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Bangladesh Water Development Board (BWDB) and Local Government Engineering Department (LGED) have completed many water resources development projects in the coastal belt of the country in order to boost agro-production through improved drainage, irrigation, salinity prevention and flood protection. Each project consists of various types of water control structures like embankment, canal, regulator, pipe sluice, culvert etc. Sometimes, expected outcomes may not be obtained from the projects as per design and beneficiaries show dissatisfactions and point out faults in many components.

Beneficiaries have experiences with extreme natural events like flooding, draught etc. Sociologists think that beneficiaries possess indigenous knowledge and skill from experiences, which might be integrated in planning and design of water control structures for better performance and outcomes. The claims about usefulness of the indigenous knowledge in planning and design have already been tested and the extent of this usefulness has been determined and verified in specific water control structures in this study.

Few complex and faulty water control structures (namely regulators) have been selected from a coastal district Narail. Social perceptions in performance parameters have been collected through Focus Group Discussions (FGDs). Indicator based social perceptions on selected performance parameters have been collected to measure hydrologic performance of water control structures. Performances have been cross checked and compared with technical planning and design of the structures.

Selected performance parameters in this study are drainage, flushing, water logging, salinity, water retention and flood protection. Specific indicators have been set and social perceptions have been collected for each of the performance parameters of the regulators. Finally, performance parameters have indicated relevant hydrologic performance (opening size, position, invert level and crest level) of the regulator, which has been tested technically to measure soundness of the indigenous knowledge.

Results in this study indicate that beneficiaries are competent to measure parameter performances of water control structures and to identify the discrepancies in design of hydrologic parameters. Most of the regulators score unsatisfactorily in drainage and flushing parameters. Out of six regulators, five regulators score unsatisfactory in drainage performance. Technical cross check of unsatisfactory regulators proves that they have smaller opening size than that of requirement.

Three regulators score unsatisfactory in performance of water logging parameter. Four regulators score unsatisfactory in performance of water retention parameter. Two regulators score unsatisfactory in performance of flood protection. All selected regulators have few unsatisfactory performance parameters. Position, invert level and crest level are relevant hydrologic parameters. Technical cross check verifies social perceptions and finds faults in the design of hydrologic parameters of the regulators.

Beneficiaries express opinion in performance of few hydrologic parameters of regulator differently from technical design. Technical design may differ within ranges and both social perceptions and technical design might be acceptable. Social perceptions could be incorporated in the design of water control structures to make it socially more acceptable.