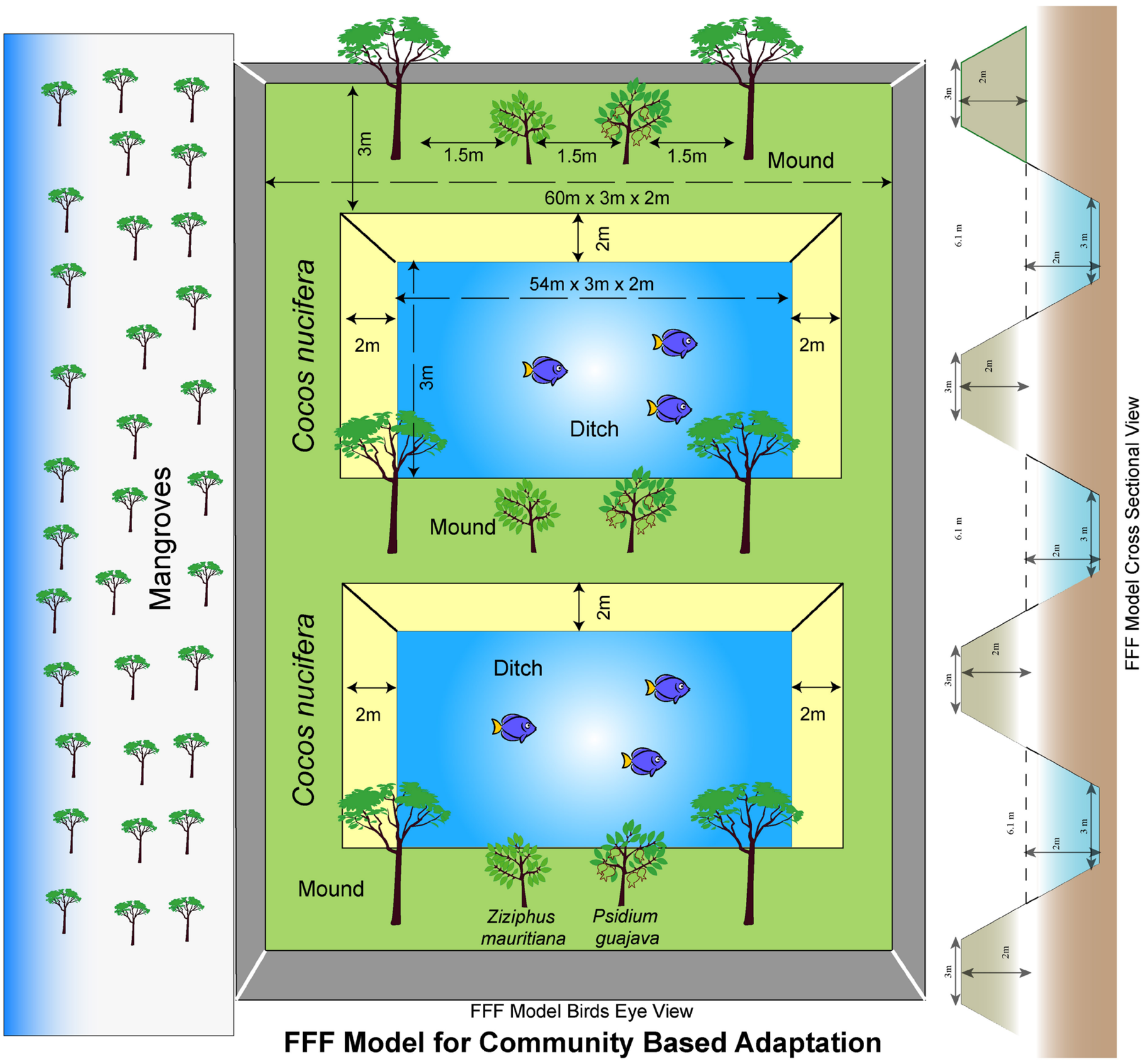
FOREST, FISH AND FRUIT (FFF)

A MOUND-DITCH MODEL TO ADAPT TO CLIMATE RISKS

UNDP's Community Based Adaptation to Climate Change through Coastal Afforestation project (Coastal Afforestation for short) has been working with climate change-vulnerable coastal communities in Bangladesh to explore new options for income generation and improved livelihoods. The project works by integrating climate change adaptation and mitigation concerns with expanded livelihood options, ensuring the long-term sustainability of climate change response by making it valuable to communities. The Coastal Afforestation project is piloting in 14km of Bangladesh's highly vulnerable coastline.

One aspect of this work has been the development of the "Forest, Fish and Fruit" (or "Triple F") model, a mound and ditch model that comprises short, medium, and long term resource generation and diversification options that help communities along the coast to adapt to climate risks. The FFF model uses a combination of protective and productive vegetation, mound and ditch land structures, and a fish nursery pond to create multiple sources of income and climate risk protection for the long-run.



FFF Model for Community Based Adaptation

BENEFITS TO COMMUNITIES

a. Forest: Planting forest trees and palms provide communities with long term timber, midterm fuel-wood from branch pruning and also food products. These also add another layer of protection to the FFF model and the surrounding land from climatic impacts.

b. Fish: By excavating to 2 m in depth, a single ditch can produce an estimated 140–150kg of fish annually, generating up to USD 300 per year. Harvesting of rain water in the ditches also ensures regular water supply to plantations on the mounds and increases water security by doubling as a reservoir.

c. Fruit: Quick growing and early yielding fruit trees and vegetable crops are planted on the mounds for midterm income generation and food production. The Fruit Tree Improvement Program of Bangladesh has developed varieties of Bau Kul and Apple Guava that produce 10–20kg of fruit per tree within 2-3 years of planting. Applied in the FFF model, this can produce an estimated USD700 of income per mound per year.


Photo:Salman Saeed/UNDP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IMPACT

While only in its early stages, this project has established a 'green shield' surrounding some of Bangladesh's most climate change-vulnerable communities, protecting them against the increased storm surges, high velocity of winds, sea level rise anticipated as a result of climate change. Large scale involvement of communities in the FFF model also provides them with a new option for income generation and livelihood security not previously widely practiced in Bangladesh. As the FFF model can accommodate 8-10 families per hectare, it ensures livelihood security and represents a pioneering rational land use model for a highly land scarce country like Bangladesh, that accounts for and adapts to a changing climate. The recurrent income generation from continuous flow of resources will increase the adaptive capacity of the coastal people and such recurrent livelihood support might sustain the FFF model in any anticipated stressed conditions, induced by climate change.

Over its lifetime, the project will:

- Establish 7,000 hectares of mangrove, fruit and timber plantation;
- Increase coastal area carbon sink capacity by over 600,000 tons carbon; and
- Provide livelihood diversification support for 85,000+ vulnerable people through plantation training and cash-for-work programmes.

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