

ToR for the Consultants

Programme :

Preparing a Landscape Level Plan for Sindhudurg Coastal and Marine Ecosystem, Maharashtra

Specific Components:

Work Package	Tasks to be undertaken	Estimated budget (Lakh Rs)	Period (Months)	Details
I	<ul style="list-style-type: none">• Provide expert inputs and coordinate development of a landscape and seascape plan (for optimal land/marine area use for the coastal districts and the sea area) and Integrated Management Plans (comprising of land use pattern, management plans for livelihoods, biodiversity conservation and tourism) in Sindhudurg.• Coordination of stakeholder meetings at Sindhudurg	5.6	8 months	Annex 1
II	<ul style="list-style-type: none">• Development of a fisheries livelihoods plan for Sindhudurg based on assessment of status of fisheries as well as fishing communities; ecosystem-based approach and Sustainability certification• Development of conservation management plan for the coast of Sindhudurg district including Malvan Marine Sanctuary and Angria Bank.	2.4	3 months	Annex 2

Annex 1

WP1: Land use planning and zoning:

Development of a landscape and seascape plan for optimal land/marine area use for the coastal districts and the sea area between MMS and Angria bank

- a. A resource map of the district would be prepared to identify rivers, creeks and other waterbodies. This is to identify potential threats to coastal areas (eg. pollution transported through such channels to the coast) as well as coastal protection features such as mangroves and beaches
- b. The shoreline change map would identify areas where erosion is a threat to beaches for fisher use and for tourism
- c. The land use map prepared as part of this package would demarcate zones for various activities based on the background status, potential and optimal use keeping in mind environmental impacts they may cause to marine areas. The land use would be examined over time to understand change.
- d. The marine area map (MMS to Angria Bank) would indicate areas for fishing, conservation (low navigation) and identify safe navigation channels

Method:

Mapping using satellite imagery along with ground truthing for land use mapping, and using shoreline change maps prepared by NCSCM for Maharashtra as well as the CZMP based on CRZ 1991 and CRZ 2011.

Outputs:

- Land use map with use classification of different zones demarcated
- Marine spatial map with zones demarcated (fisheries, tourism, conservation, navigation etc)

Purpose:

- From the map, possible adverse impacts on the environment may be inferred including sources /conflicting use of land based activities that affect marine areas

- Information from this map would feed into integrated planning for the region by identification of zones and their potential use (e.g. zone for ecotourism, horticulture, fisheries, ESA etc)
- If needed, to suggest appropriate revisions in the existing master plans/regional plans that deal with land allocation/earmarking land for various uses.

Role of Consultants

- Provide expert inputs and coordinate development of a landscape and seascape plan (for optimal land/marine area use for the coastal districts and the sea area) and Integrated Management Plans (comprising of land use pattern, management plans for livelihoods, biodiversity conservation and tourism) in Sindhudurg.
- Coordination of stakeholder meetings at Sindhudurg

Essential Qualifications

- Doctorate in life sciences with experience in undertaking and leading national research studies on conservation, ecosystem management and ICZM.
- Evidence of having lead a team of scientists for coastal ecology and conservation planning

Annex 2

WP2: Sustainable Management Plan

(A) Sustainable Livelihoods Plan

This would comprise of fishing (the dominant coastal livelihood) as well as agriculture/horticulture and tourism which are the land based livelihoods of high importance as the area is known for horticulture and is also being developed for tourism. Besides it will address alternate livelihood options to minimize over-exploitation of fishery resources.

- a. Development of a fisheries livelihoods plan: Both traditional low-impact fishing as well as newer techniques (trawling) are practiced in the area. Boats fishing in the area include locals as well as those coming in from outside. Thus, fishing has a high impact on the coastal and marine biodiversity. An ecosystem approach to fisheries would be the best way forward.
- (i) *Assessment of the status of fisheries as well as fishing communities:* Through FGD and supplemented with case studies and available data, the current status, needs and aspirations of the community need to be studied and appropriate interventions are to be designed for a)livelihood related issues and b)communities related issues (housing, education, health etc). These should be compared with the current and future plans of the various sectoral departments (fisheries, rural department etc.) with respect to existing and planned interventions specific to fishing communities as well as general schemes that fishing communities may draw upon.
- (ii) *Development of an Ecosystem Based Approach:* For livelihood related issues, the development of a co-management framework would be taken up. This would require capacity building for both the community as well as the enforcement agencies (fisheries department) for better understanding of what each group can and must do to ensure that MFRA rules are adhered to; and based on consultations, identify the loopholes and hindrances that prevent effective implementation of

MFRA and how they can be overcome. A co-management platform would have to be developed.

- (iii) *Sustainability certification*: Examination of low impact fishery and MSC certification will need to be examined as incentives for EBA to fisheries
 - (iv) *Livelihood Enhancement and Diversification*: Along with the EBA and co-management framework, consultations should yield information on the needs and requirements for livelihood enhancement and diversification activities (especially with reference to the lean period and fishing ban period). This may include possible training in eco-tourism supporting activities such as providing home-stays in the fishing village, sea-tours operated by the fishing community etc. For these, appropriate capacity building and training programmes may need to be identified and carried out.
- b. *Development of a sustainable livelihoods management plan*: Other resource based livelihoods: The area is also known for a variety of horticultural crops apart from tourism.
- (i) *The status of these livelihoods and the stakeholders need to be examined from a livelihoods approach as well as the communities' requirements in terms of social infrastructure (education, health, housing etc).*
 - (ii) *Extent of different types of crops, threats faced by crops (including climate change threats), possible interventions to improve the status of the farmers such as market linkages, credit facilities etc. may have to be examined. Largely through FGDs with stakeholders; mapping of agri-horticultural areas and identification of threats using GIS*
 - (iii) *Plans of the agriculture department along with those of other sectoral agencies will need to be examined for appropriate action.*
 - (iv) *Organic farming and certification processes could also be examined for boosting farmer income as well as ensuring long term land sustainability.*
 - (v) *Support to tourism related activities such as supply of fresh produce to hotels and restaurants in the district as well as novel tourism tours such as of fruit plantations could be developed*

Method:

In the case of fisheries livelihoods, stakeholder and livelihood analysis at the fishing villages / landing centres (FGD), followed by visioning and strategy

workshops to evolve an ecosystem based approach. Within these workshops, approaches to improve fisheries-livelihoods including enhancement and diversification exercises as well as fisheries management strategies would need to be built up. This would require the whole-hearted participation of the fisheries department as well as the fishing communities.

FGDs would also be the method to be followed for understanding the status and needs of non-fisheries livelihoods. Using the land use maps, areas currently under crops would be examined with respect to their potential, threats faced (e.g. industries, mining, reduction in water supply, climate change etc). Stakeholder workshops would help in identifying best ways forward including possible identification of organic farming certification and linkages with the tourism sector and also the alternate livelihood options that are acceptable to the community.

Outputs:

- A detailed fisheries management plan using an ecosystem based approach to fisheries livelihoods
- A sustainable livelihoods plan of action for the non-fisheries resources based livelihoods

Purpose:

- Sustainable livelihood plans would feed into the integrated management plan for the district.

(B) Conservation Management Plan

The plan area shall include not only the coast of Sindhudurg district but also the Malvan Marine Sanctuary (MMS) and the Angria Bank which contains coral. Thus, the conservation management plan is envisaged to include the following:

- a. Identify areas in Malvan (apart from the MMS) as a potential CVCA.
- b. Identification of measures for preservation and conservation of coral reefs and other associated ecosystems through Biophysical Monitoring of the area
- c. Identification of degraded habitats, long term restoration and monitoring plan for habitat restoration (e.g. mangroves, coral reefs)

Method:

- a. For identification of areas in Malvan as potential CVCA, a two part exercise would have to be carried out as follows:
 - (i) Ecological importance of Malvan area would have to be evaluated based on the species diversity and other parameters
 - (ii) Dependency of local communities on natural resources would have to be evaluated using the methodology developed by the NCSCM

Once the above exercises are completed, using outputs from the above and supported by stakeholder discussions, demarcation of the CVCA and development of a plan for managing the CVCA as a part of the Conservation management plan would be carried out.

For (b) and (c), secondary data would first be used to prepare a detailed resource map of the study area from which areas of concern would be identified. These would include areas of high biodiversity that need high protection as well as areas that are degraded that could be restored. This would be followed by field visits to validate the information before developing a plan of action. For example, known threats to coral reefs include navigation, oil spills from trawlers as well as anchoring of tourist boats. These need to be identified through field visits and solutions generated via expert suggestions and stakeholder discussions. Mapping of coral reefs would help in identifying

locations where boat anchoring should be prohibited and also possible sites for ecotourism (snorkeling/ scuba diving). Some of the degraded habitats including mangroves can be identified for restoration using MNREGA or other funds for livelihood generation and community based management activities

Outputs

- Identification of conservation and preservation areas, development of a management plan for these areas.
- Evaluating the social dependence of local communities on ecosystems and development of a management plan for the designated CVCA (Malvan)
- Action plan for restoration of degraded areas

Purpose:

The conservation management plan would feed into the landscape level plan for the study area.

Role of Consultants

- Development of a fisheries livelihoods plan for Sindhudurg based on assessment of status of fisheries as well as fishing communities; ecosystem-based approach and Sustainability certification
- Development of conservation management plan for the coast of Sindhudurg district including Malvan Marine Sanctuary and Angria Bank.

Essential Qualifications

- Doctorate in life sciences with experience in undertaking and leading national research studies on fisheries management and resource/livelihood management
- Expertise in ecosystem-based fisheries management and conservation planning for coastal resources
- Evidence of having lead a team of scientists for agricultural and allied resource management