



Local Governance and Empowerment of the Poor for Improved Wetland Management in Bangladesh



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Enhanced governance and precedents implemented to sustain this impact have been the formalization of community-based organizations of resource users and their empowerment. The leaders of these organizations now sit along with local government officials and councilors in co-management committees that oversee wetland management. These co-management committees are in the process of being endowed with funds that will generate an annual return to be used for operations and small-scale wetland restoration. Similarly, the savings and credit groups are now federated into 13 legal entities registered membership-based social welfare organizations with elected leaders who also sit on the co-management committees. By 2006 they will employ former NGO staff to help their operations and will have received revolving funds totaling about US\$ 0.35 million by 2006 to sustain their programs after direct USAID support ends. Moreover in a landmark policy decision, the government has designated eight "national" sanctuaries permanently set aside to protect wetland biodiversity that are managed by the community organizations. The government no longer auctions out fishing rights in these sanctuaries. The Department of Fisheries, through its national Inland Capture Fisheries Strategy is in process of adopting these institutions and the sanctuary approach on a larger scale as part of a policy shift towards community based co-management.

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Despite its small area (144,000 km²), the inland freshwater fish production of Bangladesh ranks third in the world behind China and India. With extensive rivers and floodplain wetlands of the Ganges-Brahmaputra delta, over half of the country can be termed as wetlands that are a source of food and income for perhaps 70 million rural households. Two negative trends seriously impacted this vital resource:



Many scarce species of fish are back in the market



Wetlands are a source of food and income for many

- Most permanent waters are government property and were administered to maximize government revenue by awarding short-term fishing rights through leases to the highest bidder. This policy encouraged maximization of short-term income at the expense of sustainable yields and conservation. It concentrated much of the returns from fishing in the hands of powerful leaseholders, making traditional resource poor fishers dependent on them for access.
- Physical changes in watersheds and floodplains have drastically reduced the area and quality of wetlands: flood embankments and water control structures have blocked fish migration routes and expanded cultivated areas; irrigation and expanding areas of winter rice cultivation have reduced the water available for aquatic life to survive in the six-month dry season; industrial development causes locally severe pollution; and loss of tree cover and poor slope cultivation practices in watersheds cause high rates of siltation in rivers and loss of floodplain wetlands.

- Since the early 1990s, several projects working mainly with the Department of Fisheries and national NGOs have addressed these trends through community based management and technical interventions. Since 1998 USAID has supported the MACH (Management of Aquatic ecosystems through Community Husbandry) project, which translates as "fish" in Bengali. MACH has addressed sustainable wetland resource management at the ecosystem level rather than just in individual rivers and lakes, working in three wetlands covering about 25,000 ha. Over 110 villages inhabited by over 184,000 are directly involved in the project, while the total benefited population may exceed 500,000. MACH has done this through:
 - Mobilizing communities into registered organizations that are empowered to conserve the resource;
 - Helping them make resource management maps and plans;
 - Undertaking habitat restoration;
 - Adopting conservation measures for sustainable harvesting;
 - Introducing alternative sources of income to reduce pressure on wetlands and enhance incomes.

Community organization and conservation.

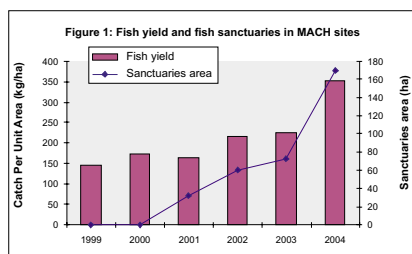
The key building block has been establishing 16 Resource Management Organizations, each representing the whole user community of the management area. These are registered with the government, with approved constitutions and annual budgets. They have secured access for 10 years to certain water bodies where their elected executive councils, in consultation with the wider community, make management plans and set rules for wetland use. About 60% of the members come from and represent poor resource users who through separate organizations receive training and credit (see below). They have adopted best practices in wetland management through their local plans, such as making 72 fish sanctuaries (areas from less than one hectare to 50 ha that retain water through the year and where the community has banned all fishing so that fish can over-winter and repopulate the wider floodplain), adopting closed seasons when fish breed, and implementing habitat restoration works. The latter includes excavation of link channels to improve fish and water movement and excavation of deeper pockets as dry season refuges for fish (water bodies that covered 717 ha have been made perennial where many were not in the past). All of this has impacted the fisheries in 20,361 ha of wetlands by 2005.



Resource Management Organization (RMO) meeting

Fish catches, consumption and biodiversity have increased.

The management practices adopted by the communities are based on their own problem and solution analysis complemented by specialist biological and engineering expertise, but from the outset (the baseline pre-intervention year of 1999) a rigorous



The poor now have higher catches

monitoring program was set up to quantify impacts. Fishing catch and effort are recorded at 10-day intervals in 23 fixed monitoring locations covering 1,825 ha. and representing the range of wetland habitats present. In addition, every three days, local women weigh by species fish being prepared for consumption for a panel of 1,050 households from 29 villages. This data shows that catch per hectare has increased by about 140% between 1999 and 2004 (figure 1). In addition several locally rare fish species have been restored. As all species are consumed and form a staple part of the diet, fish consumption has also increased. By 2004 fish consumption was on average 52% higher than before MACH started, at 17.5 kg/person/year in 2004, which compares with a national average that declined between 1995-96 and 2000 by 14% to 11.1 kg/person/year.

Improved watershed management

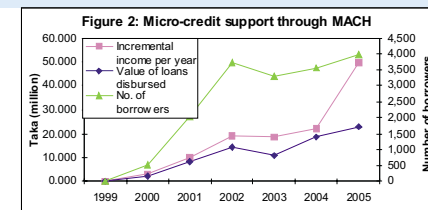
has included introducing contour planting of pineapple in the hills surrounding one site where siltation was raising the wetland bed by 5 cm per year. This has reduced runoff and erosion rates and at the same time permitted denser planting and improved soil fertility which increased farmer incomes. Moreover by early 2005 about 125,000 trees have been planted to restore natural swamp forest and about 480,000 planted to stabilize river and stream banks and along roadsides and in other public spaces. By 2020 the standing value of trees should be about US\$ 3.9 million at current prices. Swamp forest will be preserved as a long-term investment in ecological restoration. However, the return from the first felling cycle of the other trees should be US\$ 3.2 million by 2020 (net of replanting costs).



Permanent Sanctuary in Turag-Bangshi

Alternative and enhanced livelihoods.

Over 5,500 of the poorest wetland resource users have joined savings and credit groups. These have helped the fishing communities refrain from fishing in protected areas and during critical fish spawning periods by providing training and credit to take up alternative income generating activities. This has helped reduce excess fishing, enabling fishing households to take up new enterprises such as poultry and livestock, or skilled employment as mechanics and electricians. Borrowers have on average reduced their fishing effort by 20-30%. By 2005 almost 4,000 families had increased annual income of 65% over their previous



Rearing cows: taking the pressure away from fishing

incomes (Figure 2). Some were able to leave fishing, while others could reduce fishing during conservation closure periods while still increasing their incomes.

Enhanced incomes for poor wetland users.

Fishers in the MACH project sites gained US\$ 4.7 million in 2004 (figure 3) from higher catches associated with resource management improvements, as compared with baseline data from 1999. In addition, by 2005, those participating in training and credit activities earned an extra US\$ 0.8 million, mainly from new enterprises supported by the project, as compared with their pre-participation incomes (daily incomes rose from about US\$1 per day in 1999 to US\$1.34 per day in 2005). This primarily impacted the poor who are most dependent on aquatic resources. Over 85% of households in the project areas are involved in fishing, and all of those supported with training and credit were low income households owning less than 0.2 ha of land, and therefore the poor have benefited the most from the project impacts.

