



Cage Fish Farming: Prospects for Bilateral Cooperation between India and Bangladesh

Presentation by:

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Introduction

- Goal:

Reduced poverty and marginalization of vulnerable river basin communities through increased access to, and control over, riverine water resources, on which their livelihoods depend

- **Objective:** Improved policies and practice of private sector and other actors respect the rights of river basin communities to water resources
- **Outcome:** Practices of private sector respect community access to water resources actively contributing to reduce conflict
- **Output:** Private sector adhering to responsible business guidelines and compliances including human rights

- Methodology:

Literature review, secondary data collection from online sources, field visit to Bongaigaon and Nagaon districts in Assam, interaction with a number of relevant stakeholders

Cage Fish Culture

- Cage fish farming is the technology of rearing fish from fry to fingerling, from fingerling size to marketable size, while the fish is captive in an enclosed space that maintains free flow of water between the cage and the surrounding water body
- Advantages of Cage Culture: alternate income source, simplified cultural practices, simplified harvesting, cost effective, resource use flexibility, multi-use resources, low initial investment
- Constraints of Cage Culture: poorly positioned cages can disrupt navigation or diminish the scenic value of the reservoir, poorly placed cages may alter current flows and worsen sedimentation, cages with inappropriate intensity may lead to eutrophication owing to the spillover of unconsumed fish feed and fish waste to the surrounding environment

- Concerns related to fish: fish feed must be nutritionally adequate and fresh, fish diseases are a common problem in cage culture; wild fish, turtles and fish-eating birds can harm the caged fish unless proper precautions are taken, water quality is necessary for efficient cage culture, particularly low dissolved oxygen, are common in cage culture, vandalism and poaching pose severe challenges to the cage culture
- Socio-economic concerns: large reservoirs are usually owned by the government and fishing activities are conducted in these reservoirs considering these water bodies as common property resources with free access, fishes produced in these reservoirs are thus considered natural resources. Local fishing communities assume primary rights over these, thus, cage culture can thus adversely impact the interests of local fisherman by restricting their access to the fishing grounds, obstructing their pathways, and contributing to a decline in fish catch, thus, it becomes imperative to ensure that the expansion of cage culture does not impair the livelihood and income of local fisherman

Cage Fish Culture in Assam (India)

- Fish occupies an important place in the lives of the people of the state and fish farming has been one of the common activities in the rural areas. Thus, the fishery sector is considered as an important economic activity in the socio-economic context in the state of Assam
- Horizontal expansion in the Fisheries sector is being accomplished through creation of new ponds and reclamation and renovation of existing areas followed by fish culture. Vertical expansion is given through productivity enhancement with adoption of improved & advanced culture practices and better sustainable management practices

Cage Fish Farming Project at Koliabor, Assam

- Under the *Chief Minister's Samagra Gramya Unnayan Yojana (CMSGUY)*, the state fisheries department has installed floating fish tank with the help of Fibre Reinforced Plastic (FRP) floating modular units
- Each modular tank is of size 8m X 6m. The required floating modular buoys have been procured from Chattisgarh
- *Fish Species:* Pangash, Kawai, Rohu, Katla, Java Chitol, Puti fishes are being attempted for cultivation
- The State Fisheries Department is planning to set up a fish feed plant in Koliabor itself. It was noticed that several beels exist in Koliabor, Naogaon, Goalpara, Bongaigaon districts, among others
- The excreta of the fish are removed from the net just by shaking the net. However, if fine mesh nets are used the bottom shall need scrapping

Cage fish farming project in Abhayapuri

- Installed by the Directorate of Fisheries, Government of Assam, this project was the state's first trial on cage fish farming projects
- Funding of the project: The total cost was 21 lakhs, Government of Assam provided 14 lakhs as a capital subsidy, while the rest was spent by the agency/society undertaking the work

Benefits identified for the state:

1. The practice is not very labour intensive and thus, reduced labour cost
 2. Further, it has huge scope for women engagement in the practice, given its simplified procedures
 3. Sequential harvesting is possible
 4. All the activities and tasks can be pre-planned
 5. Different species of fish can be cultivated in different cages
 6. Intense farming of fish is possible. For instance, during trial 8000 fish lings were cultivated in a dedicated 4X 4 sq. meters cage
- There was only one constraint identified. This project being in its initial stage, still uses FRP modular floats. This is expensive. This can be improvised and local materials can be used a floats and nets, leading to further reduction in the capital cost



Kolaibor Cage Fish Farm





Abhayapuri Cage Fish Farm

Cage Fish Culture in Bangladesh

- Cage fish culture in Bangladesh was started somewhere in 1970's, over the years several experiments were conducted by the Bangladesh Agricultural University, and Bangladesh Fisheries Research Institute for the successful implementation
- Species that are widely produced are: Tilapies, monosex Tilapies
- Locations where the practice is prevalent: Sadar, Raipura and Monohardi upazilas of Narsingdi district, Chandpur district
- Tilapia cage culture is one of the most popular aquaculture practice used in Chandpur area to better utilization of the inland open water like the River Dakatia
- About 3,500 cages are in operation now in Chandpur along the Dakatia River, 500 cages in Laxmipur along the Meghna River

Challenges

- There is limited documentation, information and data available associated with these aspects in inland water bodies
- Challenges and conflicts pertaining ownership rights of the water resources
- Theft is a major problem for fish culture, and cages, with concentrations of stock, may be particularly vulnerable
- Rising prices of quality fish feed and other raw material
- Deterioration of the water quality of the rivers and ponds, this is particularly concerning in rivers with low depth and slow flow of water, additionally, river water is likely to be polluted if a chemical feed is used.
- Fishpond owners and cage operators often face the threat of poaching
- Less awareness about benefits, costs and lack of proper training
- Less information about grievance redressal

Recommendations

- Improvement in infrastructural facilities such as hatcheries, soil and water testing laboratories, diagnostic facilities to regularly monitor fish diseases, cold storages and transportation Facilities
- Awareness generation measures, monitor proper information dissemination and conduct capacity building programs for local communities and fisherman
- Establishment of R&D centres with adequate facilities at key places
- The existing self-help groups (SHGs), non-government groups (NGOs) and local women groups should be encouraged taking fishery as one of the key activity by providing financial support
- Leasing of ponds to the SHGs, NGOs and women groups
- Conducting cage fishing and regular fishing collectively and empowering such collaborations will reduce conflicts, thus increase training and advertisement programmes
- The community (or a group of members of the community) should be encouraged to own the cages as a common property and they should be the beneficiaries of this technology, even in a Public Private Partnership (PPP) mode.
- Conflict management and grievance redressal cells should be established to address complaint.
- Digitalization of data and monitoring through modern technology should be encouraged
- Easy and cheap availability of fish feed and other raw material should be ensured

Thank you