

## **Coastal area Eco-Restoration project in Hazira Peninsula, South Gujarat India**

A community mangrove restoration project initiated in the four villages of Junagam, Rajgiri, Vasva, and Tunda of Hazira peninsula through a participative model funded and supported by the Hazira Group of companies has resulted in a mangrove plantation of 1100 ha with introduction of four new species of mangroves suitable to Hazira.

### **REGENERATING MANGROVES**

Over the last few years, the Hazira peninsula has witnessed extensive efforts to regenerate mangroves. Community institutions have led the effort, and these have been supported by the Forest Department and funded by Hazira Group of Companies.

It was evident that a large-scale mangrove plantation program required a sustainable basis and that it was essential for the community to be involved in the implementation. The model of a community engaged plantation project was approved by the Chief Secretary of the Gujarat State in May 2004.

The approach adopted was one based on being a “Tree Growers Cooperative” / “Joint Forest Management” with the Hazira Gropu playing the role of donor and catalyst as well as being the Project Management support and providing technical expertise

Gram Vikas *ane* Paryavaran Samities (GVPS- a registered village institution) were formed in all project villages, with representation from the Gram Panchayat, representatives from marginalized groups and opinion leaders of the village. The potential plantation areas were surveyed by experts from Gujarat Institute for Desert Ecology and Bidhan Chandra Krishi VisvaVidhyalaya, Kalyani, West Bengal (BCKV).

All the areas identified were to the north of Hazira village and included the mudflats of Junagam, Rajgiri, Vasva and Tunda villages. The GVPS with support from the existing Gram Panchayat were given the responsibility of overall planning, implementation, supervision and protection of the zone.

The district administration, the forest department, technical experts, partner NGO's aided the GVPS and Gram Panchayats in executing the project.

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The local staff of the forest department trained the community members in nursery raising and managing plantation labour. Members of Samities were exposed to “best practices” in plantation management, safety and environment, financial management and reporting, transparent accounting practices and contracting and tendering etc.

The members of the GVPS associated with the project were taken for familiarisation trips to Bhuj (GUIDE), Dahod and Bhilwara (FES), to understand community led eco-restoration.



With an ecosystem approach to plantations, the project pulled-in local expertise and knowledge to assist plantation development in a sustainable and cost efficient ways, laying emphasis on maintaining the natural diversity of the ecosystem.

Aggressive plantation techniques, seeding of native species and micro-environment mapping went into planning. The basic plantation model includes rotational use, with each village working out specific details according to its micro-environment, people's needs, levels of degradation, biotic pressure, institutional strength etc. The guiding principle was to match the immediate and micro livelihood requirement with long term and macro processes.

Capacity building for village leadership as well as awareness building in the larger community has been a focus area to ensure sustenance of the plantation efforts. Capacity building covers areas related to mangroves but also looks at aspects of project management. Key component activities have included: -

- Intensive surveys, PRA, Planning Exercises
  - “Learning by doing” small activities
  - Formal Agreements/ MoUs with HSE clauses, Induction
  - Financial Audits and balance sheet presentation to GBM
  - Support in developing implementation and management plans
  - Support in accessing other stakeholders
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To encourage local participation and understanding on ecological issues a Mangrove and a Nature Interpretation center has also been established at Junagam. The Surat Nature Club has been an active participant in increasing awareness on environment issues.

For Mangrove plantation in highly degraded areas, the strategy was to assist the primary colonizer, the *Avicennia* species, which has relatively good coverage . Mudflats which do not receive adequate number of seeds because of tidal-current and lack of good upstream seed production, were artificially planted with seeds and saplings. Simple protection, minimizing anthropogenic pressure with community awareness, leaving aside some *gauchar* (grazing land) land as well as leaving some space initially for fishermen's day-to-day activities following interaction with community stake-holders also created buffers from economic degradation.

#### **Achievements & Concerns:-**

A total of 1100 ha mangrove plantation has been undertaken in 4 villages in the Hazira peninsula since 2004. In addition to *Avicennia* plantations, propagules of *Ceriops* spp. and *Rhizophora mucronata* have also been planted for the enrichment of mangrove plantations in the inter-line and intra-line spaces. The plantations of the additional species were done with extensive support of the Forest Department, Surat. Results of the scientific research study carried out in an area 1100 confirm that more than six million plant population has been regenerated with an average population of 6000 plants per hectare, (initially 2500 plants/ha with a spacing of 2m x 2m through nursery and subsequently with 2500 saplings in between) other than generating species diversity with addition of 4 more species (*Rhizophora* sp.; *Ceriops* sp.; *Avicennia officinalis*; *Bruguiera* sp.).

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