementation of the MMS Management Plan will be carried out by the Forest Department with technical and financial support from the project for implementing the activities identified through the Management Planning process. These may include support for regulation of fishing activity, tourism management, monitoring biological parameters, capacity development of enforcement personnel and local community members, participatory resource management, provision of better equipment, etc. Co-financing will be leveraged for implementation of the MMS Management Plan.

**Outcome 3: Sustainable community livelihoods and natural resource use**

The fisher-folk living in and around the MMS rely on the coastal and marine resource base to meet their livelihood and subsistence needs. They typically employ low-impact fishing practices based on traditional knowledge that have been found by studies to be based on scientific principles and resource-use efficacy. The fisheries-based livelihoods of these communities are threatened by more intensive fishing practices such as purse-seining that is encroaching on traditional fishing grounds in violation of the MFRA. This pressure forces them to fish in mangrove and estuarine areas, a practice that affects recruitment of future fish stocks. Communities are therefore strong advocates of effective implementation of existing fisheries regulations. Their adverse relationship with the MMS stems from the fact that they perceive a dual threat to their livelihoods – from non-implementation of fisheries regulations that apply to intensive fishing operations and from restrictions that the MMS is likely to place on their relatively low-impact fishing practices. Communities are not against conservation; rather they believe that the control of destructive fishing practices will have beneficial conservation impacts. Conservation awareness among them is high, but the opportunities to bring them on board conservation initiatives have not been provided. Thus, the first building block for sustainable community livelihoods and community engagement as stewards of the local ecosystem must necessarily be securing the traditional, low-impact fisheries-based livelihoods of local communities. This issue will be addressed under the EAF-based Fisheries Management Plan under Output 2.1 in terms of codifying their access rights. This outcome aims to provide technical and financial support for reinforcing traditional, low-impact fishing practices, develop community capacities to support conservation measures initiated by the Forest and Fisheries Departments, as well as to develop their capacities to diversify income generating opportunities through various alternatives within the fisheries, tourism and agriculture sectors. The project will work with fishing communities in all 3 target talukas of Deogad, Malvan and Vengurla which is estimated at about 80 villages (see table below). The outputs to be realized under this outcome are described below.

**Table 7. Profile of SCME Fishing Community**

Taluka	Fishing Villages	Fishing Households	Fishing Population
Deogad	32	1,537	7,737
Vengurla	19	1,507	7,424
Malvan	29	1,948	9,469

*Census 2003, Department of Fisheries, Maharashtra*

*Output 3.1 Support for traditional fishing practices and capacity building for conservation management*

This output will provide technical and financial support to traditional fishing communities to reinforce their low-impact practices and manage their fishing effort in line with the EAF-based Fisheries Management Plan developed under Output 2.1. Communities will be supported in collecting information on and documenting fishing effort (boats, fishers, gear, species targeted, fishing areas, and catch), in the use of conservation-friendly tools such as improved fishing nets and gear, Turtle Exclusion Devices, and in gaining certification for ecologically friendly practices.

Further, VLIs from fishing communities will be trained in conservation management practices so that they can become effective partners in conservation actions initiated by the Forestry and Fisheries Departments. At present Eco Development Committees (EDCs) are not active in the SCME and the project will re-vitalize these VLIs to generate conservation support from communities. Training and financial support will be provided for field-level data collection on biodiversity impacts of project actions. Monitoring groups will be formed among the local communities and participants will be trained in collecting data on change realized as a result of project interventions. Communities will also be trained on habitat restoration techniques, participatory resource appraisal with the help of forest department, clean-up of discarded lobster fishing nets, other types of maintenance activities within the MMS, monitoring of illegal collection and sale of marine species such as turtles, etc.

*Output 3.2 Implementation of livelihood diversification strategy and related socio-economic interventions based on market and community needs*

Micro-plans will be developed to identify opportunities for income generation during the lean period, and opportunities for alternate livelihoods. During the project preparation phase, an initial list of potential income-generating opportunities has been identified (below).

Fish products processing: Drying of fish; crab fattening, ornamental fish breeding (in lean season), frozen sea food/ processing; promotion of Malvani cuisine such as prawn pickles and fish curry through SHGs; fish meal processing; sale of fish processing waste as fertilizer;

Promotion of community-based ecotourism (guides, home stays, snorkeling/ scuba diving guides trained from among youth in fishing communities)

Horticulture: introduction of vegetables, value addition of horticulture produce, cashew, mango

Medicinal plants

Sericulture<sup>60</sup>

Apiculture

Necessary data collection, analysis and comprehensive feasibility studies will be undertaken, as required, for selecting the appropriate alternate income generation activities (ecosystem based and non-ecosystem based) to be included in the micro plans. The analysis will take into account gender-segregated data. The micro-plans will be founded on extensive interactions among the community through existing VLIs such as user group-based Self Help Groups and Fishermen's Associations<sup>61</sup>. Strategies will be discussed and vetted among the VLIs, and a dialogue will also be maintained with community, cultural/ religious and political leaders, so as to ensure the acceptance and efficient implementation of alternative livelihood strategies.

Women shall comprise more than 50% of the target beneficiaries. By and large, in the surrounding villages, men are involved in fishing and agriculture effort outside the house, and women are involved in allied activities that take place near the homes such as drying of fish, local marketing etc. The culture of women's self-help groups with good micro-credit system and micro enterprises is very strong in SCME. There is substantial social capital built up among women already. The project will target both men and women in defining and implementing alternative livelihood-generation activities. The project will expend efforts in carrying out wherever possible gender analysis for the design and analysis of such interventions, and shall take steps to ensure that perceptions of both women and men are taken into consideration.

Training, technical and financial support will be provided to village-level SHGs and fishermen's associations (with a particular focus on women and youth). *Quid pro quo* commitments shall be dove-tailed into the micro-plans regarding livelihood support provided under the project and improved biodiversity conservation practices to be followed by the communities. External expertise and best practices will also be tapped. Government co-financing that has been leveraged for the livelihoods sector (from fisheries department budgets and schemes such as DRDA and NREGA) will be directed to putting in place these types of alternative livelihood and social welfare programs.

#### *A.9. Global benefits*

9. The project will generate global benefits by improving spatial and sectoral planning and putting in place capacities for implementing and enforcing biodiversity-friendly activities within production sectors, in turn, reducing current pressures on the SCME from production sectors as highlighted under the threats section above. The threats include: unsustainable fishing; growing tourism pressures; disturbance and pollution related to ports and maritime traffic, and mining; changing agricultural practices; and illegal trade in marine species. The threat analysis undertaken during project development suggests that threats from fisheries and tourism are the major ones that need to be given priority under the project, followed by ports, agriculture and mining where a precautionary approach is warranted. The development and implementation of the Landscape-level Strategic Plan and biodiversity-friendly Fisheries and

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<sup>60</sup> At present sericulture is practiced in Kankavali, Kudal, Sawantwadi, Dodamarg talukas of the district. During the initial consultations with local people, it is felt that sericulture has good potential in Sindhudurg district as a cash crop (in comparison to other agriculture cash crops) because it is a more economical and low investment industry. It is more suitable to marginal and small farmers as it gives assured and regular income, and can engage women's SHGs. The cultivation of medicinal and aromatic plants was started in early 2000 in the district and around 3,380 hectares are under medicinal plant cultivation.

<sup>61</sup> There are an estimated 182 SHGs and 12 Fishermen's Associations in the SCME.

Sustainable Tourism Plans will focus on reducing these pressures over an approximate area of 6,327 sq km of landscape/seascape. This, in turn, will improve the conservation prospects of several globally significant flora and fauna species notably, Olive Ridley Turtle and Indo-Pacific Hunchback Dolphin, and population size of birds (including migratory species), as well as the coral reefs in the area.

**B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL AND/OR REGIONAL PRIORITIES/PLANS:**

B.1 Country Eligibility

India ratified the Convention on Biological Diversity on 18 February 1994. India is a recipient of UNDP technical assistance and notified its participation in the GEF on 12 May 1994. It is thus eligible according to Article 9 (b) of the GEF instrument to receive GEF funding.

B.2 Country Driven-ness

The project is country driven and consistent with relevant National Policies and Strategies for the conservation and sustainable use of biological diversity (see Annex 7 of the UNDP Project Document for the official letter of endorsement from the GoI). The MoEF’s National Environmental Action Programme (1993) specifically calls for conservation and sustainable utilization of coastal ecosystems as a top priority area. The proposed project is also in line with India’s priorities for coastal and marine ecosystem management as articulated in the National Environment Policy (2006). The National Biodiversity Action Plan (NBAP, 2008) specifically notes several action items (see table below) that are closely related to the project objective:

**Table: Relevant Actions from the Matrix for Implementation of Key Activities of the NBAP**

Action number	Activities
Action 2: Augmentation of Natural Resource Base and its Sustainable utilization: Ensuring Inter and Intra-generational equity	Promote sustainable use concept and best practices for sustainable use of biodiversity in relevant economic sectors Integrate biodiversity concerns into sectoral and inter-sectoral policies and programmes Adopt a comprehensive approach to Integrated Coastal Zone Management by strengthening linkages among coastal areas, wetlands and river systems Promote techniques for conservation and regeneration of coral reefs and mangroves
Action 5: Integration of biodiversity concerns in economic and social development	Promote integrated approach to management of river basins, according priority to mitigating the impacts on river and estuarine flora and fauna
Action 6: Impact of pollution	Strengthen monitoring and enforcement of emission standards, for point and non-point sources, minimizing adverse impacts on biodiversity. Treat and manage industrial effluents to minimize adverse impacts.
Action 10: Use of economic instruments/ valuation in biodiversity related decision making processes	Develop valuation models and a system for natural resource accounting (reflecting ecological and economic values of biodiversity). Develop valuation models and validate through pilot studies

Source: National Biodiversity Action Plan (2008), pages 56-61, <http://www.cbd.int/doc/world/in/in-nbsap-v2-p4-en.pdf>

The agenda for sustaining coastal and marine areas in India is to support participatory, integrated but decentralized planning and management. The Government of India has identified the MMS located within the proposed site as a priority coastal and marine ecosystem for conservation. The Malvan ecosystem has been identified as 1 of 11 ecologically and economically critical habitats along the west and east coasts of India by the Department of Ocean Development (DOD), the designated national nodal agency dealing with Oceans and Seas under Agenda 21 (Chapter 17). Under its Integrated Coastal and Marine Area Management (ICMAM) programme, DOD has prepared a Model Plan for the Malvan coastal and marine waters, with a series of suggestions. The proposed project, which covers a larger landscape and seascape, is closely aligned with these efforts of DOD.

Further, the project is aligned with the nationally-driven process of re-visiting coastal zone management legislation and policy that is being developed in response to the recommendations of the Expert Committee (M. S. Swaminathan Committee) set up by Government of India to review the CRZ Notification and its implementation. The GOI has approved a revised CRZ Notification in 2011 following an extensive period of consultation. The 2011 CRZ Notification identifies several Critically Vulnerable Coastal Areas (CVCAs) along India’s coast, including Malvan, and makes special provisions for these areas. These areas are to be declared through a process of consultation with local fisher and other communities inhabiting the area and depend on its resources for their livelihood with the objective of promoting conservation and sustainable use of coastal resources and habitats. Integrated Management Plans (IMPs) are to be

developed for the CVCAs. In addition, by focusing on sustainable livelihoods of poor communities on the Sindhudurg coast, the project supports State government objectives on promoting human development among poor communities.

**C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS:**

The project is consistent with GEF BD Strategic Objective 2 ‘To mainstream biodiversity conservation and sustainable use into production landscapes/ seascapes and sectors’, and with GEF BD Strategic Priority 4 on ‘Strengthening the Policy and Regulatory Framework for Mainstreaming Biodiversity’.

The project focuses on internalizing the goals of biodiversity conservation and sustainable use into production sectors that are having an adverse impact on the globally significant Sindhudurg Coastal and Marine Ecosystem, particularly the Malvan Marine Sanctuary (part of the Western India Marine Ecoregion). The objective is to influence development models and growth strategies in this area to reduce the threats to biodiversity emanating in the wider landscape outside the MMS.

This project is 1 of 2 that is being developed under the umbrella of the India GEF Coastal and Marine Program, which takes a programmatic approach to strengthening the enabling environment for conservation of India’s coastal and marine biodiversity through mainstreaming conservation considerations in production sectors that threaten these ecosystems. The Program seeks to identify priority demonstration sites on the west and east coast of India to demonstrate that in order to conserve biodiversity, protected areas must be supplemented by integrating the concerns and values of biodiversity conservation into the wider landscape. The SCME has been identified as an intervention area on the west coast because it is host to a number of globally significant species (marine turtles, corals, etc) (see Annex 1 of the UNDP Project Document for more information on biodiversity profile of the area). Fisheries and tourism are the 2 sectors placing the greatest pressure/ challenges and there is a need to pilot cross-sectoral spatial planning that explicitly takes into account coastal and marine biodiversity conservation considerations. The target area therefore provides a good justification for dedicating GEF and GOI resources to piloting mainstreaming.

This project is consistent with the Convention on Biological Diversity (CBD) and its guidance from the Conference of Parties. This project is designed to support the primary objectives of the CBD; the conservation of biological diversity, sustainable use of its components and the equitable sharing of the benefits arising out of the utilization of these components. By mainstreaming biodiversity conservation with production sectors and sustainable livelihood, the project will fulfill the requirements of Article 6: General measures for Conservation and Sustainable use. Article 8: In-situ conservation will be supported through the strengthening of park management and the targeted species and habitat management, research and monitoring programme. Article 10; Sustainable use of components of biological diversity will be furthered through development and demonstration of alternative, sustainable livelihood options that avoid or minimize adverse impacts on biological diversity. The project also support Article 12: Research on targeted priority issues related to biodiversity of SCME landscape/seascape and provide training in technical and managerial areas and linking exchange of information. Article 13 which stresses education and awareness will also be a key component in the project.

Further, the 10<sup>th</sup> Conference of the Parties (COP) to the CBD (held at Nagoya in 2010) emphasized the need for a balanced approach to the programme of work on marine and coastal biodiversity, as contained in annex I to decision VII/5. It invited the Global Environment Facility (GEF) and other donors and funding agencies to extend support for capacity-building to developing countries and countries with economies in transition, in order to identify ecologically or biologically significant and/or vulnerable marine areas in need of protection, as called for in paragraph 18 of decision IX/20 and develop appropriate protection measures in these areas. It further stressed on the importance of marine and coastal biodiversity to the mitigation of and adaptation to climate change, invited Parties, other Governments, relevant organizations, and indigenous and local communities, to address climate-change adaptation and mitigation issues. COP 10 also reaffirmed the need for the strengthened and continued implementation of programme of work on marine and coastal biodiversity (contained in decisions VIII/21, VIII/22, VIII/24, and IX/20 of CBD). The proposed project in SCME is in line with the above mentioned decisions of CBD COP and shall further strengthen the national efforts on the protection of coastal and marine biological resources.

**D. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH THE GEF RESOURCES.**

10. The project is requesting grant resources to provide technical assistance for sustainable management of the globally significant coastal and marine biodiversity of India by mainstreaming biodiversity conservation considerations into production activities in the coastal and marine zones.

## **E. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:**

India has implemented several programmes/ projects, in the past two decades that specifically looked at strengthening institutional structures at different levels (national and sub-national) to bring in behavioral changes for managing natural resources. A GEF-World Bank aided project – India Ecodevelopment Project (1996-2004)– has shown that providing sustainable livelihoods to communities is key to the conservation of biological diversity and the lessons from this project have resulted in upstream policy engagements (e.g. amendment of the national wildlife legislation). The GEF-UNDP-Gulf of Mannar Biosphere Reserve project (currently underway), wherein an integrated, multi-sectoral approach was adopted to secure the critical linkage between improved coastal and marine resources and the local livelihoods, is particularly relevant to the Sindhudurg project. The project has resulted in the increase of coral cover in the Gulf of Mannar region by about 7 per cent since 2006. Another UNDP project – Community Based Natural Resource Management – has developed models of viable and ecologically sustainable “community owned ecosystem based enterprises” with high replication potential in the national and sub-national context. The proposed project shall build on the lessons learned and experiences gained from these projects.

This project is being developed as 1 of 2 projects under the India GEF Coastal and Marine Program (IGCMP). The second project is in the East Godavari Estuarine Ecosystem, Andhra Pradesh. The proposed project will establish the necessary communication and coordination mechanisms through its NPMU and NPSC with the before-mentioned umbrella IGCMP. UNDP India will also take the lead ensuring adequate coordination and exchange of experiences. In addition, the project will seek to coordinate its actions with other similar projects/ programmes in India. Similarities in the strategy of the proposed project may extend an opportunity to share lessons and exploit synergies, in particular in the areas of harmonization and mutual recognition. Also, the proposed project will seek to coordinate actions with other existing government commitments and non-government initiatives. More specifically, through its NPMU, the project will closely coordinate with the following related initiatives.

- The DOD’s ICMAM Programme – by building on the earlier scientific work and ICMAM’s recommendations for Malvan.
- The project will link closely with the World Bank’s Integrated Coastal Zone Management Project which is being implemented<sup>62</sup>. The proposed project will avoid duplication by working closely with the World Bank, government partners and other stakeholders to ensure complementarities. Specifically, the project will add value to this larger programme by focusing on demonstrating effective approaches for mainstreaming biodiversity conservation objectives into production activities in relation to ICZM.
- The project will align with the activities of the Bay of Bengal Program (BOBP) in the long term development and utilization of coastal resources of the project including responsible fishery practices and environmentally sound management of resources.
- The present project will also work closely with the UNDP-GEF Global Ballast Water Management Project, under which India is developing and implementing a comprehensive National Work Plan to address the global threat of marine bio-invasion through ship ballast water.

## **F. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT, DEMONSTRATED THROUGH INCREMENTAL REASONING:**

### Baseline scenario

Under the baseline (business-as-usual) scenario the trajectory of production activities in the land/seascape surrounding the MMS and associated degradation trends are likely to continue as there remain persistent barriers to addressing the direct and indirect drivers of degradation. The existing planning and policy framework, as well as institutional arrangements in the SCME are inadequate for addressing biodiversity conservation issues from a landscape/ seascape perspective. In terms of making community resource use and livelihoods more sustainable, there is a lack of robust community-based resource governance systems and alternatives.

The Government of Maharashtra will provide financial support towards realizing sector development objectives in the 3 coastal talukas of Deogad, Malvan and Vengurla under various state schemes. However, these interventions do not always integrate biodiversity conservation considerations. Furthermore, these are not coordinated at the landscape level to provide a cross-sectoral strategic vision for balancing conservation and production sector objectives that would then

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<sup>62</sup> [http://moef.gov.in/report/0910/Annual\\_Report\\_ENG\\_0910.pdf#page=304](http://moef.gov.in/report/0910/Annual_Report_ENG_0910.pdf#page=304)

integrate sectoral support services to the stakeholders under the same vision. Nevertheless, the baseline forms the essential institutional structure into which mainstreaming of biodiversity conservation objectives needs to be pursued. The baseline has been estimated over the 5 year period of the project for the coastal talukas of Deogad, Malvan and Vengurla, and is summarized below by each of the project's components. (Incremental Cost Matrix is in Annex 10 of the UNDP Project Document.)

*Sectoral planning:* Of the departmental budgets allocated to different sectors (agriculture, horticulture, soil conservation, fisheries, social forestry, tourism), some resources will be set aside for conducting research and planning. However, these efforts will not be geared to mainstreaming biodiversity into sector activities. The baseline investment is estimated at USD 1.8 million.

*Capacity development for implementation of sectoral plans:* The bulk of sectoral department budgets (agriculture, horticulture, soil conservation, fisheries, social forestry, and tourism) are allocated to pursuing sectoral objectives through activities at the village/ settlement level. These activities are largely for development of assets, but the development of institutional and individual capacities for balancing biodiversity conservation objectives with sector development objectives will not be addressed. The baseline investment is estimated at USD 9.5 million.

*Sustainable community livelihoods and natural resource use:* Under the sectoral department budgets, some resources will be allocated for development of alternate livelihood opportunities and enhancement of existing opportunities to reduce the dependency on natural resources. The baseline investment is estimated at USD 7.6 million.

#### Alternative strategy

The GEF Alternative aims at making a change in natural resource management in the target project area. The aim is to engage and coordinate the different sectors at the landscape level to promote natural resource management that balances ecological and livelihood needs as an integral part of the operation of these sectors. This mainstreaming approach would enhance the resource base and generate local as well as global benefits. The Departments of Agriculture, Forests, Fisheries, Tourism, Ports, and Industry will mobilize their resources in the target landscape/ seascape for mainstreaming biodiversity conservation in sector development strategies. The IC matrix details the baseline expenditures, and the incremental cost of realizing each outcome, as well as how the incremental costs are to be shared by the GEF and cofinancers. (Incremental Cost Matrix is in Annex 10 of the UNDP Project Document.)

#### Summary of costs

The total cost of the project, including co-funding and GEF funds, amounts to US\$15,438,294. Of this total, co-funding constitutes 78% or US\$ 12,000,000. GEF financing comprises the remaining 22% of the total, or US\$ 3,438,294.

#### **G. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE FROM BEING ACHIEVED AND OUTLINE RISK MANAGEMENT MEASURES:**

Risk/ Assumption	Rating	Mitigation Strategy
Project approach is not internalized by state government departments responsible for tourism, fisheries, ports, conservation, agriculture, mining and other industrial activity in the SCME	M	The project will emphasize capacity building and training of sector staff to deepen their understanding of the importance of a healthy SCME to the long-term sustainability of the sectors. The project will build on the momentum offered by recent developments such as the findings of the Western Ghats Ecology Expert Panel, designation of Critically Vulnerable Coastal Areas under the new CRZ Notification of 2011 that expressly calls for the development of Integrated Management Plans for such areas.
Government departments do not provide cofinancing in a timely manner to support implementation of the project strategy	L	Letters of cofinancing have been secured and also the project activities are closely tied to the primary mandate of the sectors and re-enforce their stated goals for environmental sustainability and community development.
Government representatives of the different sectors do not work in a collaborative manner	M	Building capacity and awareness among officials regarding coastal and marine biodiversity, their global values, and link to long-term economic interests of the sectors will be the focus of the project. Further, creating a common platform (Stakeholder consultation committee) that involves all key line departments/ agencies may help to address the jurisdictional overlaps.
Stakeholder institutions may not provide high-level representation in the Stakeholder Consultation Committee	M	The design of the Stakeholder Consultation Committee will involve active dialogue opportunities with stakeholders at the highest level to ensure full ownership and participation in the agreed final structure. Further, the inclusion of the Additional Collector (who has jurisdictional supervision

Risk/ Assumption	Rating	Mitigation Strategy
		over various line departments) in the Stakeholder committee shall ensure better representation in the Committee.
Stakeholder institutions may not be willing to share information that is required for mainstreaming coastal and marine biodiversity conservation	L	By involving stakeholder institutions in the cross-sectoral institutional mechanism (Stakeholder consultation committee) and giving them a defined role in project implementation, full ownership of the project approach will be realized.
Recommendations on legislative amendments for addressing biodiversity conservation in sector practices may not receive government and political support	M	In developing the recommendations for reform, a highly consultative approach will be used drawing on reviews and inputs from the line Departments, private sector representatives and other stakeholders to ensure feasibility and acceptability of the proposed changes. Further, efforts shall be made to mainstream these recommendations at the national level through the knowledge management mechanisms envisaged under the GEF-Godavari Project, through the National Project Management Unit and the National Project Steering Committee.
LP is not integrated in the District development planning process	L	The formation of the cross-sectoral stakeholder consultation committee with the involvement of the Additional Collector of the District will help mitigate this risk.
Institutions are unwilling to commit the expected number of personnel for training and capacity building	L	This will be mitigated through representation in the Stakeholder consultation committee and ownership of the project approach.
Trained staff may not continue in current roles	M	This is a risk particularly in government agencies where there are frequent transfers. This risk will be mitigated by ensuring that training sessions are accompanied by associated manuals/ handbooks/ compendiums that can be a useful resource for existing and in-coming staff. Further, the Subject Specialists to be hired under the project shall take an ongoing lead role in the capacity development process. In addition, the training modules are proposed to be carried out regularly so as to catch the diverse target groups.
Fisheries and Tourism sector representatives may not be committed to implementing the EAF-based Fisheries Management Plan and the Sustainable Tourism Plan	M	Cofinancing commitments have already been obtained from government line Departments towards the development and implementation of the Sector Plans. During initial discussions it was clear that there is interest in the project objective and approach but support is needed in terms of technical assistance and capacity building. <b>Outputs 2.1 and 2.2 are aimed at strengthening the capacity of stakeholders to implement existing regulations (such as the 1983 regulation on mesh-size) and additional requirements established under the EAF-based Fisheries Management Plan and the Sustainable Tourism Plan.</b>
Local communities (particularly fisher folk) may not be willing to participate in the conservation and protection of coastal and marine ecosystems unless the project addresses their livelihood needs. Historically, communities have questioned the establishment of the sanctuary and have not been adequately involved in discussions and decision-making processes with regard to the sanctuary and surrounding areas.	M	The project will work closely with surrounding communities to strengthen the existing VLIs and develop micro plans for sustainable natural resource use and alternate livelihoods. Communities will receive technical and financial support for strengthening their livelihoods in sustainable ways. Awareness programmes will be developed that clearly outline the benefits of participation/ demonstration of success stories to gain their interest in the project. The project will recognize the traditional knowledge and crafts of the coastal population and their contribution to the conservation of ecologically sensitive areas. Further, the local communities will be actively involved in the planning, decision making and implementation of the project through frequent consultation with representatives from key VLIs.
The livelihood activities supported under the project may not add significantly to income opportunities of local people so that the dependency on natural resources is reduced.	M	Livelihood options shall be finalized after extensive consultations during the course of project implementation as some of these activities that may seem attractive have to be critically examined for their feasibility among the villages and the market for the product. While identifying livelihood strategies, special care shall also be given to select those activities with substantial livelihood augmentation and income generation potential.
Information regarding the impacts of climate change on the Sindhudurg coast is scanty. This will limit the scope of project taking appropriate interventions keeping in view climate change impacts.	M	The project proposes to address this risk by first and foremost building a better understanding and knowledge base on the impacts of climate change on the SCME (study to be done under Output 1.1). The findings of this study will be critical inputs into the process of landscape-level zoning and sectoral planning (especially tourism, fisheries and conservation sectors) of the project. Further, project efforts to mitigate the impacts of anthropogenic factors on the SMCE will improve the resilience of the SCME and its ability to cope with climate stressors.

## H. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN:

In line with the GEF Council's guidance on assessing project cost-effectiveness (Cost Effectiveness Analysis in GEF Projects, GEF/C.25/11, April 29, 2005), the project development team has taken a qualitative approach to identify the most cost-effective strategy for achieving the project objective. Three different scenarios for improved long-term management of the SCME, which is based on conservation and sustainable use of the area's unique biodiversity heritage, have been considered, and these are described below.

One option might be to continue with the business as usual scenario of pursuing conservation objectives through the marine sanctuary. However, the existing fractious situation with the surrounding communities and production sectors, as well as the jurisdictional overlaps, poses significant impediments to effective management of the MMS. Attempts at resolving the ongoing conflict of interest through a single-sector approach, wherein the conservation sector focuses solely on the MMS and its effective management, is considered less likely to succeed and critical biodiversity values will continue to be lost. Furthermore, even if this approach were to succeed, given the escalating threats from anthropogenic activities in the wider landscape, irreparable losses of existence values, options values and future use values could still result.

A second option could be to greatly expand the territorial extent of the protected area, which would provide greater security for biodiversity values. However, this scenario too would be unrealistic given the development pressures in Malvan and competing production sector interests. It may be possible to re-visit some aspects of zoning and rationalization of the MMS boundaries, but a large extension of the MMS is unlikely to gain the necessary community and political support to succeed.

Therefore, the project focuses on a third option, which is to lay the foundation and demonstrate the possibilities for integrating biodiversity conservation into land use planning and decision making in production sectors located in the coastal and marine environment that jeopardize ecologically critical areas. This includes adopting a landscape-level, biodiversity-friendly zoning approach that will cover fisheries, tourism, ports and maritime traffic, mining and other industrial activity, and agriculture/ horticulture, as well as a more detailed sector-by-sector biodiversity-friendly planning approach particularly for the fisheries, tourism and conservation sectors. Improved management effectiveness of the MMS will be embedded within the landscape-level plan in a manner that the conservation sector, livelihoods sector, and production sectors are engaged on an equal footing and are counterpart owners of the process.

This third option is considered to be the most cost-effective deployment of GEF resources because it will ensure that investments in the marine sanctuary are not compromised by threats emanating outside the protected area. Furthermore, the cross-sectoral approach is considered more likely to succeed in bringing historically competing interests to the table and beginning the dialogue necessary to conserve the biodiversity values of the SCME. In line with the precautionary principle, this option will avoid degradation of ecosystem values and services, which once lost could be prohibitively costly to restore. Finally, in developing the project, lessons learned from similar initiatives (as noted earlier in the document) have been considered and incorporated into project design to ensure that GEF resources are efficiently deployed.

### **PART III: INSTITUTIONAL COORDINATION AND SUPPORT**

#### **A. INSTITUTIONAL ARRANGEMENT:**

11. This project is being developed as part of the India GEF Coastal and Marine Program (IGCMP) and is funded by GEF through UNDP, which is accountable to GEF for project delivery. UNDP is leading the development and implementation of this project through consultations with different stakeholders during the project preparation process. Project development is being coordinated through the Ministry of Environment and Forests (MoEF), the GEF focal point's office and the Maharashtra State Government.

12. The project will be implemented by the Ministry of Environment and Forests (MoEF) who will assume the overall responsibility for the achievement of the project results as the Implementing Partner (GEF Local Executing Agency). Department of Revenue and Forests, Government of Maharashtra will be the 'Responsible Party' for implementing the project at the site level. UNDP provides overall management and guidance from its New Delhi Country Office and the Regional Coordination Unit (RCU) in Bangkok, and is responsible for monitoring and evaluation of the project as per normal GEF and UNDP requirements. The administration of project funds will be the joint responsibility of MoEF, Government of Maharashtra and UNDP.

#### **B. PROJECT IMPLEMENTATION ARRANGEMENTS:**

**Project Executive:** The project is supported by funding from the GEF and UNDP acts as the GEF Executing Agency. The project will be implemented by the Ministry of Environment and Forests (MoEF) who will assume the overall responsibility for the achievement of the project results as the Implementing Partner (GEF Local Executing Agency). Wildlife Wing, Department of Revenue and Forests, Government of Maharashtra will be the 'Responsible Party' for implementing the project at the site level. UNDP shall provide overall management and guidance from its New Delhi Country Office and the Regional Coordination Unit (RCU) in Bangkok, and is responsible for monitoring and evaluation of the project as per normal GEF and UNDP requirements. The administration of project funds will be the joint responsibility of MoEF, Government of Maharashtra and the UNDP. See Annex C for Terms of Reference of project management staff, as well as local and international consultants that will provide technical services.

**National Project Director (NPD):** MoEF will designate the Deputy Inspector General of Forests (Wildlife), as the NPD. The NPD will coordinate project execution on behalf of GoI and ensure its proper implementation. The NPD will be responsible for overall project management, including adherence to the Annual Work Plan (AWP) and achievement of planned results as outlined in the Project Document, and for the use of project funds through effective management and well established project review and oversight mechanisms. The NPD will also ensure coordination with various Ministries and Agencies, provide guidance to the project team, coordinate with UNDP, review reports and look after the administrative arrangements required. More specifically, NPD's project finance and management responsibilities will include: 1) ensuring that the committed co-financing is made available on a timely basis for project implementation; 2) coordinating the financing from UNDP and GEF and from other sources; and 3) assisting in preparing Terms of Reference for contractors and required tender documentation.

**National Project Steering Committee (NPSC)** will be responsible for taking appropriate management decisions to ensure that the project is implemented in line with the agreed project design and consistent with national and state development policies and priorities. The NPSC will meet at least twice in a year and will provide the required oversight to the project and also ensure the overall co-ordination of the programme<sup>63</sup>. The NPSC will be chaired by the Additional Director General of Forests (Wildlife), MoEF, GoI. Its membership will include the Inspector General of Forests (Wildlife), Joint Secretary (in charge of GEF portfolio), Joint Secretary (in charge of Biodiversity), the Chief Wildlife Warden, Maharashtra, the State Coastal Zone Management Authority representative; representatives of UNDP; representatives from the Ministry of Agriculture, Ministry of Defence, Ministry of Shipping, Department Ocean Development, and two non government representatives (including one from private sector/ industries) nominated jointly by the MoEF and UNDP. Chairman can also invite other members for the NPSC meetings on as-needed basis. The meetings of the NPSC will be convened by the NPD who shall act as the ex-officio Secretary. The NPSC shall play a critical role in project monitoring and evaluation by ensuring quality assurance and accountability. It ensures that required resources are committed and arbitrates on any conflicts related to the project or negotiates a solution to any problems with external bodies. On the advice of the NPSC, the Chief Wildlife Warden, Maharashtra will sign the budgeted AWP with UNDP on an annual basis, as per UNDP rules and regulations. Based on the approved AWP, the NPSC will consider and approve the quarterly plans and also approve any essential deviations from the original plans. The NPSCs of Sindhudurg and Goavari shall also interact (if required through joint sitting) and ensure synergy and harmony between the two projects.

**National Project Management Unit (NPMU):** The project is not intending to have separate PMU at the national level. Instead, the NPMU set up under the Godavari Project (the sister project under the IGCMP) shall act as the NPMU of this project as well. It shall assist NPD and UNDP Country Office on all matters related to project implementation and assist in coordinating with the State Government of Maharashtra, UNDP, other agencies and Stakeholders. The NPMU shall also coordinate exchange of information among the two projects developed under the IGCMP and also open channels of communication with other similar programmes/ projects in the country for ensuring synergy and initiating upstream policy engagements.

**Project Assurance:** UNDP's primary responsibility under this partnership will be to render the Project Assurance function by providing independent feedback (through periodic monitoring, assessment and evaluation) on how appropriate project milestones are managed and completed.

**UNDP support for project management:** The UNDP Country Office will support project implementation by maintaining project budget and project expenditures, recruiting and contracting project personnel and consultant

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<sup>63</sup> This project is being developed as 1 of 2 projects under the India GEF Coastal and Marine Program (IGCMP). The second project is in the East Godavari district of Andhra Pradesh. The motivation for taking a programme approach is outlined in the Programme Framework Document that is accessible at <http://gefonline.org/projectDetailsSQL.cfm?projID=3661>

services, subcontracting, assisting with equipment procurement, and providing other assistance upon request of the MoEF as per UNDP/ GEF rules and regulations. Project implementation arrangements will streamline and decentralize UNDP's normal service delivery procedures in the interest of cost-effective and time-efficient project management. Based on the approved AWP, and upon request from NPD, UNDP will release project funds directly to the Landscape Level Project Management Unit (LLPMU) on a quarterly basis. Using the UNDP Financial Report format, the Responsible Party will report expenditure on a quarterly basis together with a request for advance (once 80% of the previous advance has been spent) required for the next quarter. These will be consolidated by the MOEF and after authentication by the NPD shall be forwarded to UNDP for necessary action. The Combined Delivery Report (CDR) prepared by UNDP on a quarterly basis as well as the annual year-end CDR will be verified and certified by the NPD. The UNDP Country Office will also monitor project implementation and achievement of the project outputs and ensure the proper use of UNDP/GEF funds. Financial transactions, reporting and auditing will be carried out in compliance with national regulations and UNDP rules and procedures. The UNDP Country Office will carry out its day-to-day management and monitoring functions through an assigned Programme Officer in New Delhi, who will be also responsible for the day-to-day coordination with the project team.

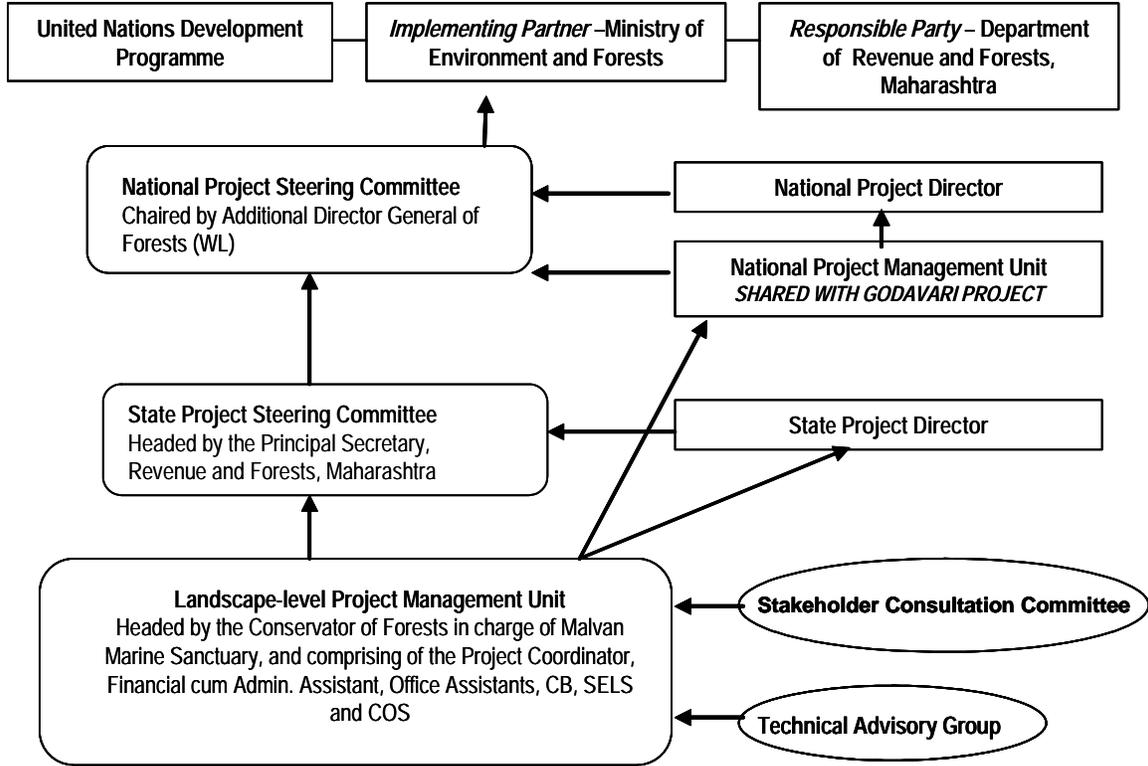
**State Project Steering Committee (SPSC)** will be established in the state with representation from all key state Departments/ Agencies to direct and oversee project implementation and management at the state level. SPSC will be chaired by the Principal Secretary (in charge of Forests and Wildlife), Maharashtra; with the Chief Wildlife Warden as the ex-officio Secretary. Other members will include representatives of the relevant State Departments, Agencies, and other stakeholders including private sector / industries, NGOs nominated by the State Government, representative of UNDP and MOEF. The SPSC shall meet at least twice in a year to review the progress of project implementation and take appropriate decisions for the smooth implementation of the project in the State.

**State Project Director (SPD)**: Government of Maharashtra shall designate the Chief Wildlife Warden as the SPD. The SPD will be responsible for overall implementation of the project at the State level, including adherence to the AWP and achievement of planned results as outlined in the Project Document, and for the use of project funds through effective management and well established project review and oversight mechanisms. The SPD also will ensure coordination with UNDP, MoEF, various Departments and Agencies; provide guidance to the project team; review reports and look after other administrative and financial arrangements related to the project. SPD may delegate the day today project management functions to the Conservator of Forests in charge of MMS.

**Landscape Level Project Management Unit (LLPMU)**: The implementation of the project at the landscape level will be carried out through LLPMU. The functions of the LLPMU could broadly include 1) effective implementation the project in the SCME, 2) receive, control, invest and disburse all funds provided for project, 3) promote research into the scientific, sociological and economic aspects of landscape and integrate into landscape and sector plans 4) coordinate with different production sectors and other agencies to develop an environmentally sustainable strategic plan for SCME, 5) promote programs for the sustainable livelihood options of the communities dependent on the SCME 6), provide a long term institutional sustainability strategy for the project beyond project period, etc.

The LLPMU will be headed by the State Project Coordinator (PC) whose responsibilities shall include: 1) coordinating project implementation with all stakeholders, State Government and central government agencies and UNDP-GEF; 2) organizing the project evaluations; 3) ensuring that there is adequate documentation by all implementing partners at all stages and in collating this documentation; and 4) facilitating the publication of project outputs. In addition, the other technical experts engaged under the project particularly the Subject Specialists (SSs) – Conservation Biologist (CB), Socio-Economic and Livelihood Specialist (SELS) and Communication and Outreach Specialist (COS), shall work in the LLPMU for providing the technical leadership for project implementation, monitoring & evaluation, and adaptive management. In addition, the LLPMU will also have Financial-cum-Administrative Assistant and office assistants for performing the day to day administrative and financial functions of the LLPMU. The staff hired under the LLPMU shall report to the Conservator of Forests in charge of MMS (who shall be leading the project implementation at the site level) or the officer delegated by him.

**Figure 8. Project Organization Structure**



**Technical Advisory Group (TAG):** The successful implementation of this project requires strong technical leadership and high levels of coordination due to its multi-sectoral nature. Since the project logic is fairly new in the conceptual context, it is necessary to have a Technical Advisory Group (TAG) to steer the process. TAG will comprise of subject matter specialists who will provide their expertise for achieving project objectives. TAG may convene at least once in year or as and when needed.

**PART IV: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:**

13. The project design is aligned with the approved PIF. The project document expands the project rationale, proposed project strategy, the expected global environmental benefits, and the sources and amounts of co-financing. However, there is a slight change in emphasis in terms of the target production sectors as compared with the PIF. At the PIF stage, the primary emphasis was on the fisheries sector. This has now been expanded, based on consultations during the project design phase, to include an equal emphasis on the tourism sector which is a growing sector in the target area. The project will focus on the enabling environment for mainstreaming in these 2 sectors and on development and implementation of a biodiversity-plan sector plan. Other sectors that place limited pressure on the SCME (e.g., agriculture, mining, maritime traffic) will be considered under the land use zoning exercise to ensure that a precautionary approach is adopted. This change in emphasis is reflected in the description of the outcomes and outputs, as compared to the description in the PIF. The total GEF grant requested has been reduced to 3,438,294 (as compared with 3,500,000 at PIF stage) to remain within the country allocation. There has been some reallocation of resources across the 3 project outcomes as compared to the estimated allocations made at the time of PIF approval. This is a result of the more detailed development of project activities and associated costs that took place during project preparation. In addition, cofinancing from the government has increased from 10,200,000 to 12,000,000.

**PART V: AGENCY CERTIFICATION**

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.					
Agency Coordinator, Agency name	Signature	Date	Project Contact Person	Telephone	Email Address
Yannick Glemarec, UNDP GEF Executive Coordinator		May 19, 2011	Doley Tshering, RTA, EBD	+66 2 288 2600	doley.tshering@undp.org

**ANNEX A: PROJECT RESULTS FRAMEWORK / LOG FRAME MATRIX**

Project Strategy	Indicator	Baseline	Targets <sup>64</sup>	Means of verification	Risks and Assumptions
The long-term goal to which the project will contribute is the sustainable management of the globally significant coastal and marine biodiversity of India by mainstreaming biodiversity conservation considerations into production activities in the coastal and marine zones, while also taking into account development imperatives, need for sustaining livelihoods and addressing retrogressive factors such as the anticipated impacts of climate change.					
Project objective: To mainstream biodiversity conservation considerations into those production sectors that impact coastal and marine ecosystems of the SCME.	Landscape/seascape area in the SCME where production activities mainstream biodiversity conservation	0 ha	About 6,327 sq. km. (2,327 sq km as area of direct influence and 4,000 sq km as area of indirect influence)	Project Reports; Independent mid-term and final evaluations	Project approach is not internalized by state government departments responsible for tourism, fisheries, ports, conservation, agriculture, mining and other industrial activity in the SCME
	Extent of coral reefs in the project area	360 sq.km and this will be verified in first 6 months of the project	The extent of coral cover remains at least stable or increasing.	Monitoring reports	
	Population status of following critical species: Olive Ridley turtle and Indo-pacific hunch back dolphin	40-50 nesting sites of Olive Ridley Turtles reported and 100-150 Indo-pacific hunch back dolphins frequent the region. This will be verified in first 6 months of the project	Population status remain at least stable/ increasing	Monitoring reports	Government departments do not provide cofinancing in a timely manner to support implementation of the project strategy
	Population status of birds (including migratory):	This will be verified in first one year of the project	Population status remains at least stable or increases.	Annual bird count	Government Representatives of the different sectors do not work in a collaborative manner
Outcome 1: Cross-sectoral planning framework that mainstreams biodiversity conservation considerations	Landscape level zoning plan (LP) that zones resource use by taking into account conservation needs of the SCME	0	1 Landscape Plan that prepared and integrated with the District level planning process	Approved Landscape Plan document	Stakeholder institutions may not provide high-level representation in the cross-sectoral Stakeholder consultation committee
	Establishing a functional cross-sectoral Stakeholder Committee for the management of SCME involving District Planning Dept, Forest Dept, the Maritime Board, Dept. of Industries, Fisheries, Agriculture, Tourism, Private Sector & NGOs	0	1	Notification/ Constitution/ memorandum of the Stakeholder Committee for SCME	Stakeholder institutions are unwilling to share information that is required for developing LP that mainstreams coastal and marine biodiversity conservation concerns  Recommendations on legislative amendments for addressing biodiversity conservation in sector practices may not receive government and political support
	Recommendations on reform of Wildlife (Protection) Act	WPA has a terrestrial focus that is not suited to marine PAs	Amendments that give explicit recognition to marine PAs are approved or under consideration by the MoEF	Government notification/ order/ records	
	Recommendations on reform of MFRA	MFRA does not adequately incorporate the integration of the	Amendments to MFRA incorporating provisions for the conservation of	Government notification/ order/	LP is not integrated in the

<sup>64</sup> The time frame for realizing project targets is project end (2015), unless otherwise specified.

Project Strategy	Indicator	Baseline	Targets <sup>64</sup>	Means of verification	Risks and Assumptions
		conservation of coastal and marine biodiversity	coastal and marine biodiversity approved or under consideration by State Department of Agriculture/ Fisheries	records	District development planning process
	Compliance of new developments related to tourism, fisheries, ports, mining and agricultural activity in the target landscape with the LP	There is no comprehensive zoning plan for production activities in the SCME that takes into account conservation needs	By project end any new developments related to tourism, fisheries, ports, mining and agricultural activity conform with the LP	Final Evaluation	Local communities do not support the LP
	Compliance of existing activities related to tourism, fisheries, ports, mining and agricultural activity in the target landscape with the LP	There is no comprehensive zoning plan for production activities in the SCME that takes into account conservation needs	By project end an action plan for bringing existing activities related to tourism, fisheries, ports, mining and agricultural activity in line with the LP is developed and approved by sectoral departments	Final Evaluation	
	Zoning of MMS in line with LP	Current MMS boundaries do not capture key biodiversity rich areas and there is conflict with local fishermen on resource use issues	MMS boundaries and zoning are rationalized to accord protection to biodiversity rich areas and to guarantee occupational interests and innocent passage of local fishers	Approved new MMS Management Plan	
	Financial sustainability strategy for continued implementation of landscape-level management of SCME	0	1	Strategy document	
Outcome 2: Enhanced capacity of sector institutions for implementing biodiversity-friendly fisheries management plan, ecotourism management plan and MMS management plan	Number of representatives from the key sectors (government and private) trained in mainstreaming and integration of environmental management considerations and safeguards into policies, plans and activities of key sectors	0	Production sector: 1 000 Conservation sector: 100 Livelihood sector: 5 000	Training records; training evaluations	Institutions are unwilling to commit the expected number of personnel for training and capacity building  Trained staff may not continue in current roles  Fisheries and Tourism sector representatives may not be committed to implementing the EAF-based Fisheries Management Plan and the Sustainable Tourism Plan
	Mesh size laws are followed by the trawlers	To be collected in the first year	50% of trawlers follow the mesh size norms set up by Mesh Regulation Committee, 1983	Survey reports of Fisheries Department	
	Incidence of encroachment of intensive fishing operations into traditional fishing grounds	Encroachment is taking place	By project end, all fishing activity complies with zoning specified in LP and there are no reports of encroachment	Records of Forests and Fisheries Department	
	Reduction/ elimination of trawlers from outside	Baseline to be collected in Year 1	50% reduction of trawlers from outside SCME	Monthly Fishing Reports	

Project Strategy	Indicator	Baseline	Targets <sup>64</sup>	Means of verification	Risks and Assumptions
	SCME i.e., from Ratnagiri (Maharashtra), Goa and Karnataka				
	Community based ecotourism operations as a % of all tourism operations in project area	25%	50% by project end	Final Evaluation	
	Number of violations of MMS Management Plan, compared with year of initial patrolling	Baseline violations to be measured in 1 <sup>st</sup> 3 months of project	Declines by 50% by year 5	Survey reports	
Outcome 3: Sustainable community livelihoods and natural resource use in the SCME	Traditional fishing communities continue to practice sustainable, low-impact, traditional fishing activity as measured by extent of rampani fishing and related cooperatives	98 rampani fishing cooperatives	50% increase	Records of Fisheries Department	Local communities may not be willing to participate in the conservation and protection of coastal and marine ecosystems unless the project addresses their livelihood needs  The livelihood activities supported under the project may not add significantly to income opportunities of local people so that the dependency on natural resources is reduced.
	Number of EDCs active in the SCME	0	15	Records of Forest Department	
	Number of skills-development activities carried out for VLIs and other local institutions for alternative livelihoods or sustainable ecosystem-based livelihoods that reduce pressures on biodiversity	0	Target to be defined after design of the micro-plans	Administrative reports and records	
	Amount of resources flowing to local communities annually from community based ecotourism activities	USD 2.5 million	USD 5 million (this is estimated as a reasonable trajectory by local experts based on local conditions and the anticipated impact of project interventions in this regard; target value to be re-confirmed and modified as appropriate once micro-plans are developed)	Records of VLIs, administrative records, etc	
	Number of people shifting to alternative livelihood options that reduce pressure on biodiversity	0	Target to be defined after design of the micro-plans	Records of VLIs, administrative records, etc	

Note: All indicators, along with their baseline and target values will be verified and confirmed during the project inception workshop.

## ANNEX B: RESPONSES TO PROJECT REVIEWS

Comments from GEFSEC Program Manager at the time of PIF approval	How these have been addressed in project design at the time of CEO Endorsement
Further details on the GEB and measurable indicators need to be identified by CEO endorsement.	Measurable pressure-state-response indicators of global benefits have been included in the logframe and Project Framework.
Although understanding that the overall program coordination costs would be covered by the another PIF on Godavari River Basin/Marine Coastal project, it is unclear how this project will ensure linkage to the overall program. In order to ensure wider impact of this project in Western India as well as at the national level, it would be important to incorporate appropriate products, activities and mechanisms within the project framework. Please provide additional information and include appropriate outcomes within the PIF project framework.	<p>This project will ensure linkage to the overall program in the following ways:</p> <ol style="list-style-type: none"> <li>1) Through the NPMU that is common across the 2 projects and will maintain communication with other similar programmes/ projects in the country for ensuring synergy and initiating upstream policy engagements. The NPD and NPSC are also going to be common.</li> <li>2) Diagnostic studies and knowledge products prepared under the Sindhurg project to support development of the Landscape Plan, Fisheries Management Plan and Sustainable Tourism Plan (Outputs 1.1, 2.1, 2.2) will feed in to the national knowledge management system being established under the Godavari project as a national resource on mainstreaming coastal and marine biodiversity conservation issues into production sector activities in sensitive coastal and marine areas</li> <li>3) Resources have also been allocated under Output 1.2 for encapsulating project lessons and experiences into training modules that will feed into the replication workshops planned under the Godavari project (for dissemination and replication of the project strategy among all other coastal states).</li> <li>4) Output 1.3 that reviews existing policies and guidelines of each sector to determine how they can be made more explicit and effective vis-à-vis the special requirements of ecologically sensitive coastal and marine areas will be carried out in close coordination with the similar output under the Godavari project. In some aspects a common approach will be needed, particularly for policies and guidelines that have national ramifications, and in other aspects a differentiated approach will be needed, especially pertaining to the State-specific policy framework.</li> <li>5) The M&amp;E system will also be developed in coordination with the Godavari project.</li> <li>6) For facilitating cross-sectoral dialogue at the landscape level in the SCME, the project will be establishing a cross-sectoral stakeholder coordination committee. Unlike the Godavari project, wherein a Foundation is being proposed for such coordination, the conditions in the Sindhurg area are not ripe for such a mechanism. However, as the committee grows into its wider cross-sectoral coordination role, the project will consider the feasibility of establishing a trust/ foundation-type institution akin to the one being established under the Godavari project and close coordination and communication will be maintained on this issue.</li> </ol>
In addition, the approx 0.45 million allocated from the Godavari project may not be sufficient to ensure development of effective tools and capacities to ensure biodiversity mainstreaming in coastal and marine initiatives beyond the two sites, and it may be necessary to consider allocating funding also from this PIF, if appropriate.	Under the Godavari project USD 420,700 have been allocated to the knowledge management system and associated studies aimed at strengthening the knowledge base on mainstreaming biodiversity in the East Godavari River Estuarine Ecosystem. In addition, under the Sindhurg project an additional USD 313,000 for strengthening the knowledge base on the Sindhurg Coastal and Marine Environment and feeding this into the national knowledge management system. The total allocation is, therefore, USD 733,700.
The project covers the major barriers for coastal and marine conservation in the region, however, it is rather ambitious by covering multiple issues, including policy, private sectors, community-related issues. Although it is important to have a holistic approach, further focus and targeted approach may be further explored to have concrete impact.	The sector that is currently having a major impact on biodiversity is the fisheries sector. The sector that is a growing concern is tourism. Ports and Maritime traffic currently have a medium impact, and sectors that have a lesser impact at present are agriculture/ horticulture, mining and other industrial activities, but a precautionary approach is still warranted. Based on further consultation during project design, the project has narrowed the primary focus sectors to fisheries and tourism as these 2 sectors have the most relative impact. Other sectors that place limited pressure on the SCME (e.g., agriculture, mining, maritime traffic) will be considered under the land use zoning exercise to ensure that a precautionary approach is adopted.
The project framework should be further developed with measurable indicators and targets at the time of CEO endorsement.	The project framework has been further developed with measurable indicators.
1) Component 1 Sectoral Mainstreaming: - As the project support the development of the sustainable development plan for the area, it would be important to ensure that the multi-sectoral platform develops the capacity and	The committee will be supported by the Project Management Unit (to be set up under the project in the SCME) and, at a later stage, as the committee grows into its wider cross-sectoral coordination role, the project will consider the feasibility of establishing a trust/ foundation-type institution akin to the one being established under the Godavari project. The PMU will support the

Comments from GEFSEC Program Manager at the time of PIF approval	How these have been addressed in project design at the time of CEO Endorsement
<p>concrete action plan to implement the developed plan, and adequate activities to ensure such implementation, both institutional and financial capacity, needs to be incorporated in the project design.</p>	<p>stakeholder consultation committee in carrying out monitoring and evaluation of the project strategy, and will provide technical support. (Output 1.2)</p> <p>The project will also provide training and capacity building for supporting implementation of the EAF-based Fisheries Management Plan. Training will be provided to staff from the Fisheries Department and Forest Department, as well as to local representatives of the Maharashtra Maritime Board that oversees maritime traffic and ports, and the Coast Guard. The training program will cover issues related to (a) global biodiversity significance of the SCME; (b) impacts of current fishing practices on coastal and marine biodiversity and links with the long-term sustainability of the fisheries sector; (c) ecosystem approach to fisheries management; (d) national and state environmental regulatory framework with a primary emphasis on fisheries legislation and secondary emphasis on other environmental legislation that has an impact on fisheries such as CRZ Notification; (e) monitoring, control and surveillance of fishing activity (including accountability and reporting); (f) best practices in mainstreaming biodiversity considerations into fisheries sector drawing from experience in the Asia Pacific region and internationally; (g) methods for conflict resolution in natural resource use; (h) eco-certification issues and options for sustainable marine and coastal fishing. (Output 2.1)</p> <p>The project will also provide training and capacity building for implementation of the Sustainable Tourism Plan. Training will be provided to staff from MTDC, Forest Department, and the local tourism industry on issues related to (a) global biodiversity significance of the SCME; (b) impacts of current and projected tourism patterns on coastal and marine biodiversity and links with the long-term sustainability of the tourism product; (c) visitor carrying capacity of vulnerable areas such as the Angria Bank; (d) special requirements such as prohibiting visitation in certain areas during specified periods to minimize disturbance to vulnerable habitat, flora and fauna; (e) best practices in providing sustainable tourism services geared to the local tourism industry including sustainable design, resource use, waste management; (f) strategies for providing environmental interpretation services and guidance to tourists on responsible tourism behavior; (g) best practices in visitor management to minimize impacts on biodiversity; (h) certification issues and options for biodiversity-friendly tourism. (Output 2.2)</p> <p>Training will be provided to the Forest Department for implementation of the MMS Management Plan: (a) PA Management Planning; (b) Environmental Protection Laws and Acts; (c) Habitat improvement techniques with focus on marine biodiversity; (d) Business Planning (Financial Planning, Budgeting by Results); (e) Project Management (including operational planning); (f) Monitoring and Evaluation (including accountability and reporting); (g) Conservation of corals, mangrove forests; (h) Participatory governance systems for effective resource management in collaboration with local communities. (Output 2.3)</p>
<p>2) Component 2 Institutional Capacity development:- Capacity building initiatives may be required for both state/site based and at the national level to incorporate biodiversity conservation in the national program. A focused and cost effective training and capacity building initiatives need to be identified more clearly before CEO endorsement.</p>	<p>The project deploys training as a means to realizing different outputs. The scope of training under the project has been defined under the relevant outputs.</p>
<p>3) Component 3 Community based initiatives: - This component needs to be further defined with active participation of the communities in project design. Lessons could also be learnt from SGPs and IW demonstration projects.</p>	<p>The design of Outputs 3.1 and 3.2, which focus on community resource use, have drawn on direct discussions with community SHGs in the project area through a consultation workshop during project development. The fishing communities in the project area are one of the important stakeholders and historically they have had an adverse relationship with the sanctuary. Having said that, communities are pro-conservation and awareness level is high, but the opportunities to bring them on board in conservation initiatives need concerted efforts. Project implementation will place particular emphasis on this with the cross-sectoral stakeholder consultation committee taking a lead role.</p>
<p>It is important that concrete coordination mechanisms are identified with these initiatives, particularly with the WB's project on ICZM.</p>	<p>The implementation of the World Bank project is just beginning. Coordination with the WB project will primarily take place through the NPSC and NPMU. The lead national staff on the WB project will be invited to participate in the</p>

Comments from GEFSEC Program Manager at the time of PIF approval	How these have been addressed in project design at the time of CEO Endorsement
Lessons learned from these and other ongoing initiatives related to coastal and marine biodiversity management need to be compiled and used to develop further project design - by the time of CEO endorsement.	NPSC meetings. Further linkages will be maintained through the knowledge management system to be established under the Godavari project. The design of both the Sindhudurg and Godavari projects has been informed by the lessons emanating from the Gulf of Mannar project.
Further information is required at this stage on how this project will internally develop coordination mechanism with the overall program, including Godavari projects and other ongoing coastal and marine conservation projects, for wider impact and results.	<p>This project will ensure linkage to the overall program in the following ways:</p> <ol style="list-style-type: none"> <li>1) Through the NPMU that is common across the 2 projects and will maintain communication with other similar programmes/ projects in the country for ensuring synergy and initiating upstream policy engagements</li> <li>2) Knowledge products prepared under the Sindhudurg project (under Outputs 1.1, 2.1, 2.2) will feed in to the national knowledge management system being established under the Godavari project as a national resource on mainstreaming coastal and marine biodiversity conservation issues into production sector activities in sensitive coastal and marine areas</li> <li>3) Resources have also been allocated under Output 1.2 for encapsulating project lessons and experiences into training modules that will feed into the replication workshops planned under the Godavari project (for dissemination and replication of the project strategy among all other coastal states).</li> <li>4) Output 1.3 that reviews existing policies and guidelines of each sector to determine how they can be made more explicit and effective vis-à-vis the special requirements of ecologically sensitive coastal and marine areas will be carried out in close coordination with the similar output under the Godavari project. In some aspects a common approach will be needed, particularly for policies and guidelines that have national ramifications, and in other aspects a differentiated approach will be needed, especially pertaining to the State-specific policy framework.</li> <li>5) For facilitating cross-sectoral dialogue at the landscape level in the SCME, the project will be establishing a cross-sectoral stakeholder coordination committee. Unlike the Godavari project, wherein a Foundation is being proposed for such coordination, the conditions in the Sindhudurg area are not ripe for such a mechanism. However, as the committee grows into its wider cross-sectoral coordination role, the project will consider the feasibility of establishing a trust/ foundation-type institution akin to the one being established under the Godavari project and close coordination and communication will be maintained on this issue.</li> </ol>
Key risks are identified and their mitigation measures. During further development of the project design, these elements need to be further examined and integrated in the project design.	The Risks and Mitigation section has been further developed.

Comments from STAP on the PIF	How these have been addressed in project design at the time of CEO Endorsement
Regarding the proposal to develop certification of fishing production, STAP's guidance document on whether and how certification can lead to ecosystem use changes correlated with environmental services and biodiversity will be available in late 2009. The project design should take these guidelines into account if possible since neither the PIF nor the PFD for the umbrella program refer to any scientific evidence for certification being likely to be effective	To provide economic incentives to fishermen for complying with the EAF-based Fisheries Management Plan, the use of MSC certification will be assessed. If found appropriate, the project will support the Fisheries Department in pursuing certification in collaboration with MPEDA (Marine Products Exports Development Authority), SEAI (Seafoods Exports Association of India), as well as WWF-India which is supporting certification for small-scale fisheries. Candidate fisheries from the SCME will be identified for MSC certification. Certification of the fisheries would take place in two stages – Pre-assessment and Final Assessment (with the latter occurring only after the candidate fishery qualifies in a pre-assessment) to be undertaken by certification agencies accredited by MSC. The recent GEF-STAP report has highlighted the importance of monitoring the threats to the effectiveness of the certification programme and measuring the certification program's impacts (Environmental certification and the Global Environment Facility: A STAP Advisory Document, 2010). Resources will be allocated under the M&E system of the project to this end.
The need to strengthen understanding of the links between terrestrial and marine ecosystems and land use practices, especially the impact of agricultural run-off, is noted in paragraph 10 of the PIF. The full project document should provide detail on how these links will be evaluated within the project (or program).	It is said that approximately 25% of agricultural input applications (fertilizers, pesticides) finds its way to the sea as runoff and through riverine discharges. However, a full understanding of the impact of this on SCME's biodiversity is lacking. Further, there is a transformation taking place in the land use pattern of SCME (food crops being replaced by cash crops). This could have significant ecological and socio-economic impacts, in the medium and long-run, on the ecological profile of SCME. Under Output 1.1, a specific study will be undertaken to assess the impact of the current and changing agriculture patterns in the SCME.
Council member (Germany comments) on PIF	How these have been addressed in project design at the time of CEO Endorsement
We repeat the comment made to an earlier PIF of the same PA - In the document the challenge presented by climate change is considered a risk and not an integral part of the project concept. On the other hand the expected sea level rise among others will have considerable impacts on biodiversity and natural resource management and proposed measures should have the impacts of climate change in mind	The design of the project paid particular attention to the impacts of CC on the natural resources and livelihoods within the project area. Similar to its sister project (East Godavari river), the project strategy focuses on development of a landscape level plan that integrates climate change issues and includes identification of strategies to deal with CC impacts. Focusing heavily on the fisheries and tourism sector (identified as key threats to biodiversity in the area), the project will work towards rationalizing the current planning paradigm from a sector focused mechanism to one that is based on integrated planning and management. Development of the landscape level zoning plan (output 1.1) will consider the issue of CC impacts while development of the Ecosystem Approach to Fisheries (EAF) based sustainable fisheries plan (output 2.1) and the sustainable tourism plan (output 2.2) will inherently assess the CC impacts on these two sectors and integrate strategies to deal with such impacts. Output 2.3 envisages revised management planning for the Malvan Wildlife Sanctuary (MMS) that among other things includes conservation of corals, mangrove forests and improvement of governance of natural resources. This is expected to have significant CC mitigation potential while also contributing to conservation of important natural resources. Further, the projects focus on development of sustainable community livelihoods through support for traditional fishing practices and building capacity for conservation management (output 3.1) and implementation of a livelihood diversification strategy (output 3.2), the project will support reducing vulnerabilities of local communities to the impacts of CC. Thus, the project recognizes the risk and opportunities associated with climate change. In addition the project's efforts to reduce the impacts of production sectors will help mitigate the impacts from these and contribute towards enhancing the resilience of the ecosystem in the project area.

### RESPONSE TO COMMENTS BY GEFSEC (9 May 2011)

Comment	How this has been addressed
9. Is the project design sound, its framework consistent and sufficiently clear (in particular for the outputs)?  May 09, 2011 (IZavadsky): In principle yes,	The targets for indicators in the project's logframe have been developed through consultations with stakeholders during project design and are based on their best judgment on expected and realistic impacts of the project. Thus, a target of 50% of trawlers observing mesh size regulations by project end was judged as realistic. This target value will be verified and

Comment	How this has been addressed
<p>however some target values for outcomes 2 and 3 in the project results framework in Annex 1 seem not to be substantiated. In particular, what's the reasoning for targeting at 50% of trawlers follow the mesh size norms? Or an increase of amount of resources to local communities annulay from community based ecotourism activities from \$2.5 to \$5.0 mill? Would not be more appropriate to say that "the target to be defined after designn of the micro-plans", as in other indicators in the outcome 3?</p>	<p>confirmed during the project inception workshop. Similarly, an increase in resources accruing to local communities annually from ecotourism from USD 2.5 million to USD 5 million was estimated as a reasonable trajectory by local experts based on local conditions and the anticipated impact of project interventions in this regard. This target value will be verified and confirmed during the project inception workshop. Further, once micro-plans are developed, this particular target will be re-confirmed and modified as appropriate. A note to this effect has been added to the logframe. In addition, a general note has been added to the logframe table as follows: "All indicators, along with their baseline and target values will be verified and confirmed during the project inception workshop."</p>
<p>15. Does the project take into account potential major risks, including the consequences of climate change and includes sufficient risk mitigation measures?</p> <p>May 09, 2011 (IZavadsky): In principle yes but the a question arises why no risk is associated with implementing the 1983 regulation on mesh size, which zero level implentation is indicated in the results framework. Otherwise other risks and mitigation strategies are clearly articulated.</p>	<p>The 1983 regulation on mesh size is being implemented, but not effectively. The CEO Request had the phrase "Non-implementation of regulation related to mesh size and gear..." (page 18). This has been corrected to "Ineffective implementation...".</p> <p>Ineffective implementation of this regulation has been identified as one of the important threats to Sindhudurg's coastal and marine biodiversity and the project will undertake targeted activities to address this through Output 2.1 by not only developing a Sustainable Fisheries Management Plan, but also by strengthening implementation capacities within the Fisheries Department. This risk is implicit in the Risk table – "Fisheries and Tourism sector representatives may not be committed to implementing the EAF-based Fisheries Management Plan and the Sustainable Tourism Plan" (page 38; 4<sup>th</sup> risk from the top). More explicit language has been added on the mesh-size regulation.</p>
<p>20.Is the GEF funding level of other cost items (consultants, travel, etc.) appropriate?</p> <p>May 09, 2011 (IZavadsky): No, the rate for international consultant of \$3,500/week is not justified. GEF normally approves there rates below \$3,500/week. In addition, the table F does not distinc consultants inputs between internationa and national ones, please provide information according the template for this table.</p>	<p>The rate for the international independent evaluation consultant was estimated at USD 500 per day. However this was then wrongly converted to a weekly rate of 3,500 by multiplying by 7. This has now been corrected (USD 2500 per week; 5 days per week) but the total number of days (70) has been maintained thus increasing the number of weeks to 14.</p> <p>All personnel inputs indicated in Table F (Project Management Budget) are local persons. This has been clarified in the table.</p>
<p>22.Are the confirmed co-financing amounts adequate for each project component?</p> <p>May 09, 2011 (IZavadsky): Yes, but in Annex E totals for outcomes 1 and 2 are different from the values in Table A: project framework - \$346,199 v. \$386,200 and \$1,575,500v \$1,535,500. Pleaase provide explanation or correct.</p>	<p>This was an error in Annex E, which has now been corrected.</p>

**ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT USING GEF RESOURCES AND COFINANCING**

Position Titles	\$/ person week	Estimated person weeks	Tasks to be performed
<b>For Project Management (only local/ no international consultants)</b>			
<b>Local</b>			
Project Coordinator	350	216	<p>Assist the SPD in supervising and coordinating the project to ensure that its results are in accordance with the Project Document and the rules and procedures established S/he shall report to the State Project Director or the officer delegated by him for the implementation of the project.</p> <p>PC shall assume the primary responsibility for daily project management in the State - both organizational and substantive matters – budgeting, planning and general monitoring; ensure adequate information flow, discussions and feedback among the various stakeholders of the project;</p> <p>PC shall ensure adherence to the project’s work plan, prepare proposals for revisions of the work plan, if required; assume overall responsibility for the proper handling of logistics related to project workshops and events in the state;</p> <p>PC shall prepare GEF progress reports for onward submission to NPMU as well as any other reports requested by the SPD, NPD and NPMU.</p> <p>PC shall provide logistics to the work of consultants and subcontractors and oversee compliance with the agreed work plan; maintain regular contact with NPMU, LLPMU, other stake holders and the State Project Director on project implementation issues; PC shall monitor the expenditures, commitments and balance of funds under the project budget lines, and draft project budget revisions; assume overall responsibility for meeting financial delivery targets set out in the agreed AWP, reporting on project funds and related record keeping; liaise with project partners to ensure their co-financing contributions are provided within the agreed terms; ensure collection of relevant data necessary to monitor progress against indicators specified in the logframe;</p> <p>PC shall assume overall responsibility for reporting on project progress vis-à-vis indicators in the logframe and undertake any other actions related to the project as requested by SPD.</p>
Financial cum Administrative Assistant	200	216	<p>FAA shall assist the LLPMU in the overall administrative and financial matters of the project at the State level.</p> <p>FAA shall be responsible for all administrative (contractual, organizational and logistical) and accounting (disbursements, record-keeping, cash management) matters under the project.</p> <p>FAA will be responsible for preparing periodic financial statements and compiling the annual project activities and achievement of planned project outputs.</p> <p>FAA shall provide general administrative and financial support to the project so as to ensure the smooth running of the landscape level project management unit; provide logistical support to the project staff and consultants in conducting different project activities;</p> <p>FAA shall monitor the budget expenditures by preparing payment documents, and compiling financial reports; maintain the project’s disbursement ledger and journal; keep files with project documents, expert reports; control the usage of non expendable equipment (record keeping, drawing up regular inventories);</p> <p>FAA shall draft and finalize correspondence of administrative nature; arrange duty travel; fax, post and e-mail transmissions, and co-ordinate appointments;</p> <p>FAA shall also perform any other administrative/financial duties as required under the project and organize and coordinate the procurement of services and goods under the project.</p>
Office Assistants (2)	75	216 (each)	<p>Assist the LLPMU in the effective implementation of the project.</p> <p>Provide all logistic support to LLPMU on drafting, computer assistance, file management, registry, arranging meetings, etc.</p> <p>S/he shall report to the Conservator of Forests in charge of MMS and will be part of LLPMU.</p>
<b>For Technical Assistance</b>			
<b>Local</b>			
Conservation Biologist (CB)	250	200	<p>CB will provide technical support to project implementation at the landscape level particularly in the effective and quality delivery of conservation related activities.</p> <p>CB shall assist the other technical specialists in the preparation of Landscape level Plan, Sector Plans, all research studies related to biodiversity, climate change, etc.</p> <p>CB shall assist the FD in the revision of the Management Plan of MMS and its implementation.</p> <p>CB shall undertake the capacity building training programme of the conservation sector.</p> <p>CB shall assist the other specialists in the preparation of Natural Resource Plan, village</p>

Position Titles	\$/ person week	Estimated person weeks	Tasks to be performed
			<p>micro-plans, etc</p> <p>CB shall undertake ecological monitoring as envisaged in the project</p> <p>CB shall provide technical support to the LLPMU and other project Consultants in coordinating and conducting different project activities related to conservation sector (trainings, workshops, stakeholder consultations, arrangements of study tour, etc.)</p> <p>CB shall advise the LLPMU in coordinating with the State Government, Consultants, other relevant agencies and stakeholders on the implementation of the project on technical matters related to conservation sector.</p> <p>CB shall keep regular contact with project experts and Consultants to inform them about the project technical details and changes and shall also review the reports and other documents for technical content with respect to conservation sector.</p> <p>S/he will also provide technical support to the development, implementation and/or evaluation of the project activities in the focal area.</p> <p>CB shall work under the overall guidance and supervision of the Conservator in charge of MMS and be part of the LLPMU.</p>
Socio-economic and Livelihood Specialist (SELS)	250	200	<p>SELS will provide technical support to project implementation at the landscape level particularly in the effective and quality delivery of socio-economic/ livelihood activities. SELS shall assist the technical specialists in the preparation of Landscape level Plan, Sector Plans, all research studies related to biodiversity, climate change, etc.</p> <p>SELS shall conduct frequent socio-economic monitoring of the project area with a view to generate analytical information about the project implementation.</p> <p>SELS shall provide technical support to the LLPMU and other project consultants in coordinating and conducting different project activities related to socio-economic sector (trainings, workshops, stakeholder consultations, arrangements of study tour, etc.)</p> <p>SELS shall assist the FD in the revision of the Management Plan of MMS and its implementation.</p> <p>SELS shall undertake the capacity building training programme of the livelihood sector. SELS shall assist the specialists in the preparation of Natural Resource Plan, micro-plans. SELS shall advise the LLPMU in coordinating with the State Government, Consultants, other relevant agencies and stakeholders on technical matters related to implementation of the project with respect to socio-economic sector.</p> <p>SELS shall keep regular contact with project experts and consultants to inform them about the project technical details and changes and shall also review the reports and other documents for technical content with respect to socio-economic sector.</p> <p>S/he will also provide support to the development, implementation and/or evaluation of the project activities in the focal area.</p> <p>SELS will be responsible for advising project partners on the suitability of activities, livelihood strategies, policy change measures etc.</p> <p>CB shall work under the overall guidance and supervision of the Conservator in charge of MMS and be part of the LLPMU.</p>
Communication and Outreach Specialist (COS)	250	200	<p>COS will provide technical support to project implementation in the landscape particularly in ensuring cross-sectoral coordination, participation of various stakeholders (including the production sectors), etc in project activities and effective and quality delivery of communication and outreach activities. .</p> <p>COS shall be focusing primarily on stakeholder engagement, particularly production sectors in the project umbrella.</p> <p>COS shall provide technical support to the LLPMU and other project consultants in developing proper communication strategy while conducting different project activities (trainings, workshops, stakeholder consultations, arrangements of study tour, preparation of knowledge products, etc.)</p> <p>COS shall advise the LLPMU in coordinating with the State Government, Consultants, other relevant agencies and stakeholders on the implementation of the project with respect to communication and outreach activities.</p> <p>COS shall keep regular contact with project experts and consultants to inform them about the project details and changes and shall also review the reports and other documents for correctness of form and content.</p> <p>S/he will also provide support to the development, implementation and/or evaluation of the project activities in the focal area.</p> <p>CB shall work under the overall guidance and supervision of the Conservator of Forests in charge of MMS and be part of the LLPMU.</p>
Lead Specialist on Preparation of the Landscape Plan	700	20	Lead Specialist shall prepare the Landscape Plan for SCME
Local consultants for	700	120	They shall undertake various diagnostic studies for generating information for the

Position Titles	\$/ person week	Estimated person weeks	Tasks to be performed
undertaking diagnostic studies in support of the LP			development of the Landscape Plan such as such as (a) comprehensive biodiversity profiling and mapping of SCME, particularly the MMS and Angria Bank; (b) economic assessment of ecosystem goods and services of the SCME in general and the Malvan Marine Sanctuary and Angria Bank in particular; (c) impact of land use practices, especially agricultural run-off, on the SCME; (d) impacts of maritime traffic in the SCME on coastal and marine biodiversity; (e) impacts of climate change on coastal and marine resource of the SCME; and (f) a financial sustainability strategy for the LP that will look at a mix of approaches such as re-alignment of existing government budgetary resources, re-allocation of user fees generated within the conservation and production sectors to conservation of the resource base on which these sectors depend, and/ or mobilizing new resources to mainstream biodiversity conservation considerations in the SCME.
Consultant for independent mid term evaluation	700	6	Will work in collaboration with the international consultant hired for this purpose; TORs will be developed in line with GEF and UNDP requirements.
Consultant for independent final evaluation	700	6	Will work in collaboration with the international consultant hired for this purpose; TORs will be developed in line with GEF and UNDP requirements.
Local Consultants for yearly audit	500	20	Carry out annual audit in line with UNDP regulations.
Local Consultant for developing an M&E system	700	20	M&E Specialist shall develop the M&E system for the project and help monitor the project processes.
Environmental Law Specialist	700	15	Law Specialist shall review existing fisheries and conservation sector legislation relevant to the SCME and shall make recommendations for strengthening this legislation to better incorporate coastal and marine biodiversity conservation considerations.
Local specialist for development of the EAF-based Fisheries Management Plan	700	20	Fisheries Sector Specialist shall lead the preparation of the Fisheries Management plan.
Local consultant for diagnostic studies to support development of the Fisheries Management Plan (FMP)	700	30	They shall undertake various diagnostic studies for generating information for the development of the Fisheries Management Plan such as (a) the assessment of relative impacts of trawlers from within SCME versus those that come from outside to fish in the SCME; (b) assessment of relative impact of trawlers using Persian nets; (c) assessment of fisheries potential/ carrying capacity in the SCME (for territorial waters and for the EEZ) to establish appropriate fishing quotas so that fishing intensity does not lead to collapse of fisheries. The findings of these assessments will inform development of the FMP.
Local training specialists	700	25	Will lead training efforts of the project to ensure that relevant stakeholders have the capacity to implement the FMP.
Local specialist on Sustainable Tourism Management	700	10	Sector Specialist shall lead the preparation of the Tourism Management plan.
Local consultants for diagnostic studies in support of the Sustainable Tourism Plan	700	20	They shall undertake various diagnostic studies for generating information for the development of the Fisheries Management Plan such as (a) assessment of visitor patterns, interests and existing infrastructure; and (b) the impacts of current and projected levels of beach, cultural and ecotourism on biodiversity
Local training specialists	700	25	Will lead training efforts of the project to ensure that relevant stakeholders have the capacity to implement the Sustainable Tourism Plan.
<b>International</b>			
International Consultant (cost of independent final evaluation)	2500	8	The international Evaluation Expert will lead the final evaluation. He/she will work with the local evaluation consultant in order to assess the project progress, achievement of results and impacts. The project evaluation specialists will develop draft evaluation report, discuss it with the project team, government and UNDP, and as necessary participate in discussions to extract lessons for UNDP and GEF. The standard UNDP/GEF project evaluation TOR will be used.
International Consultant (cost of independent mid term evaluation)	2500	6	The international Evaluation Expert will lead the mid-term evaluation. He/she will work with the local evaluation consultant in order to assess the project progress, achievement of results and impacts. The project evaluation specialists will develop draft evaluation report, discuss it with the project team, government and UNDP, and as necessary participate in discussions to extract lessons for UNDP and GEF. The standard UNDP/GEF project evaluation TOR will be used.

**ANNEX D: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS**

(Not applicable because no PPG funds were requested from the GEF)

**ANNEX E: TOTAL BUDGET AND WORK PLAN**

Award ID:	00058538
Award Title:	PIMS 4242 Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the East Sindhudurg Coast
Business Unit:	IND10
Project Title:	Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Sindhudurg Coast
Implementing Partner (Executing Agency)	Ministry of Environment & Forests (MoEF), Government of India / Wildlife Wing, Maharashtra Forest Department, State Government of Maharashtra.

GEF Outcome/Atlas Activity	Responsible Party/Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Total	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Note
<b>Outcome 1</b>	MoEF/GoM/UNDP	62000	GEF	71300	Local consultants	179,900	44,975	44,975	44,975	22,488	22,488	1
Sectoral planning in the EGREE mainstreams biodiversity conservation considerations				71200	International Consultants	35,000	0	0	14,000	0	21,000	2
				72100	Contractual Services-Companies	57,000	7,000	0	3,000	3,000	4,000	3
				71600	Travel	53,800	10,760	10,760	10,760	10,760	10,760	4
				74500	Meetings and Consultations	23,500	4,700	4,700	4,700	4,700	4,700	5
				74200	Audio-visual and printing production costs	37,000	3,700	7,770	8,140	8,510	8,880	6
					<b>TOTAL OUTCOME 1</b>	<b>386,200</b>	<b>71,135</b>	<b>68,205</b>	<b>85,575</b>	<b>49,458</b>	<b>71,828</b>	
<b>Outcome 2</b>	MoEF/GoM/UNDP	62000	GEF	71300	Local consultants	160,000	40,000	40,000	40,000	20,000	20,000	7
Enhanced capacity of sector institutions for implementing biodiversity-friendly fisheries management plan, ecotourism management plan and MMS management plan				72100	Contractual Services-Companies	1,200,000	0	124,000	372,000	372,000	372,000	8
				71600	Travel	53,500	10,700	10,700	10,700	10,700	10,700	9
				74500	Meetings and Consultations	76,000	15,200	15,200	15,200	15,200	15,200	10
				74200	Audio-visual and printing production costs	46,000	4,600	9,660	10,120	10,580	11,040	11
					<b>TOTAL OUTCOME 2</b>	<b>1,535,500</b>	<b>70,500</b>	<b>199,560</b>	<b>448,020</b>	<b>428,480</b>	<b>428,940</b>	
<b>Outcome 3</b>	MoEF/GoM/UNDP	62000	GEF	71300	Local consultants	54,000	13,500	13,500	13,500	6,750	6,750	12
Sustainable community livelihoods and natural resource use				72100	Contractual Services-Companies	1,210,000	0	121,000	363,000	363,000	363,000	13
				71600	Travel	15,000	1,500	3,150	3,300	3,450	3,600	14
				74500	Meetings and Consultations	10,000	1,000	2,100	2,200	2,300	2,400	15
				74200	Audio-visual and printing production costs	15,000	1,500	3,150	3,300	3,450	3,600	16
					<b>TOTAL OUTCOME 3</b>	<b>1,304,000</b>	<b>17,500</b>	<b>142,900</b>	<b>385,300</b>	<b>378,950</b>	<b>379,350</b>	
Project Mngmt	MoEF/GoM/UNDP	62000	GEF	71400	Project Coordinator (LLPMU)	75,600	15,120	15,120	15,120	15,120	15,120	17
				71400	Financial cum Admin Assistant (LLPMU)	43,200	8,640	8,640	8,640	8,640	8,640	18
				71400	Office Assistants (LLPMU)	32,400	6,480	6,480	6,480	6,480	6,480	19

				72400	Office facilities, equipment and communications (LLPMU)	18,394	3,679	3,679	3,679	3,679	3,679	20
				71600	Travel (for NPMU to visit project site)	18,000	3,600	3,600	3,600	3,600	3,600	21
				71600	Travel (local for LLPMU)	25,000	5,000	5,000	5,000	5,000	5,000	22
					<b>TOTAL PROJECT MANAGEMENT</b>	<b>212,595</b>	<b>42,519</b>	<b>42,519</b>	<b>42,519</b>	<b>42,519</b>	<b>42,519</b>	
					<b>TOTAL GEF ALLOCATION</b>	<b>3,438,294</b>	<b>201,654</b>	<b>453,184</b>	<b>961,414</b>	<b>899,406</b>	<b>922,636</b>	

Budget Note	Explanation
1	This includes the services of Conservation Biologist, Socio-economic and Livelihood Expert, Communication and Outreach Expert, Lead Specialist on Preparation of the landscape-level zoning plan, local consultants for various diagnostic studies to support preparation of the zoning plan, Law Specialist, local consultant to carry out the independent mid term evaluation and the independent final evaluation; and local consultants for audit and M&E support. Annex C of CEO Request/ Annex 8 of Prodoc provides details on total weeks, weekly rate and terms of reference for these consultants.
2	This includes the services of Evaluation Experts for the mid-term and final evaluations. Annex C of CEO Request/ Annex 8 of Prodoc provides details on total weeks, weekly rate and terms of reference for these consultants.
3	This is the cost of organizing the inception workshop of the project (estimated at \$ 7 000); a sub-contract for undertaking M&E of impacts of eco-certification activities (estimated at \$ 10 000) should these be undertaken under the project; and for encapsulating project lessons and experiences into training modules that will feed into the replication workshops planned under the Godavari project (for dissemination and replication of the project strategy among all other coastal states).
4	This covers travel within India for the Conservation Biologist, Socio-economic and Livelihoods Specialist, and Communication and Outreach Specialist to provide technical support for outputs 1.1 through 1.3, travel related to preparation of the landscape-level zoning Plan, travel related to diagnostic studies, and travel for carrying out the independent evaluations of the project.
5	This is the cost of various meetings and consultations for realizing outputs 1.1 through 1.3. The average cost per consultation is estimated at USD500 per meeting/ consultation.
6	Cost of publications and other materials that will be used for awareness-raising and information dissemination activities related to Outcome 1.
7	This includes the services of a fisheries sector specialist; Conservation Biologist; Socio-economic and Livelihood Expert; Communication and Outreach Expert. Annex C of CEO Request/ Annex 8 of Prodoc provides details on total weeks, weekly rate and terms of reference for these consultants.
8	This includes subcontracts for supporting implementation of select activities under the Fisheries Management Plan, Sustainable Tourism Management Plan, MMS Management Plan and associated training for effective implementation of these plans. For example, in the fisheries sector these are likely to include identification and use of biodiversity friendly nets, other fishing gear and tools (e.g. turtle exclusion device), adherence to zoning and seasonal fishing regulations, assessment of carrying capacity and limits of sustainable fish catch, protection of fish nurseries and brooding stock and juveniles, value addition of raw fish products, etc. Examples for the MMS MP include eco-restoration, control of poaching activity, capacity development of enforcement personnel and local community members, participatory resource management, provision of better equipments, strengthening wildlife research, education and nature awareness; strengthening of infrastructure; wildlife veterinary care; staff welfare activities; ecodevelopment and community oriented activities; fostering ecotourism, etc.
9	This includes domestic travel to the project site for the various experts and specialists involved in different outputs under Outcome 2.
10	This is the cost of various meetings and consultations for realizing outputs 2.1 to 2.3. The average cost per consultation is estimated at USD 500 per meeting/ consultation.
11	Cost of publications and other materials that will be used for training, awareness-raising and information dissemination activities related to Outcome 2.
12	This includes the services of the Conservation Biologist, Socio-economic and Livelihood Expert, and Communication and Outreach Expert for developing community capacities for maintaining traditional fishing practices and for conservation management; services for community-level capacity development for identifying and implementing alternative livelihood opportunities. Annex C of CEO Request/ Annex 8 of Prodoc provides details on total weeks, weekly rate and terms of reference for these consultants.
13	This is the cost of subcontracts for organizing training workshops for the communities and for supporting CBOs with the implementation of the livelihoods diversification strategies that may include activities such as: Fish products processing (Drying of fish; crab fattening, ornamental fish breeding in lean season, frozen sea food/ processing; promotion of Malvani cuisine such as prawn pickles and fish curry through SHGs; fish meal processing; sale of fish processing waste as fertilizer); Promotion of community-based ecotourism (guides, home stays, snorkeling/ scuba diving guides trained from among youth in fishing communities); Horticulture (introduction of vegetables, value addition of horticulture produce, cashew, mango); Medicinal plants; Sericulture; Apiculture.
14	Cost of travel of local specialists related to Outcome 3.
15	This is the cost of various local meetings and consultations with local communities for realizing outputs 3.1 and 3.2. The average cost per consultation is estimated at USD 25 per meeting/ consultation.
16	Cost of publications and other materials that will be used for training, awareness-raising and information dissemination activities related to Outcome 3.
17	Annex C of CEO Request/ Annex 8 of Prodoc provides details on total weeks, weekly rate and terms of reference for this consultant.
18	Annex C of CEO Request/ Annex 8 of Prodoc provides details on total weeks, weekly rate and terms of reference for this consultant.
19	Annex C of CEO Request/ Annex 8 of Prodoc provides details on total weeks, weekly rate and terms of reference for this consultant.

Budget Note	Explanation
20	Facilities and communications (internet, landlines, cell phone service) for management purposes
21	Management-related travel to project site for staff in the NPMU (estimated 30 trips @ 600 each)
22	Management-related travel to project site for staff in the SPMU (estimated 250 trips at 100 each)

**Summary of Funds:**

Name of Cofinancier (Source)	Classification	Type	Amount (\$)	Y1	Y2	Y3	Y4	Y5
Government of Maharashtra	Confirmed with letter	Cash (partner-managed)	12,000,000	1,500,000	1,500,000	3,000,000	3,000,000	3,000,000
			<b>12,000,000</b>	<b>1,500,000</b>	<b>1,500,000</b>	<b>3,000,000</b>	<b>3,000,000</b>	<b>3,000,000</b>
<b>Total Cofinancing</b>								

(Letters formalizing cofinancing agreements are in Annex 7 of the UNDP Project Document.)

**Outcome/ Output Budget:**

OUTCOME	OUTPUT		BUDGET (GEF resources, USD)
Outcome 1: Cross-sectoral planning framework that mainstreams biodiversity conservation considerations	Output 1.1	Landscape-level Zoning and Management Plan	195,000
	Output 1.2	Establishment of a formal stakeholder consultation committee for cross-sectoral engagement and action	163,700
	Output 1.3	Recommendations for strengthening fisheries legislation and conservation sector legislation to better incorporate coastal and marine biodiversity conservation considerations	27,500
Sub total Outcome 1			386,200
Outcome 2: Enhanced capacity of sector institutions for implementing biodiversity-friendly fisheries management plan, ecotourism management plan and MMS management plan	Output 2.1	Implementation of sustainable fisheries management based on an ecosystem approach	641,000
	Output 2.2	Implementation of sustainable tourism that mainstreams biodiversity considerations	311,000
	Output 2.3	Strengthened management effectiveness of the Malvan Marine Sanctuary	583,500
Sub total Outcome 2			1,535,500
Outcome 3: Sustainable community livelihoods and natural resource use in the SCME	Output 3.1	Support for traditional fishing practices and capacity building for conservation management	112,000
	Output 3.2	Implementation of livelihood diversification strategy and related socio-economic interventions based on market and community needs	1,192,000
Sub total Outcome 3			1,304,000
Sub Total Project Management			212,594
<b>GRAND TOTAL</b>			<b>3,438,294</b>