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Designation :

Title : *Development of an Operational IWRM Framework In a Selected Small Scale Water Resources Development Sector Project*

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Mondolbari Drainage Subproject (MDS), Tungipara, Gopalganj, was implemented under the first phase of the Small Scale Water Resources Development Sector Project (SSWRDSP) with the aim to enhance agriculture and alleviate poverty. Although considerable progress has been made for flood control, drainage and/or irrigation, it was found during this study that the project objectives have not been fully achieved mostly due to dysfunctional Water Management Cooperative Association (WMCA).

LGED's IWRM unit (IWRMU), though established during the second phase of SSWRDSP, had the potential to resolve MDS's major constraints to water use, which are

- (i) The existing conflict between BWDB and LGED regarding the operation of non-functioning BWDB sluice gate.
- (ii) Institutional conflict between members of WMCA and traditional farmers with regard to termination of Aman, and
- (iii) Contestation related to discontinuing culture fish in the rice field. In 2008, IWRMU supported the construction of an embankment to ease culture fish but it did not address the above-mentioned major problems.

The main subject matter of this thesis is to analyze these constraints and the potential of MDS to help improve the existing IWRM framework.

This study found that the IWRMU did not adequately respond to the demand of an additional new gate on Asi khal and coordinate with BWDB for operation of the existing BWDB gate on Indurkata khal. Proper operation of both the proposed and existing sluice gates is currently a strong demand of the local people for Boro and Aman cultivation.

In this thesis, historical tidal characteristics are analyzed for both Kharif and Boro seasons. At first, frequency analysis during Kharif helped to identify the decads of May when gate is needed to remain closed for Aman vegetation. Secondly, an unsteady flow analysis (using HEC-RAS) was performed to identify the decads of Boro season when tidal tapping (or closing gate) is necessary. Furthermore, a gate operation rule is developed through analysis of surface water, key informant interviews, resource mapping, institutional mapping and a series of FGD with the stakeholders.

Additionally, this comparative and interdisciplinary study (conducted during the period 2008–09) found that WMCA of MDS is politically biased and does not perform the water management tasks as per the original design. In reality, WMCA agenda are heavily biased towards their economic gain neglecting the social impact they have. Promoting culture fish in the rice field is an example of this. Only a few powerful individuals are directly benefited from this and access to common waters is restricted to the poor and marginalized. This power group has also diverted the project objectives in favour of culture fish and has been driving the project accordingly, for example, by ensuring favorable water depth by keeping the gate open at its preferred period.

In doing so, it has completely ignored

- (i) The early flooding problem of young Aman seedlings, and
- (ii) The water requirements for Boro land preparation. In addition to these, genders (poor section of the society including women) are also deprived of from being benefited through the implementation of MDS. The study has found that gates should remain closed especially during
- (iii) The third decad of May for Aman, and
- (iv) The second decad of February and the first decad of March to tap tidal water for Boro. Finally, this study pointed out the gaps in the existing IWRM framework being practiced in MDS. This understanding and subsequent development of IWRM framework can be used as a model for SSWRDSP in general and in preparation of plans for further advancement of IWRM road map of WARPO.