

Zoological Survey of India

Project Summary

India has a long coast line of about 7000 km and the marine ecosystem offers a rich biological resource, much of which remains to be explored. The coastal zone of West Bengal comprises parts of PurbaMedinipur, North and South 24 Parganas. The coastal zone of West Bengal is quite unique of its kind because of its sheer exotic floral and faunal variety that thrives in the mystic mangrove swamps of Sundarban deltaic regions to the enamoured coastline of PurbaMedinipur known for its casuarina embedded sand dunes, ingress of less turbid but saline sea water, cusped delta of the Subarnarekha, and neo-tectonic depressions in its western side. The entire 210 Km coastline of West Bengal is under reeling under severe pressure due to rampant uncontrolled anthropogenic interventions.

The Integrated Coastal Zone Management Project plans to address these critical issues pertaining to preserving of the unique ecosystems by taking into confidence the local populace in a participatory and holistic approach. One significant component within this project is to assess as well as aware people about the importance of faunal resources i.e. sea, estuarine areas, brackish-water lakes and back-waters of the eastern coast of India and their interaction with the marine ecosystems.

Zoological Survey of India (ZSI) is associated with this project as one of the Pilot Investment Executing Agencies primarily because it is the only taxonomic organization in the country involved in the study of all kinds of fauna occurring in all possible habitats from deepest depth of the ocean to the inhospitable terrain of Himalayas. ZSI has been providing regular services with regard to permissible limits of legal trading of faunal resources or derivatives thereof, monitoring services on population status of commercially important species and provides input for underutilized, culturable species both from terrestrial and aquatic systems. ZSI also provides timely warning on declining population of species of commercial importance to ensure sustainable use of components of biological diversity. ZSI also involves in environmental impact assessment of certain areas.

The implementation of this entire project component will be at Marine Aquarium & Regional Centre, Digha. ZSI has been mandated to implement the following tasks within the ICZM Project: -

A. Training on Integrated Coastal Zone Management:

The purpose of the training is to provide effective and sustainable training and advisory services in coastal zone management in West Bengal. The goal of this project sub-component is to establish effective institutional capacity at state level for integrated coastal zone planning and management. The moot point is to increase awareness on the conservation and sustainable usage of marine biodiversity.

This has two components: -

i) Conducting training programme for civil society organizations and primary stake holders (Community training)

Training has been imparted mainly to the primary stakeholders comprising of fishermen, hoteliers, members of Gram Panchayat, representatives of hawkers union etc. on the prudent usages of pro-sustainable on-farm and non-farm livelihoods that can flourish in a coastal ecosystem. Primary stake holders who are dependent on coastal bio-resources learnt that there is no conflict of interest among the apparently alien concepts e.g. sustainable development, economic empowerment and livelihood enhancement activities.

ii) Conducting training programme for West Bengal State Government officials, local self-government officials and Panchayat Raj Institutions

The first training program that has been imparted to the officials of Government of West Bengal is aimed to sensitize the first-hand knowledge managers about various issues related to the coastal and marine biotic and abiotic resources available in general in the coastal areas of West Bengal in particular. Training also includes livelihood practices of the coastal people, exploitation of the coastal people by both endogenous and exogenous forces, the nature and the categories of the stake holders both primary and secondary, threats both natural and anthropogenic on the marine resources and their resultant impact on the ecosystem. However the principle objective of this training program is on the managerial aspect of managing the coastal resources in tandem with CRZ notifications through scientific intervention and conflict resolution amongst the competing interest groups.

B. Establishment of a Marine Museum & Interpretation Centre:

Marine Museum: The Marine Museum which is to come up will promote education, research and training in conservation and sustainable development of marine resources, and a rational deployment of biotechnology. Among its facilities are the free standing exhibition tanks, live open water reef exhibition centre, live shallow reef exhibition centre, mangrove walk, contemporary Marine and Maritime Museum, Multimedia Interactive Information Kiosk, and Sipadan deep dive diorama. Exhibits of the museum can act as reference for educational, and research programmes and will help the visitors to appreciate, understand and work in maintaining and sustaining the varied marine and coastal natural resources of especially in the coastal zones adjacent to the state of West Bengal.

The museum shall exhibit issues on:

- The natural history of coastal marine fauna including seabirds.
- Current research activities of MARC, Digha.
- The marine ecosystems i.e. Coral Reefs, Mangroves, Sea grasses etc.
- Awareness creation on conservation through display of models of cetaceans i.e. whales, dolphins, dugongs, and etc.

Interpretation Centre: The proposed Interpretation Centre will aid in generating and sustaining public understanding and appreciation of the marine environment. It also provides an insight to:

- o Marine Biodiversity and endangered species.
- o Fishing methods, edible fishes and their conservation.
- o Impacts of climate change and sea level rise.
- o Coastal pollution- cause and effects; their prevention and control.
- o Threats to natural habitats- coral reefs, mangroves, sea grass and also their conservation.
- o Sea exploration- minerals, sea mounts and hydrothermal vent animals.
- o Sustainable development including pollution prevention and control.

The interpretation centre will have visually-stimulating colour photos, and graphics. It will also contain well-preserved specimens and artefacts, including both hands on and hands off items.

C. Modernization of Marine Aquarium:

To renovate and upgrade the existing aquarium to a high standard. The following issues are proposed to be attended:

- Upgradation of the existing filtration system of the aquarium and to make it semi-closed.
- Recycling of the exchanged water.
- Removal of Total Dissolved Solids through efficient mechanism.

- Utilization of U.V. sterilizers, one at the multi bed pressure filter and other at the discharge area of the storage tank. This will make water recycling more effective and will give pathogen free water.
- Inclusion of Micron filters to remove suspended particles thereby increasing the effectiveness of U.V. sterilizers.

Description of the tanks to be set up:

- Community tank with invertebrates and fishes like sea anemone, crustaceans, tube worm, sea cucumber, sea star and fishes that are compatible with the invertebrates
- Sea grass and sea weed planted aquarium with sea horse and pipe fishes
- Aquascaped tanks domiciled by marine eels and jelly fishes
- Separates Tank for Damsel fishes and Clown fishes
- Tanks for poisonous fishes like Lion fishes, Puffer and Sea Dragon
- Aquascaped tanks for Wrasses, Angel, Squirrel Fishes, Grouper, Sea Bass, Rabbit, Basslet, Banner, Moorish Idol, Parrot, Dotty Back, Tangs, Powder Blue, and Trigger fishes
- Crustacean tank for crabs, shrimps, lobster, hermit crab
- Tanks for Butterflies, Batfish, Sweetlips, Arowana, estuarine fishes,
- Fresh water species like Cichlids, Angel, Parrot, Koi Carp etc.
- Decorated tanks that will be resided by skates, rays and fast swimming fishes
- Aquascaping with live and dead corals, live rocks and sea rocks.
- Fish quarantine system to quarantine the fishes against parasites and infection
- Artemia hatching and culturing tank for feeding the tubeworms, corals, mollucs etc.

D.Upgradation of Infrastructure facilities:

Apart from modernization of aquarium and establishment of marine museum and interpretation centre, it was realized to upgrade certain existing infrastructure facilities to the Centre which was approved through revised DPR. The infrastructure facilities viz. air-conditioning, false ceiling, flooring, laboratories, furniture, equipment, etc. will be added to following part of the Centre:

- ◆ Auditorium
- ◆ Conference room
- ◆ Laboratories
- ◆ Museum and Interpretation centre
- ◆ Aquarium gallery
- ◆ Scientist rooms
- ◆ Common toilets

Project Tenure: - Five Years

Project Cost: -Rs 4.11 crores