

Bangladesh

Impacts from Climate change

In Bangladesh, there are three great rivers called the Ganges, the Brahmaputra and the Meghna as well as approximately 230 other rivers and tributaries. Most of the country is therefore quite flat as it forms a floodplain. After heavy rains, the rivers burst their banks and there is frequent flooding. For many months the land which the people used for cultivation is waterlogged so they cannot grow crops.

More recently (as a result of climate change), the floods have become worse and more frequent. In 2004 two-thirds of the country was submerged. This affected 50 million people as their homes and their staple crop, rice were submerged or washed away and millions went hungry.

Imagine what it must be like to no longer be able to live in your home and sit on the roof waiting to be rescued?

Below are some details of the impact:



Temperatures

- Increase in annual mean temperature 1.3°C by 2030 and 2.6°C by 2075

Rainfall

- Higher monsoon rainfall
- Near zero winter rainfall by 2075
- Greater frequency of flooding and winter drought
- Higher intensity of cyclones

Coastal areas

- Increase in coastal flooding as sea levels rise and river flooding increases
- Salt water expected to advance 60 km inland by 2100 affecting crops
- Increased erosion along the coast making land more unstable

Inland regions

- Limited drainage resulting in longer periods of water logged land
- Less availability of freshwater for coastal agriculture, industry and

households

- Loss of grain yields (rice, wheat and potato)

People

- Higher mortality and injuries because of flooding
- Greater heat stress
- Greater spread of infectious disease

Practical Action project – Floating Gardens

Much of the land in Bangladesh is covered by water during the monsoon season, making it impossible to grow crops. Practical Action has been working with small communities in Bangladesh to help improve their lives by developing an appropriate technology which allows farmers to grow food on flooded land.

Hyacinth Raft

Firstly, a floating raft is built using water hyacinth which is a type of hydro plant (plants which grow in water). The rafts vary in size, depending on the space available and size of the family. Typically the length will be between 15 – 45m, the width from 1.5 – 2m, and the height will be no more than 1m.

Within this, natural compost is added and allowed to decompose. The structure of the floating raft is strengthened with bamboo.



Planting

Seeds of vegetables are then planted. In the rainy season, cucumber, egg plant (aubergine) and different types of gourd vegetable are planted as well as herbs such as basil and spices such as tumeric and okra. In the winter season, beans, tomatoes, cauliflower, cabbage, potato, raddish, carrots, onions are grown as well as herbs and spices such as ginger, mustard, and chilli.



Fences protect crops from larger pests



The finished raft

A fence can be put round the floating garden to protect the vegetables from rats, ducks and other predators. Once the raft is built it is tied on to a post so that when the flood waters come it doesn't float away. As the land floods the raft will float up and the vegetables will be safe.

Maintenance

Weeding, organic pest control and sometimes irrigation are done using a raft, small boat or sometimes on foot if the water is not too deep. The vegetables can be collected 2 or 3 times a week. Some of the crop is used by the farmer and his family. The rest is taken to the market to sell. A new raft needs to be built every year, but the old one can be used as fertiliser during the dry season.

A Personal Story

Tara Begum is 42 and she lives with her husband and son in a small compound in Shingria, 15km from Gaibandha town. Tara has moved 7 times due to floods so now she lives on a flood embankment built by the government. Her family owns some land, but this is very sandy and infertile. Tara struggles to grow food during the dry season, and during the monsoons her land is covered by water making it impossible to grow crops. She said,

‘During the last monsoon, I could only provide one meal a day for my family and they were always hungry.’



Tara's Garden

In June 2005, Practical Action provided Tara with training in vegetable production, and showed her how to make a floating vegetable garden. Her family collected water hyacinth and used it to make a raft. She then covered this with soil and some cow dung, and planted seeds. She grew red onions, a leafy vegetable called Kang Kong, some okra and sweet pumpkin. She also grew seedlings for gourd which she could transplant when the flood died down.

During the last flood, Tara had enough food for her family. She even managed to sell the extra vegetables that she produced. There is little food in the markets during the monsoon as few people can grow crops, so her vegetables are in great demand. And by cultivating seedlings in the floating garden, she was able to plant them earlier in the year and therefore get a better harvest. After the end of the monsoon season, Tara used the old raft as compost to grow crops in the dry season.

The floating vegetable garden is a new initiative introduced by Practical Action. Tara was the only person in the village who received this training, but following its success, Tara's neighbours are copying the idea and making their own floating gardens. Eleven other women in the Gaibandha district have received training so far and Practical Action will expand this project in the future.