



Mangroves Plantation carried out by SGIF

Background:

Sustainable Green Initiative Foundation is a social organization focused on fighting climate- change, hunger and poverty since 2018.

Over the past 5 years, SGIF has positively impacted our environment and some of the most vulnerable communities in India by way of planting trees and creating sustainable livelihoods. SGIF is proud to have LTI Mind Tree as one of its biggest partners.

Project Name: Planting Mangroves in Ecological Sensitive Zones in the Eastern Coasts of India

LTIMIndtree partnered with SGI Foundation to plant 16 lakh mangrove saplings in 2022 and 2023 in Sunderbans.

Sunderbans planting took place in South 24 Parganas which is an aspirational district.

Sunderbans:

The Indian part of Sundarbans ecosystem consists of 102 islands, 54 of which are inhabited and the other 48 forested. The inhabited islands are protected by a centuries old system of ring embankments extending for over 3500 km in length.

Sundarbans is home to over 4.5 million people, with very high population densities. This has led to pressure on the mangroves for land required for grazing, net-fishing on mudflats, prawn seed collection, and illegal fuel wood collection. The extension of non-forest land use into mangrove forest area is pronounced and reclamation of mangrove mudflat areas for fishery, farming and habitat encroachment is continuing.

Restoration of the mangrove ecosystems in the West Bengal area of the Sundarbans can contribute to community climate resilience and climate change adaptation while helping biodiversity conservation and absorption of GHG emissions. Restoration of mangroves is the very foundation for sustainable fish populations in the ocean which is the major source of livelihoods for the local population. Without mangroves it is impossible to envisage a healthy ocean.

The implementation of the project was done with ample participation from the community. We were guided and advised by Bali based WPSI headed by tiger conservator Shri Anil Mistry. The project receive support and appreciation from the local forest officials as well.

Plantation Activity:

Before beginning plantation, a study is conducted to establish suitability of land, availability of permission to the planting which is typically done on community land or newly created mudflats. This process is followed by doing a sense check on community and political buy-in of the area.

Tidal inundation is studied including soil condition and seed availability.

- a) 2022: In 2022 Plantation done at three different Gram Panchayet areas of South 24 Parganas District. Total area coverage was 54.04 hectare and total 8,10,600 numbers of propagule/saplings were planted.

Names of villages: Kanthalberia, Uttam Mokaberia, Gopalganj,

- b) 2023: In 2023 plantation done at five different Gram Panchayet areas of South 24 Parganas District. Total area coverage was 63.95 hectare and total 10,38,600 numbers of propagule/saplings were planted.

Names of villages: Kanthalberia, Fulmalancha, Amjhada, Bharatgarth

Monitoring and Evaluation:

The regular maintenances of the plantation sites are mainly done by the watcher recruited for the Project. The watchers are local people who have existing relationships with the communities where the plantations are done. The watchers provide feedback on any damaged fencing and other threats to the plantation so that the field team and supervisors can take appropriate action.

Day to day monitoring of the plantation sites is done by the watchers as well. They ensure plantation sites remain safe from the anthropogenic activities like releasing of the cattle & goat in the plantation sites for grazing, illegal logging of trees etc.

Project staff also carry out regular monitoring through site visits at regular intervals to each plantation sites. These visits are documented and backed by photos of the plantation sites, collecting feedback from watchers and local community to evaluate the status of each plantation site. Project staff also takes six monthly reading of survival & average height of plants.

For monitoring project staff has done random sampling, while taking photo they take photo with coordinates of that site, drone images were also collected.

Local communities are actively taking part in maintaining and monitoring the plantation sites. Through a participatory process total 7 watchers are employed to watch the plantation sites. The community participates heavily in activities like fence maintenance etc.

SGIF follows a statistically accepted way of monitoring survival. Each polygon is set up with a random plot that covers atleast 1% of the overall population. This monitoring for LTI Mind Tree has been carried out for 2022 plantation once in June 2023 and once in February 2024.

Impact Study

Community Participation

All of the seed collection and nursery management is carried out by community members. Other than this, all the planting as well as watching and maintaining of the plantation is carried out by local members. Without this participation it would be impossible to engage and get a buy in from the community members of where the plantation takes place.

The nursery mangers are not only experts in offering advice on what the best species mix should be (to replicate a naturally occurring forest), but also great advocates to spread awareness in the community on the long term benefits of having a healthy mangrove cover around the villages that they live in.

The watchers are also local people who understand the immediate challenges of the community and are able to feedback to the project team any remedial action that needs to be taken to protect the interests of the community while protecting the plantation.

Income Enhancement:

SGIF distributed 500 ducklings in the villages along the plantation areas wot supplement the incomes of people in the area. The last assessment of live ducks indicated that 70% of ducklings had matured and reproduced while the remaining 30% had been consumed after reaching maturity (16+ weeks).

Ecological Impact:

A mangrove plantation takes anywhere between 4 to 7 years to stabilise. However, there are noticeable changes to the landscape that have been observed. The presence of Nalia grass (pioneering associate mangroves) and Harkanch (Associate Mangrove) have been observed in most polygons around the plantation. These grasses are critical to stabilising the soil and arresting erosion. These help not only with the survival of the new plantation but also aid in natural regeneration of other species.

Mangroves are critical to arrest the rate of sedimentation into the ocean. Mangroves aid in building a suitable habitat for crustaceans like crabs and snails. These are an excellent source of nutrition as well as fetch a handsome price in the market. Communities in some areas have already started reporting healthier vegetation along the river bank as well as an increase in the snail and crab populations.

Carbon Sequestration:

While there are various ways to try and gauge the carbon sequestration attributed to mangroves, it is generally agreed that a mangrove forest more than 8 years old absorbs between 39 to 52 MT per hectare. This plantation carried out by LTIMindtree through SGIF will take away more than 5500 MT from the environment every year.* This sequestration caused by arrest of sediments is over and above the above quoted number.

**US Agency of International Development*



Location: Sunderbans. Plantation on stable soil starts attracting grass germination building its own eco system.



Location: Sunderbans. Planting in one of the newly created mud flats. Loose soil is clearly visible where planting is being done. Stable soil where grass is germinated indicates chances of a healthy mangrove forest in the future.