Water and Irrigation Management in Bangladesh

The Bangladesh Water Development Board (BWDB) has taken a bold step forward to initiate a new approach which, if successfully implemented, could be replicated in other major irrigation systems.

An ADB Project in Bangladesh helped formulate a national policy in 2004 that would protect irrigation water supply from arsenic contamination.

Improving institutions

To improve the management, operation, and maintenance of its major irrigation systems, Bangladesh, with assistance from ADB, will implement a pilot project encompassing the entire secondary and tertiary system of the Muhuri Irrigation Project (MIP) in the south eastern part of the country. The project will establish a Specialized Management Unit (SMU) which will be tasked to:

- Ensure water users receive reliable and equitable supplies
- Establish a transparent and equitable system for recovering some proportion of the costs associated with delivering water
- Strengthen the assessment, planning, financing, and implementation of operations and maintenance (O&M)

BWDB under the Ministry of Water Resources will have overall responsibility for:

- bulk water supply to the primary system
- implementing all irrigation system improvements at the primary and secondary levels of the system
- maintaining responsibility for the management, operation, and maintenance of the headworks and primary system
- entering into a contract for the services of a facilitating entity to establish the SMU
- monitoring the contract between BWDB and the facilitating entity to ensure compliance.

If the SMU proves to be successful, it would itself become a registered independent entity and contract directly with BWDB to continue to provide the requisite services. The facilitating entity will also develop an asset inventory of all irrigation infrastructures to establish a system performance benchmark of MIP and institutional performance of the entity.

The pilot project is part of ADB’s bigger Developing Innovative Approaches to Management of Major Irrigation Systems study that aims to further support the Government of Bangladesh’s strategies in the water sector, recommend options for reforming irrigation service delivery, and improve the sustainability and implementation effectiveness of potential future investments.
Increasing investments

About 70% of Bangladesh's poor live in rural areas with low agricultural productivity and unreliable food supplies. Promoting agricultural growth is a critical element of the government’s strategy aimed at food security and poverty alleviation. Efficient and sustainable irrigation systems are important to boosting agricultural productivity and encouraging crop diversification.

Failure to rehabilitate infrastructure and properly manage and maintain large-scale surface irrigation schemes have negative impacts on farm production, household incomes, and poverty. Such failures lead to reduction in irrigated area due to insufficient irrigation supplies and an increased risk of inundation, resulting in low productivity and reduced demand for labor. Failure to efficiently operate and maintain systems also leads to high costs to communities and the country as a whole. There is a pressing need to improve existing scheme performance through innovative management approaches and institutional frameworks as a platform for designing and implementing a new generation of more effective large-scale surface water schemes. It is expected that these will, in the future, contribute to national food security and poverty alleviation.

Since 1977, ADB has financed 35 technical assistance and 20 loan projects in Bangladesh to amounts of $22 million and $730 million, respectively. Recognizing the key role of the policy and institutional environment, ADB has incorporated these aspects to support its investments in water resources infrastructure development.

Generally, performance of investments has been mixed. Large-scale water resources systems, under the responsibility of BWDB, are often undermined by weak stakeholder participation. This adversely affects O&M and overall system performance. Yet, small-scale systems (less than 1,000 hectares) have demonstrated better performance with an increasing number of well managed, stakeholder driven schemes. The challenge is to adapt conventional participatory irrigation management solutions to better respond to large scale systems.

Impediments to efficient system management include:

- Low irrigation service collection which is inadequate to support system O&M
- No systematic procedure for asset management and to identify O&M needs
- Limited participation and consultation with beneficiaries on O&M requirements
- Lack of asset inventory and condition survey on which to develop maintenance budget
- Proposed annual budgets for O&M are curtailed due to insufficient funds
- Funds released for O&M do not reflect requirements for annual, periodic or emergency maintenance of a system
- Lack of enforcement of cost recovery or contribution to O&M costs in particular for annual maintenance

ADB’s study provided a more focused analysis in managing major irrigation systems, including the MIP, which was designed for dry season irrigation and supplemental wet season irrigation by constructing the Feni Regulator downstream of the confluence of the Feni, Muhuri, and Kalidash-Pahalia rivers and creating a reservoir. This enables water to enter the natural channels and canal network by gravity from where it is lifted for irrigation by 1,100 low lift pumps.

Innovative initiative

The Bangladesh initiative is a pioneering approach for improving irrigation management in South Asia. It is proposed for piloting under ADB loan financing in 2013. Collaboration with the International Water Management Institute on performance benchmarking and developing models for conjunctive use is proposed to operationalize best practices and outcomes of research.

The Country Water Action series was developed to showcase reforms and good practices in the water sector undertaken by ADB’s member countries. It offers a mix of experience and insights from projects funded by ADB and those undertaken directly by civil society, local governments, the private sector, media, and the acadeae. The Country Water Actions are regularly featured in ADB’s Water for All News, which covers water sector developments in the Asia and Pacific region.

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