Communities Adapt!

Finding new ways to fight Climate Change

Communities Adapt! Planting Trees to Fight Climate Change

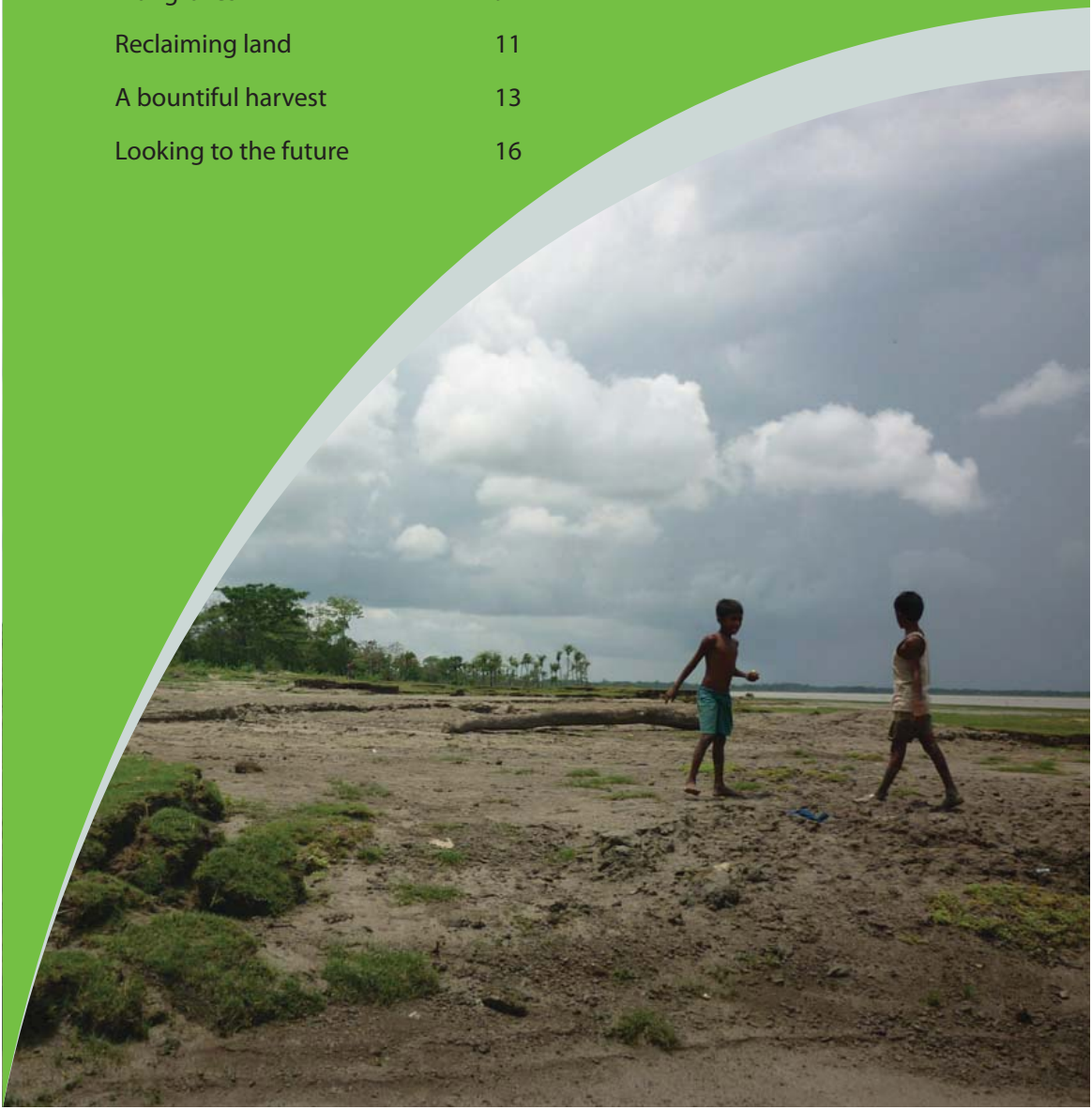
Published by
Community Based Adaptation to Climate Change through Coastal Afforestation
UNDP Bangladesh
IDB Bhaban, Agargaon, Dhaka, Bangaldesh

This publication is available online at www.undp.org.bd

Graphic Design by
Ibrahim Khan Monir

Printed by
Dot Printing and Packaging

Contents



Overview

United Nations Development Programme (UNDP) is the UN's global development network, an organization advocating for change and connecting countries to knowledge, experience and resources to assist people build a better life. Working in 166 countries, UNDP is working with them on their own solutions to global and national development challenges.

UNDP embarked on its journey in Bangladesh in 1973. Since its inception, UNDP and its partners accomplished key results in the areas of governance, poverty reduction, environment, energy and climate change, disaster management, and achievement of Millennium Development Goals (MDGs). UNDP is engaged with various governmental agencies and partners to thrive towards economic and social development in Bangladesh.

'Empowered Lives, Resilient Nations'

UNDP is working with coastal communities in four areas across Bangladesh's 710 km coastline. These places are particularly vulnerable to the impact of climate change and their communities are faced with the challenge of coming up with creative ways to adapt their livelihoods to protect them from rising sea levels and more frequent and intense storms.

Project Snapshot:

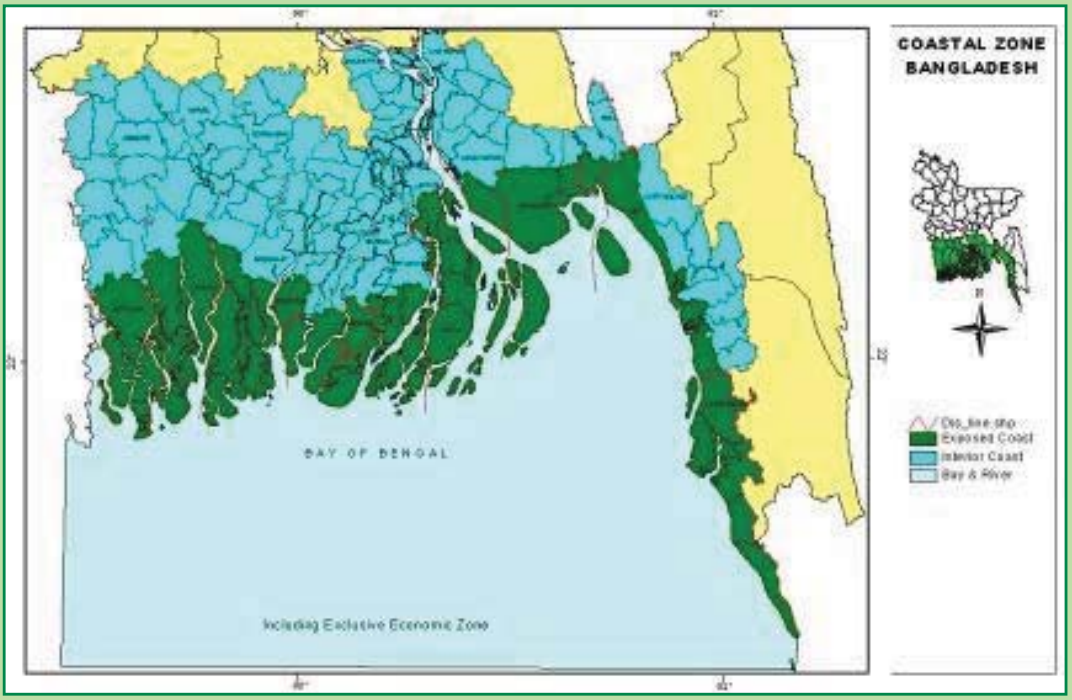
Official Title: Community Based Adaptation to Climate Change through Coastal Afforestation

Timeframe: April 30, 2009-march 31, 2013

Implementing Partner: Ministry of Forests and Environment

Development Partners: GEF, UNDP, Government of Bangladesh

Overall Budget: US $5.4 million



Two years into the project:

- More than 13 million seedlings have been planted
- 350 families are already benefiting from 'triple F' land use model
- More than 10,000 people trained in diversified adaptive livelihood, and
- 42% of beneficiaries in project sites are women

Planting mangrove trees along the coastline serves as a powerful buffer against the effects of climate change. UNDP is supporting local communities to plant and nurture these green belts that will protect them and their land from rising sea levels, erosion and storms. To make these efforts sustainable, they must be linked to solutions and alternatives for local livelihoods. One of the most important components of this project is a rational land use model that makes barren coastal lands productive again.

Climate Change

Although not a significant contributor to climate change, Bangladesh is one of the countries most at risk from its projected impacts. Climatic events like cyclones, tornadoes and floods have in recent years become less predictable, and more severe and frequent.

Communities living in Bangladesh's low-lying coastal region are especially at risk. Coastal areas have higher rates of poverty that the rest of the country, and people are heavily reliant on natural resources like forestry and fishery stocks for their livelihoods. Poverty and a direct dependence on the environment for survival makes it harderit harder to adapt to the changing and volatile weather and to respond to and withstand climate induced threats.

Coastal communities will be most adversely affected by:

- A predicted sea level rise of 45 cm by 2050 will affect 35 million people living in Coastal areas (IPCC)
- Approximately 1,000 sq km of cultivated coastal land and aquaculture cultivation is likely to become salt marsh due to increased salinity
- Food security and livelihood options will decrease significantly

Compounding this challenge is the growing risk that Bangladesh will lose huge areas of land to rising sea levels. Millions of people have already been displaced from their island homes as land is rapidly eroded. There is hope however. Bangladesh has the potential to gain more land than it loses. Every year, hundreds of tons of sediment is washed through the huge web of rivers that criss cross the country. If this sediment could be caught and held on to, land could be saved, and even expanded.

"This project is really about helping people to think about their resources in a different way. Not statically, but as resources that are changing. Its simply about getting better at adapting to change. And change is inevitable".

--Paramesh Nandy, Project Manager

The Pilot Project

Without forests, coastal land and people are left exposed to the natural disasters so common in this region. Trees offer a natural protection against storms, floods, and tidal surges. Following its valuable green protective functions, a number of donor funded afforestation projects with mangrove species was implemented along 710 kilometer coastline in Bangladesh. Major focus of this afforestation was limited on land stabilization in the past but less addressed to climate change impacts. Hence, UNDP-LDCF-GEF pilot project has brought farther connotation of coastal afforestation programme with climate change mitigation and adaptation beyond the traditional management approach.

Coastal 'green belts' are now being established again through the 'Community Based Adaptation to Climate Change through Coastal Afforestation' project. Along 14 kilometer of coastline, UNDP is working with the Forest Department and the communities themselves to plant mangroves. The mangroves are being interspersed with timber and fruit trees, which can be pruned for firewood or harvested for fruit and eventually timber. By making forests valuable to communities, the project is ensuring its own sustainability.

Thousands of families have benefited from training in nursery and forest management, as well as cash for work programmes set up to conduct the planting. These individuals are being encouraged to see and use their limited natural resources in alternative and more sustainable ways, and to spread what they learn to their communities.

Over its lifetime the project will:

- Establish 7,000 hectares of mangrove, fruit and timber plantation;
- Provide livelihood diversification support for 85,000 vulnerable people through plantation training and cash for work programmes;
- Mitigate climate change through increasing carbon sink capacity;
- Increase siltation, helping to reverse erosion and build up land; and
- Provide natural protection against storms, tidal surges, and other disasters.

Mangroves

The tree that fights storms

Mangroves are among the most Carbon dense forests compared to other forest domains in the globe which indicates for higher mitigation benefits of mangrove ecosystem than any other means. Mangrove forests absorb 97.57 tons of carbon per hectare, or more than three times the absorptive capacity of non-mangrove forests. With a total of 6,100 ha of mangrove plantation anticipated throughout the project, and combined with the 923 ha of non-mangrove plantation, the four project sites will together absorb more than 610,000 tons of carbon!

The World International Union for the Conservation of Nature Union ((IUCN) compared the death toll from two villages in Sri Lanka that were hit by a devastating tsunami. In a settlement protected by dense mangrove and shrub forest only two people died, whereas in a close by village without similar vegetation almost 6,000 people perished. The same evidence can be gleaned when making comparisons over time. In 1960, a tsunami hit the coast of Bangladesh in an area where mangroves were still intact. Not a single human life was lost. These mangroves were subsequently cut down. In 1991, thousands of people were killed when a tsunami of the same magnitude hit the same region.

Mangroves can survive in saline water because of their special 'breathing' roots. These same root structures help to hold on to fragile land. In fact, mMangroves trap sediment at such a high rate that they can potentially reverse the effects of sea level rise on this deltaic regionin the delta. Every year, millions of tons of sediment are washed through Bangladesh's river delta system, delivering the sediment that offersoffering one of the few natural lifelines the low lying country can harness to protect itself against the impacts of climate change.

UNDP is testing a range of species and planting approaches to determine which combinations of mangroves trap the largest amount of sediment, thus best reversing the effects of erosion.

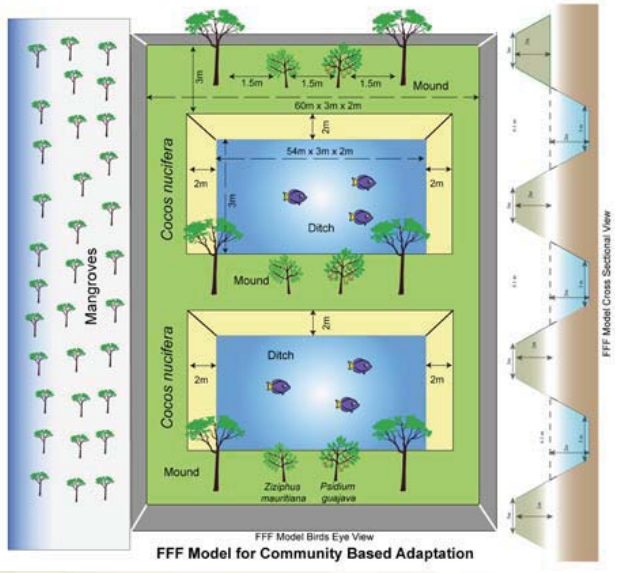
Planting mangroves along coastlines also makes coastal land useable again. In areas where the forest has been cut down, coastal lands become inundated with every coming tide and are completely submerged during storms. Nothing can be planted here. Once coastal forests are established again, cultivation may be possible.

Reclaiming land

A new land use model

One of the most innovative components of the coastal afforestation pilot has been the development of the "Forest, Fish and Fruit" (or "Triple F") model. The model offers a new way to transform barren coastal land into productive again By building mounds and ditches, fruit and timber trees can be grown, and fish can be cultivated. In addition, high yielding vegetables can also be grown between the trees and along the banks of the ditches. Because the entire model is raised, it is protected from tidal surges and storms.

The very existence of the Triple F model in these areas saves the land and the forests around it from encroachment.

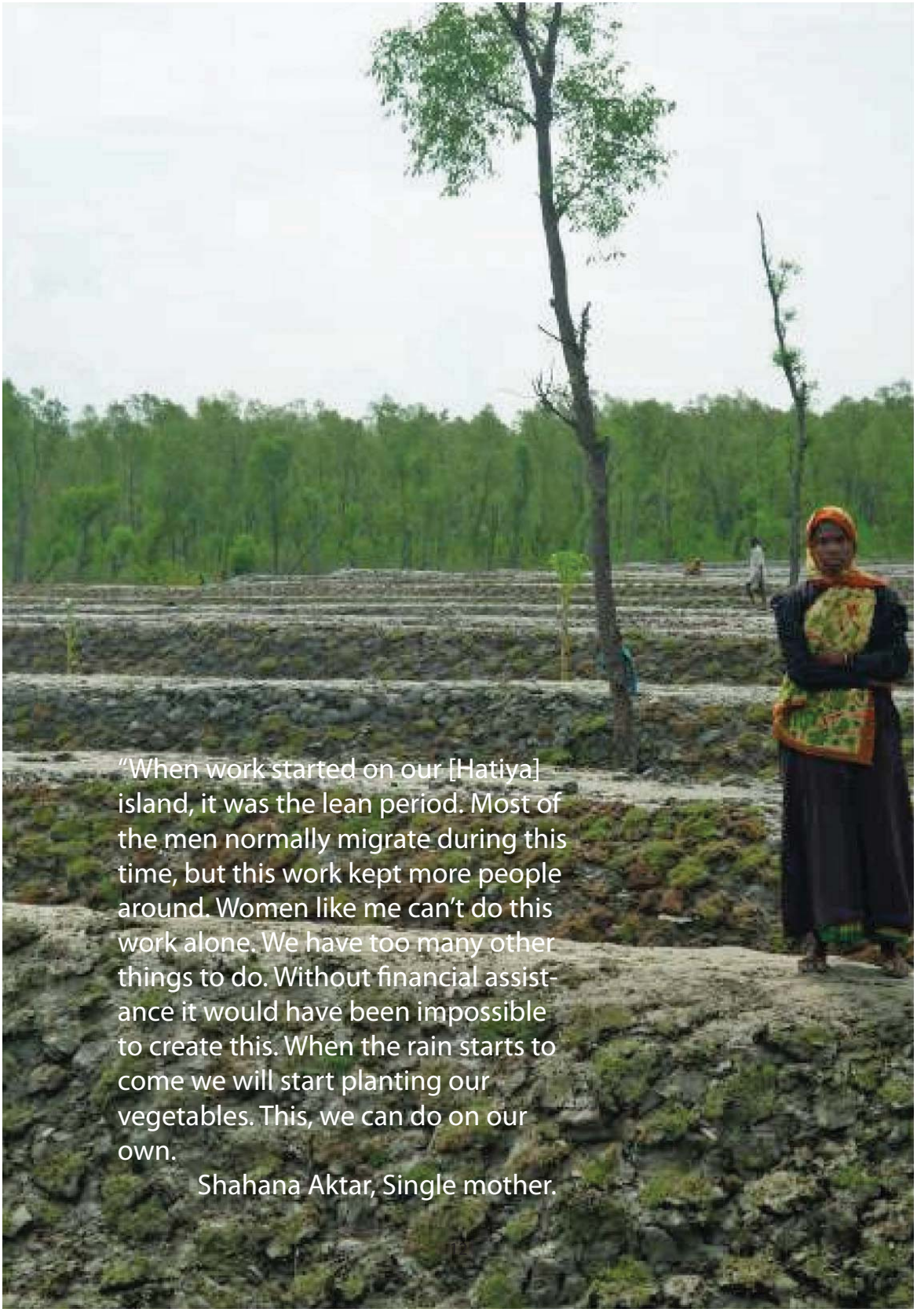


FFF Model for Community Based Adaptation

The major contribution of the model is that it can accommodate 8-10 families on just one hectare of land. Each family is allotted enough space for one mound and one ditch. In addition to being adaptive to climate change, the 'Triple F' represents a pioneering rational land use model for a highly land scarce country like Bangladesh.

Where is the model suitable?

- In areas that are protected by coastal forests
- In areas that are outside of embankment protection
- In areas not suitable for cultivation because of salt water inundation



"When work started on our [Hatiya] island, it was the lean period. Most of the men normally migrate during this time, but this work kept more people around. Women like me can't do this work alone. We have too many other things to do. Without financial assistance it would have been impossible to create this. When the rain starts to come we will start planting our vegetables. This, we can do on our own.

Shahana Aktar, Single mother.

A bountiful harvest

Priority given to:

- Those living adjacent to site have priority
- Only the landless are considered
- Those living outside or on the embankment who are the most vulnerable to climate change effects have priority
- Ultra/extreme poor
- Abandoned/widowed FHH prioritized

For most families, getting a 'Triple F' plot means the chance to as much as triple their normal income. On just one hectare of land, 8 ditches and 8 dykes can be built, with one dyke and one ditch going to each family.

With financial assistance from UNDP, and technical help and training from Department of Forest and Environment, the is built to accommodate 27 trees along each ditch. In between the trees and along the banks of the ditches, high yielding vegetables are grown and as soon as enough rainwater is harvested in the ditches, fishes from the Department of Fisheries can be grown. The harvested rainwater can be used also to irrigate the plantations on the ditches.

The benefits of the model are ample and ongoing:

- Quick growing and early yielding fruit trees can produce as much as 10-20 kilos of fruit per tree per year.!
- This fruit can be sold for as much as $500-$700 a year.
- Timber trees provide communities with long term timber, short term fuel wood from pruning.
- Ditches can accommodate enough fish to harvest up to 150 kilos of fish per year. Families can sell what they don't eat for as much as $-250-$300 in local markets.
- High yielding vegetables, planted between the trees, will yield a harvest within one season, providing families with a great boost to household nutrition.

Looking to the future

The project has not been without its challenges. Many more people want to be involved in the project than can be accommodated for and there is competition over resources, even the barren lands where Triple F is being implemented. The remoteness of these especially vulnerable communities has also been difficult. Most of all changing weather patterns have made it hard difficult to execute the project according to plan . The most important thing to come out of this is the understanding that the project itself needs to be adaptable, flexible enough to change according to the environments in which it is taking place.

UNDP is helping Bangladesh to fight climate change on the front lines, but the battle has to be fought by others elsewhere in order for a real change to be possible. This project is changing people's lives in four project areas but the benefits could be extended to people throughout other coastal areas in the country and beyond Bangladesh's borders. Many countries in the region and globally are struggling with climate change and are more exposed because of deforestation. Afforestation and rational land use models like the Triple F offer a lifeline for people in vulnerable areas.

IDB Bhaban, E/8-A Begum RokeyaSharani, Sher-e-Bangla
Nagar, Dhaka 1207, Bangladesh
Tel: (880) 2 8150088, Fax: (880) 2 8113196
Email: registry.bd@undp.org, Web: www.undp.org.bd