Forest, Fruit and Fish (FFF) Model

An integrated approach for reducing vulnerability to climate change in coastal areas

Coastal communities in Bangladesh are highly resource poor and extremely vulnerable to climate change impacts. Livelihoods of coastal people hinge on smallholding agriculture, fisheries and livestock farms where low income and poor diversity in options further increase their vulnerability.

United Nations Development Programme (UNDP) has been a long-term partner of the Ministry of Environment, Forest and Climate Change (MoEFCC) in its effort to reduce climate change impacts in the country. UNDP together with MoEFCC, is currently implementing 'the Integrating Community-based Adaptation into Afforestation and Reforestation (ICBAAR) Programmes in Bangladesh' with the financial support of Global Environment Facility (GEF).

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

gef

UNDP
*Empowered lives.
Resilient nations.*

The ICBA-AR Programme endeavors to enhance resilience of climate vulnerable coastal community through livelihood diversification and by linking their livelihood aspiration with coastal greenbelt management.

Forest, Fruit and Fish (FFF) Model

One of the innovative and adaptive livelihood strategies introduced by the project is "Forest, Fruit and Fish (FFF)" model, which comprises of a number of parallel ditches and dykes constructed in barren forest land prone to encroachment. The length of a FFF model dyke is 252 feet and width 59 feet while the ditch is 182 feet long and 49.2 feet wide. Each of the beneficiaries are allocated with one ditch and one dyke for 10 years under an agreement signed with the Forest Department. The beneficiaries contribute a part of the physical labour required for constructing the model.

Benefits of FFF Model

The model offers income to landless vulnerable poor households in short, medium and long terms thorough integrated options based on forest, agricultural, fisheries and livestock. The Dyke of a FFF model is used for growing a wide variety of timber and fruit trees, and vegetable while the ditch is used for fish culture. Thus, FFF model reduces climate risks by ensuring year-round income and food security. The continued flow of resources and income generated from FFF model enhances resilience of poor coastal people and reduces their dependency of coastal forests.

In 2018, the project has constructed 85 units of FFF model on 17 ha. barren forest land in Hatiya Upazila of Noakhali district and Tajumuddin Upazila of Bhola district which is benefiting 85 local landless poor household of which many are headed by women. The beneficiaries contribute a part of the physical labour required for constructing the model.

FFF model converts less productive coastal land into productive lands. Moreover, as part of the FFF model a patch of mangrove species is planted along the coastal line adjacent to the model which protects land and human settlement against cyclone, storm surges and strong winds. Mangroves also provide habitat for different species and enrich coastal biodiversity.

FFF model components

Forest species: About 20 trees (e.g., tal, akashmoni, arjun, jhaw, neem, mehogoni, ipil-ipil and lumbu) are planted on dykes which provide timber in the long term, and fuel-wood and fruits in medium term. These trees also add another layer of protection against climatic disasters.

Fruits and Vegetables: In addition to timer plants, 40 papaya and 20 other fast growing and early fruits yielding fruit plants such as amrapali mango, sofeda, BAU Kul, thai guava, malta, OP variety coconut and dragon fruits are grown on dykes which produce fruits and income in medium term. Improved varieties of vegetables are cultivated in the blank spaces on dykes which brings additional income and improves household consumption.

Fish farming: Carp fishes, telapia, pangash etc. can be farmed in FFF ditch and around 180–200 kg of fish can be produced annually which may worth up to Tk. 40,000-50,000. Holding rain water the ditch also ensures regular water supply to plantations of FFF model and increases water security of the household.

The FFF model-based livelihood diversification activity is being implemented by the project's four partner agencies namely, Bangladesh Forest Department, Department of Agriculture Extension, Department of Fisheries and Department of Livestock. The agencies provide necessary skills, material support and supervision for implementing the activity. In recognition of its climate change adaptation and livelihood improvement capacity, the FFF model won the Earth Care Award-2012 of Times of India and the People's Choice Award-2013 of USA.

losing house in 1991 cyclone, we used to live on the embankment and have no land since then. The Forest Department allows us to utilize the land of FFF model for 10 years. It will help us to grow fruits and timber, cultivate fish, and farming duck. We hope it will cut our poverty, protect from cyclone and help our children in going school and fulfil our nutrition scarcity as well.

Ferdousi, FFF model beneficiary
Hatiya, Nokhali

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Link to SDGs