

95317

United Nations Development Programme
Country: India
PROJECT DOCUMENT



Project Title:

Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Sindhudurg Coast, Maharashtra, India
UNDAF Outcome 4: By 2012, the most vulnerable, including women and girls, and government at all levels have enhanced abilities to prepare, respond, and adapt/recover from sudden and slow onset of disasters and environmental changes.
#4.1. Mainstreaming environment and energy

UNDAF Outcome(s)/ Indicator(s):

UNDP Strategic Plan Environment and Sustainable Development

Primary Outcome:

Expected CPAP Outcome(s)/ Output/ Indicator(s):

Outcome 4.3: Progress towards meeting national commitments under multilateral environmental agreements;
Output 4.3.2: National efforts supported towards conservation and management of natural resources (Indicator: Number of new joint initiatives undertaken for integrated biodiversity conservation)
Ministry of Environment & Forests, Government of India/ Wildlife Wing, Revenue and Forest Department, Government of Maharashtra

Implementing Partner/
Responsible Partner:

Brief Description: The Sindhudurg Coastal and Marine Ecosystem (SCME), located on the west coast of India (Maharashtra) is one of the 11 ecologically and economically critical habitats identified along the Indian coast. Critical habitats include: rocky shore, sandy shore, rocky island, estuaries, mud flats, marshy land, mangroves, coral reefs, and sargassum forests. There are 367 species of marine flora and fauna reported from the area which include 73 species of marine algae, 18 species of sea anemones and 74 species of fishes. Globally significant species include Whale shark, Indo-pacific humpback dolphins, Olive Ridley, Green and Leatherback turtles, and corals. Avifauna presents 121 species including 24 true migrants. Vengurla Rock is an Important Bird Area (IBA). The area has a rich repository of corals, with the recent discovery of a large coral area in Angria Bank. Due to its high ecological importance, 29.12 sq. km of SCME was designated as the Malvan Marine Sanctuary (MMS) in 1987 and is one of seven marine Protected Areas in India. SCME has enormous economic significance as well, being one of the major fish landing centers, and as a rapidly emerging tourism destination. The primary drivers of ecosystem degradation in the SCME include unsustainable fishing by trawlers, an expanding tourism sector, and pollution from fishing vessels and other maritime traffic. Agrochemical and industrial pollution are relatively limited at present but a precautionary approach is warranted, and climate change poses an impending threat. The existing institutional arrangement in the SCME is inadequate in addressing these issues from a landscape perspective. The UNDP-GEF intervention aims to address this through the following outcomes: (1) Cross-sectoral planning framework that mainstreams biodiversity conservation; (2) Enhanced capacity of sector institutions for implementing biodiversity-friendly fisheries management plan, ecotourism management plan and MMS management plan; and (3) Sustainable community livelihoods and natural resource use. By the project end, it is envisioned that production activities in at least 6,327 sq. km of SCME mainstream biodiversity conservation objectives, in turn improving the conservation prospects of critical species and ecosystems, apart from contributing to the sustainable development of the region.

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UNDP-managed	
o GEF	US\$ 3,438,294

Agreed by Implementing Partner (Government of India): P. Praveen Pardeshi 11/8/11
NAME: _____ SIGNATURE: _____ Date/Month/Year: _____
(PRAKRITI SRIVASTAVA)
Dy. Inspector General (WL)

Agreed by Responsible Party (Government of Maharashtra): Praveen Pardeshi
NAME: _____ SIGNATURE: _____ Date/Month/Year: _____
Govt. of India, New Delhi
(Praveen Pardeshi)
Principal Secretary (Forests)

Agreed by (UNDP): Caitlin Wiesen
NAME: _____ SIGNATURE: _____ Date/Month/Year: _____
27 Oct. 2011
Revenue & Forest Department
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Caitlin Wiesen
UNDP Country Director

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ACRONYMS AND ABBREVIATIONS

APR	Annual Project Review
ASI	Archaeological Survey of India
ATLAS	UNDP's Enterprise Resources Platform
AWP	Annual Work Plan
CB	Conservation Biologist
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CDR	Combined Delivery Report
CMFRI	Central Marine Fisheries Research Institute, Kochi, India
CO	Country Office
COS	Communication and Outreach Specialist
CP	(UNDP) Country Programme
CPAP	(UNDP) Country Programme Action Plan
CPCB	Central Pollution Control Board
CRZ	Coastal Regulation Zone
CTCT	Community to Community Training
CZMP	Coastal Zone Management Plan
DOD	Department of Ocean Development
DOF	Department of Fisheries
EAF	Ecosystem Approach to Fisheries
EDC	Eco-Development Committee
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EPA	Environmental (Protection) Act, 1986
FAA	Financial and Administrative Assistant
FAO	Food and Agriculture Organization
FD	Forest Department
FMP	Fisheries Management Plan
FSI	Forest Survey of India
GDP	Gross Domestic Product
GEF	Global Environment Facility
GoI	Government of India
Ha	Hectares
IAS	Invasive Alien Species
IBA	Important Bird Area
ICMAM	Integrated Coastal and Marine Area Management
ICZM	Integrated Coastal Zone Management
IGCMP	India GEF Coastal and Marine Programme
INC	Initial National Communication
INR	Indian Rupees
IP	Implementing Partner
IPCC	Inter-governmental Panel on Climate Change
IR	Inception Report
IUCN	World Conservation Union
IW	Inception Workshop
JFM	Joint Forest Management
Km	kilometers
LLPMU	Landscape-Level Project Management Unit
LP	Landscape Plan
LPAC	Local Project Appraisal Committee
M&E	Monitoring and Evaluation
MCZMA	Maharashtra Coastal Zone Management Authority
MFD	Maharashtra Forest Department
MFRA	Marine Fishing Regulation Act
MMB	Maharashtra Maritime Board
MMS	Malvan Marine Sanctuary
MoEF	Ministry of Environment and Forests
MOU	Memorandum of Understanding

MPA	Marine Protected Area
MPCB	Maharashtra Pollution Control Board
MTDC	Maharashtra Tourism Development Corporation
NBAP	National Biodiversity Action Plan
NGO	Non-government Organization
NIO	National Institute of Oceanography
NPD	National Project Director
NPMU	National Project Management Unit
PA	Project Associate
PAs	Protected Areas
PC	Project Coordinator
PCCF	Principal Chief Conservator of Forests
PIMS	Project Information Management System
PIR	Project Implementation Review
PM	Project Manager
PMU	Project Management Unit
PPG	Project Preparation Grant
PRIs	Panchayati Raj Institutions
PSC	Project Steering Committee
RCU	Regional Coordination Unit
SBAA	Standard Basic Assistance Agreement
SCME	Sindhudurg Coastal and Marine Ecosystem
SE	Subject Expert
SELS	Socio-economic and Livelihoods Specialist
SHG	Self-Help Group
SO-2	(GEF's) Strategic Objective 2 (under the Biodiversity Focal Area)
sp	species
SPD	State Project Director
SPMU	State Project Management Unit
SPSC	State Project Steering Committee
SRF	Strategic Results Framework
TAG	Technical Advisory Group
TOR	Terms of Reference
TPR	Tri-partite Review
TTR	Terminal Tri-partite Review
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNDP-CO	United Nations Development Programme – Country Office
UNDP-GEF	United Nations Development Programme – Global Environment Facility Unit
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
VLI	Village Level Institutions
VSS	Van Samrakshana Samiti
WII	Wildlife Institute of India

1. SITUATION ANALYSIS

Part 1A: Context

1.1 *Geographic and biodiversity context*

1. 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.

2. 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 diversity¹. The state has a coastline (720 km; 9% of India's coastline) that extends from Dahanu and Bordi 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.

3. Towards the southern end of Maharashtra's coastline lies the Sindhudurg coastal district. Situated between latitudes 15^o37 and 16^o40 north and longitudes 73^o19 and 74^o18 east, Sindhudurg district is bordered by the Arabian Sea on the West and the Sahayadri 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 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.

4. 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 1947². 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

¹ 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).

² MacDonal, 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.

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.

5. 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, *Waghotan*, *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.

6. 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.) 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) site³ and has a good population of edible-nest swiftlet (*Aerodramus fuciphagus*).

7. 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 Mahatma Gandhi Marine National Park and the Rani Jhnasi Marine National Park (Andaman & Nicobar islands) and the Gahirmatha National Park (Orissa)⁴.

8. 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.,

³ Important Bird Area (IBA) is an area recognized as being globally important habitat for the conservation of bird populations. (Birdlife International)

⁴ <http://pib.nic.in/release/release.asp?relid=32348>

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.

9. 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 reports⁵. 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.⁶

10. 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.⁷ 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.⁸

11. 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

⁵ 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.

⁶ Vora, K.H and Almeida, F. Marine Geology, 91 (1990) 255—262

⁷ Kher, S., Coral ecosystems of India’s west coast, 2008

⁸ RBS Sewell, 1994, ‘Geographic and Oceanographic Research in Indian Waters’, Science

March, a large number of fish larvae and eggs were observed indicating that the Angria Bank is a rich spawning ground for several fish species.⁹ 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 boats¹⁰.

1.2 Demographic and socio-economic context

12. 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.¹¹

13. 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 3rd largest producer of fish in the world) and harbors, aquaculture, agriculture, tourism, oil and mineral exploitation – contribute about 10% of the national GDP¹².

14. Estimates of potential fishery resources from the EEZ of India are about 3.5 to 4.7 mt (million tonnes)¹³. The recent estimates on annual marine landings from the Indian coast show that they fluctuate between 2.2 and 2.8 mt¹⁴. 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 tonnes¹⁵.

15. 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). The total population of the project area is estimated at 400,000 persons¹⁶. 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 for the demographic details.)

16. 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.

⁹ Sagar Sampada, Cruise highlights 1985-86, CMFRI publication

¹⁰ Personal communication (Dr. Chapgar, Bombay Natural History Society)

¹¹ World Bank Project Appraisal Document, Integrated Coastal Zone Management Project, May 14, 2010

¹² From various publications of Planning Commission, Government of India

¹³ 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.

¹⁴ Central Marine Fisheries Research Institute (CMFRI), *Mar. Fish. Infor. Serv.*, Technical and Extension series, 1995, vol. 136

¹⁵ Maharashtra Fisheries Department Statistics

¹⁶ Census Report 2001, the Maharashtra Government's Decadal Growth Projection and Census 2003, Department of fisheries, Maharashtra

Fisheries sector

17. 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 Malvan and Anandwadi (38.4% and 26.2% of the total fish production of the district, respectively).

18. 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 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.)

19. 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.

20. 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*.

21. 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 vessels¹⁷ 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*¹⁸ are the traditional fishing gear used in the region.

Tourism Sector

¹⁷ 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.

¹⁸ 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.

22. 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 circuit¹⁹.

23. Annual tourist inflow to Sindhudurg district stands at more than 700,000 in 2010 as compared to 100,000 in 2006²⁰. 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.

24. 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 are involved in/ benefiting from tourism. The estimated annual earning by local people on account of tourism is about USD 2.5 million²¹. Main beneficiaries are coastal communities that were earlier engaged in fishing.

Ports and Maritime Traffic

25. 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.

26. 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

27. 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.

¹⁹ Maharashtra development report, 2004

²⁰ The only record of numbers is of tourists visiting Sindhudurg Fort.

²¹ Estimated through local consultations

28. 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

29. 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.²² 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.

1.3 Legislative, policy, and institutional context

Policies and legislation

30. 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”).
- **Concurrent List:** forests and wildlife conservation; shipping and navigation on inland waterways with mechanically propelled vessels; and factories.²³

31. 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 India²⁴.

Table1.: 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

²² District Disaster Management Plan: Sindhudurg (updated in May 2010)

²³ When a central law conflicts with a state law on a subject in the concurrent list, the former prevails.

²⁴ Annual Report, Ministry of Environment and Forests, India, 2008-09.

Convention/ Treaty	Year effective	Year signed and enforced
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

32. 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 for more details).

Table2.: National policies relevant to coastal and marine biodiversity conservation

National Policy	Main features
National Wildlife Action Plan, 1983	<ul style="list-style-type: none"> - Outlines the strategies and action points for wildlife conservation - Revised in 1988 after the formulation of the National Forest Policy. - Categorical with respect to strengthening PA management (both marine and non marine), conservation of biological diversity especially critical species, and peoples' participation in planning - 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
National Water Policy, 1987, 2002	<ul style="list-style-type: none"> - Reaffirms the objective of maintaining the quality of surface and ground water - Control of pollution and periodical monitoring of water quality
National Forest Policy, 1988	<ul style="list-style-type: none"> - Ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which is vital for sustenance of all life forms, human, animals and plants - The derivation of direct economic benefit must be subordinated to this principal aim
Policy Statement on Abatement of Pollution, 1992	<ul style="list-style-type: none"> - Variety of regulatory instruments, fiscal incentives and educational and outreach methods to promote the application of best technologies to reduce pollution. - Emphasis is on increased use of regulations and an increase in the development and application of financial incentives.
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"> - Ensure that the environment and productivity of coastal areas and marine ecosystems are protected - 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 - 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.
National Environment Policy 2006 (NEP)	<p>In terms of the coastal and marine environment , the policy suggests the following:</p> <ul style="list-style-type: none"> - Mainstream the sustainable management of mangroves into the forestry sector regulatory regime ensuring that they continue to provide livelihoods to local communities - Disseminate available techniques for regeneration of coral reefs, and support activities based on application of such techniques - 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 - Adopt a comprehensive approach to Integrated Coastal Management by addressing linkages between coastal areas, wetlands, and river systems, in relevant policies, regulation, and programs - Develop a strategy for strengthening regulation, and addressing impacts, of ship-breaking activities on human health, and coastal and near marine resources
Deep Sea Fishing Policy, 1991	<ul style="list-style-type: none"> - Aimed to augment India's fish production from deep sea areas within its EEZ. - A number of vessels under Joint Venture, Test Fishing and Leasing arrangements were permitted and some vessels started operating from 1993 onwards.

National Policy	Main features
	<ul style="list-style-type: none"> - 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. - The decision is to rescind the Deep Sea Fishing Policy of 1991 and the charter policies are already being phased out. - 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.
National Agricultural Policy, 2000	- 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
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"> - 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 - To ensure socio-economic security of the artisanal fishermen whose livelihood solely depends on this vocation - To ensure sustainable development of marine fisheries with due concern for ecological integrity and biodiversity
National Tourism Policy 1998	<ul style="list-style-type: none"> -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 - To strive towards balanced and sustainable development and preserve, enrich and promote India's cultural heritage - One of the major objectives is the preservation and protection of natural resources and environment to achieve sustainable development.

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

Table3.: 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	- 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
Marine Fishing Regulation Act, 1978	<ul style="list-style-type: none"> - Provides guideline to the states in India for enacting laws meant for protection of marine fisheries by regulating fishing in the territorial waters - Measures include regulation of mesh size and gear, reservation of zones for various fishing sectors and also declaration of closed seasons
Following Acts enforced/ implemented by Ministry of Shipping:	
Indian Ports Act, 1908	- Provides enactment relating to ports and port charges and rules for safety of shipping and conservation of ports
Merchant Shipping Act, 1958	- Aims to deal with waste arising from ships along the coastal areas within a specified radius
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	<ul style="list-style-type: none"> - 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)	<ul style="list-style-type: none"> - 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

National Legislation	Main features
Forest Conservation Act, 1980 (amended in 1988)	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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 (http://envis.maharashtra.gov.in/envi_s_data/files/CRZNotification2011.pdf)	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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

33. 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 years²⁵. 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.

34. 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

²⁵ http://www.maharashtratourism.gov.in/mtdc/HTML/Maharashtratourism/images/PDF/TourismPolicy_2006.pdf

Maharashtra, within territorial waters²⁶. 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 District²⁷. 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)²⁸. The MFRA provides for penalties to be imposed on fishing vessels that are found to be in contravention of the MFRA.

Institutions

35. 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.

36. **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.²⁹

37. 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).

38. 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

²⁶ 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).

²⁷

http://www.icsf.net/icsf2006/uploads/resources/legalIndia/pdf/english/state/1112240339823***Maharashtra_Notification_dated_13th_October_1999.PDF

²⁸

http://www.icsf.net/icsf2006/uploads/resources/legalIndia/pdf/english/state/1112240287095***Maharashtra_Notification_dated_12th_December_1997.PDF

²⁹ More information at <http://moef.nic.in/index.php>

(MMS) that falls under the jurisdiction of the Deputy Conservator of Forests, Sawantwady Forest Division.

39. 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.

40. **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.

41. 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.

42. 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.

43. **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.

44. 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.³⁰

45. The **District Administration** is headed by the District Collector/ Magistrate³¹, 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.

46. 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 Groups (SHGs), Women's Groups, Dairy Cooperatives, Fishermen's Associations, Youth Groups, JFM Committees – Ecodevelopment Committees (EDCs), and Vana Samrakshana Samities³² (VSS).

Part 1B: Baseline analysis

1.4 Threats to coastal and marine biodiversity of the SCME

47. 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

48. 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 period³³.

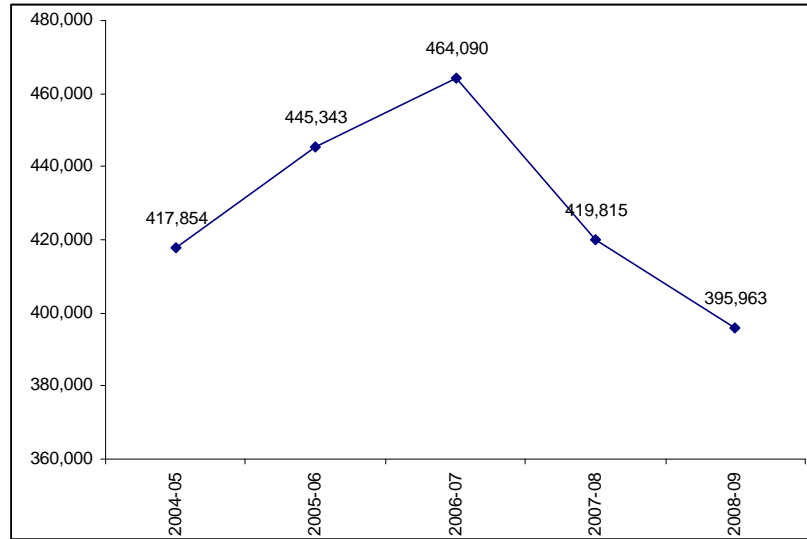
³⁰ Maharashtra Maritime Board website (<http://www.mahammb.com/vengurla-group-of-ports.htm>)

³¹ 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.

³² Translation: Forest Protection Committees

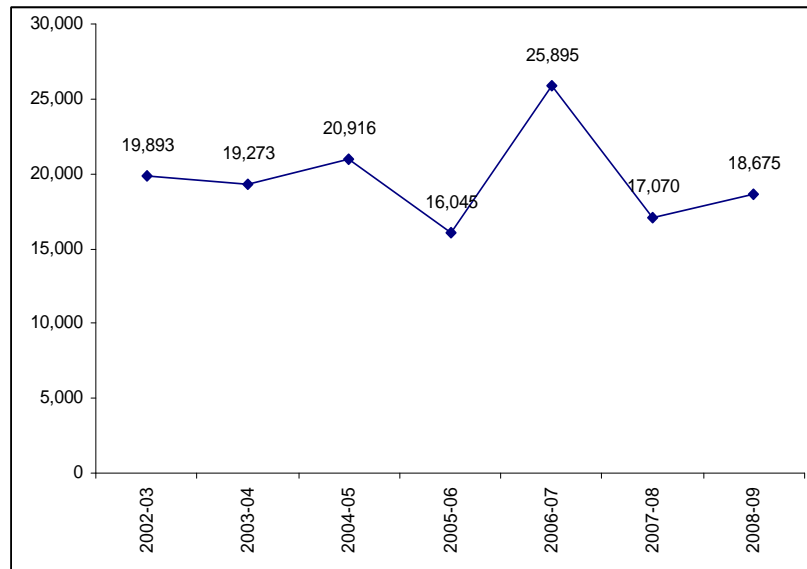
³³ Comparison of data in Fish Production Report 2006-07 with that in Fish Production Report 2008-09 (Department of Fisheries, Maharashtra)

Figure 4. Marine capture fish production for Maharashtra State in tonnes



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

Figure 5. Marine capture fish production for Sindhudurg District in tonnes



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

49. 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.

50. 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 year³⁴. 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 years³⁵. 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’³⁶ 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. Non-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

51. 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

52. 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 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

53. 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

³⁴Consultations during the MPA Workshop in 2009 in Chennai by International Collective in Support of Fishworkers (ICSF), 2009 and also local Consultations

³⁵ Indian Ocean Turtle Newsletter No. 9 (January 2009)

³⁶ This is the entrapment of fish and marine mammals in lost or abandoned nets, posts, fishing line, bottles, and other discarded objects.

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

54. 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.³⁷

Pollution from industrial activity

55. As mentioned earlier, Sindhudurg is primarily an agricultural district with industrial areas accounting for less than 1% of the total area of the district³⁸, 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 SCME³⁹.

Impacts of climate change

56. 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.

57. 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.

58. 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 Maharashtra⁴⁰. 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

³⁷ Indian Ocean Turtle Newsletter No. 9 (January 2009)

³⁸ District Disaster Management Plan: Sindhudurg, May 2010

³⁹ 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.

⁴⁰ www.ccmaharashtra.org/about_Impacts

already 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.

59. 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.

60. 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.⁴¹ 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.

1.5 Baseline efforts to conserve coastal and marine biodiversity of the SCME

Regional Plan for Ratnagiri-Sindhudurg Resource Region

61. 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.

62. 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)

63. 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

⁴¹ Down to earth, 2010

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.

64. 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 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).

65. 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.

66. 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.

67. 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.

1.6 Desired long-term solution and barriers to achieving it

68. 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.

69. 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

70. *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.

71. *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.

72. 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.

73. *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.

74. *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

75. 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.

76. 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

77. 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.

78. 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.

1.7 Stakeholder analysis

79. 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.

80. 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.

81. Local government institutions such as Municipal Corporation, District Government, Gram Sabhas and other Panchayati Raj Institutions⁴² are another group of stakeholders inasmuch as they can influence the development plans and interaction of local communities within the SCME.

82. 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 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.

83. 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.

⁴² 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.

84. 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 provides a more detailed analysis of stakeholders and their role in the project.

2. PROJECT STRATEGY

85. 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.

86. 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.

87. 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 in Annex 2). 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 15⁰43 and 16⁰44 north and longitudes 71⁰50 and 73⁰43 east.

2.1 Conformity with GEF Policy

88. 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’.

89. 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.

90. 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 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.

91. 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.

92. Further, the 10th 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.

2.2 Country Ownership: Country Eligibility and Country Driven-ness

2.2.1 Country Eligibility

93. 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.

2.2.2 Country Driven-ness

94. 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 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>

95. 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.

96. 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.

2.3 Project Goal, Objective, Outcomes and Outputs

97. 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

98. 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

99. 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 boundary⁴³ 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.

100. 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.

⁴³ 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.

101. 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.⁴⁴

102. 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 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.

103. 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 fish⁴⁵, 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.

104. 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 (CVCA), and Malvan has been identified under this Notification as a CVCA. The area will be declared as CVCA's through a process of consultation with local fisherfolk and other communities inhabiting the area and depend on its resources for their livelihood with the objective of promoting conservation and sustainable

⁴⁴ 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).

⁴⁵ 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.

use of coastal resources and habitats. The process of identifying planning, notifying and implementing CVCA shall be detailed according to the guidelines being developed and notified by MoEF in consultations with the stakeholders like the State Government, local coastal communities and fisherfolk and the like inhabiting the area. Further, the Integrated Management Plan (IMP's) prepared for such CVCA shall inter alia keep in view the conservation and management of mangroves, needs of local communities such as, dispensaries, schools, public rain shelter, community toilets, bridges, roads, jetties, water supply, drainage, sewerage and the impact of sea level rise and other natural disasters.

105. 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

106. 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.

107. 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.

108. 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 project⁴⁶. 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.

⁴⁶ 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).

109. 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.

110. 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

111. 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.

112. 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.

113. 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 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.

114. 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

115. 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

116. The fisheries sector is at present having the biggest impact on Sindhudurg'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.

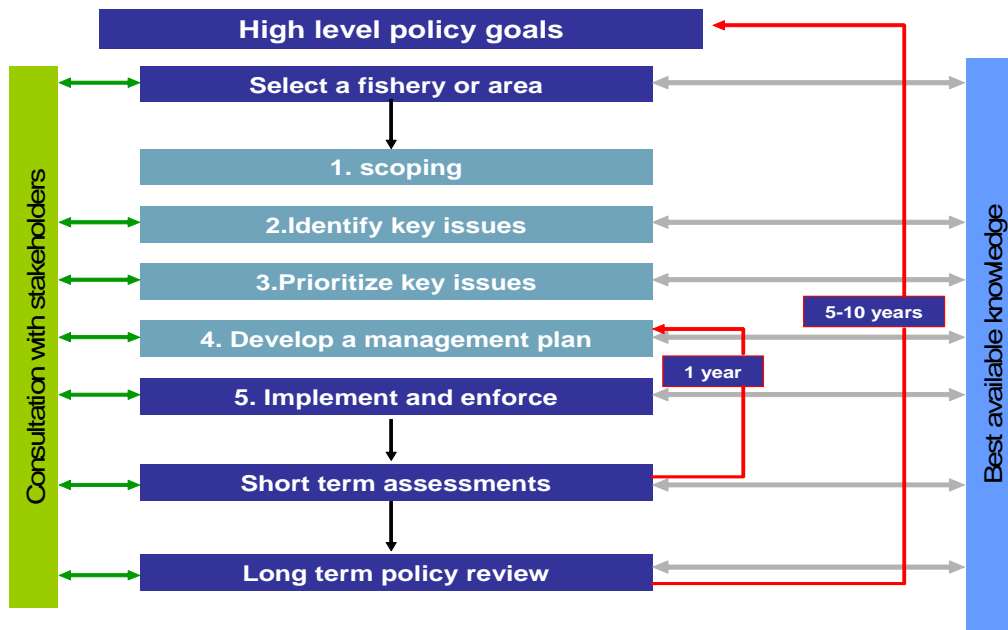
117. The development of the EAF-based Fisheries Management Plan will be based on FAO guidelines (see figure below for key steps in the EAF planning and implementation process)⁴⁷. Application of EAF implies a balanced approach to addressing ecosystem well-being, governance and human well-being, including 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 Sindhudurg 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 resources⁴⁸. Thus, ITK will be blended with modern approaches to develop a system of

⁴⁷ 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.

⁴⁸ Assessment of Indigenous Knowledge of Coastal Fisherfolk of Greater Mumbai and Sindhudurg District of Maharashtra, Nirmale and others, *Indian Journal of Traditional Knowledge*, January 2004

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.

Figure 6. Key Steps in the EAF Planning and Implementation Process



118. 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 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.⁴⁹

119. 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 certification⁵⁰. 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 impacts⁵¹. Resources will be allocated under the M&E system of the project to this end.

120. 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

⁴⁹ 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).

⁵⁰ 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.

⁵¹ Environmental certification and the Global Environment Facility: A STAP Advisory Document, 2010

have been of the strong opinion that control of destructive fishing practices, if effectively enforced, would have beneficial conservation impacts⁵². 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.

121. 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.

122. 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.

123. 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, 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

124. 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 cuisine⁵³. 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

⁵² R. Rajagopalan, Marine Protected Areas in India, April 2008, SAMUDRA Monograph

⁵³ Maharashtra Development Report, 2004

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.⁵⁴ Noteworthy among the plans is a proposal to set up a Scuba Diving Training Centre at Malvan⁵⁵.

125. 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.

126. 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 Bank⁵⁶. 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.⁵⁷ 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.

127. 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).

⁵⁴ Consultations, 2010

⁵⁵ Times of India, October 17, 2010.

⁵⁶ 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.

⁵⁷ 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).

128. 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.

129. 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

130. 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.

131. 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 measures⁵⁸. 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.

132. 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

⁵⁸ 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).

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 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.

133. 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

134. 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

135. 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.

136. 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

137. 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
- Sericulture⁵⁹
- Apiculture

138. 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 Associations⁶⁰. 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.

139. 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.

⁵⁹ 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.

⁶⁰ There are an estimated 182 SHGs and 12 Fishermen's Associations in the 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.

140. 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 dovetailed 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.

2.4 Key Indicators, Risks and Assumptions

141. The indicators and their baseline and target values are presented in the Project's Results Framework (Section 3). Based on discussions during project preparation, the following risks were identified. Means to mitigate these risks were also discussed and integrated into the project strategy.

Table 8. Project Risks

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 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

Risk/ Assumption	Rating	Mitigation Strategy
		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. 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.
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.

L = Low threat; M = Medium threat; H= High threat

2.5 Incremental Cost Assessment

Baseline scenario

142. 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.

143. 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 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.)

144. *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.

145. *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.

146. *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

147. 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.)

2.6 Cost-effectiveness

148. 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.

149. 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.

150. 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.

151. 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.

152. 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.

2.7 Sustainability

153. Ecological sustainability: The project will support long-term viability of globally significant biodiversity in the SCME by mainstreaming biodiversity conservation considerations into the activities of the production sector, strengthening the conservation sector's management of the MMS and other biodiversity rich areas, as well as making more sustainable the livelihoods/ subsistence sector. At present, the MMS boundaries extend only over 2,912 hectares, which is only 0.5% of the target landscape. Even this area is not effectively managed owing to the competing interests and jurisdictional overlaps mentioned earlier in the document. Production and livelihoods/ subsistence activities taking place in and outside the MMS are placing ever greater stress on the ecosystem and threatening the survival probabilities of various vulnerable and threatened flora and fauna species that rely on the SCME for survival. The project will prevent/ mitigate the negative impacts of key threats to the SCME through the following key measures: (i) develop a landscape-level zoning plan (Landscape Plan) that will look at current land use in the project area and will then provide a plan for how land uses/ production practices by the different sectors can be made more compatible with the conservation needs of the SCME, (ii) putting in place a cross-sectoral institutional mechanism to promote cross-sectoral dialogue and joint actions by the different sectors that operate in the SCME, (iii) develop the capacities and tools of key production

sector institutions (fisheries, tourism) to implement biodiversity-friendly sector plans Plan, (iv) develop user-group based micro plans for sustainable natural resource use along with capacity building and other technical assistance to VLIs to implement these plans, (v) strengthen the management planning process for the MMS and devise strategies for addressing new generation threats, and (vi) capacitating the park staff in improving the management effectiveness of the Sanctuary.

154. Financial sustainability: In order to ensure that biodiversity mainstreaming approaches identified under the project can be financially sustained post project, a financial sustainability strategy will accompany the landscape-level zoning plan. The financial strategy 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 concerns. In terms of the livelihoods/ subsistence sector, the project will implement a livelihoods diversification strategy based on economic feasibility assessments to ensure that alternative livelihoods are sustained over the long-term.

155. Institutional sustainability: To ensure that prevailing structures and processes have the capacity to continue to perform their functions over the long term, the project will devote significant resources to capacity development. Capacity development will be based on comprehensive needs assessments targeting all key stakeholders that directly or indirectly impact the SCME. To ensure that training support can continue post-project, efforts will be made to associate the training curriculum and resource persons with existing training institutions. For instance, training content related to the conservation sector could be integrated with the Wildlife Institute of India or other similar institutes. Training content related to the production sectors could be associated with a recognized research/ training institute in India that looks at promoting greater environmental stewardship among the private sector. Local NGOs and research institutions will also be included in project activities based on their comparative advantages (see Annex 6 on Stakeholder Analysis), and this will help build a broader constituency for conservation. Further, the formal stakeholder consultation committee will be capacitated during the course of project implementation, and as the committee grows into its role, the project will discuss with the State Government feasible options for a formal institutional structure (including setting up of Trust/ Foundation like that envisaged in the Godavari project) that can steer the process after the project comes to a close.

156. Social sustainability: To ensure that social exclusion is minimized and social equity maximized, project activities targeting the livelihoods/ subsistence sector will be founded on extensive stakeholder participation. Existing networks of VLIs (SHGs, EDCs, VSS) will be tapped. The project will ensure representation of women's SHGs. The project will target the institutions operating at the community level to enable them to actively participate in developing and implementing activities to ensure continuity and replicability once the project is completed. As in the Godavari project, a horizontal method of capacity building called Community to Community Training (CTCT) will be adopted to disseminate the lessons learnt during the project implementation. This involves organization and conduct of training programmes by the Task Teams of one village for other village communities under the umbrella of JFM committees. This has proven to be a useful mechanism for transfer of experiences in the most efficient and effective way.

2.8 Replicability

157. There are various aspects of project design that facilitate replication. Firstly, the project will strengthen the enabling environment for biodiversity mainstreaming into production sectors by proposing amendments and methodological guidelines to complement existing policies so that they are more explicit on mainstreaming of biodiversity conservation considerations (Output 1.3 that will be undertaken in close coordination with the similar output under the Godavari project). Secondly, the project will undertake research studies to address key knowledge gaps that impede mainstreaming of biodiversity conservation

considerations in the activities of production sectors (Outputs 1.1, 2.1 and 2.2). These studies will be easily accessible through the national knowledge management system established under the Godavari project. Lessons learned will also be easily accessible through the knowledge management system. Thirdly, the project's training efforts (under Outputs 1.2, 2.1, 2.2, 2.3, 3.1 and 3.2) will be associated and internalized with existing training institutions operating in the country so that this can become an accessible resource to other coastal and marine areas where there is interest in replicating the project approach. Training programs will be accompanied by handbooks/ manuals/ compendiums.

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

3. PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in the CPAP for India (2008-2012): Outcome 4.3 Progress towards meeting national commitments under multilateral environmental agreements; and Output 4.3.2 National efforts supported towards conservation and management of natural resources
Country Programme Outcome Indicators: Output 4.3.2 Indicator: Number of new joint initiatives undertaken for integrated biodiversity conservation
Primary applicable Key Environment and Sustainable Development Key Result Area: 1. Mainstreaming environment and energy
Applicable GEF Strategic Objective and Program: Strategic Objective 2 – To mainstream biodiversity in production landscapes/ seascapes and sectors; Strategic Priority 4 – Strengthening the policy and regulatory frameworks for mainstreaming biodiversity
Applicable GEF Expected Outcomes: Conservation and sustainable use of biodiversity incorporated in the productive landscape (area of influence of economic activities in and around Malvan Marine Sanctuary, Sindhudurg District, Maharashtra)

Project Strategy	Indicator	Baseline	Targets ⁶¹	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	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

⁶¹ The time frame for realizing project targets is project end (2015), unless otherwise specified.

Project Strategy	Indicator	Baseline	Targets ⁶¹	Means of verification	Risks and Assumptions
conservation considerations	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	<p>Stakeholder institutions are unwilling to share information that is required for developing LP that mainstems coastal and marine biodiversity conservation concerns</p> <p>Recommendations on legislative amendments for addressing biodiversity conservation in sector practices may not receive government and political support</p> <p>LP is not integrated in the District development planning process</p> <p>Local communities do not support the LP</p>
	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 conservation of coastal and marine biodiversity	Amendments to MFRA incorporating provisions for the conservation of coastal and marine biodiversity approved or under consideration by State Department of Agriculture/ Fisheries	Government notification/ order/ records	
	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	
	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	

Project Strategy	Indicator	Baseline	Targets ⁶¹	Means of verification	Risks and Assumptions
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 SCME i.e., from Ratnagiri (Maharashtra), Goa and Karnataka	Baseline to be collected in Year 1	50% reduction of trawlers from outside SCME	Monthly Fishing Reports	
	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 st 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

Project Strategy	Indicator	Baseline	Targets ⁶¹	Means of verification	Risks and Assumptions
	Number of EDCs active in the SCME	0	15	Records of the Forest Department	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 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.

4. 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
Outcome 1	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
					TOTAL OUTCOME 1	386,200	71,135	68,205	85,575	49,458	71,828	
Outcome 2	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
						TOTAL OUTCOME 2	1,535,500	70,500	199,560	448,020	428,480	428,940
Outcome 3	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

					TOTAL OUTCOME 3	1,304,000	17,500	142,900	385,300	378,950	379,350	
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
					TOTAL PROJECT MANAGEMENT	212,595	42,519	42,519	42,519	42,519	42,519	
					TOTAL GEF ALLOCATION	3,438,294	201,654	453,184	961,414	899,406	922,636	

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 eco-tourism, 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

Budget Note	Explanation
	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.
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
Total Cofinancing			12,000,000	1,500,000	1,500,000	3,000,000	3,000,000	3,000,000

(Letters formalizing cofinancing agreements are in Annex 7.)

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
GRAND TOTAL			3,438,294

5. MANAGEMENT ARRANGEMENTS

5.1 Project Implementation Arrangements

159. **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 8 for Terms of Reference of project management staff, as well as local and international consultants that will provide technical services.

160. **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.

161. **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 programme⁶². 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

⁶² 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>

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.

162. **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.

163. **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.

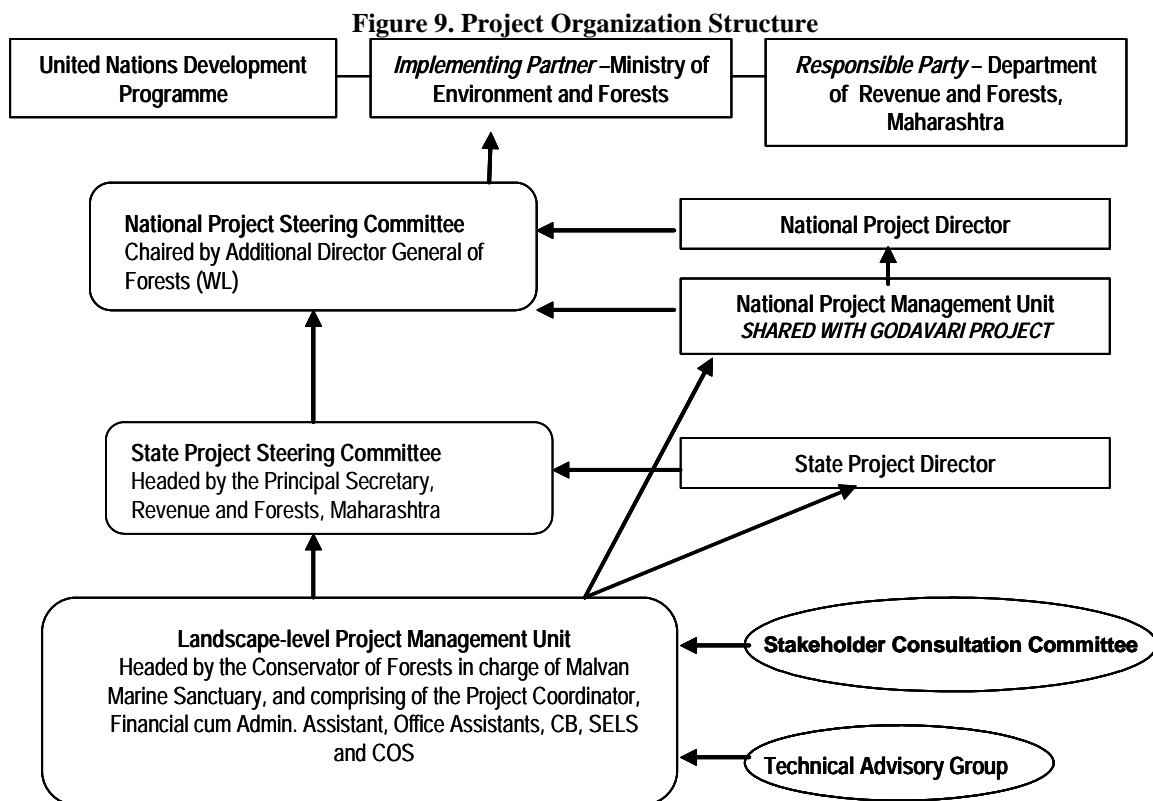
164. **UNDP support for project management**: The UNDP Country Office will support project implementation by maintaining project budget and project expenditures, recruiting and contracting project personnel and consultant services, subcontracting, assisting with equipment procurement, and providing other 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.

165. **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.

166. **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.

167. **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 zoning 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.

168. 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.



169. **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.

5.2 Coordination with related initiatives

170. 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.

171. 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 implemented⁶³. 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.

⁶³ http://moef.gov.in/report/0910/Annual_Report_ENG_0910.pdf#page=304

5.3 *Audit arrangements*

172. The Audit will be conducted in accordance with the established UNDP procedures set out in the Programming and Finance manuals by the legally recognized auditor.

5.4 *Use of institutional logos on project deliverables*

173. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. Alongside GEF and UNDP logo, GOI logo along with that of the Responsible Partner of the proposed project may also be featured.

6. MONITORING FRAMEWORK AND EVALUATION

174. The project team and the UNDP Country Office (UNDP-CO) supported by the UNDP/GEF Regional Coordination Unit in Bangkok will be responsible for project monitoring and evaluation 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). 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

175. 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:

1. 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.
2. 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.
3. 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.
4. Discuss financial reporting procedures and obligations, and arrangements for annual audit.
5. Plan and schedule Project Board 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

1. Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
2. Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS.
3. Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
4. 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

176. *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:

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

Periodic monitoring through site visits

177. 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 Board members.

Mid-term of project cycle

178. 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

179. An independent Final Evaluation will take place three months prior to the final Project Board 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.

180. 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

181. 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 10. 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	NPD, NPNU 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 Verification for Project Progress and Performance (measured on an annual basis)	Oversight by Project GEF Technical Advisor, Project NMPU and Project Coordinator Measurements by regional field officers and local IAs	TBD as part of the Annual Work Plan's preparation. Cost to be covered by field survey budget.	Annually prior to APR/PIR and to the definition of annual work plans
PIR	Project Team PSC UNDP-GEF	None	Annually
Project Steering Committee meetings	NPD, NMPU 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	10,000	Yearly

Type of M&E activity	Responsible Parties	Budget US\$	Time frame
	Project team		
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	

7. LEGAL CONTEXT

182. This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA and all CPAP provisions apply to this document.

183. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner. The implementing partner shall:

- put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

184. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

185. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision will be included in all sub-contracts or sub-agreements entered into under this Project Document.

8. ANNEXES -- SEE ATTACHMENT

- ANNEX 1: LIST OF FAUNA REPORTED FROM MALVAN MARINE SANCTUARY..... ERROR!
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- ANNEX 2: MAPS OF PROJECT AREAERROR! BOOKMARK NOT DEFINED.**
- ANNEX 3: ADMINISTRATIVE AND DEMOGRAPHIC DETAILS OF THE PROJECT AREA
ERROR! BOOKMARK NOT DEFINED.**
- ANNEX 4: DATA ON FISHERIES SECTOR IN SCME.....ERROR! BOOKMARK NOT DEFINED.**
- ANNEX 5: LEGISLATION AND POLICIES RELATED TO CONSERVATION AND SUSTAINABLE
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PRODUCTION ACTIVITIESERROR! BOOKMARK NOT DEFINED.**
- ANNEX 6: STAKEHOLDER ANALYSIS AND INVOLVEMENT PLAN....ERROR! BOOKMARK NOT
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- ANNEX 7: LETTERS OF ENDORSEMENT AND CO-FINANCING AGREEMENTS..... ERROR!
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- ANNEX 8: TERMS OF REFERENCE FOR KEY PROJECT STAFFERROR! BOOKMARK NOT
DEFINED.**
- ANNEX 9: GEF-4 TRACKING TOOL FOR GEF BIODIVERSITY FOCAL AREA STRATEGIC
OBJECTIVE TWO: MAINSTREAMING BIODIVERSITY CONSERVATION IN PRODUCTION
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- ANNEX 10: INCREMENTAL COST MATRIX.....ERROR! BOOKMARK NOT DEFINED.**
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Annex 1: List of Fauna Reported from Malvan Marine Sanctuary

BIRDS

Bulbul, Redvented	Kingfisher, black capped	Pigeon blue rock
Crow, House	Kingfisher, white breasted	Robin, Oriental Magpie
Crow, jungle	Kite, black	Sandpiper, common
Curlew, stone	Kite, Brahminy	Shag, Indian
Eagle, whitebellied sea eagle	Koel, Asian	Sparrow, House
Egret, little	Lapwing, redwattled	Starling, Brahminy
Egret, Median	Myna, common	Starling, Greyheaded
Egret, Western reef	Oriole, Eurasian golden	Starling, Rosy
Gull, Black headed	Osprey	Tern, Whitecheeked
Heron, Grey	Owlet, spotted	Wagtail, white
Heron, Indian pond	Oyster catcher, Eurasian	Whitethroat, common lesser
Hoopoe, common		

MARINE ALGAE

GREEN ALGAE

Acetabularia sp
Bryopsis hypnoides
Caulerpa scalpelliformes
Caulerpa sertularioides
Caulerpa mexicana
Caulerpa verticillata
Caulerpa peltata
Caulerpa racemosa
Centroceros clavulatum
Chaetomorpha linum

BROWN ALGAE

Colpomenia sinuosa
Dictyopteris australis
Dictyota dichotoma
Dictyota dumosa
Dictyota bartayresiana
Ectocarpus coniger
Iyengaria sp
Padina gymnospora

RED ALGAE

Acanthopora specifera
Amphiroa sp
Gelidium pusillum
Cheliosporum sp
Gelidiopsis iabillis
Chaetomorpha media
Cladophora sp
Codium indicum
Enteromorpha clathrata
Enteromorpha flexuosa
Ernodesmis verticillata
Microdictyon sp
Sciniaia hatei
Soliera robusta
Steigeoclonium sp
Ulva fasciata (Sea lettuce)
Padina tetrastrumatica
Pocockiella variegata
Saragassum cinereum
Saragassum piluliferum
Saragassum illicifolium
Spathoglossum asperum
Sphacelaria furcigera
Stocheospermum marginatum
Gelidiopsis variabilis
Gracillaria corticata (Ceylon moss)
Grateloupia illicina (Ceylon moss)
Hypnea musciformes
Martensia fragillilis (Mermaids wineglass)

Mammals

Dolphin, Common
 Porpoise, Little Indian

Reptiles

Turtle, Green Sea
 Turtle, Olive Ridley

Marine Invertebrates

Sponges			
Bread-crumb Sponge		<i>Tethys lyncurium</i>	
Sponge		<i>Tetilla dactyloides</i>	
Corals, Jelly fish and Sea Anemones			
-	<i>Phytocoetes gangeticus</i>	Coral	<i>Cyphastrea</i> sp.
Burrowing Anemone	<i>Edwardsia tinctoria</i>	Coral	<i>Epizoanthus elongatum</i>
Sea Anemone	<i>Anemonia indicus</i>	Coral	<i>Favites halicora</i>
Sea Anemone	<i>Anthopleura asiatica</i>	Coral	<i>Halobates</i> sp.
Sea Anemone	<i>Anthopleura midori</i>	Coral	<i>Pelocoetes exul</i>
Sea Anemone	<i>Bunodosoma granulifera</i>	Coral	<i>Porites lichen</i>
Sea Anemone	<i>Metapenaeus monoceros</i>	Coral	<i>Porites lutea</i>
Sea Anemone	<i>Metapeachia tropica</i>	Coral	<i>Siderastrea savignvana</i>
Sea Anemone	<i>Metridium senile</i> var.	Sea Pen (Coral)	<i>Cavernularia orientails</i>
	<i>Fimbriatum</i>	Sea Pen (Coral)	<i>Virgularia rumphii</i>
Sea Anemone	<i>Neoaipiasia commensali</i>	Soft Coral	<i>Cynaria lacrymalis</i>
Sea Anemone	<i>Parapeneopsis stylifera</i>		
Coral	<i>Coscinarea monile</i>		
Molluscs (Univalves)			
-	<i>Cossidula nucleus</i>	Cone Shell	<i>Conus monachus</i>
Arabian Cowrie	<i>Cypraea Arabica</i>	Cone Shell	<i>Conus mutabilis</i>
Auger Shell	<i>Terebra capensis</i>	Cone Shell	<i>Conus piperatus</i>
Banded Periwinkle	<i>Tectarius malacanus</i>	Costate Tun	<i>Tonna allium</i>
Banded Trochus	<i>Trochus radiatus</i>	Cowrie	<i>Cypraea lentiginosa</i>
Banded Tun	<i>Tonna fasciata</i>	Cuming's Cone Shell	<i>Conus cumingii</i>
Carrier Shell	<i>Xenophora solaris</i>	Dog Whelk	<i>Bullia lineolata</i>
Common Ear Shell	<i>Haliotis varia</i>	Dog Whelk	<i>Cyllene fuscata</i>
Common Keyhole	<i>Diodora bombayana</i>	Dog Whelk	<i>Nassa therstitis</i>
Limpet		-	<i>Verma tis</i> sp.
Dog Whelk	<i>Nassarius canaliculata</i>	Rock Shell	<i>Ocenebra bombayana</i>
Dog Whelk	<i>Nassarius jacksoniana</i>	Rock Shell	<i>Thais sacellum</i>
Dog Whelk	<i>Nassarius lentiginosis</i>	Rock Shell	<i>Thais bufo</i>
Dog Whelk	<i>Nassarius mucronatus</i>	Rock Shell	<i>Thais caranifera</i>
Dog Whelk	<i>Nassarius olivaceous</i>	Rock Shell	<i>Thais rudolphi</i>
Dog Whelk	<i>Nassarius ornatus</i>	Rock Shell	<i>Thais tissoti</i>
Dog Whelk	<i>Nassarius pictus</i>	Screw Shell	<i>Turritella duplicate</i>
Dog Whelk	<i>Pyrene scripta</i>	Shell	<i>Aconitophorum</i>
Dog Whelk	<i>Pyrene terpscichore</i>		<i>Bombayensis</i>
Dog Whelk	<i>Zeuxis caelatus</i>	Shell	<i>Actinogeton sultana</i>
Dwarf Turban Shell	<i>Turbo brunneus</i>	Shell	<i>Anthopleura pacifica</i>
Fig Shell	<i>Ficus ficus</i>	Shell	<i>Anthopleura panikkarii</i>
Horn Shell	<i>Cerithium morus</i>	Shell	<i>Cribrinopsis robertii</i>
Horn Shell	<i>Cerithium rubus</i>	Shell	<i>Euchelus asper</i>
Indian Tibia Shell	<i>Tibia Curta</i>	Shell	<i>Euchelus tricarinata</i>
Javan Turrid Shell	<i>Surcula javana</i>	Shell	<i>Paracondylactis indicus</i>
Keyhole Limpet	<i>Cellana radiata</i>	Sowerby's Shuttle	<i>Volva sowerbyana</i>
Ladder Shell	<i>Acrilla acuminata</i>	Spiny Frog Shell	<i>Bursa spinosa</i>
Limpet	<i>Scutus unguis</i>	Spiral Babylon	<i>Babylonia spirata</i>
Lined Moon	<i>Natica lineata</i>	Spotted Tun	<i>Tonna dolium</i>
Margin Shell	<i>Melampus coffea</i>	Sundial Shell	<i>Architectonica laevigate</i>
Margin Shell	<i>Pyramidella pulchella</i>	Telescope Shell	<i>Potamidis cingulatis</i>
Margin Shell	<i>Siphonaria basseineusis</i>	Telescope Shell	<i>Telescopium telescopium</i>
Margin Shell	<i>Melampus sincaporensis</i>	Threaded Mitre	<i>Mitra circula</i>
Mitre Shell	<i>Chrysame ambigua</i>	Top Shell	<i>Euchelus asper</i>
Mitre Shell	<i>Mitra obeliscus</i>	Top Shell	<i>Euchelus tricarinatus</i>
Moon Snail	<i>Natica didyma</i>	Top Shell	<i>Astraea semicostata</i>
Moon Snail	<i>Natica maculosa</i>	Top Shell	<i>Astraea stellata</i>
Moon Snail	<i>Natica picta</i>	Top Shell	<i>Clanculus ceylanicus</i>

Moon Snail	<i>Natica pulcaria</i>	Top Shell	<i>Isanda crenulifera</i>
Murex Shell	<i>Murex adustus</i>	Top Shell	<i>Umbonium vestiarum</i>
Murex Shell	<i>Murex tribulus</i>	Tuberculated Frog	<i>Bursa tuberculata</i>
Nerites	<i>Nerita oryzarum</i>	Shell	
Nutmeg Shell	<i>Cancellaria costifera</i>	Turret Shell	<i>Drilla atkinsoni</i>
Olive Shell	<i>Oliva nebalosa</i>	Turrid Shell	<i>Clavus crassa</i>
Olive Shell	<i>Oliva gibbosa</i>	Turrid Shell	<i>Surcula amicta</i>
Ox-Plate Nerite	<i>Nerita albicella</i>	Turrid Shell	<i>Surcula fulminata</i>
Periwinkle	<i>Littorina undulate</i>	Violet Snail	<i>Janthina roseola</i>
Periwinkle	<i>Littorina intermedia</i>	Violet Nerita	<i>Nerita crepidularia</i>
-	<i>Planaxis acutus</i>	Whelk	<i>Cantharus spira lis</i>
-	<i>Planaxis sulcatus</i>	Whelk	<i>Eassidula nucleus</i>
-	<i>Planaxis similes</i>	Whelk	<i>Ellobium auris jude</i>
Red Banded Moon	<i>Natica rufa</i>	Whelk	<i>Engina Zea</i>
Snail		Whelk	<i>Hemifusus pugilinus</i>
Rock Shell	<i>Drupa contracta</i>	Whelk	<i>Nassarina suturalis</i>
Rock Shell	<i>Drupa hippocastanum</i>	Whelk	<i>Pi/a doloides</i>
Rock Shell	<i>Drupa konkanensis</i>	Whelk	<i>Polia rubiginosa</i>
Molluscs (Bivalves)			
-	<i>Aiptasiomorpha luciae</i>		
-	<i>Didumene schilleriana</i>		
-	<i>Ischnochiton computus</i>		
Worms, Marine Leeches			
Borer Worms	<i>Pista sp.</i>	Feather/duster	<i>Vemiliopsis glandigerus</i>
Bristle Worm	<i>Chloeis rosea</i>	Worm	
Bristle Worm	<i>Eurythoe complanata</i>	Feather-duster	<i>Dasychone cingulatus</i>
Errant Burrowing	<i>Glycera alba</i>	Worm	
Worm		Feather-duster	<i>Dasychone serratibranchis</i>
Fan Worm	<i>Sabellaria sp.</i>	Worm	
Feather-duster	<i>Potamilla leptochaeta</i>	Sea mouse	<i>Panthalis oerstedii</i>
Worm		Sea Worm	<i>Palydora (Polydora) coeca</i>
Feather-duster	<i>Spirographis spallanzanii</i>	Sea mouse	<i>Polyedontes melanonotus</i>
Worm		Sea Worm	<i>Perinereis aibuhitensis</i>
Flat Worm	<i>Turbiniaria crater</i>	Sea Worm	<i>Perinereis cultrifera</i> var.
Palolo Worm	<i>Diopatra neopolitana</i>		<i>typica</i>
Palolo Worm	<i>Eunice antennata</i>	Sea Worm	<i>Perinereis nigro-punctata</i>
Palolo Worm	<i>Eunice tentaculata</i>	Sea Worm	<i>Perinereis nuntia</i> var.
Palolo Worm	<i>Marphysa sanguines</i>		<i>brevicirris</i>
Palolo Worm	<i>Onuphis sp.</i>	Sea Worm	<i>Perinereis nuntia</i> var. <i>typical</i>
Sea Worm	<i>Arabella iricolor</i>	Sea Worm	<i>Perinereis vancaurica</i> var.
Sea Worm	<i>Bhawania cryptocephala</i>		<i>indica</i>
Sea Worm	<i>Cirriformia limnoricola</i>	Sea Worm	<i>Perinereis vancaurica</i> var.
Sea mouse	<i>Gattyana deludens</i>		<i>Typical</i>
Sea mouse	<i>Harmothoe ampullifera</i>	Sea Worm	<i>Phyllochfietopterus socialis</i>
Sea mouse	<i>Leanira japonica</i>	Sea mouse	<i>Sthenelais boa</i>
Sea mouse	<i>Lepidonotus carinulatus</i>	Sea Worm	<i>Syllis (Haptasylle's)</i>
Sea Worm	<i>Nereis (Ceratonereis) costae</i>		<i>spongicola</i>
Sea Worm	<i>Nereis (Ceratonereis) mirabilis</i>	Sea Worm	<i>Syllis (Sylle's) gracilis</i>
Sea Worm	<i>Nereis (Nereis) chilkaensis</i>	Sea Worm	<i>Syllis (Typosylle's)</i>
Sea Worm	<i>Nereis (Nereis)</i>		<i>closterobranchia</i>
	<i>Chingrighattensis</i>	Sea Worm	<i>Syllis (Typosylle's) variegata</i>
<i>Cocclomate Worms</i>			
Common Earth Worm	<i>Lumbriconeries heteropoda</i>		
African Earth Worm	<i>Ochetostoma bombayensis</i>		
Horseshoe crab, King crab, Scorpion, Sea spiders, Crabs, Lobsters, Shrimp, Barnacles			
Crab	<i>Acetes indicus</i>	Porcelain Crab	<i>Petrolisthes boscii</i>
Crab	<i>Charybdis annulata</i>	(not a true crab)	
Crab	<i>Cirolana sp.</i>	Porcelain Crab	<i>Philyra globosa</i>
Crab	<i>Diogenes custus</i>	Soldier Crab	<i>Dotilla myctiroides</i>

Crab	<i>Diogenes miles</i>	Swimmer Crab	<i>Portunus pelagicus</i>
Crab	<i>Elamena cristatipes</i>	Swimmer Crab	<i>Portunus sanguinolentus</i>
Crab	<i>Leptodius arassimanus</i>	Prawn	<i>Penaeus japonicus'</i>
Crab	<i>Ligia exotica</i>	Mantis Shrimp	<i>Squilla nepa</i>
Crab	<i>Linnoria (Limnoria) bombayensis</i>	Mantis Shrimp	<i>Squilla raphidae</i>
Crab	<i>Macrothalamus sulcatus</i>	Mantis Shrimp	<i>Squilla scorpio</i>
Crab. Eight oared	<i>Matuta planipes</i>	Mantis Shrimp	<i>Squilla interrupta</i>
Swimming		Shrimp	<i>Gondactylus chirca</i>
Crab. Dolly	<i>Matuta victor</i>	Shrimp	<i>Hippolysmata ensiostris</i>
Varden		Acorn Barnacle	<i>Balanus amphitrite</i> var.
Crab	<i>Metopo messor</i>		<i>communis</i>
Crab	<i>Ozius rugulosus</i>	Acorn Barnacle	<i>Balanus tintinnabulum</i>
Crab	<i>Pinnotheres</i> sp.		<i>tintinnabulum</i>
Crab	<i>Schizophrys aspera</i>	Barnacle	<i>Balanus amphitrite</i> var.
Crab	<i>Sesarme oceanica</i>		<i>communis</i>
Crab	<i>Sybidotea variegata</i>	Barnacle	<i>Balanus tintinnabulum</i>
Crab	<i>Thalamita crenata</i>	Barnacle	<i>Cthamalus withersi</i>
Fiddler Crab	<i>Uca annulipes</i>	Barnacle	<i>Ibla cumingi</i>
Hermit Crab	<i>Clibanarius intraspinus</i>	Barnacle	<i>Lepas</i> sp
Hermit Crab	<i>Clibanarius padavensis</i>	Barnacle	<i>Tetraclita purpurascens</i>
Masked Crab	<i>Dorippe astute</i>	Barnacle	<i>Tetraclitella purpurascens</i>

Note: Cultivated Japanese variety. Occurrence doubtful.

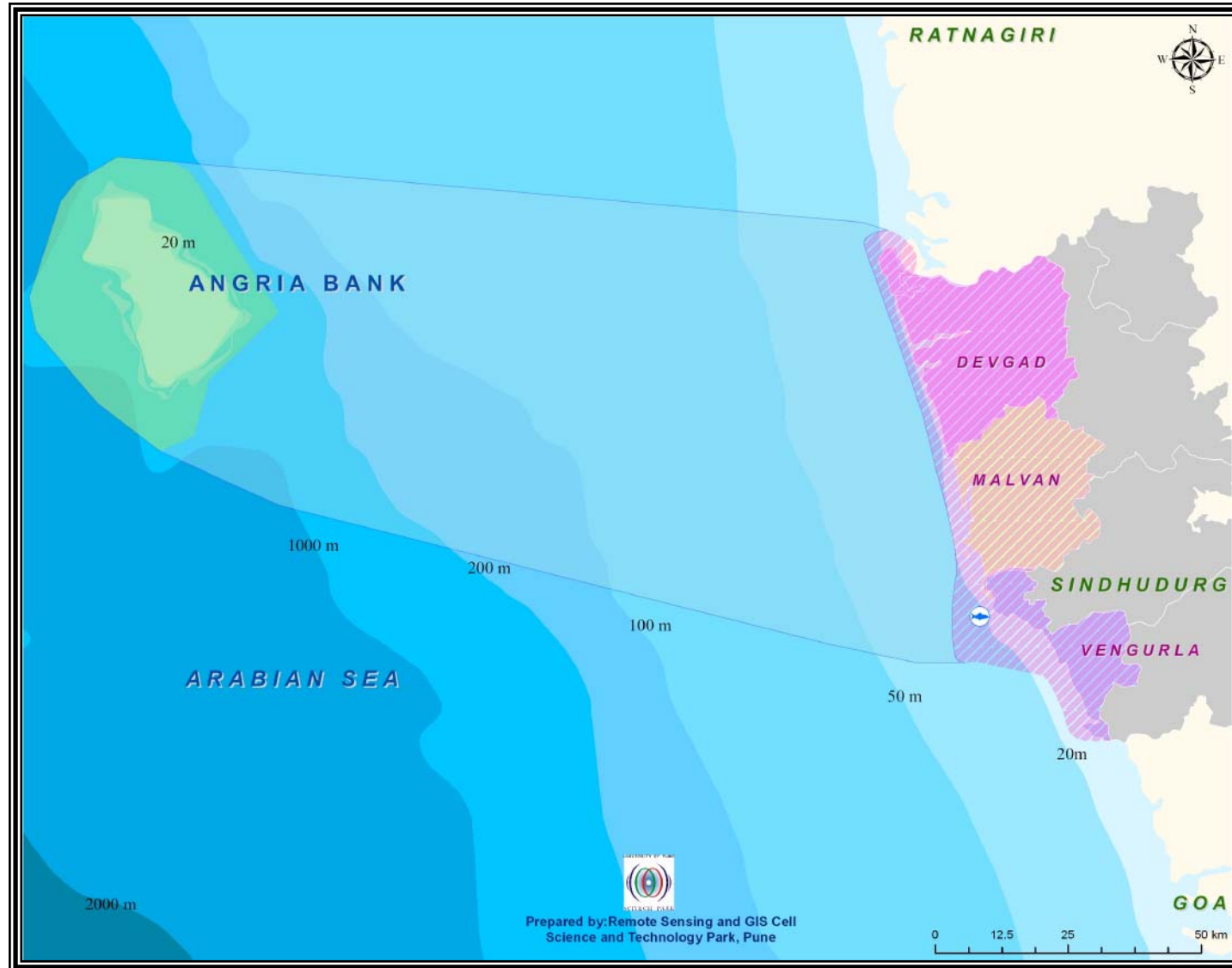
Source: National Parks and Sanctuaries in Maharashtra: A Reference Guide Vol. II, 2005

FISH DIVERSITY IN SINDHUDURG DISTRICT

Sr. No.	Scientific Group Name	Common English Name	Local Name in Marathi
1	<i>Anchoviella</i>	Golden Anchovy	Mandelli
2	<i>Black Pomfrets</i>	Black Pomfrets	Halwa
3	<i>Bregmaceros Macelelendi</i>	Unicorn cod.	Tendali
4	<i>Carangids Small</i>	Other Carangids	Kokari, Toki
5	<i>Caranx</i>	Horse Mackerel	Kharba Bangada
6	<i>Cat Fishes</i>	Cat Fish	Mhakul
7	<i>Cephalopoda</i>	Cuttle Fish	Mhakul
8	<i>Chirocentrus</i>	Silver bar/Walf Heming	Karli & Datali
9	<i>Eels</i>	Eels	Warm
10	<i>Elasmobranchs</i>	Shark & Rays	Mushi & Pakat
11	<i>Harpodon nehereus</i>	Bombay Duck	Bombil
12	<i>Hilsa Ilisha / Toli</i>	Hilsa Shad & Giant Herrings	Bhing & Palla
13	<i>Lactarius</i>	Big-Jawed Jumper	Soundala
14	<i>Leiognathus</i>	Pony Fish	Khap
15	<i>Lobsters</i>	Lobster	Shewand
16	<i>Mackerel</i>	Indian Mackerel	Bangada
17	<i>Non-Penaeid Prawns</i>	Shrimp	Jawala, Karandi
18	<i>Other Clupeids</i>	White Sardines	Bhiljee, Khavali, Paturdi
19	<i>Otolithes species</i>	Cracker	Dhoma, dhodi
20	<i>Penaid Prawns</i>	Prawn	Kolambi
21	<i>Perches</i>	Groupers	Karkara, Khajura, Heum, Gobra
22	<i>Polynomids</i>	Thread Fins	Dadha & Rawas
23	<i>Pomfrets</i>	Pomfret	Saranga
24	<i>Red Snapper</i>	Red Snapper	Tamb
25	<i>Ribbon Fishes</i>	Ribbon Fish	Bala & Wakti
26	<i>Sardines</i>	Sardines and Oil Sardines	Pedwa, Pedi & Tarali
27	<i>Sciaenids</i>	Jew Fish & Dori	Ghol & Koth
28	<i>Seer Fishes</i>	Seer Fish	Surmai, Towar
29	<i>Soles</i>	Soles	Lep, Bhakas
30	<i>Thrissoles</i>	Mustached Anehovy	Kati
31	<i>Tunnies</i>	Tuna	Gedar, Kupa
32	<i>Upenaid Sp.</i>	Goat Fish	Chirati, Rane
33	<i>Miscellaneous</i>	Miscellaneous (Others)	Sankima (Itar)

Annex 2: Maps of Project Area

Map 1: Project area



Map Key:

Hatched area = the project's target coastal talukas of Deogad, Malvan and Vengurla and the respective territorial waters of these talukas; remaining talukas of Sindhudurg District that are not a focus of the project are shaded in grey

Light Blue band = Marine area that extends from territorial waters up to the Angria Bank (shown in shades of green) that lies within the EEZ

Map 2: Malvan Marine Sanctuary and Coastal Areas in SCME (Google imagery)



MAP 3: Target Coastal talukas, Malvan Marine Sanctuary and Angria bank (Google image)



Map Key:

Blue area =
Deogad taluka

Yellow area =
Malvan taluka

Pink area =
Vengurla taluka

Grey box = MMS
boundary

Green circle =
Angria Bank

Annex 3: Administrative and Demographic Details of the Project Area

Table 1: Number of Gram Panchayats and Villages

Sub-division	Taluka	Number of Gram Panchayats	Number of Revenue Villages	Number of Villages
Kankavli	Deogad	74	33	97
Kankavli	Malvan	63	40	136
Sawantawadi	Vengurla	29	26	83

Source: Census 2001

Table 2: Number of Fishing Villages

Taluka	Fishing Villages	Fishing Households	Fishing Population
Deogad	32	1537	7737
Malvan	29	1948	9469
Vengurla	19	1507	7424

Source: Census 2003, Department of Fisheries, Maharashtra

Table 3: Population Profile

Taluka	Total/ Rural/ Urban	Population	Men	Women	Family No.	Population Density per sq km	Women-Men Ratio per 1000
Deogad	Total	125 288	60 272	65 016	25 991	161	1 079
	Rural	125 288	60 272	65 016	25 991	161	1 079
	Urban	0	0	0	0	0	0
Malvan	Total	116 682	55 885	60 797	26 904	190	1 088
	Rural	98 002	46 389	51 613	22 670	161	1 113
	Urban	18 680	9 496	9 184	4 234	2 979	967
Vengurla	Total	88 387	42 631	45 756	19 723	305	1 073
	Rural	75 916	36 470	39 446	16 807	274	1 082
	Urban	12 471	6 161	6 310	2 916	961	1 024

Source: Census 2001

Table 4: Profile of Population living below the Poverty Line in 2002

Taluka	Population below poverty line (BPL)	Total families BPL	Scheduled Caste families BPL	Schedules Tribe families BPL	OBC families BPL	Total percentage
Deogad	26 966	8 035	826	80	7 129	29.80
Malvan	24 544	8 710	905	81	7 724	35.49
Vengurla	18 043	7 425	445	46	6 934	41.15

Source: Census 2001

Annex 4: Data on Fisheries Sector in SCME

The Maharashtra Fisheries Department divides each district into zones, where each zone is comprised of a number of fish landing centers. Sindhudurg fisheries are divided into 5 zones namely Anadvadi, Deogad, Makrebag, Malvan and Vengurla (from north to south)¹. Data in this annex is from the Maharashtra Fisheries Department Fish Production Report 2008-09.

Table 1: Zone-wise fish production in SCME (tonnes)

	FINANCIAL YEAR (APRIL TO MARCH)				
	2004-05	2005-06	2006 - 07	2007-08	2008-09
Anandvadi	6258 (29.9)	5367 (33.4)	7509 (29.0)	4248 (24.9)	4900 (26.2)
Deogad	476 (2.3)	431 (2.7)	637 (2.5)	325 (1.9)	327 (1.8)
Makrebag	8530 (40.8)	6744 (42.0)	9881 (38.2)	6520 (38.2)	7172 (38.4)
Malvan	1176 (5.6)	1372 (8.6)	4172 (16.1)	2346 (13.7)	1964 (10.5)
Vengurla	4476 (21.4)	2131 (13.3)	3696 (14.2)	3631 (21.3)	4312 (23.1)
Total	20916 (100.0)	16045 (100.0)	25895 (100.0)	17070 (100.0)	18675 (100.0)

NOTE: Figures in brackets shows the percentage share of zonal production to district production.

Table 2: Variety-wise Marine Fish Production for Deogad Zone (tonnes)

Sr. No.	Variety	FINANCIAL YEAR (APRIL TO MARCH)				
		2004-05	2005-06	2006 - 07	2007-08	2008-09
1	Elasmobranchs	2	---	10	9	13
2	Eels	---	---	---	---	---
3	Cat Fishes	2	9	14	16	13
4	Chirocentrus	12	4	14	5	8
5	Sardines	18	33	72	41	41
6	Hilsa Ilisha	---	1	1	---	1
7	Anchoviella	---	---	---	---	---
8	Thrissocles	---	---	---	---	---
9	Other Clupeids	---	2	7	26	27
10	Harpodon Neherus	---	---	---	---	---
11	Perches	1	---	---	---	---
12	Red Snapper	---	2	2	1	---
13	Polynomids	---	---	---	---	---
14	Sciaenids	---	---	---	---	---
15	Otolithes sp.	---	84	46	37	59
16	Ribon Fish	5	26	---	2	2
17	Caranx.	19	6	13	1	1
18	Pomfrets	---	8	14	7	5
19	Black Pomfret	8	10	12	---	4

¹ See map at <http://fisheries.adfmaharashtra.in/pdf/maps/sindhudurg.pdf>

Sr. No.	Variety	FINANCIAL YEAR (APRIL TO MARCH)				
		2004-05	2005-06	2006 - 07	2007-08	2008-09
20	Mackerel	89	108	264	110	106
21	Seer Fish	50	9	93	12	6
22	Tunnies	---	---	---	1	2
23	Bregamceros Macellendi	---	---	---	---	---
24	Soles	---	---	1	1	1
25	Carangids Small	6	45	---	---	---
26	Leognathus	181	---	2	10	2
27	Upenaides Sp.	7	---	---	---	---
28	Penaeid Prawns	---	18	9	5	3
29	Non-Penaeid Prawns.	---	---	---	---	---
30	Lobsters	---	---	---	---	---
31	Lactarius	6	2	9	6	4
32	Cephalopoda	1	4	1	---	1
33	Miscellaneous	69	60	53	35	29
TOTAL		476	431	637	325	327

Table 3: Variety-wise Marine Fish Production for Malvan Zone (tonnes)

Sr. No.	Variety	FINANCIAL YEAR (APRIL TO MARCH)				
		2004-05	2005-06	2006 - 07	2007-08	2008-09
1	Elasmobranchs	4	10	8	5	27
2	Eels	---	---	---	---	---
3	Cat Fishes	---	4	19	1	4
4	Chirocentrus	7	---	---	5	2
5	Sardines	771	596	3244	1551	791
6	Hilsa Ilisha	---	---	---	---	---
7	Anchoviella	---	---	---	---	---
8	Thrissocles	---	---	---	---	---
9	Other Clupeida	1	12	3	7	11
10	Harpodon Neherus	---	---	---	---	---
11	Perches	---	---	2	---	---
12	Red Snapper	3	1	4	1	---
13	Polynomids	---	---	---	---	---
14	Sciaenids	---	---	6	---	---
15	Otolithes sp.	1	5	29	3	65
16	Ribbon Fish	3	22	36	159	---
17	Caranx	3	26	8	1	25
18	Pomfrets	2	---	---	---	---
19	Black Pomfret	1	---	---	---	---

Sr. No.	Variety	FINANCIAL YEAR (APRIL TO MARCH)				
		2004-05	2005-06	2006 - 07	2007-08	2008-09
20	Mackerel	197	289	388	381	388
21	Seer Fish	40	70	22	2	99
22	Tunnies	---	1	13	---	85
23	Bregamceros Macellendi	---	---	---	---	---
24	Soles	---	---	25	1	---
25	Carangids Small	5	31	35	15	89
26	Leognathus	43	223	36	39	33
27	Upenaides	---	---	---	---	27
28	Penaeid Prawns	1	3	25	20	45
29	Non-Penaeid Prawns.	---	---	---	---	---
30	Lobsters	---	---	---	---	---
31	Lactarius	---	---	---	10	53
32	Cephalopoda	2	1	4	1	25
33	Miscellaneous	92	78	265	144	195
TOTAL		1176	1372	4172	2346	1964

Table 4: Variety-wise Marine Fish Production for Vengurla Zone (tonnes)

Sr. No.	Variety	FINANCIAL YEAR (APRIL TO MARCH)				
		2004-05	2005-06	2006 - 07	2007-08	2008-09
1	Elasmobranchs	74	34	44	33	27
2	Eels	1	---	---	---	2
3	Cat Fishes	26	19	33	13	7
4	Chirocentrus	147	32	38	94	107
5	Sardines	214	231	620	271	340
6	Hilsa Ilisha	---	---	---	---	---
7	Anchoviella	---	---	---	---	---
8	Thrissocles	---	---	---	---	---
9	Other Clupeids	154	31	55	52	36
10	Harpodon Neherus	---	3	52	18	49
11	Perches	---	---	7	---	---
12	Red Snapper	3	6	20	8	7
13	Polynomids	---	---	---	---	---
14	Sciaenids	---	---	---	---	---
15	Otolithes sp.	523	135	289	204	325
16	Ribbon Fish	60	165	408	80	20
17	Caranx	62	47	118	233	120
18	Pomfrets	7	37	19	28	39
19	Black Pomfret	7	2	3	41	15

Sr. No.	Variety	FINANCIAL YEAR (APRIL TO MARCH)				
		2004-05	2005-06	2006 - 07	2007-08	2008-09
20	Mackerel	1650	359	425	1215	1311
21	Seer Fish	421	116	221	290	264
22	Tunnies	16	8	10	22	4
23	Bregamceros Macellendi	---	---	---	---	---
24	Soles	175	114	161	83	154
25	Carangids Small	25	39	63	149	138
26	Leognathus	26	109	41	26	19
27	Upenaides Sp.	34	---	20	11	---
28	Penaeid Prawns	285	141	247	206	321
29	Non-Penaeid Prawns.	---	10	---	---	---
30	Lobsters	---	15	12	8	6
31	Lactarius	8	13	59	89	189
32	Cephalopoda	7	15	33	21	66
33	Miscellaneous	551	450	698	436	746
TOTAL		4476	2131	3696	3631	4312

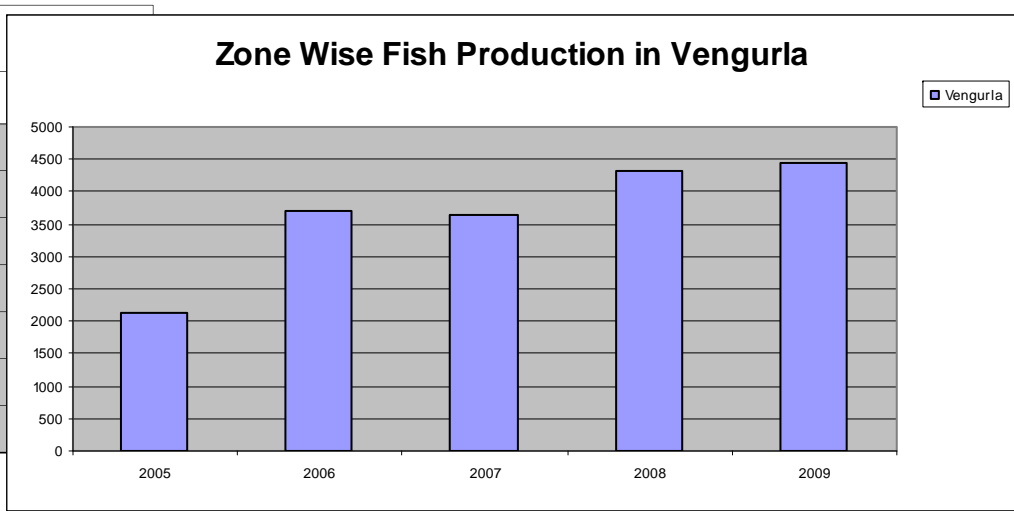
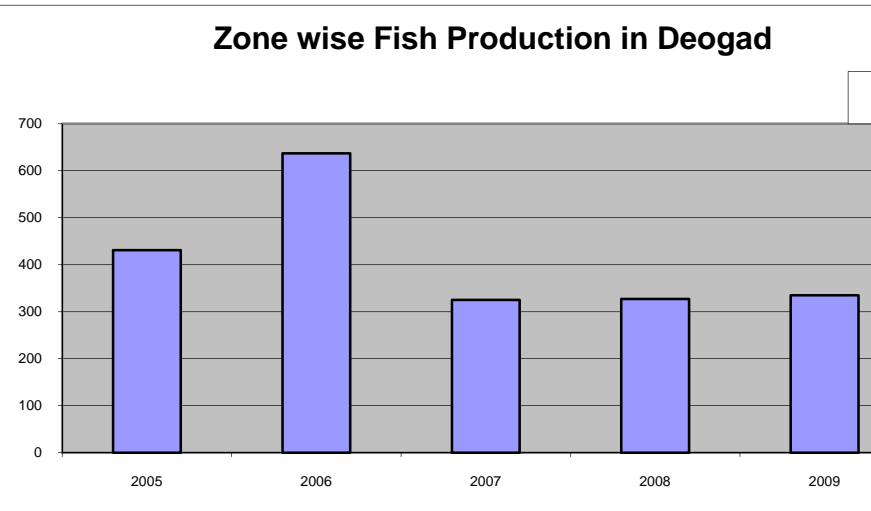
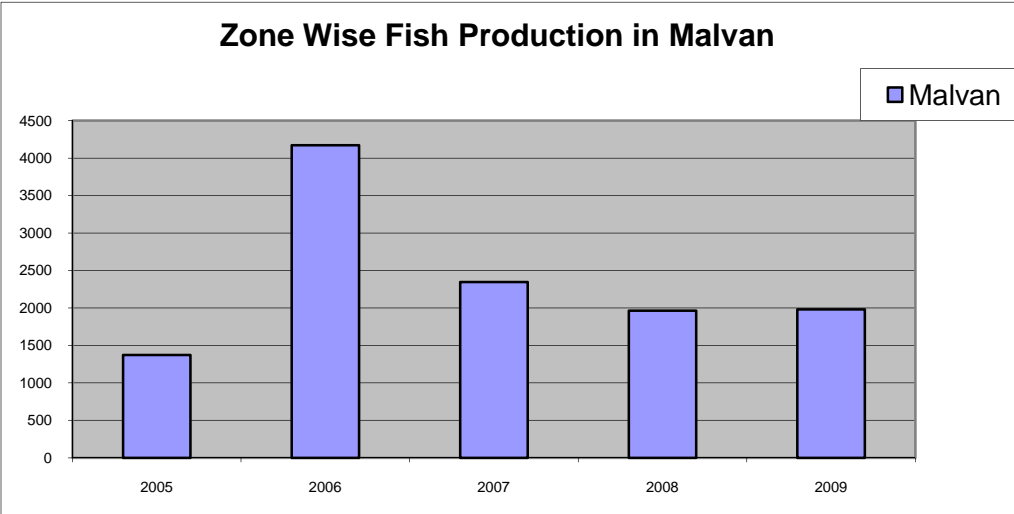
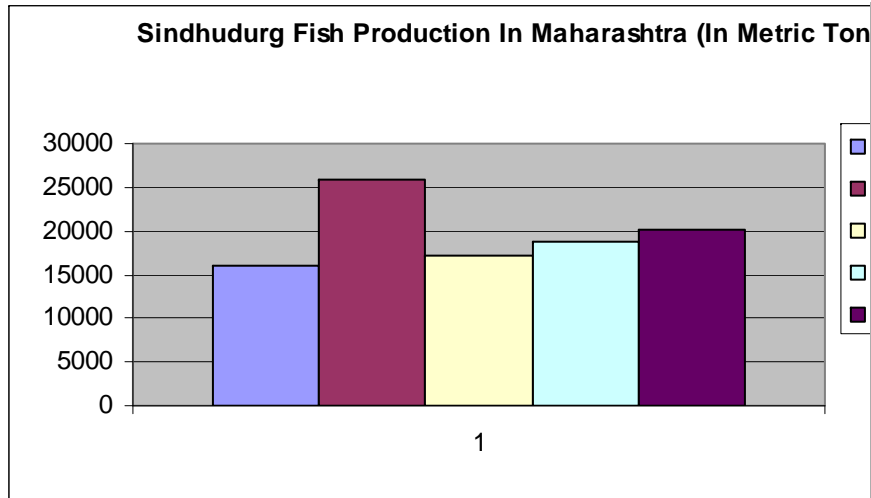
Table 5: Species-wise fish production in Maharashtra (tonnes)

Species	2005	2006	2007	2008	2009
Elasmobranchs	178	232	115	116	105
Eels	26	49	20	21	10
Cat Fishes	509	772	585	451	296
Chirocentrus	113	161	193	184	368
Sardines	1479	5266	2354	1725	2175
Hilsa-Illisha	1	1	0	1	0
Ancheviella	0	0	20	0	0
Tarisseclas	6	7	0	0	0
Other Clapeida	142	355	319	432	306
Harpodon Nehereus	31	49	18	52	3
Perchaos	7	0	8	10	5
Red Snapper	11	28	13	7	8
Polymids	0	4	6	5	9
Siaenids	0	9	2	5	0
Otalithes sp.	1037	1286	888	1361	810

Species	2005	2006	2007	2008	2009
Ribbon Fish	4727	5373	3272	3303	3974
Caraux	247	449	562	398	549
Pomfrets	242	261	123	108	148
Elacin Pomfrets	132	179	77	50	154
Mackeral	1322	1801	2402	2412	1900
Seer Fish	451	645	394	472	428
Tunnies	109	102	35	124	76
Brogmaoeres Meelillandi	0	0	0	0	0
Soles	414	962	466	334	679
Carangids Small	1049	289	506	558	463
Leiognatus	562	890	520	463	915
Upenaides sp.	494	763	194	429	1053
Prawns	764	1093	981	1239	955
Shrimps	10	0	0	0	0
Lobsters	24	21	8	6	1
Lactarius	144	359	550	809	1090
Cuttle Fish and Squids	338	592	167	327	916
Miscellaneous	338	592	2272	3809	1733
Total	28537	33612	26178	21768	21557

Table 6: Zone-wise Prominent Variety of Fish Production by Gill Net and Rampan (2008-09, tonnes)

SNo	Fishery/ Prominent Variety	Deogad	Malvan	Vengurla
GILLNETS:-				
1	Shark & Rays	11	25	17
2	Cat Fish	11	3	7
3	Pomfret	5	---	34
4	Halwa	4	---	15
5	Seer Fish	6	98	264
6	Others	243	795	2247
	TOTAL	280	921	2584
RAMPAN :-				
1	Sardines	6	646	100
2	Otolithes	15	8	20
3	Ribbon Fish	---	---	---
4	Mackerel	1	83	146
5	Others	6	154	207
	TOTAL	28	891	473



Annex 5: Legislation and Policies related to Conservation and Sustainable Use of Coastal and Marine Biodiversity and Environmental Regulation of Production Activities

Legislation/ Policy	Brief Description	Relevance in the context of SCME
I. National legislation related to conservation and sustainable use of coastal and marine biodiversity and environmental regulation of production activities		
Biological Diversity Act 2002	The Biological Diversity Act is an act to provide 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. More specifically, it provides for the designation of institutions as repositories of biological resources. For implementation, the Act provides for National Biodiversity Authority (NBA) and also recommends the creation of State Biodiversity Boards.	A
Coast Guard Act, 1950	The Act provides provisions for levying heavy penalties for the pollution of port waters. Coast guard under the Ministry of Defense is responsible for combating marine pollution.	A
Coastal Regulation Zone Notification 1991	The Coastal Regulation Zone Notification places regulations on various activities, including construction. It gives some protection to activities that pertain to the backwaters and estuaries. Issued under the Environment (Protection) Act, 1986, coastal stretches have been defined in Coastal Regulation Zone (CRZ) and restrictions have been imposed on industries, operations and processes within the CRZ. For regulating development activities, the coastal stretches within 500 meters of High Tide Line on the landward side are classified into four categories, namely: CRZ-I, areas that are ecologically sensitive and important, CRZ-II, the areas that have already been developed upto or close to the shoreline, CRZ-III, areas that are relatively undisturbed and those which do not belong to either CRZ-I or CRZ-II and CRZ-IV, coastal stretches in the Andaman & Nicobar, Lakshadweep and small islands.	A
Environment (Protection) Act, 1986	The Environment (Protection) Act, 1986 authorizes the central government to protect and improve environmental quality, control and reduce pollution from all sources, and prohibit or 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 to regulate industrial locations and to prescribe procedures for managing hazardous substances.	A
Environment Impact Assessment Notification, 2006	The objective of the notification and subsequent amendments is 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. Although EIA has been made mandatory for all the investment and development projects in the coasts, the implementation of Environment Management Plan seems to be overlooked. This is evident from the pollution level in the coastal waters of the country (Mohandas et al, 2000).	A
Forest Conservation Act, 1980 (amended in 1988)	The act deals with mainly to provide regulatory framework for the protection of the forest areas, resources, diversion of forestry land for non-forestry purposes such as industry and mining. The Act 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.	B
Hazardous Wastes (Management and Handling) Rules, 1989	The objective of Hazardous Waste (Management and Handling) Rules is to control the generation, collection, treatment, import, storage, and handling of hazardous waste.	C
Indian Fisheries Act, 1897	The Indian Fisheries Act 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.	A
Indian Ports Act, 1908	The Indian Ports Act provides enactment relating to ports and port charges and rules for safety of shipping and conservation of ports.	A
Joint Forest Management Notifications	JFM was formerly launched on June 01 1990, as a government attempt to towards regenerating and sustainably using the forests providing guidelines for the involvement of village communities and voluntary agencies in the regeneration degradation of forests. Although the initial thrust was towards timber production, both communities and forest officials realized that non timber forest produces were far more sustainable and beneficial, provided that harvesting was done in a sustainable manner. The February 2000	B

Legislation/ Policy	Brief Description	Relevance in the context of SCME
	guidelines for JFM thus shifted focus from timber to NTFP. These guidelines also extended JFM to standing or well stocked forests, with a motive to promote conservation.	
Marine Fishing Regulation Act, 1978	A model act that provide guideline to the states in India for enacting laws meant for protection of marine fisheries by regulating fishing in the territorial waters. The measures include regulation of mesh size and gear, reservation of zones for various fishing sectors and also declaration of closed seasons.	A
Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1976	The Act describes the various zones such as territorial waters, EEZ, continental shelf etc.	B
Merchant Shipping Act, 1958	The Merchant Shipping Act aims to deal with waste arising from ships along the coastal areas within a specified radius.	B
Water (Prevention and Control of Pollution) Act, 1974	The Water (Prevention and Control of Pollution) Act establishes an institutional structure for preventing and abating water pollution. It 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.	B
Wildlife Protection Act, 1972 (amended in 1983, 1986, 1991 and 2001)	The WPA is meant for the protection of wild plants and animals and regulates hunting, trade and collection of specific forest products. Rules of this Act, and subsequent amendments provide for the protection of birds and animals and for all matters that are connected to it whether it be their habitat or the waterhole or the forests that sustain them. The 2001 amendment of the act included several species of fish, corals, sea cucumber and sea shells in Schedule I and III.	A
II. National policies related to conservation and sustainable use of coastal and marine biodiversity and environmental regulation of production activities		
Deep Sea Fishing Policy, 1991	The New Deep Sea Fishing Policy announced in March, 1991 became fully effective during the year 1992-93. A number of vessels under Joint Venture, Test Fishing and Leasing were permitted and some vessels started operating from 1993 onwards. However, in the wake of agitation by traditional fishermen groups, a committee was constituted to review the deep sea fishing policy. The Government has decided to accept the recommendations of the Review Committee in principle. It has also been decided to rescind the New Deep Sea Fishing Policy of 1991 whereas the charter policies are already being phased out. The Ministry has initiated action for formulation of a New Deep Sea Fishing Policy and a legislation to regulate operations of Indian fishing vessels in the Indian EEZ in consultation with Maritime States/UTs. With a view to achieving an integrated development of the Deep Sea Fishing Sector, the Ministry implemented the various schemes relating to infrastructure development.	A
Marine Fishing Policy 2004	The theme of comprehensive marine fishing policy is enshrined in the National Agriculture Policy. The present policy seeks to bring the traditional and coastal fishermen also in to the 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 of our country. The policy objectives are: (i) 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, (ii) to ensure socio-economic security of the artisanal fishermen whose livelihood solely depends on this vocation. (iii) to ensure sustainable development of marine fisheries with due concern for ecological integrity and biodiversity.	A
National Conservation Strategy and Policy Statement on Environment and Development, 1992	Policy formulated in response to the need for laying down the guidelines that will help to weave environmental considerations into the fabric of national life and development process. The major objectives of the policy with respect to marine and coastal zones are: ensure that the environment and productivity of coastal areas and marine ecosystems are protected; 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; and, protect the scenic landscapes, areas of geomorphological significance, unique and representative biomes and ecosystems and wildlife habitats, heritage sites/structures and	A

Legislation/ Policy	Brief Description	Relevance in the context of SCME
	areas of cultural heritage importance.	
National Environment Policy 2006	<p>The National Environment Policy stresses the need for an approach to coastal environmental regulation in a more holistic manner and preparation of ICZM plans. NEP suggests on the need to decentralize, the clearance of specific projects to State level environmental authorities, exempting activities, which do not cause significant environmental impacts, and are consistent with approved ICZM plans. NEP suggests the following actions to be taken up:</p> <p>Mainstream the sustainable management of mangroves into the forestry sector regulatory regime, ensuring that they continue to provide livelihoods to local communities</p> <p>Disseminate available techniques</p> <p>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</p> <p>Adopt a comprehensive approach to Integrated Coastal Management by addressing linkages between coastal areas, wetlands, and river systems, in relevant policies, regulation, and programs</p> <p>Develop a strategy for strengthening regulation, and addressing impacts, of ship-breaking activities on human health, and coastal and near marine resources</p>	A
National Forest Policy, 1988	<p>The Government of India in the erstwhile Ministry of Food and Agriculture enunciated a Forest Policy to be followed in the management of State Forests in the country. The principal aim of Policy must be to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which is vital for sustenance of all life forms, human, animals and plants. The derivation of direct economic benefit must be subordinated to this principal aim.</p>	A
National Wildlife Action Plan, 2002-16	<p>Adopted in 1983 for the first time, the plan outlines the strategies and action points for wildlife conservation. It specifically talks about the need for focus on coastal and marine management.</p>	A
Policy Statement on Abatement of Pollution, 1992	<p>This policy attempts to harmonize economic development and environmental imperatives using a variety of regulatory instruments, fiscal incentives and educational and outreach methods to promote the application of the best technologies to reduce pollution. The policy emphasis is on increased use of regulations and application of financial incentives.</p>	B
Tourism Policy, 1998	<p>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. The rapid growth of tourism and similarly eco-tourism are important elements for coastal communities and offer both costs and benefits for the management of coastal zones. In coastal areas, the tourism sector has, until recently, rarely been consulted regarding resource decisions. Consequently, there is little legislation that specifically relates to tourism while the allocation of coastal resources has generally ignored tourism needs. As a result of this, and in the face of growing tourism demand, issues of conflict are emerging.</p>	A
III. State Level Policies and Acts related to conservation and sustainable use of coastal and marine biodiversity and environmental regulation of production activities		

Legislation/ Policy	Brief Description	Relevance in the context of SCME
Maharashtra Biotechnology Policy, 2001	<p>The policy states to promote orderly growth of the biotechnology industry in the State and make it globally competitive. The policy aims at providing adequate infrastructure, especially in the form of biotechnology parks as well as developing research base to serve the needs of the sector. The objectives of the policy are to:-</p> <ul style="list-style-type: none"> ▪ Provide to the farmers the better, high-yielding, drought and pest-resistant crops suited to the agro-climatic conditions of the State; ▪ Develop affordable and more cost-effective drugs and devices to counter diseases; ▪ Develop cheaper and effective technologies to purify water sources and to deal with industrial effluents and urban wastes, etc.; ▪ Improve the livestock in the State in order to increase the earning capacity in rural areas; ▪ Improve the marine stock to improve the productivity of the fishing industry; ▪ Enhance the value and utility of medicinal plants and traditional systems of medicine by developing new products with global potential; ▪ Develop and promote utilization of animal diagnostics and vaccines; ▪ Augment feed and fodder availability and processing; ▪ Improve the overall nutritional security in the State; ▪ Improve the quality of life through better health and better environment. 	A
Maharashtra Industrial Policy, 2010	<p>The Policy objective is to achieve higher and sustainable economic growth with emphasis on balanced regional development and employment generation through greater private and public investment in industrial and infrastructure development. The Policy is valid till 31st March 2011. Policy Targets</p> <ul style="list-style-type: none"> • Target Industrial Sector growth rate of 10% by 2010 • Target Service Sector growth rate of 12% by 2010 and • Additional Employment Generation of 20 lakh by 2010 <p><u>Strategies</u> The Policy objectives will be realized through the following strategies:</p> <ul style="list-style-type: none"> • Identification of Thrust Sectors • Building up of quality infrastructure • Promoting investments for employment generation in Districts low on human development index • Attracting mega investments both foreign and domestic • Commercial exploitation of local resources and local economical potential • Strengthening the SME Sector through promotion of quality competitiveness, research and development and technology upgradation • Nurturing Industrial clusters • Prevention of Industrial Sickness • Smooth exit option for industries • Streamlining procedures, debottlenecking and creation of hassle free industry friendly environment • Strengthening institutional support <p><u>Thrust Areas</u> The State will identify key thrust areas for according greater importance to sectors keeping in view their potential in contributing to the socio-economic development of the State. These sectors will be provided comprehensive support through specific policy initiatives. Following are the thrust areas, which would be offered priority status.</p>	B

Legislation/ Policy	Brief Description	Relevance in the context of SCME
	<ul style="list-style-type: none"> • Infrastructure - Power, Roads, Rail, Communication, Connectivity, Airports, Ports. • Manufacturing - Agro - based Industries, Textiles, Auto & Auto components, Electronicproducts, Pharmaceuticals and Gems & Jewellery. • Services - Sunrise Technology and Service Sectors including Information Technology,I.T. enabled services, Biotechnology, Nano technology, - Retail, Tourism & Entertainment • Mumbai - Pune - Nashik - Aurangabad Quadrangle will be provided greater infrastructure support to develop its full potential for knowledge-based, manufacturing and agro-based industries. • Establishment of Gas distribution networks in major industrial areas in the State to improve availability of cleaner and cost effective fuel. 	
Maharashtra State Forest Policy, 2008	The Maharashtra Forest Policy 2008 aims at raising forest cover in the state to a minimum of 33% (101.54 lakh hectares) of total land, as per the recommendations of the Planning Commission and the National Forest Policy, 1988. At present, the forest area in the state is around 20 per cent. Of this 56 per cent is in Vidarbha, five per cent in Marathwada and 39 per cent in western Maharashtra. As part of the policy, Maharashtra is planning on becoming the first state in the country to levy a green tax to encourage forest development.	A
State Mineral Policy	<p>The basic objectives of the State Mineral Policy are the following:</p> <ol style="list-style-type: none"> i) To explore for identification of mineral wealth in the State. ii) To develop and exploit mineral resources taking into account the interest of the State and Nation. iii) To invite private capital resources and technology for better exploration and exploitation. iv) To promote necessary linkages for smooth and uninterrupted development of mineral based industries to meet the needs of the State. v) To increase State Revenue and local employment. vi) To minimize adverse effect of mineral development on the forest and environment through appropriate protective measures. vii) To ensure the conduct of mining operations with due regard to safety and health of all concerned. viii) To create a database on mineral resources of the State. ix) To ensure proper vigilance and supervision of mining/quarrying transportation and storage of minerals. x) To earmark mineral rich belts as mining area. xi) To achieve transparency and laying time schedules for solving the problems of this sector, by simplification of procedures. xii) To provide incentives in the form of infrastructure facilities and financial assistance, if such grants can be available from Central/State Government from time to time. xiii) To consider amalgamation of concession/leases for efficient handling. xiv) To encourage cluster approach of mine workings. 	A
IV. International Conventions and Treaties		
Ramsar Convention, 1971	The Convention on Wetlands is an intergovernmental treaty which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. This is one of the oldest ecosystem specific conventions for the conservation and sustainable utilization of wetlands to stem the progressive encroachment on and loss of wetlands now and in the future, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational value.	A
London Dumping Convention 1972 (Convention on the	The Convention has a global character, and contributes to the international control and prevention of marine pollution. It prohibits the dumping of certain hazardous materials into the sea / oceans, requires a prior special permit for the dumping of a number of other	B

Legislation/ Policy	Brief Description	Relevance in the context of SCME
Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972)	identified materials and a prior general permit for other wastes or matter.	
MARPOL 73/78	It is one of the important international marine environmental conventions promoted by International Maritime Organization (IMO), designed to minimize pollution of the seas including dumping, oil and exhaust pollution. The objective of the Convention is to reduce the volumes of harmful materials entering the world's ocean and the marine environment. Ships have traditionally discharged all of their waste into the sea. It included oils, chemicals, plastics and other materials which may float, are not biodegradable, are extremely persistent and deteriorate very slowly.	B
Ocean Policy Statement, 1982	Sets out the basic principles through which the development of ocean is to be carried out. The Ocean Policy Statement is primarily aimed at utilization of marine living and nonliving resources for societal benefits in a sustainable manner. Some of the salient features of the Policy Statement include exploratory survey, assessment and sustainable utilization/harnessing of the ocean resources including living, non-living and renewable sources of ocean energy, developmental activities related to integrated coastal and marine area management, coastal community development, etc., with direct application to the welfare of the society.	B
Convention on Migratory Species of Wild Animals 1983	The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention) aims to conserve terrestrial, marine and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the aegis of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale. The Convention gives protection to many species of crocodiles, sharks, turtles etc.	A
Convention on Biological Diversity, 1992	The Convention on Biological Diversity, known informally as the Biodiversity Convention, is an international treaty that was adopted in Rio de Janeiro in June 1992. The Convention has three main goals: Conservation of biological diversity; Sustainable use of its components; and Fair and equitable sharing of benefits arising from genetic resources. The convention recognized for the first time in international law that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process. The agreement covers all ecosystems, species, and genetic resources. It links traditional conservation efforts to the economic goal of using biological resources sustainably. It sets principles for the fair and equitable sharing of the benefits arising from the use of genetic resources, notably those destined for commercial use.	A
CITES (1973)	CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments which aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (The World Conservation Union) and finally agreed at a meeting of representatives of 80 countries in Washington DC. on 3rd March 1973, and on 1 July 1975 CITES entered in force. CITES works by subjecting international trade in specimens of selected species to certain controls wherein all import, export, re-export and introduction of species covered by the Convention has to be authorized through a licensing system. The species covered by CITES are listed in three Appendices, according to the degree of protection they need. Roughly 5000 species of animals and 28000 species of plants are protected by CITES against over-exploitation through international trade.	A
Basel Convention, 1992	The convention contains specific provisions for the monitoring of hazardous wastes. A number of articles in the convention oblige parties to take appropriate measures to implement and enforce its provisions, including measures to prevent and punish conduct in contravention of the convention.	B
UN Convention on the Law of Seas	UNCLOS, also called the Law of the Sea Convention or the Law of the Sea Treaty, is the international agreement that resulted from the third United Nations Conference on the	B

Legislation/ Policy	Brief Description	Relevance in the context of SCME
(UNCLOS), 1994	Law of the Sea (UNCLOS III), which took place from 1973 through 1982. The Law of the Sea Convention defines the rights and responsibilities of nations in their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources. The Convention, concluded in 1982, replaced four 1958 treaties. UNCLOS came into force in 1994. To date, 158 countries and the European Community have joined in the Convention. However, it is now regarded as a codification of the customary international law on the issue.	
Kyoto Protocol, 1997	The Kyoto Protocol was adopted by the third Conference of Parties (COP – 3) of the UNFCCC on 11 December, 1997 in Kyoto, Japan and entered into force on 16 February, 2005 with the ratification by Russia on November 18, 2004 (accounted in total for at least 55% of the total carbon dioxide emissions for 1990 of the Parties). The Kyoto Protocol sets legally binding targets for industrialized countries to reduce their greenhouse gas emissions (5.2%) to a level equivalent to year 1990 by the target year 2012. The goal is to lower overall emissions of six greenhouse gases – carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydro fluorocarbons and per fluorocarbons. Developing countries like Brazil, China and India have ratified the protocol. The KP is particularly important in the context of marine and coastal ecosystem based project interventions.	A

Annex 6: Stakeholder Analysis and Involvement Plan

Stakeholder participation in project design

The first step was to identify the key stakeholders in the project and involve them in the design. A stakeholder workshop was included as a key activity to feed into preparing the full sized GEF proposal. The present project design reflects the findings of extensive consultations at different levels during the project planning phase. Focused group discussions and individual consultations were carried out and the workshop took place shortly after these consultations. Participants were drawn from each key stakeholder group but the group was represented strongly by the fishing industry. As part of the process, their fears and expectations were also recorded.

Stakeholder participation in project implementation

The project will ensure stakeholder involvement in planning, implementing and monitoring of the project activities. The project will enable multi-stakeholder communities to articulate their perceptions and to participate in decision-making. The communities will benefit from improvements in resources management and the sustainable maintenance of natural resources, both with regard to their living environment as well as their health and welfare. Additional efforts and careful diplomacy at the stakeholder level will be required in order to develop suitable mechanisms for resolving complex and often-conflicting issues in the context of integrated landscape/ seascape management. Many of the stakeholders consulted in the design of this project will also play an active role in its implementation through various mechanisms. The table below summarizes the main stakeholders at the national, state and local level and their potential role in the project.

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
Local communities	This includes private landowners inside the core zone of the MMS (9 households), villages within the MMS core zone (3), villages within the MMS buffer zone (9), and other members of the local fishing and farming community	This stakeholder group is confronted with threats to livelihoods from intensive fishing by vessels from outside the SCME, and limited opportunities to diversify their income sources. They have had a historically difficult relationship with the MMS because they view it as limiting their livelihood opportunities even further. Their interest lies in being able to maintain their traditional fishing practices and enhance livelihoods through fisheries and non-fisheries based livelihoods.	Possess indigenous and traditional knowledge about local resources	Will be actively involved in discussions on the landscape-level zoning plan, EAF-based fisheries management plan, and sustainable tourism plan. Will benefit from technical and financial support provided by the project for re-enforcing traditional fishing practices, developing capacity to support conservation activities, and livelihoods diversification activities.

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
Community level user group based organizations	This group includes local fish worker's union (e.g. Malvan Schramik Maachimar Sangh), local Rampan sanghs, Women's Groups, Youth Groups, and Eco Development Committees (EDCs).	Conflict of interest with intensive trawling by vessels from outside the SCME. Their interest lies in ensuring that the MFRA is effectively enforced, and that local communities can maintain traditional, low-impact livelihood activities while also diversifying income sources and benefiting from the resources flowing into the area from tourism.	Generally well-established in the social fabric of the SCME EDCs, however, are non-functional	Participate in the planning of resource utilization and preparation of micro plans Participate in the capacity development initiatives of the project. Take leadership in the sustainable management of natural resources Partner with other institutions and organizations in implementing the components of the project Participate in dissemination of lessons learnt and awareness activities.
Commercial fishermen from outside the SCME	This group includes fishing vessels from adjoining areas in Ratnagiri District (Maharashtra), Goa and Karnataka.	They are not observing the monsoon fishing ban in SCME waters and are encroaching on traditional fishing grounds.		They will be targeted in activities aimed at disseminating the landscape-level zoning plan, and the EAF-based fisheries management plan
Tourism service providers	Tourism is a growing activity and local people are already offering tourism services such as home stays, hotels, guides, transportation, etc.	Lack technical support and guidance on providing tourism services in a sustainable manner.	Self-motivated group that is looking to tap into economic opportunities that tourism offers.	They will be involved in discussions on the Sustainable Tourism Management Plan and will benefit from technical and financial support provided to communities for capturing tourism returns at the local level.
Local Government	This group includes District Government under the leadership of the District Collector, Gram Sabhas and Panchayat Samitis.	The project provides them with a vehicle to promote greater cross-sectoral planning for the District, and for balancing livelihood, economic and ecological needs of the District.	Focal point for district level planning and allocation of resources.	Ensure that landscape-level zoning plan is dove-tailed into District Planning Process Partner in the implementation of community based components of this project. Participate in the capacity building

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
				<p>initiatives. Regulation and control of production activities in line with Landscape Plan Fulfill their role in the implementation of Coastal Regulation Zone Notification 2011</p>
Local politicians		<p>Have in the past made calls for de-notification of the MMS due to the inimical relationship of local communities with the MMS. Their interest lies in supporting development of the SCME in ways that minimize impacts on the natural resource base on which the local electorate depends.</p>		<p>They will be invited to local meetings, capacity building workshops, and discussion groups as appropriate.</p>
Media	<p>This includes visual, audio and print in the local language.</p>		<p>Reasonably active in reporting on environmental issues and the implications for locals.</p>	<p>Taking the conservation message to relevant sections of the society Facilitate the effort on awareness and training programme</p>
Mining operations	<p>This group includes mining units operating in Redi (Vengurla taluka): two iron ore mining units, one unit that processes imported iron ore and another involved in silica sand mining</p>	<p>These are typically open cast mines and the extracted ores and the waste, if not handled properly, shall ultimately flow into the sea.</p>	<p>MoEF has placed a moratorium on issuance of further mining leases in Sindhudurg District</p>	<p>This group will be targeted in activities aimed at disseminating the landscape-level zoning plan, and the restrictions required on mining activity in the SCME in view of its ecological sensitivity.</p>
Private and public sector industrial enterprises	<p>These are units that are operating in the industrial estate at Kudal and two</p>	<p>Their interest lies in ensuring that they meet national regulations with regard to effluent control and their operations are in line with the</p>	<p>Industrial activity in Sindhudurg District is still limited.</p>	<p>This group will be involved in discussions on the landscape-level zoning plan.</p>

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
operating in Deogad, Malvan and Vengurla talukas	“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	landscape-level zoning plan		
Ministry of Environment and Forests	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.	Their interest lies in supporting the biodiversity mainstreaming activities of the project as these will help fulfill their commitments to the CBD.	Has recently taken strong positions on coastal and marine biodiversity conservation through measures such as the establishment of the Western Ghats Ecological Expert Panel, designation of CVCAs under the CRZ Notification, among others.	Take leadership in the overall implementation of this project. Provide overall administrative locus to the project and ensure the regular monitoring and evaluation of project implementation. Steer and facilitate the required changes in the policy directives for encouraging coastal and marine conservation and sustainable utilization. Provide the required co-financing and coordinate with other Ministries and Departments at central and state government levels to ensure that the committed co-finance, both reoriented baseline and in kind are made available in a timely fashion. Coordinate smooth release of project funds from UNDP-GEF.
Archaeological	Are responsible for the	Have presence in the middle of the	If carefully planned, ASI	Collaborate with the Forest

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
Survey of India	Sindhudurg Fort that is within the MMS.	core zone of MMS. Increased tourism interests not dovetailed into the MMS management	can increase the cultural attributes of the MMS.	Department on the MMS Management Plan and clarify issues of jurisdictional overlap.
Department of Forests and Environment, Maharashtra	Mandated to protect, conserve and manage the state's forests (including mangrove forests and coral reefs) and wildlife resources. Deputy Conservator of Forests (DCF), Sawantwady is responsible for the management of MMS.	They have not been able to develop a collaborative and constructive relationship with local communities to effectively manage the MMS. The project offers an opportunity to address this.	Lacks experience and expertise in managing a marine protected area.	Participate in discussions on the landscape-level zoning plan with specific contributions on rationalizing the boundaries of the MMS. Participate in capacity building activities related to improving management effectiveness of the MMS. Collaborate with Fisheries Department on managing fishing activity that takes place within the MMS. Contribute to discussions on reform of Wildlife Protection Act to explicitly address MPAs. The overall coordination of the project and ensure the regular monitoring and evaluation of project implementation. Facilitate the required changes in the institutional and policy framework for implementation of the project. Provide the required co-financing and coordinate with other departments at state government levels to ensure that the committed co-finance, both reoriented baseline and in kind are made available in a timely fashion.

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
				Coordinate smooth release of project funds from UNDP-GEF.
Maharashtra Coastal Zone Management Authority	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	Under the new CRZ Notification of 2011 issued by the MoEF, Malvan has been identified as a Critically Vulnerable Coastal Area (CVCA) for which an Integrated Management Plan (IMP) needs to be developed. Their interest lies in supporting the biodiversity mainstreaming activities of the project as these will help fulfill the IMP requirement of the CRZ Notification.	This is the first comprehensive approach in the country to have intergrated coastal zone plan. The landscape Plan envisaged under the project shall give an impetus to this process.	They will be consulted on the landscape-level zoning plan and their and will contribute their expertise and experience on integrated coastal zone management.
State Pollution Control Board	It ensures proper implementation of national pollution control norms, judicial and legislative pronouncements related to environmental protection within the State	They have not been able to fully enforce the provisions related to control of pollution and other environmental standards. Capacity issues are a major constraint.	Monitor and collect data on pollution in the SCME	Contribute their pollution control expertise in discussions on the landscape-level zoning plan. Ensure implementation of Environment (Protection) Act, 1986, in SCME Regular monitoring of pollution in the creeks and estuaries Prepare awareness materials and facilitate conduct of awareness

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
<p>Since these line departments are largely playing a consumptive role in the landscape their involvement will be in the following:</p>	<p>Preparation of biodiversity-friendly sector specific plans</p>			<p>programmes</p> <p>Preparation of biodiversity-friendly sector specific plans Take initiative in institution building activities such as capacity, training, awareness, etc Facilitate and coordinate capacity building and training activities for the livelihood activities which are coming under each line department Coordinate community extension activities with reputed resource persons and institutions both governmental and non-governmental</p>
<p>Maharashtra Tourism Development Corporation (MTDC)</p>	<p>Lead agency promoting tourism activity in Sindhudurg District which has been declared a “tourim district” for Maharashtra State</p>	<p>May see a potential conflict between a thrust on high-volume, beach and cultural tourism versus low-impact nature tourism.</p>	<p>Well-established agency that has been working with the private sector on promoting tourism.</p>	<p>Contribute to preparation of sustainable tourism plan for SCME Take initiative in institution building activities such as training and awareness generation Facilitate and coordinate capacity building and training activities at the community level on promoting low-impact, sustainable tourism Identify reputed resource persons and institutions both governmental and non-governmental to support community extension activities</p>
<p>Department of Fisheries</p>	<p>Mandated to manage fisheries within territorial waters</p>	<p>May be concerned that a focus on EAF-based Fisheries Management could compromise achievement of short-term targets.</p>	<p>Expertise in fisheries-management issues and the social dimensions of the fisheries sector.</p>	<p>Contribute to discussions on the landscape-level zoning plan, EAF-based fisheries management plan and support to communities to strengthen traditional fishing practices.</p>

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
				Contribute to discussions on reform of fisheries legislation. Enforce MFRA in SCME.
Department of Agriculture	Mandated to oversee agricultural support and extension.	SCME offers a good environment for agriculture in general and cash crops in particular (e.g., mango). They may not fully understand the links between agricultural effluents and long-term health of the SCME.	Established system for provision of extension services to farmers.	Provide data and information for the study on impact of agricultural effluents on the SCME. Participate in discussions on the landscape-level zoning plan. Align agricultural support services in line with the landscape plan.
Maharashtra Maritime Board	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.	This is a fast growing sector in the State.	Current planning in the Maritime Board does not envisage incorporating environmental concerns.	Participate in discussions on the landscape-level zoning plan. Support implementation of the landscape plan, especially aspects related to ports and maritime traffic.
Coast Guard	Under the Ministry of Defence			Participate in discussions on the landscape-level zoning plan and share lessons from their experience

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
				in monitoring coastal and marine waters. Support implementation of the zoning plan by aligning their activities with the zoning plan.
Wildlife Institute of India	WII is the premier institute in the country dealing with issues of Protected Area management.	The project will give opportunity for the involvement of WII particularly in its nationally relevant elements, such as revisions to national Wildlife legislation.	Has a separate wing for coastal and marine issues	WII can take a lead role in knowledge management and capacity building component under the project.
Central Marine Fisheries Research Institute	The Central Marine Fisheries Research Institute, established by the Government of India under the Ministry of Agriculture in 1947, became a member of the Indian Council of Agricultural Research (ICAR) family in 1967. It has been recognized as a 'Designated National Repository' by Government of India, in consultation with the National Biodiversity Authority, under the Biological Diversity Act, 2002.	The project offers the opportunity to apply their research and expertise for realizing on-the-ground impacts in terms of conservation and sustainable use of coastal and marine resources.	The Institute carries out research in marine capture fisheries, mariculture, marine biodiversity, impact of anthropogenic activities on coastal and marine environment and fisheries. It recently completed the National Marine Fishery Census 2010. CMFRI has various research locations all over India. Those nearest the SCME are field sites in Ratnagiri and Goa and research centers in Mumbai and Karwar.	Contribute their experience and expertise to the diagnostic studies and capacity building workshops organized under the project.
International Collective in Support of	This is an international NGO that works towards the	The project offers the opportunity to apply their research and expertise for realizing on-the-ground impacts	ICSF has undertaken studies on MPAs in India in general and a case	Contribute their experience and expertise to the diagnostic studies and capacity building workshops

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
Fishworkers	establishment of equitable, gender-just, self-reliant and sustainable fisheries, particularly in the small-scale, artisanal sector. The main aims of ICSF are to: monitor issues that relate to the life, livelihood and living conditions of fishworkers around the world; disseminate information on these issues, particularly amongst fisherfolk; prepare guidelines for policymakers that stress fisheries development and management of a just, participatory and sustainable nature; and help create the space and momentum for the development of alternatives in the small-scale fisheries sector.	in terms of establishment of equitable, gender-just, self-reliant and sustainable fisheries.	study on the Malvan Marine Sanctuary in particular. The organization understands and represents the fishing community's perspective on MPAs.	organized under the project. Also, contribute to efforts to engage fishing communities in the dialogue and ensure their interests are addressed.
Science and Technology Park, Pune University	The Science and Technology Park is an institute set up jointly by Department of Science and	The project offers the opportunity to apply their research and expertise for realizing on-the-ground impacts in terms of conservation and sustainable use of the SCME.	Scitech Park acts as a nodal agency to provide training and consultancy services to various government, public and	Contribute their experience and expertise to the diagnostic studies, biodiversity profiling, and capacity building workshops organized under the project.

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
	Technology, Ministry of Science and Technology, Government of India and University of Pune in 1988.		private sector actors. Has the manpower and infrastructure of the University and various national and state institutions. It is actively engaged in providing consultancy services in the area of environment, resource mapping, technology based solution, and institutional & infrastructure development. It provides services in areas such as EIAs and EMPs, Biodiversity Assessment, Ecotourism, among others	
Marine Biological Research Station (MBRS)	For Scientific and planned development of fisheries on the South Konkan coast, the Government of Maharashtra under the Department of Fisheries had established Marine Biological Research Station (MBRS) in 1958 at Ratnagiri, which is presently attached with Dr.	The project offers the opportunity to apply their research and expertise for realizing on-the-ground impacts in terms of conservation and sustainable use of the SCME.	Undertakes need based research on marine fishery resources of the Konkan region of Maharashtra.; Investigates the biology of marine and freshwater animals under controlled conditions; Develops suitable technology for controlled seed production and culture of candidate species of fishes and shell fishes;	Contribute their experience and expertise to the diagnostic studies, biodiversity profiling, and capacity building workshops organized under the project.

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
	Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Ratnagiri District.		Undertakes extension work for transfer of technology to fish farmers and fishermen in various aspects of fisheries in order to enhance the production and upliftment of livelihood of the community.	
Applied Environmental Research Foundation	Applied Environmental Research Foundation (AERF) is a registered non-government organisation (NGO) that aims to demonstrate the conservation of biological diversity through the active participation of local communities, combined with the use of research techniques.	The project offers the opportunity to apply their research and expertise for realizing on-the-ground impacts in terms of conservation and sustainable use of the SCME through participation of local communities.	AERF believes in community-based conservation or participatory conservation which implies involving people in the process of conservation. Western Coastal Maharashtra (Konkan) is one of the areas where AERF works.	Contribute their experience and expertise in the project's efforts to better engage local communities in conservation.
Sahyadri Nisarga Mitra	Sahyadri Nisarga Mitra (SNM) is a leading non-government organization (NGO) in India, engaged in conservation of, education about, and research on nature. In the year 1992, SNM started its work in the	The project offers the opportunity to apply their experience on conservation and sustainable use of the SCME.	SNM has successfully organized various projects in nature conservation, protection and education with its limited resources. Major projects include: Conservation of Marine Turtle, Study of Whiterumped Vulture	Contribute their experience and expertise in the project's efforts to better engage local communities in conservation. Support the Forest Department in participatory conservation strategies.

Name of Stakeholder	Description	Needs/ Problems/ Expectations/ Interests	Strengths and Weaknesses	Role in the Project
	pristine region of Konkan on the western coast of Maharashtra state in India.		(Gyps bengalenses), Conservation of Indian Swiftlet (Collocalia unicolor), Study and conservation of Whitebellied Sea Eagle (Haliaeetus leucogaster), Breeding biology of some bird species	
Bhagirath Gramvikas Pratishthan	Bhagirath Gram Vikas Pratishthan was formed in the year 1987, with an idea to make rural India self-reliant. Development through people's co-operation is their theme. Their view is that maximum utilization of available resources, along with a proper scientific method of conservation helps to attain systematic development.	The project offers the opportunity to apply their experience to realize sustainable rural livelihoods in the SCME.	Tackling rural issues with Bio-gas, Organic farming, Changing Crop Pattern, along with Quality education, Health, Women's empowerment and other such initiatives.	Contribute their experience and expertise in the project's efforts to diversify livelihoods of local communities.

Annex 7: Letters of Endorsement and Co-financing agreements



No.WLP-1009/C.R.17/F-1
Revenue and Forest Department,
Mantralaya, Mumbai - 400032
Date: 16th March, 2009

To
Joint Director (Wildlife)
Government of India,
Ministry of Environment and Forests,
Paryavaran Bhavan, CGO complex,
Lodhi Road, New Delhi - 110003

Sub :- GEF Marine and Coastal Biodiversity Conservation- Potential
Project Sites regarding

Ref :- Letter F.No.4-30/2007-WL-I, dated 22.1.2009

The Global Environmental Facility (GEF) through UNDP and in consultation with the Ministry of Environment and Forests, Government of India has developed a Project Proposal for mainstreaming the marine and coastal biodiversity along coastal area of Sindhudurg District and Malvan Marine Sanctuary and its adjoining land and seascape into the production sector in India. The GEF assistance for the project in Maharashtra is estimated to be US\$ 4 Million and the corresponding co-financing comes to US\$ 12 million, (including the existing state as well as Centre allocations).

2. The State Government is agreeable in principle to the project on the condition that the current existing allocation to various sectors / agencies operating in the area is considered for the calculation of co-financing by the State and that the GEF funding through the Government of India will be a net additionality without any extra burden on the State.

Yours,

(Nitin Kakodkar)
Joint Secretary (Forest)
Government of Maharashtra

043/14

No : WLP-1009/C.R.17/F-1
 Revenue and Forests Department,
 Mantralaya, Mumbai - 400 032
 Date : 28.2.2011.

To
 Joint Secretary and GEF Operational Focal Point,
 Ministry of Environment and Forests,
 Paryavaran Bhavan, CGO Complex,
 Lodhi Road, New Delhi - 110 003.

Sub :- GEF Marine and Coastal Biodiversity Conservation -Potential
 Project Sites regarding

Ref :- 1) Letter No.WLP-1009/C.R.17/F-1, dated 16.3.2009.
 2) Letter No.IND/GEF/UNDP, dated 24.10.2010.

Sir,

The Global Environmental Facility (GEF) through UNDP and in consultation with the Ministry of Environment and Forests, Government of India has developed a Project Proposal for mainstreaming the marine and coastal biodiversity along coastal area of Sindhudurg District and Malvan Marine Sanctuary and its adjoining land and seascape into the production sector in India. The fund requirement for the project is estimated to be US\$ 4 Million and corresponding co-financing comes to Rs.12 crores in which state share will be Rs.3 crores and central share will be Rs.9 crores.

2. The State Government vide letter dated 16.3.2009 has communicated its approval in principle to the Central Government (MoEF). In the letter it is mentioned that the State Government is agreeable to the project on the condition that the current existing allocation to various sectors / agencies operating in the area is considered for the calculation of co-financing by the State and that the GEF funding through the Government of India will be a net additionality without any extra burden on the State.

3. Shri.Pramod Krishnan, Programme Analyst, Energy & Environment Unit vide his letter dated 24.10.2010 has sent the project proposal for approval for mainstreaming the marine and coastal biodiversity along coastal area of Sindhudurg District and Malvan Marine Sanctuary and its adjoining land and seascape into the production sector in India.

4. This is to convey the approval of the State Government for the implementation of the project as proposed vide letter referred to at 2) above, on the same terms as mentioned in the letter dated 16.3.2009

with With regards & respect

Fax No.011 24361745

Yours,

N. Kakodkar

(Nitin Kakodkar)
 Joint Secretary (Forest)
 Government of Maharashtra

Annex 8: Terms of Reference for key project staff

A. MANAGEMENT PERSONNEL:

1. Project Coordinator (PC)

Duration: Full-time during the course of the project

Location: Malvan/ Nagpur

Duties and responsibilities:

- 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.
- 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;
- 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;
- PC shall prepare GEF progress reports for onward submission to NPMU as well as any other reports requested by the SPD, NPD and NPMU.
- 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;
- 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.
-
- Qualifications and skills:
- Post Graduate degree in the field of environment & management, sustainable development or related field
- Outstanding communication, project management and organizational skills
- At least 5 years of work experience in relevant field.
- Familiarity with the working environment and professional standards of international organizations.
- Working experience with GOI institutions.
- Experience in working with NGOs and civil society, and with participatory approaches
- Proficiency in English and computer literacy

2. Financial-cum- Administrative Assistant (FAA)

Duration: Full-time during the life of the project

Location: Malvan

Duties and responsibilities:

- FAA shall assist the LLPMU in the overall administrative and financial matters of the project at the State level.
- FAA shall be responsible for all administrative (contractual, organizational and logistical) and accounting (disbursements, record-keeping, cash management) matters under the project.
- FAA will be responsible for preparing periodic financial statements and compiling the annual project activities and achievement of planned project outputs.
- 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;
- 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);
- FAA shall draft and finalize correspondence of administrative nature; arrange duty travel; fax, post and e-mail transmissions, and co-ordinate appointments;
- 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.

Qualifications and skills:

- University degree preferably in account keeping
- Fluency in written and spoken English and Marati
- Outstanding time-management, organizational and inter-personal skills
- At least 5-year experience in office administration, preferably with externally aided projects
- Excellent computer literacy

3. Office Assistant

Duration: Full-time during the course of the project

Location: Malvan

Duties and responsibilities:

- Assist the LLPMU in the effective implementation of the project.
- Provide all logistic support to LLPMU on drafting, computer assistance, file management, registry, arranging meetings, etc.
- S/he shall report to the Conservator of Forests in charge of MMS and will be part of LLPMU..

Qualifications and skills:

- Graduate degree
- Good communication, and organizational skills
- At least 2 years of work experience in relevant field.
- Good computer skills
- Working experience with GOI institutions.

B. TECHNICAL PERSONNEL

1. Conservation Biologist (CB)

Duration: Full-time during the course of the project

Location: Malvan

Duties and Responsibilities:

- CB will provide technical support to project implementation at the landscape level particularly in the effective and quality delivery of conservation related activities.
- 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.
- CB shall assist the FD in the revision of the Management Plan of MMS and its implementation.
- CB shall undertake the capacity building training programme of the conservation sector.
- CB shall assist the other specialists in the preparation of Natural Resource Plan, village micro-plans, etc
- CB shall undertake ecological monitoring as envisaged in the project
- 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.)
- 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.
- 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.
- S/he will also provide technical support to the development, implementation and/or evaluation of the project activities in the focal area.
- CB shall work under the overall guidance and supervision of the Conservator in charge of MMS and be part of the LLPMU.

Qualifications and skills:

- Post Graduate degree in the field of natural resource management or related field
- Outstanding communication, project management and organizational skills
- At least 3 years of work experience in relevant field.
- Familiarity with the working environment and professional standards of international organizations.
- Working experience with GOI institutions involved in sustainable natural resource management
- Experience in working with NGOs and civil society, and with participatory approaches
- Proficiency in English and computer literacy

2. Socio-economic and Livelihood Specialist (SELS)

Duration: Full-time during the course of the project

Location: Malvan

Duties and Responsibilities:

- 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.
- SELS shall conduct frequent socio-economic monitoring of the project area with a view to generate analytical information about the project implementation.
- 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.)
- SELS shall assist the FD in the revision of the Management Plan of MMS and its implementation.
- 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.
- 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.
- S/he will also provide support to the development, implementation and/or evaluation of the project activities in the focal area.
- SELS will be responsible for advising project partners on the suitability of activities, livelihood strategies, policy change measures etc.
- CB shall work under the overall guidance and supervision of the Conservator in charge of MMS and be part of the LLPMU.
-

Qualifications and skills:

- Post Graduate degree in the field of social sciences/ economics or related field
- Outstanding communication, project management and organizational skills
- At least 3 years of work experience in relevant field.
- Familiarity with the working environment and professional standards of international organizations.
- Working experience with GOI institutions involved in sustainable development/ community empowerment/ natural resource management
- Experience in working with NGOs and civil society, and with participatory approaches
- Proficiency in English and computer literacy

3. Communication and Outreach Specialist (COS)

Duration: Full-time during the course of the project

Location: Malvan

Duties and Responsibilities:

- 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. .
- COS shall be focusing primarily on stakeholder engagement, particularly production sectors in the project umbrella.
- 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.)
- 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.

- 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 contents.
- S/he will also provide support to the development, implementation and/or evaluation of the project activities in the focal area.
- CB shall work under the overall guidance and supervision of the Conservator of Forests in charge of MMS and be part of the LLPMU.

Qualifications and skills:

- Post Graduate degree.
- Outstanding communication, project management and organizational skills
- At least 3 years of work experience in relevant field.
- Familiarity with the working environment and professional standards of international organizations.
- Working experience with GOI institutions involved in sustainable development/ community empowerment/ natural resource management
- Experience in working with NGOs and civil society, and with participatory approaches
- Proficiency in English and computer literacy

Roles and responsibilities of consultants providing technical expertise under the project

Output	Name of the position	National/ international	Period	Task
Output 1.1 Landscape-level Zoning developed	Lead Specialist on Preparation of the Landscape Plan	National	20 weeks	Lead Specialist shall prepare the Landscape Plan for SCME
	Conservation Biologist (CB)	National	6 months	CB shall assist the Lead Specialist in the preparation of the Landscape level Plan for SCME.
	Socio-economic and Livelihood Specialist (SELS)	National	6 months	SELS shall assist the Lead Specialist in the preparation of the Landscape Plan for SCME.
	Communication and Outreach Specialist (COS)	National	6 months	COS shall assist the Lead Specialist in the preparation of the Landscape Plan for SCME.
	Local consultants for undertaking diagnostic studies	National	120 weeks	They shall undertake various diagnostic studies for generating information for the 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

Output	Name of the position	National/ international	Period	Task
				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.
Output 1.2 Cross-sectoral stakeholder consultation committee established	Conservation Biologist (CB)	National	5 months	CB shall assist in the setting up and functioning of the cross-sectoral stakeholder consultation committee.
	Socio-economic and Livelihood Specialist (SELS)	National	5 months	SELS shall assist in the setting up and functioning of the cross-sectoral stakeholder consultation committee.
	Communication and Outreach Specialist (COS), -	National	5 months	COS shall assist in the setting up and functioning of the cross-sectoral stakeholder consultation committee.
	International Specialist - independent mid term evaluation	International	4 weeks	International Specialist shall lead the independent mid-term evaluation of the project
	National Specialist - independent mid term evaluation	National	6 weeks	National Specialist assist the International Specialist in the independent mid-term evaluation of the project
	International Specialist - independent final evaluation	International	6 weeks	International Specialist shall lead the independent final evaluation of the project
	National Specialist - independent final evaluation	National	6 weeks	National Specialist assist the International Specialist in the independent final evaluation of the project
	National Specialist - Monitoring and Evaluation	National	20 weeks	M&E Specialist shall develop the M&E system for the project and help monitor the project processes.
Output 1.3 Recommendations for strengthening fisheries legislation and conservation sector legislation to better incorporate coastal and marine biodiversity	Law Specialist for developing strategies for mainstreaming biodiversity conservation into sector legislation.	National	15 weeks	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.
	Conservation Biologist (CB)	National	2 months	CB shall assist the Law Specialist in developing recommendations for strengthening fisheries legislation and conservation sector legislation to better incorporate coastal and marine biodiversity conservation considerations.
	Socio-economic and Livelihood Specialist (SELS)	National	2 months	SELS shall assist the Law Specialist in developing strategies for mainstreaming biodiversity conservation into sector legislation.
	Communication and Outreach Specialist (COS)	National	2 months	COS shall assist the Law Specialist in developing strategies for mainstreaming biodiversity conservation into sector

Output	Name of the position	National/ international	Period	Task
				legislation.
Output 2.1 Implementation of sustainable fisheries management based on an ecosystem approach	Fisheries Sector specialist for preparation of Fisheries Management plan.	National	20 weeks	Fisheries Sector Specialist shall lead the preparation of the Fisheries Management plan.
	Local consultants for undertaking diagnostic studies	National	30 weeks	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.
	Conservation Biologist (CB)	National	4 months	CB shall assist the Sector Specialists in the preparation of Fisheries Management Plan
	Socio-economic and Livelihood Specialist (SELS)	National	4 months	SLES shall assist the Sector Specialists in the preparation of Fisheries Management Plan
	Communication and Outreach Specialist (COS)	National	4 months	COS shall assist the Sector Specialists in the preparation of Fisheries Management Plan
Output 2.2 Implementation of sustainable tourism that mainstream biodiversity considerations	Tourism Sector specialist for preparation of Tourism Management plan.	National	10 weeks	Sector Specialist shall lead the preparation of the Tourism Management plan.
	Local consultants for undertaking diagnostic studies	National	20 weeks	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
	Conservation Biologist (CB)	National	42 months	CB shall assist the Sector Specialists in the preparation of Tourism Management Plan
	Socio-economic and Livelihood Specialist (SELS)	National	2 months	SLES shall assist the Sector Specialists in the preparation of Tourism Management Plan
	Communication and Outreach Specialist (COS)	National	2 months	COS shall assist the Sector Specialists in the preparation of Tourism Management Plan
Output 2.3 Strengthened management effectiveness of Malvan Marine Sanctuary	Conservation Biologist (CB)	National	17 months	CB shall assist the FD in revising the Management Plan of MMS (biological aspects) and conducting training programmes
	Socio-economic and Livelihood Specialist (SELS)	National	17 months	SELS shall assist the FD in revising the Management Plan of MMS (economic and livelihood aspects) and conducting training programmes

Output	Name of the position	National/ international	Period	Task
	Communication and Outreach Specialist (COS)	National	17 months	COS shall assist the FD in revising the Management Plan of MMS (Awareness and outreach aspects) and conducting training programmes
Output 3.1 Sustainable community livelihoods and natural resource use	Conservation Biologist (CB)	National	9 months	CB shall help in the capacity development of community institutions (biological aspects)
	Socio-economic and Livelihood Specialist (SELS)	National	9 months	SELS shall help in the capacity development of community institutions (socio-economic aspects)
	Communication and Outreach Specialist (COS)	National	9 months	COS shall help in the capacity development of community institutions (nature awareness and outreach aspects)
Output 3.2 Implementation of livelihood diversification strategy and related socio	Conservation Biologist (CB)	National	9 months	CB shall help in the preparation and implementation of livelihood diversification strategy
	Socio-economic and Livelihood Specialist (SELS)	National	9 months	SELS shall help in the preparation and implementation of livelihood diversification strategy
	Communication and Outreach Specialist (COS)	National	9 months	COS shall help in the preparation and implementation of livelihood diversification strategy

Annex 9: GEF-4 Tracking Tool for GEF Biodiversity Focal Area Strategic Objective Two: Mainstreaming Biodiversity Conservation in Production Landscapes /Seascapes and Sectors

I. Project General Information

1. Project Name: Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Sindhudurg coast, Maharashtra, India
2. Project Type (MSP or FSP): FSP
3. Project ID (GEF): 3941
4. Project ID (IA): 4242
5. Implementing Agency: UNDP
6. Country: India
7. Name of reviewers completing tracking tool and completion dates:

	Name	Title	Agency
Work Program Inclusion	Prakriti Srivastava	National Project Director	MoEF
	Mr. Pant	State Project Director	Maharashtra Forest and Wildlife Department
	Pramod Krishnan	Programme Analyst	UNDP
Project Mid-term			
Final Evaluation/ project completion			

8. Project duration: Planned 5 years Actual _____ years
9. Lead Project Executing Agency: Ministry of Environment and Forests (MoEF)
10. GEF Strategic Program:
 - Strengthening the policy and regulatory framework for mainstreaming biodiversity (SP 4)
 - Fostering markets for biodiversity goods and services (SP 5)
11. Production sectors and/ or ecosystem services directly targeted by project:

Please identify the main production sectors involved in the project. Please put “P” for sectors that are primarily and directly targeted by the project and “S” for those that are secondary or incidentally affected by the project.

Agriculture	S
Fisheries	P
Forestry and Wildlife	P
Tourism	P
Mining	S
Oil and Gas	NA
Transportation (fishing ports and maritime traffic)	S
Other (please specify):	NA

II. Project Landscape Coverage

12. What is the extent (in hectares) of the landscape or seascape where the project will directly or indirectly contribute to biodiversity conservation or sustainable use of its components? An example is provided in the table below.

Area Coverage	Total hectares targeted at the following intervals during the project cycle:		
	At project start	At Mid-term Evaluation	At Final Evaluation
Landscape area directly covered by the project (ha)	232 700		
Landscape area indirectly covered by the project (ha)	400 000		

Explanation for indirect coverage numbers:

The area where most of the project activities will be focused is around 2,327 sq. km. This area includes the Malvan Marine Sanctuary (2 912 hectares), the coastal talukas of Deogad, Malvan and Vengurla (165 300 hectares), and the Angria Bank (64 500 hectares) (Map in Annex 2). In addition, the project area will include the marine waters that connect the MMS and Angria Bank (another 400 000 hectares), mainly under the zoning exercise under Output 1.1. Thus, the total area intended to be covered under the project is around 632 700 hectares. The coordinates for the project area are latitudes 15⁰43 and 16⁰44 north and longitudes 71⁰50 and 73⁰43 east.

13. (b) Are there Protected Areas within the landscape covered by the project? If so, names these PAs, their IUCN or national PA category, and their extent in hectares.

	Name of Protected Areas	IUCN and/or national category of PA	Extent in hectares
1.	Malvan Marine Sanctuary (MMS)	Category IV	2 912

14. (c) Within the landscape covered by the project, is the project implementing payment for environmental service schemes?

No, the project will not be implementing such a scheme. However, as part of the capacity development and knowledge management activities, emphasis will be placed on valuation of ecosystem services. This will provide the technical information and background for potential establishment of such a scheme in the future.

III. Management Practices Applied

15. Within the scope and objectives of the project, please identify in the table below the management practices employed by project beneficiaries that integrate biodiversity considerations and the area of coverage of these management practices. Please also note if a certification system is being applied and identify the certification system being used. Note: this could range from farmers applying organic agricultural practices, forest management agencies managing forests per Forest Stewardship Council (FSC) guidelines or other forest certification schemes, artisanal fisherfolk practicing sustainable fisheries management, or industries satisfying other similar agreed international standards, etc.

Note to table below: Under this project, the first step for promoting mainstreaming of biodiversity conservation considerations into production sector activities will be the development of a landscape-level, zoning plan. This will look at current land use in the project area and will then provide a plan for how land uses by the different sectors can be made more compatible with the conservation needs of the SCME. Once background studies and assessments are completed, specific changes to management practices of the production sectors will become clear. Therefore, at this stage, the table below is only indicative.

	Specific management practices that integrate BD	Name of certification system being used	Area of coverage foreseen at start of project	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
1	<u>Conservation sector</u> : E.g., Rationalization of MMS boundaries, conservation of coral areas. ²	Management Effectiveness Evaluation Scorecard (developed by WII)	Around 10 000 hectares		
2	<u>Livelihoods/ subsistence sector</u> : traditional, low-	NA	10 000 hectares		

² During the first year of the project, a revised management plan will be prepared for MMS that may recommend additional management interventions. These will be documented and included in this tracking tool when available.

	Specific management practices that integrate BD	Name of certification system being used	Area of coverage foreseen at start of project	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
	impact fisheries management system; diversification of livelihoods to include fisheries-based and non-fisheries based alternatives				
3	Production Sectors:				
3a	Fisheries: EAF-based Fisheries Management Plan to be developed for the SCME that will include various measures such as modification to catch size, fishing tools (nets, etc), better management of fishing activity to minimize associated waste.	Feasibility of MSC certification to be considered under the project	100 000 hectares		
3b	Tourism: A sustainable tourism plan is to be developed to ensure sustainable management of beach, cultural and ecotourism in the SCME. Measures could range from better visitor management in sensitive areas such as coral reefs; limitation of visitor numbers during certain periods to cause minimal disturbance to fauna; measures to reduce impacts of beach and cultural tourists, etc.	NA	50 000 hectares		
3c	Mining and industrial sector: These sectors will be brought in line with the landscape-level zoning plan. Measures could range from stricter enforcement of national air and water pollution standards for existing units to reconsideration of new leases.	ISO	10 000 hectares		
3d	Fishing ports and maritime traffic: Under the landscape-level zoning plan, several strategies will be considered to reduce pollution and habitat disturbance caused by fishing vessels and other maritime traffic such as better management of fishing vessels congregating in ports to minimize adverse impacts on coastal habitat, better management of maritime traffic routes with specification of no-traffic areas due to ecological sensitivity.	NA	1 000 hectares		

IV. Market Transformation

16. For those projects that have identified market transformation as a project objective, please describe the project's ability to integrate biodiversity considerations into the mainstream economy by measuring the market changes to which the project contributed.

Not applicable.

V. Policy and Regulatory frameworks

For those projects that have identified addressing policy, legislation, regulations, and their implementation as project objectives, please complete the following series of questions: 17a, 17b, and 17c.

17. (a) Please complete this table at CEO endorsement for each sector that is a primary or a secondary focus of the project. Please answer YES or NO to each statement under the sectors that are a focus of the project.

Statement: Please answer YES or NO for each sector that is a focus of the project.	Fisheries	Tourism	Agriculture	Ports	Mining
Biodiversity considerations are mentioned in sector policy	Yes	Yes	Yes	Yes	Yes
BD considerations are mentioned in sector policy through specific legislation	No	No	No	No	No
Regulations are in place to implement the legislation	Yes	Yes	Yes	Yes	Yes
The regulations are under implementation	No	No	No	Yes	Yes
The implementation of regulations is enforced	No	No	No	No	No
Enforcement of regulations is monitored	No	No	No	No	No

17. (b) Please complete this table at the project mid-term for each sector that is a primary or a secondary focus of the project.

Statement: Please answer YES or NO for each sector that is a focus of the project.	Fisheries	Tourism	Agriculture	Ports	Mining
Biodiversity considerations are mentioned in sector policy					
BD considerations are mentioned in sector policy through specific legislation					
Regulations are in place to implement the legislation					
The regulations are under implementation					
The implementation of regulations is enforced					
Enforcement of regulations is monitored					

17. (c) Please complete this table at project closure for each sector that is a primary or a secondary focus of the project.

Statement: Please answer YES or NO for each sector that is a focus of the project.	Fisheries	Tourism	Agriculture	Ports	Mining
Biodiversity considerations are mentioned in sector policy					
BD considerations are mentioned in sector policy through specific legislation					
Regulations are in place to implement the legislation					
The regulations are under implementation					
The implementation of regulations is enforced					
Enforcement of regulations is monitored					

All projects please complete question 17(d) at the project mid-term evaluation and at the final evaluation, if relevant:

17. (d) Within the scope and objectives of the project, has the private sector undertaken voluntary measures to incorporate biodiversity considerations in production? If yes, please provide brief explanation and specifically mention the sectors involved. An example of this could be a mining company minimizing the impacts on biodiversity by using low-impact exploration techniques and by developing plans for restoration of biodiversity after exploration as part of the site management plan.

VI. Other Impacts

18. Please briefly summarize other impacts that the project has had on mainstreaming biodiversity that have not been recorded above.

Annex 10: Incremental Cost Matrix

Benefits/ Outcomes	Baseline (B)	Alternative (A)	Increment (I = A-B)
Domestic Benefits	Biodiversity (coastal and marine) in the SCME provides livelihood support to local people though this is declining due to loss of habitat and destructive anthropogenic activities. The production sectors use the environment as a sink and do not address environmental conservation in their sectoral activities. Skill and capacity of the stakeholders of different sectors in the SCME are not sufficient to practice sustainable use of coastal and marine resources.	More sustainable management of biological diversity in the SCME benefits local communities over the long term including continued long-term access to sustainable livelihood opportunities. The key production sectors develop strategies and incorporate biodiversity concerns in their sectoral activities. Necessary skill and capacity of different stakeholders are improved for fostering sustainable natural resource utilization.	Enhanced ability of stakeholders in government institutions, local communities and NGOs to conserve biodiversity through sustainable use. Enhanced protection/ conservation of coastal and marine natural resources and biological diversity for sustainable development of SCME Effective and sustainable utilization of coastal and marine biological resources.
Global Benefits	The coastal and marine biological resources of SCME more specifically MMS, including globally significant species is declining.	About 6,327 sq. km. of landscape/seascape in the SCME is brought under strategic planning for mainstreaming biodiversity conservation into production sectors; Lessons learned contribute to the development of mainstreaming biodiversity conservation in productive landscape/seascape across India.	Sindhudurg coastal and marine ecosystem, including recently discovered large coral area in Angria Bank, brought under improved conservation, in turn improving the conservation prospects of globally vulnerable, threatened and/ or endangered species harbored there in.
	Baseline (US\$; 5 years)	Alternative	Increment
Outcome 1: Sectoral planning	GoM's sector-based programmes/ schemes for: - research - monitoring - planning Sub total baseline 1,800,000	The Alternative will include the following add-on measures to strengthen the enabling environment for mainstreaming - cross-sectoral institutional mechanism with associated capacity building and M&E program - biodiversity-friendly zoning plan - improved knowledge base on the SCME - strategies for mainstreaming coastal and marine biodiversity conservation considerations in fisheries and conservation legislation Sub total Alternative 3,572,600	GoM 1,400,000 GEF 372,600 Sub total Increment 1,772,600

Benefits/ Outcomes	Baseline (B)	Alternative (A)	Increment (I = A-B)
Outcome 2: Capacity development for implementation of sectoral plans	GoM's sector-based programmes/ schemes for village/ settlement level activities to further sectoral objectives	The Alternative will include the following add-on measures to strengthen the capacity of institutions to further mainstreaming objectives - EAF-based Fisheries Management Plan with associated diagnostic studies and training - Sustainable Tourism Management Plan with associated diagnostic studies and training - Revised management planning process for the MMS with associated technical and financial support, training and tools	GoM 5,000,000
			GEF 1,439,700
	Sub total baseline 9,500,000	Sub total Alternative 15,939,700	Sub total Increment 6,439,700
Outcome 3: Sustainable community livelihoods and natural resource use	GoM's sectoral department budgets for development of alternate livelihood opportunities and enhancement of existing opportunities to reduce dependency on natural resources	The Alternative will include the following add-on measures to make community livelihoods and natural resource use more sustainable - technical and financial support to communities for maintaining traditional, low-impact fishing activity and carrying out conservation activities - technical and financial support to communities for alternative sustainable livelihoods	GoM 5,000,000
			GEF 1,423,225
	Sub total baseline 7,600,000	Sub total Alternative 14,023,225	Sub total Increment 6,423,225
Project Management	Sub total baseline 0	Sub total Alternative 802,769	GoM 600,000
			GEF (contribution to proj. mgmt.) 202,769
			Sub total Increment 802,769
	TOTAL BASELINE 18,900,000	TOTAL ALTERNATIVE 34,338,294	TOTAL INCREMENT 15,438,294
			TOTAL COFIN 12,000,000
			TOTAL GEF 3,438,294

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Country: India

UNDAF Outcome (s)/Indicator (s): UNDAF Outcome 4: By 2012, the most vulnerable, including women and girls, and government at all levels have enhanced abilities to prepare, respond, and adapt/recover from sudden and slow onset of disasters and environmental changes.

CPAP Outcome (s)/Indicator (s): Outcome 4.3: Progress towards meeting national commitments under multilateral environmental agreements

CPAP Output (s)/Indicator (s): Output 4.3.2: National efforts supported towards conservation and management of natural resources (Indicator: Number of new joint initiatives undertaken for integrated biodiversity conservation)

Implementing partner: Union Ministry of Environment and Forests and Department of Forests and Wildlife, State Government of Maharashtra (*Designated institution/Executing agency*)

<p>Programme Period: 2011-2016 Atlas Award ID: 00058538 Atlas Project ID: 00072738 PIMS: 4242 Start date: June 2011 End Date: May 2016 LPAC Meeting Date: 17 September 2008 Management Arrangements: National Implementation</p>
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Total budget	US\$ 15,438,294
Total allocated resources (cash):	
Partner-managed	
o Government	US\$ 12,000,000
UNDP-managed	
o GEF	US\$ 3,438,294

Agreed by (Government):

NAME SIGNATURE Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

NAME SIGNATURE Date/Month/Year

Agreed by (UNDP):

NAME SIGNATURE