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Water Farming for more Resilience

The Inequality Challenge. Innovative Solutions to a Global Issue

The Challenge

Many people live in agrarian marginal communities close to the floodplains of the major rivers Ganga, Brahmaputra and Padma in South Asian countries India and Bangladesh. They have been facing recurring floods and environmental hazards over centuries that have also changed the geomorphology of the arable land area, which is now highly vulnerable to inundation and erosion.

Every year, more than one third of the land is completely submerged and about a quarter of it remains partially submerged by floodwaters for five to seven months. In Majuli River Island alone, 77% of agrarian land is flooded, which forced two thirds of the indigenous marginal community to migrate temporarily. This renders to livelihood vulnerability, social distress and poverty owe to the scarcity of food, employment and social security. The inhabitants have no alternatives for survival, no opportunities to combat the impacts of climate change and succumb to societal disintegration.

Affected people are in crucial need of an alternative flood resilient farming practice for food and social security that constitutes the present challenge.

The Objective

The main objective of the project is to...

- Train farmers in hydroponic farming and aquaculture as an integrated climate adaptive agricultural practice (ICAAP) for promoting flood resilience.
- Ensure sustainable livelihood and food security for marginal farmers and raise awareness about community level disaster preparedness.

Project title	Water Farming for Climate Resilient Agriculture and Disaster Preparedness in India & Bangladesh
Commissioned by	German Federal Ministry for Economic Cooperation and Development (BMZ)
Country	India & Bangladesh
Implementing Organisation	South Asian Forum for Environment (SAFE)
Partner Organisations	ICAR & NABARD (India), BARCIK (Bangladesh)
Duration	July 2018 – September 2019

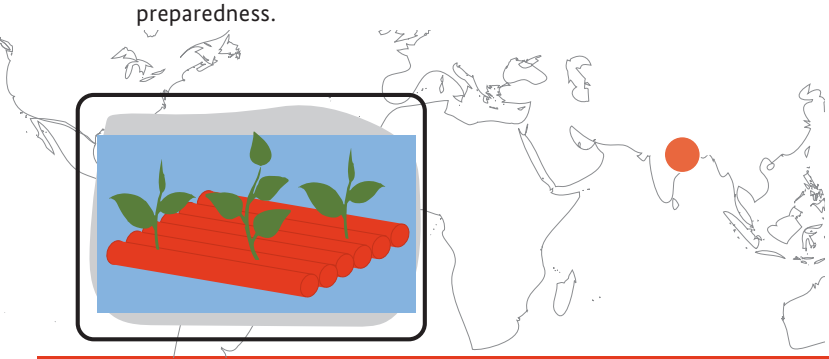
- Promote inclusive growth through financial inclusion and develop market linkage of young farmer's groups (Joint Liability Groups).

The Target Group

The target group in India comprises of marginal communities in the east of Majuli River Island of Assam, 63% of them are agrarian farmers or fishers, 16% are labourers and 21% are non-workers. The populace comprises of nine indigenous communities and two displaced hill tribes, who are still excluded from mainstream development. These communities are highly vulnerable to natural disaster. About 85% of the inhabitants survive below poverty line and mostly consist of indigenous groups like Mishing and Aapatani tribes.

The other location in East Saharsa district in Bihar bordering Nepal is known for severe flood devastations, the tribal communities living in the area, like Musahar and Madhesi, survive in acute poverty.

The community in Bangladesh is based in Shyamnagar, Satkhira district of Khulna division, which is often inundated by sea storms and losing its habitat to rising sea level in the face of climate tragedies. In the sub-district Shyamnagar upzila, people mainly live on agriculture, however only one third of them engage in subsistence agriculture. The others do not have fixed occupations, which makes them even more vulnerable to climate and societal risks.



Location of the Inequality Challenge's project:
● Bangladesh & India

Photos: left: Shyamnagar farmers managing floating trays; right: Fish farming in floodwaters. © SAFE Media & Communication Team

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The Approach

In order to provide a local sustainable solution, the project introduces flood resilient hydroponic farming practice in connection with aquaculture of fish through capacity building and technology transfer. Moreover, local institutions are strengthened by forming community groups called 'Joint Liability Groups' who work collectively and have a common banking account for earned revenues.

Float farming originally comes from the deltaic districts of Bangladesh, wherein the float bed of rotten biomass is loaded with soil for farming. The project improves this concept, making innovative changes in the design, material, size and capacity of each float, to place it as a livelihood unit for the indigenous farming households. The project uses hydro-foam and sponge for the hydroponic circulation of water and builds the flood resilient structure from locally available non-timber forest products. The farming medium comprised of proportionate amount of vermicompost, coco peat, biochar and sand.

The project team trains young and motivated rural farmers and fisher folk in raft making, cultivation techniques, weed and pest management and post-harvest management of the rafts. The crop cycle planning is a participatory process, wherein the beneficiaries decide which crops are to be planted. The farmers are also introduced to fish cage and pen culture along with disseminating small hatchery management techniques.

An integrated placement of rafts and fish cages substantially augments the flood mitigation potentials and disaster preparedness of the community. A sustainable and circular economic paradigm of conserving the habitat and agro-biodiversity could thus ensure food security, social assurance and economic wellbeing.

The Milestones

The three sites, Majuli and Saharsa in India and Shyamnagar in Bangladesh are all set to face the ensuing monsoon and extreme weather events of Bay of Bengal with hydroponic float farming and integrated livelihood promotions. We could achieve the following milestones:

1. 38 villages in India and Bangladesh with nearly 3,200 direct beneficiaries could be reached out for training and induction. They have been formalised into 110 Joint Liability Groups for practicing integrated float-farming.
2. A total of 485 floating trays and 123 Fish Pens covering an area of 70 Hectares are under integrated float farming now. Ready to reap their products in end June. This will sustain 570 households in days of distress.
3. Float farming is now a mainstream practice in Majuli, supported by department of agriculture in the district.

Important learning:

a. The floats though survived the super cyclone 'Fani' on 3rd and 4th May 2019, but smaller batches of 5 to 7 trays were more enduring than batches of 20 to 25. We have split the rest into smaller batches, keeping the cropping area same.
b. Integrating livestock rearing like duckery and piggery with float-farming has enhanced returns on investments and augmented social security as well. 25 Joint Liability Groups have been given bank loans for livestock rearing.

About the Inequality Challenge

The Inequality Challenge supports innovative approaches that tackle inequality and the 'leave no one behind' principle of the 2030 Agenda with the ultimate goal to integrate and upscale those approaches into German Development Cooperation's portfolio. Initiated by the German Ministry for Economic Cooperation and Development (BMZ), it supports ten projects in India, Bangladesh, Cambodia, Mongolia, Jordan, Serbia, Nigeria, Mauritania, Brazil and Mexico with up to 100,000 EUR.

GIZ manages the Inequality Challenge. For further information, please visit www.inequality-challenge.com or contact Tiffany Sacher, fundmanagement@giz.de.

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