



# Community-Based Adaptation Innovation to Build Resilience



## Community-Based Adaptation: Innovation to Build Resilience

*This brief highlights the experience of a pilot project, where technological innovations have played a vital role in improving the resilience of the poor communities of south-western coastal areas of Bangladesh against climate change, climate variability and climate-induced disasters.*



Coastal communities of Bangladesh have been dealing with vulnerabilities with many faces. Salt water intrusion affects their surface and ground waters, leading to severe scarcity of water to drink and to irrigate crop fields. Salinity has further transformed their agricultural practices from rice-based to shrimp-farming-based. Natural hazards, like cyclones and storm surges, are another major element in the vulnerability equation. Reduced tree coverage and damaged embankments/polders have further reduced resilience of these people. The destructive impacts of climate change, climate variability and disasters can be seen on the food and nutritional security, the income and employment situation, and the water, sanitation and health condition of coastal areas, like Satkhira. These affect the poor and extreme poor the most, who have inadequate knowledge and technologies to adapt to changing climate and to reduce their risks to disasters.

A pilot project has recently attempted to improve the resilience of the vulnerable communities of south-western coast of Bangladesh. It adopted an innovative participatory approach and a simple implementation arrangement. After assessing their vulnerability, this initiative worked with the vulnerable community to develop appropriate adaptation solutions. To mainstream climate change adaptation and disaster risk reduction in community level planning and programming, coping capacity of these coastal communities has also been enhanced through capacity building.



Under this initiative, adaptive agricultural demonstration included vegetable production in homesteads and on shrimp-farm dyke, and trial of rice-based cropping system (with rice, mustard and pulse) suitable for this area. Rearing of small animals (like sheep and milking goat) and duck and pigeon was tried on a limited scale as alternative livelihoods options.

Adaptive aquaculture was dominated by promotion of improve shrimp-farming (e.g. water inlet-outlet system for better farm management). Culture of low salt-tolerant fish (e.g. monosex tilapia and carps) in mini-ponds holding rain water was also found profitable. This water was also used to irrigate rice fields in dry season with a share-cropping arrangement.

Innovative 'Weather Forecasting Board' has been erected in Satkhira so that the farmers can learn about weekly weather forecast and its implications, and can take necessary actions to reduce losses.

To lessen drinking water crisis, four options have been demonstrated with some elements of novelty.

In the innovative 'Artificial Aquifer Tube-well', contaminated pond water is purified. It is done by passing the water through an artificial, underground, water recharge system. In the traditional rainwater harvesting system, two new elements have been introduced: i) in systems with above-ground reservoir, the reservoir is placed on plinth at the level of homestead plinth, and ii) a very low-cost underground reservoir system has been tried for a couple families. Other established options, like installation of Arsenic Iron Removal Plant and supplying underground water to villages through pipeline have increased safe drinking water availability in this salinity-affected area.



In the 'Community Shelter Home' housing model, the indigenous knowledge, the locally available materials, and the previous experiences of Practical Action all came together. The materials and design of the house are salt-tolerant, high wind-resistant, and above the projected level of cyclone-induced floods. These innovative homes will be used as normal houses in non-disaster period, but will become shelters for neighbours during disasters to protect lives and valuable assets.

Under the demonstration of clean technologies, solar home systems (SHSs) for lighting and commercial improved cook stoves for cooking were installed. Innovative 'improved kitchen' concept not only reduces indoor air-pollution by installing improved cook stoves (ICSs), but also improves the space management of poor families. Road-side plantation and plantation with mangrove and other adaptive plant species at household level were also promoted under this adaptation initiative.



Using local capacity, available natural resources and market demands, some alternative livelihoods options were encouraged. Mat making with *mele* grass, *atol* (fish-trap) making and shopping bag making are a few examples.

Adaptation is a continuous process and goes through trial and error. It is difficult to understand full impact or limitation of an adaptive option within short period. In the present pilot initiative, the climate-vulnerable coastal communities have been involved in developing and demonstrating some good, innovative adaptive options matching the local needs. These have shown the potentials to improve food and nutritional security, income and employment situation, water security, and environmental health of the vulnerable coastal community. These would consequently help them to get out of poverty despite the challenges posed by climate change. Experience of this initiative opens up the opportunity for replicating this approach in similar environmental conditions.



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