

# Forest Directorate, Government of West Bengal

## Project Summary

The Digha-Sankarpur area's western sideways has become vulnerable to coastal erosion in some of its stretches due to unbridled and rampant human interventions - which in fact have proliferated like a contagion along the coastal zones of West Bengal. Containing the damages caused due to inundation of coastal areas due to periodic storm and tidal surges, seasonal high velocity winds, storms and cyclones is the loci upon which the future sustainability of the coastal communities depends to a large extent. Engineering solutions through civil constructions of appropriate shore protection measures are progressively being provided to mitigate the above hazards and to reduce the vulnerability to coastal hazards. The fecundation of the aforementioned civil constructions can only be realized if that is supplemented by construction/restoration of natural bio-shields of mangroves and other plants. Natural bio-shields will serve twin purposes

- ◆ Safeguarding the ecological security of the Digha-Sankarpur coastal area
- ◆ Providing livelihood opportunities to the fisherman and other inhabitants living in the coastal area through the initiation of community based afforestation programmes.

The Forest Directorate which is functioning within the ambit of Forest Department, Government of West Bengal has been entrusted with the task of preventing coastal erosion by developing coastal bio-shields in Digha Sankarpur area under the ICZM Project. The Forest Directorate has been assigned this task because it has the acumen in supporting biological diversity, maintaining ecological and evolutionary processes, expanding forest area through reforestation and also providing a range of goods and services that contribute to community well-being, creating economic opportunities and promoting environment driven social harmony. The Forest Directorate will raise and maintain appropriate plantation in an area of 700 hectares following the departmental norms of expenditure over a five year period. The villagers and or/ local self-government will be involved in the management of the proposed plantations jointly with Forest department. The project cost involved here is over Rs 5.39 crores.

### **The depletion in mangrove cover is due to the following factors:-**

- ❖ Over exploitation of vegetation for fodder and fuel-wood by local communities and lack of awareness
- ❖ Reduce Natural Regeneration: One of the factors for reduction natural regeneration of mangroves has been the reduction in fresh water inflow, which has led to increased salinity. No major rivers, except Subarnarekha with its reduced annual flows, pour fresh water in this part of Bay of Bengal. As a result, only hardy species with high salt tolerance can only manage to survive.
- ❖ The erosion of the shoreline due to violent sea action and tidal surges

### **Impact of depletion in mangrove cover**

The loss of mangroves in the Digha-Sankarpur area has a direct negative consequence for the marine fisheries, as they provide nutrients and breeding grounds to many fish species. Many of the nearby coastal rich fishing grounds are directly or indirectly dependent on mangroves for their sustained yield. Degradation of mangroves poses a serious threat to this resource and to the dependent fishing community. It also leads to increased soil erosion in the coastal areas, as the protective barrier between the sea and the land is lost. The natural barrier to the salt laden winds is also lost due to destruction of mangroves leading to increased spread of soil salinity adversely affecting agricultural production. This leads to declining employment opportunities among agricultural laborers and marginal workers of villages.

### **Objectives of creating Bio-shields**

The objectives of the proposed programme are to create/strengthen natural wind breaks or shelter belts in the coastal in order to protect the adjoining habitations and agricultural fields from effect of strong winds including engulfment of the agricultural fields by wind borne coastal sand and to develop a natural barrier against the impact of storm and tidal surge. The programme aims at addressing the environmental issues like coastal bio-shield area degradation, salinity ingress, sea-water intrusion on agricultural lands, anthropogenic pressures etc. The objective is also to contribute towards enhancing natural beauty of the coast and adding aesthetic value of the beach thereby attracting more tourists and to promote labour intensive activities relating to creations and maintenance of such plantation area and thus providing a source of income for the local coastal populations. This project component will enhance livelihood opportunities through plantation and regeneration activities, increased fodder availability for the owners of livestock through alternative resource creation. The increase in mangroves area will also help the fisherman community by way of enhanced fishery resource in the near-shore waters. There will be increased availability of fuel wood and small timber through sustainable harvesting of mangroves and other plants. Since this will be a community based approach, the community will have a feeling of owning the programme and the concept will be sustainable in the long run. The programme will also likely to open up new avenues of livelihood in the long run that would strive to integrate various farm-based activities such as apiculture, silviculture and non-intensive aquaculture.

The programme has been designed for environment conservation which after implementation will have the following consequences: -

- The air quality will improve as the coastal plantation help in sequestering CO<sub>2</sub>.
- The mangroves will help in trapping the sediment which otherwise flows down in the sea.
- The marine biota like crab, fish and birds etc. will get enriched as mangroves in the bio-shield area provides the breeding ground for them.
- Scientific studies will be conducted to characterize the soil type, salinity, hydrological regime, geomorphology, sediment transport and technical feasibility for mangrove plantation and restoration activities.

The overall objectives is to contribute towards increased understanding and acceptance of the need to protect, conserve and regenerate mangroves and the other plants as bio-shields by the local communities, government and coastal industries as part of Integrated Coastal Zone Management Project.

### **Site specific conceptual design models for the bio-shields**

- ◆ **Nursery raised Saplings or potted seeding-** This model is adopted due to its capacity to give better survival rate. Nursery beds will be prepared in the inter-tidal belts of the selected areas. The nursery operations will start from the month of August and will continue till the month of November-December.
- ◆ **Earthen Mound Technique-** It is also easy to implement where large areas are to be brought under mangrove cover. The model has proved to be effective in terms of survival rate in adverse ecological conditions.
- ◆ **Direct Dibbing-** This Method can be employed at the places where tidal current is low.
- ◆ **Plantation in the Trenches-** This model can be adopted at the places where the water inundation takes place once in 10 days as well as in hyper saline area.

### **Implementation strategy**

The Programme Coordination Committee will be formed consisting of members from Forest Department, Forest Directorate, Forest Protection Committee (FPC), Gram Panchayat and NGOs. It will look after the progress of the Programme implementation and will hold quarterly meeting to review the Progress. Apart from the SPMU's know-

how, services of experts from various fields will be taken by hiring them as consultants on a short-term basis as and when required.

Forest Directorate on behalf of the Forest Department will also have a detailed Memoranda of Understanding (MoU) with the partner Forest Protection Committee (FPC) members and other stake holders to clearly delineate the responsibilities in programme implementation. Forest Directorate will also obtain specialized/technical inputs, work for broad-based documentation and information dissemination, deliberates on policy decisions, promote research and conduct regional and issue-based work workshops. The Directorate will deploy field functionaries at each of the programme implementations sites during the course of implementation of the project. The field functionaries will be responsible for development of people's institutions, awareness generation and training with regard to plant regeneration, protection and participatory management and programme reporting etc. Preparation of MIS, regular site visits and interactions with Programme implementation partners (CBOs), literature survey, documentation (including videography), development of baseline information, develop and implement strategies for internal monitoring report writing, organizing meetings, workshops etc. are the set of numerous tasks that have to be taken care during the course of execution of the programme. SPMU along with the Forest Directorate will monitor the activities of the programme to ensure compliance with the programmed outcomes, outputs, and budget and programme management.

### **Plan of work with NGO's**

Involvement of NGO's will be an integral part of the programme. The detailed design for bio-shield development will be drawn up by Forest Directorate based on scientific survey of the individual sites including their physical and chemical characteristics. Several options of plantations will be critically examined to find the most acceptable design through several grass root level interaction to be arranged by the NGOs. Here lies the critical role of the NGOs to bring diverse opinions on a common platform without sacrificing the scientific aspect of the most acceptable design. The plan of work with NGOs will be drawn up by the Forest Directorate on mutually agreed terms and conditions of their involvement which will be dovetailed into the scope of the entire programme.

NGOs will be trained with various organizational skills pertaining from accounting to democratic decision making processes so that no unconsecrated polarization of power could able to germinate and sustain. Efforts will also be there not only to ensure the adequate representation but also in the decision making process with respect to womenfolk in the task components to be implemented through NGOs. Women will be entrusted with major responsibility of maintaining nurseries, filling of polythene bags, seed collection etc. together with economic activities like, savings, investment and managing credit transactions.

Higher echelons of membership will be granted to those in the SHGS that functions with the assistance of NGOs, from those communities who are more dependent on the mangroves, like the livestock owners and fisherman. A site-specific strategy for each NGO based on the need will be designed and implemented.

### **Operation and Maintenance Strategies**

Post programme sustainability will be ensured by building the capacity of the CBOs and their organisational management, so that they can manage and maintain the assets generated through these programme activities. To enhance the skill of the existing and newly recruited staff, certain training programmes have been incorporated in the programme. They will undergo specialized training programmes, like PRA, gender issues, organisational management and technical aspects of coastal bio-shield.

	Nature of activities						
	Mangrove Plantation	Coastal Shelter Belt Jhaw Plantation	Gap Planting	Strip Planting	Farm forestry	Development of Central Nursery	Soil Moisture Conservation -Palisade
Name of the Gram Panchayat/ Range	Dariapur , Bamunia , Padima II/ <b>Contai</b>	Dariapur, Talgachari-II, Padima I/ <b>Contai</b>	Haripur, Kadua, Biramput, BaguranJalpai, ShyamraibarJalpai, Padima I TajpurBarakana, Talgachari - II, Shankarpur / <b>Contai</b>	Baguran Jalpai, Kalurairbarh, Dauttapur, Paschim Gadadharpur, Chandpur, Shankarpur / <b>Contai</b>	Dauttapur, PaschimGadadharpur, Chandpur, Shankarpur / <b>Contai</b>	Junput/ <b>Contai</b>	TajpurBarakana, Talgachari-II, Shankarpur / <b>Contai</b>
	Haldia Municipality, Khejuri/ <b>Bajkul</b>	Nijkasba, Khejuri, Jhirkhurkhali, Kukrahati, Dhalhara, HorhKhali / <b>Bajkul</b>	Nijkasba, Khejuri / <b>Bajkul</b>	_____	DhobaGhata, bamunchak, Khejuri, Nijkasba, Mehedinagar, Kadirabarchar, Dhobaghata/ <b>Bajkul</b>	_____	_____

Several Entry Point activities such as construction of rural road, animal rescue center, patrolling camp, facilitation of drinking water supply by erecting of tube wells and pump machines along with distribution of Sewing machines, Paddy thrashers, Van rickshaws at the aforementioned ranges will be done to instil confidence among the local populace about the efficacy of this ICZM Project.

The Forest directorate had already procured Anti-poaching patrolling van for better monitoring and implementation of their assigned project component.