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প্লাবন ভূমিতে ধান ও মাছ উৎপাদনে স্লুইস গেটের ব্যবহার
(Use of Sluice Gate for Rice and Fish Production in Modified Floodplains)

মোঃ লিয়াকত আলী ও সরদার সফিকুল আলম
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Abstract

Floodplains play a vital role in the inland fisheries production system and support livelihoods of the rural poor. During rainy season many wild fish species migrate to the floodplain from the main river to spawn and feed offering productive fisheries opportunity. But due to construction of embankment, regulator and sluice gates under FCD / FCDI projects for increasing rice production, the floodplain fisheries have declined and biodiversity have been affected. Livelihoods of the poor fishers have been affected and nutritional level to rural people has dropped, although the FCD / FCDI programmer have produced significant benefit to farmers. Rice production has increased sufficiently leading the country to self-sufficiency in food production. The sluice gate / regulators are mainly used to control water within the FCD project areas for rice production only. Studies have shown that the fish can enter the modified floodplain area and through proper management and operation of sluice gates fish stock could be enhanced in the modified floodplain. But information and guidelines on how best to operate the sluice gate during hydrological cycle to increase in the recruitment are yet to be developed.

Therefore in order to develop guidelines / protocols for proper management and operation of sluice gates that would help enhance fish migration into the floodplains without any harm rice production, a DFID financed project entitled "The use of sluice gate for fish stock enhancement and diversification of livelihood" was undertaken during 2003 and 2004 by BCAS, IIED & MRAG, UK in two water management project areas namely RIPDP and CPP with 3 sluice gates. This paper highlights the key findings of the above study and the guidelines / protocols for management & operation of sluice gate for fish stock enhancement in the modified floodplains including key communication messages developed under another on going DFID funded project "Promotion of FMSP Guideline for Floodplains Fisheries Management and Sluice Gate Control". The key messages for management and operation of sluice gates/regulators for fish stock enhancement in the modified floodplain are:

- (1) Sluice gates be opened to maximize inward flow of water during rising flood to facilitate migration of juvenile fish and spawning fish into the floodplain area
- (2) Sluice gate be opened as frequently as possible & during early flood turbulence out side the gate be minimized.
- (3) During ebb flood current velocity be controlled to enable the fish migrate against current.
- (4) Crop diversification be practiced to introduce such crops as could be harvested before flood and crop requiring less irrigation water compared to rice.
- (5) Fishing in the canal/river linking main river with sluice gate be controlled / reduced as more than 50% of fishes are caught before they research the sluice gate.
- (6) Sluice gate management committee need to be strengthened and be represented by more grass root level relevant stakeholders.
- (7) Sluice gate specific operation guidelines be developed.

Outreach Programme of DFID-FMSP for Management Floodplain Fisheries

Floodplains play a vital role in the inland fisheries production system by supporting livelihoods and providing nutrition to the rural poor. But the floodplain fisheries had declined significantly during the last few decades due to manmade and natural causes such as over fishing in absence of any good management practices, loss and degradation of fish habitats by construction of embankment and Sluice Gates under FCD and FCDI projects. The government agencies, Non-Government Organization and development partners in Bangladesh have undertaken a number of initiatives to increase fish production and to meet the growing demands of fish. The Department for International Development (DFID) of UK is one of the major development partners for Bangladesh and it has provided assistance for conducting a number of projects under its "Fisheries Management Science Programme" (FMSP) and "Natural Resources Systems Programme" (NRSP) in the last decade. These projects have generated many important findings and recommendations for fisheries management and strategies to be implemented for benefiting the poor and the ecosystems.

This scientific knowledge of management options for increased fish production and diversification of livelihoods require effective dissemination to reach all stakeholders such as policy makers, programme managers and beneficiaries.

The DFID has initiated such an outreach activity under the "Promotion of FMSP guidelines for floodplain fisheries management and sluice gate control" initiative. The project aimed at outreaching the key findings and recommendations of both FMSP and NRSP projects among the policy planners and relevant stakeholders at all level including local, sub-national, national and regional level stakeholders. Bangladesh Centre for Advanced Studies has jointly implemented the project with Centre for Natural Resources System (CNRS) in Bangladesh. The Marine Resources

Assessment Group, Scales Barbados, Aqua Service Limited (ASL) and International Institute for Environment and Development (IIED) from UK are also collaborating in the implementation of the project.

Outputs and Communication Channels

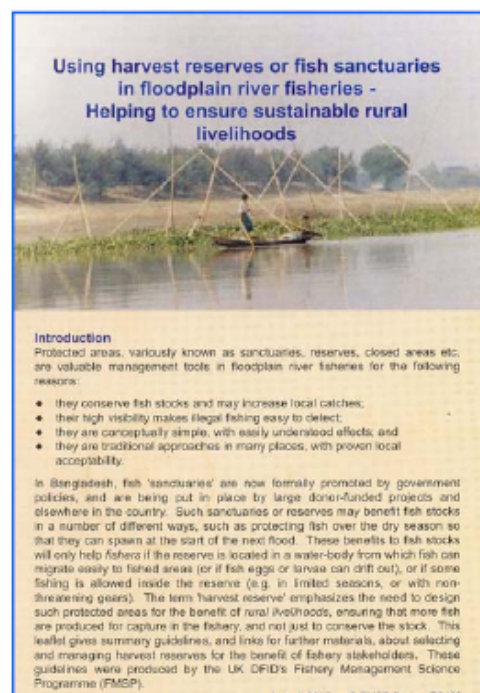
After the reviewing and evaluating the findings of the NRSP and FMSP projects, the following three strategies of floodplain fisheries management for sustainable livelihoods of the poor have been found most pertinent for outreach.

- (a) Management of sluice gate operation for fish stock enhancement within the flood control scheme area/ modified floodplain;
- (b) Establishment of fish harvest reserves / sanctuaries in floodplain rivers; and
- (c) General management guidelines for floodplain river fisheries to ensure sustainable rural livelihoods.

The guidelines for management of floodplain fisheries to ensure sustainable livelihoods of the poor have been developed and disseminated to the relevant stakeholders through different communication mechanisms under this project. The communication mechanism include: awareness raising, policy brief and policy dialogue meeting with key stakeholders, power point packages for trainers, managers guidelines, leaflets, posters, bill boards, newsletters and newspaper articles, street theatre and pot songs, stall in fish fair, article in fish fortnight souvenir, websites (DFID, BCAS & CNRS) and national seminar. The Fisheries Ministers, Secretaries of Fisheries Ministry, Head of relevant government Departments and the key stakeholders attended the seminar in Dhaka.

Three interesting leaflets have been

prepared and distributed among the policy planners, academics, different level of government and non-government officials and institutions.



These are: a) Improving fish catches inside flood control schemes; b) Using harvest reserves or fish sanctuaries in floodplain river fisheries – helping to ensure sustainable rural livelihoods; and c) Management guidelines for Asian floodplain river fisheries – helping to ensure sustainable rural livelihoods.

Key Messages and Recommendations

The key messages and recommendations extracted from FMSP and FMSF projects and stakeholder discussion in meetings and workshops, for floodplain fisheries management for increased fish production and sustainable livelihoods of the rural poor have been classified under the following categories:

- (a) Sluice gate management for fish stock enhancement and sustainable rural livelihood;
- (b) Harvest reserves or fish sanctuaries in floodplain river