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Designation :

Title : Multipurpose Use of Hazir Khal by Making Provision for Community Proposed Flow Control Gate at a Culvert

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Hazir Khal is the main source of surface water in the Munshir Char village located in the South-Central region of Bangladesh. The region is a tidal floodplain, and the source of tidal water in the Hazir Khal is the Shingair River. Every year the villagers construct a temporary earthen cross-dam around mid April situated upstream of a culvert in the Hazir Khal.

It is intended mainly to serve three purposes:

- (i) To prevent saline water intrusion in order to save the dry season crop from flooding by salt water during spring tides,
- (ii) To maintain low depth flooding during wet season in the agricultural land for cultivation of Deep Water Aman (a local variety of Monsoon rice) and
- (iii) For fish culture during the wet season. Moreover, the retained water also provides opportunity for domestic uses like livestock watering, bathing, washing utensils and cloth etc. The cross-dam is cut in mid October to drain out the water, which is required at the flowering stage of Aman. This local water management practice has been going on for many years.

Now the local people are facing scarcity of construction material from local sources. The villagers have requested the Local Government Engineering Department (LGED), which is responsible for planning, design and implementation of small scale water management project, to construct a sluice gate at the culvert. The LGED responded positively to the request of the people, and decided to construct a gate in 2008. Construction of the gate will provide additional benefits because of the flexibility in the control of water.

The local water management practice as mentioned above was the subject matter of present study. A social survey was conducted to collect information on local water management practice, history of Hazir khal, dam construction process, multiple uses of khal, expected additional benefits from the sluice gate and opinion on gate operation. Measurement of tidal water level and salinity was carried out in Hazir Khal to assess the tidal characteristics and salinity concentration in the study area. Availability of tidal water during flood tide was assessed to estimate the volume of water that can be retained by closing the gate at each tide during the dry season. The agricultural area that can be served by the available tidal water during the dry season was estimated based on water for dry season crop. Around the year, gate operation rule was developed according to crop calendar, fish life cycle, tidal cycle, requirement for country boat plying, requirement for water retention, requirement for prevention of saline water intrusion, requirement for drainage, and opinion of the local people.