

Bangladesh Mangrove Polders for Shrimp Aquatic Productivity

Consortium Members

Mr Selim Reza Hasan, Project leader, Solidaridad (Bangladesh).

Dr. Roel Bosma, Dr. Ruerd Ruben, Dr. Rolf Groenewegen, Dr. Dolfi Debrót, Wageningen University & Research (The Netherlands).

Dr. Mst. Muslima Khatun, Dr. Md. Nazmul Ahsan & Dr. Md. Nazrul Islam, Professor, Life Science School, Khulna University (Bangladesh).

Impact activities and preliminary results

1. Local and national level consultations and dialogue organised to generate knowledge and evidences for adaptation to reconstruct the shrimp farms to produce shrimp in a more sustainable manner.
2. Collectivised group shrimp farmers to adopt the technology through training and consultation.
3. Selected two clusters on participatory research trials for plantation of mangroves on the dike and pond.
4. Five preferred mangrove species were primarily selected (i) *Sonneratia apetala* (Keora), (ii) *Sonneratia caseolaris* (Ora), (iii) *Avicennia ffcinalis* (Baen), (iv) *Heritiera fomes* (Sundri), and (v) *Nypa fruticans* (Golpata).

Project description

This project **aims** to develop proof of concept to enhance shrimp productivity through innovations in land-use planning, water management and planting mangrove trees along the polder canals and shrimp ponds. The objective of this project is to introduce sustainable agriculture innovative for integrated water management and the plantation of mangroves in the polders of Bangladesh to restore local resilient livelihoods, contributing to food security, and various eco-system services in the context of poverty, delta dynamics and climate change.

The **research methods** include stakeholders' consultations, FGDs, and questionnaire survey for selection of mangrove species through a gender lens; pilot demonstration to assess the impact on water quality and shrimp survival and growth; cost-benefit analysis on social, economic and environmental performance. Key consideration would be given on the financial viability and environmental sustainability for efficient farm management to improve productivity, livelihoods enhancement and increasing market value of the product.

This building-with-nature approach of the project anticipated to **positively impact** on food security and resilient livelihoods of coastal shrimp farming communities. It would bring innovation for sustainable agriculture for increasing productivity adding value to the natural resource base. The business model for adaptation and mitigation to climate change will trigger larger uptake to reconstruct the polders of Bangladesh for larger aquatic productivity.

Opportunities and challenges

Increased capability of smallholder farm households living in polders of tropical deltas to combat salinization and improve their livelihood and well-being.

Improved biodiversity and food security through eco-system based integrated mangrove –shrimp production systems where probiotics and other components contribute to improved shrimp productivity and create other livelihood options.

Public-private partnerships to develop a sustainable business model that rebuilds the ecology for sustainable shrimp farming with proper land use planning, water management and the conservation of the ecosystem.

Creation of ecologically sustainable food systems through innovations and adaptation for the sustainable management of water, soil, energy and biodiversity.

Share results with the potential donors to design and further expansion of mangrove based shrimp farming in extended areas and positioning of Nature based Bangladesh BT Shrimp in Global Market

Challenges:

Create common interest on climate resilient aqua-silviculture among the piloting farmers including neighbouring shrimp farming clusters

Bring all piloting farmers to follow the research protocol through a participatory approach, especially where financial involvement is required for infrastructural change into ponds

Convincing farmers and the Bangladesh Water Develop Board for widening the canal and plantation of mangrove.

