



# STRENGTHENING THE FIRST LINE OF DEFENCE

*Flourishing mangrove greenbelt protects vulnerable coastal communities in Bangladesh*



*In 1970, the world's deadliest storm, known as the Great Bhola Cyclone, killed between 300,000 and 500,000 people in what is now Bangladesh. In 1991, a violent cyclone accompanied by tidal surges up to 30 feet high took an estimated 138,000 lives. In 2007, Cyclone Sidr claimed over 3,400 lives.*

*In May 2017, Cyclone Mora affected over 3 million people, killing at least six, damaging or destroying 52,000 homes, and leaving hundreds of thousands in need of shelter.*

*Of the world's seven tropical cyclone basins, the Bay of Bengal is perhaps the most dangerous, its funnel shape and shallow waters fostering some of the most destructive storms in history.*



Integrating Community -based Adaptation into  
Afforestation and Reforestation (ICBA-AR) Programmes in Bangladesh  
Ministry of Environment, Forest and Climate Change







*"I live at Monpura. When storms hit, they damage houses and land and pour saline water into the paddy fields and crops. Already I've shifted my home once due to river erosion and it is further in danger because the mighty river Meghna is only one kilometer away."*

*Adition Chandra Das, Rahmanpur, South Sakuchia, Monpura, Bhola*

For those living along Bangladesh's densely-populated, low-lying coastline, the risks are growing, as climate change drives rising sea levels, warmer oceans and increasingly ferocious cyclones. Bangladesh has been identified by the Intergovernmental Panel on Climate Change as one of the countries most vulnerable to rising sea levels and frequency and intensity of extreme weather events.

In a bid to increase natural protection for vulnerable residents, the UN Development Programme (UNDP), together with Ministry of Environment, Forest and Climate Change, has been working with communities on a unique programme expanding a greenbelt of mangroves and promoting more-resilient, multi-species forests.

After two years, the programme, with support from the Global Environment Facility (GEF), is making strong headway, embracing both participative design and community-based management in its implementation.

### **INVESTING IN NATURE'S SOLUTIONS**

With support from the Bangladesh Forest Deptment, over 176,000 mangroves seedlings from 10 robust, saline-tolerant species have been planted and raised in 10 different forest ranges. The species are Sundari (*Heritiera fomes*), Passur (*Xylocarpus mekongensis*), Shingra (*Cynometra ramiflora*), Khalshi (*Aegiceras corniculatum*), Kankra (*Bruguiera gymnorrhiza*), Hanthal (*Phoenix paludosa*), Goran (*Ceriops*

dacandra), Keora (*Sonneratia apetala*), Baen (*Sonneratia apetala*) and Golpata (*Nypa fruticans*). These are the major species of the Sundarbans, the largest mangroves of the world. These species are saline tolerant, strong wind resilient and helpful to create stable green belt. Over 200 hectares along the vulnerable An estimated 35,000 people in 62 villages are expected to benefit directly or indirectly.

Over 200 hectares along the vulnerable Barguna, Patuakhali, Bhola and Noakhali coastline have been covered with mangroves, in-line with adaptation priorities set out under the country's National Adaptation Programme of Action, Climate Change Strategy and Action Plan, and Seventh Five-Year Plan (2016-2020),

Around 40 forest resource protection groups are under formation. Eight co-management committees are involved directly in the establishment of the greenbelt.

Mangroves are one of nature's shields against cyclones, sea level rise and tidal surges driven by climate change.

### **LOOKING TO THE PAST, FOR THE FUTURE**

The use of mangroves to help protect coastal areas is not new-in fact, Bangladesh is a pioneer in coastal afforestation and since the 1960's, the Bangladesh Forest Department has planted over 200,000 hectares of mangroves along the coast.



However, two stumbling blocks affected the initiative's effectiveness: a lack of species diversification and inadequate community engagement in the management of forests.

In the past, generally, only two mangrove species, Keora (*Sonneratia apetala*) and Baen (*Excoecaria agallocha*) were planted. After around 20-25 years these species naturally die, leaving gaps in the greenbelt and nearby households vulnerable.

The initiative also stumbled due to limited livelihood options for communities; limited local participation in greenbelt management; insufficient incentives for communities to ensure their long-term maintenance; and inadequate inter-sectoral coordination.

Mangroves help buffer the land against storm surges, strong winds and sea level rise, providing a protective barrier for the community and their homes, often situated close to the shoreline. In addition, they provide a biodiversity benefit by creating coastal environments.

### **IMPLEMENTING LESSONS LEARNED**

To make the coastal belt more protective and climate-resilient, the ICBA-AR Programme has learned from the lessons of the past and enriched the plantation with a diversity of other species.

As incentive to the community to act as local custodians of the forest, the programme is offering climate-resilient livelihoods linked to management of the greenbelt.

To improve local people's benefit from and ownership of the mangrove forests, the programme has invested in strengthening awareness and actively involving communities and other stakeholders (including local government representatives, local leaders, NGOs, women, and youth) in forest management and adaptation activities.

A total of 650 hectares will be reforested under the programme, due to be completed by 2019.

***"We live near the Bay of Bengal, therefore we have to contend with cyclones like Sidr, Aila, Nargis and Mahasen. The mangroves save us from such devastating disasters. At the same time, they act as a nursing and feeding ground for fish, absorb carbon, and protect land from erosion, increasing biodiversity - the value of which cannot be converted into cash."***

Ismail Hosen, Panpottry, Galachipa, Patuakhali







UNDP in association with Ministry of Environment, Forest and Climate Change initiated ‘Integrating Community-based Adaptation into Afforestation and Reforestation Programmes (ICBA-AR)’ in 2016 to help Bangladesh realise the full adaptive potential of coastal greenbelts. The goal of the project is to create a protective and stable greenbelt, increasing species diversity in coastal forests for enhanced socio-economics benefits to local communities.

UNDP has been working since 2009 with the Ministry of Environment, Forest and Climate Change and has planted 9,000 ha of mangrove and non-mangrove plantation that has increased country’s carbon sink capacity of 637,200 tons per year.

*"Forests consume carbon-dioxide from the atmosphere and act as a shield that prevent us from cyclones and tidal surges. For our safety,we are determined to protect this forest."*

*Rawshan Ara, Patharghata, Barguna*

## ICBA-AR Programme

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