

Table 1 Road Map for Modernization of Large Irrigation Systems

Key Themes	Definition and Activities	Program Objectives	Responsibilities	Timing
1/ Performance Based Irrigation Management established for Large Irrigation Scheme	<p>Activities will undertake to re-establish the full functioning of major irrigation systems to provide; the design irrigation coverage, an appropriate level of irrigation services, and irrigation fee collection at a level that ensures sustainability. Activities include:</p> <p>(i) Develop advanced systems to facilitate improved revenue collection for payment of services.</p> <p>(ii) Develop institutional strategies for performance interventions including the long term engagement of private sector third party irrigation management operators (IMOs) to manage rehabilitated and modernized irrigation projects.</p> <p>(iii) Design of IMO roles appropriate for different schemes incorporating lessons learned from IMIP to 2016.</p> <p>(iv) Develop appropriate and viable approaches for cost recovery to meet the OM costs and ensure long term</p>	<p>(i) Infrastructure that is well maintained and operable on a sustainable basis. Water use is governed by irrigators paying on a (proxy for) volumetric basis.</p> <p>(ii) Services are provided in a manner that meets irrigator needs on a long-term basis.</p> <p>(iii) Provide irrigators with long-term sustainable access to irrigation facilities in a manner appropriate to the individual schemes.</p> <p>(iv) Remove the burden of recurring operation and maintenance costs from Government budgets.</p> <p>(v) An established PPP modality in the irrigation sector that Government supports at an appropriate level.</p> <p>(vi) Long term sustainability requires the reduction of dependency on irregular and inadequate government</p>	<p>Establishing performance-based irrigation management for the large-scale irrigation schemes is the responsibility of the Bangladesh Water Development Board. In the first stage 2014 to 2020 this will be supported by the ADB financed Irrigation Management Improvement Project (IMIP) working with the support of the Program Management and Design Consultants (PMDC) and with private sector Irrigation Management Operator(IMOs) to be engaged for; Muhuri irrigation project under IMIP (stage 1) and possibly for , Teesta and Ganges Kobadak Irrigation Project through subsequent projects (stage 2).</p> <p>Lessons learnt would be applied to the Stage 2 of the road map.</p>	<p>Interim results from the Stage 1 IMIP project should be apparent by June 2016.</p> <p>Final results by 2020.</p> <p>Stage 2 GK an or Teesta irrigation projects to be taken up starting in 2016 based on; (i) the early review of lessons learnt in Muhuri; (ii) proposals for management for the Teesta and GK projects (2016) and (iii) review of all large irrigation schemes.</p> <p>Stage 3 programs would be other large scale schemes proposed to start after 2020.</p>

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	<p>sustainability.</p> <p>(v) To develop programs of agricultural support services to assist farmers to take up more efficient and higher return agriculture systems including the development of lower water use cropping.</p> <p>(vi) Assess and define roles for BWDB and WUAs that support the PPP enterprise. Develop institutions to support the PPP concept for irrigation and promote awareness of stakeholders in new approaches.</p> <p>(vii) Develop conjunctive surface and ground water management</p>	<p>funding.</p> <p>(vii) The benefits of modernization and improved irrigation management need to be supported by parallel upgrading of agriculture to improve the farm level returns as well as reduce water demands through crop diversification and improved cultivation and irrigation systems to reduce the irrigation water requirements for rice.</p> <p>(viii) To optimize the use of the combined surface and ground water resources to ensure sustainability and to provide the maximum benefit.</p>	<p>Conjunctive water use studies including modeling will be implemented under IMIP 2014-2016</p>	
2/ Modernization of infrastructure for Large Irrigation Schemes	<p>This involves planning for modernization, identifying modernization strategies, and detailed planning for implementation. Required activities include:</p> <p>(i) Review all large-scale irrigation projects to identify those most suitable for modernization using an</p>	<p>(i) Properly focused investments to ensure a reasonable likelihood of success for the PPP modality such that related policy and institutional frameworks can be established for future investments.</p> <p>(ii) Properly functioning infrastructure that</p>	<p>BWDB supported by international and national consultants.</p>	<p>Three Stages:</p> <p>(i) Stage 1 schemes under IMIP 2014 – 2020.</p> <p>(ii) Stage 2 GK and or Teesta schemes to be identified and appraises by</p>

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	<p>approach that involves PPP and sustainable O&M.</p> <p>(ii) Define the approach to physical modernization of infrastructure.</p> <p>(iii) Analyze water availability in the context of cropping patterns and crop water requirements and prepare a water balance.</p> <p>(iv) Analyze options for modernization-technical social and agricultural.</p> <p>(v) Assess capital and OM costs.</p> <p>(vi) Design investment program for Modernization – start with Muhuri, Teesta, and GK and then onto next stage.</p> <p>The IMIP project through Government and ADB loans will rehabilitate large scale irrigation in Muhuri, and possibly Teesta and GK. The overall requirement rehabilitation and modernization is estimated to be 500,000ha. There is however an additional 1.2 million ha that could be considered for development.</p>	<p>provides cultivators with access to sufficient irrigation water on a timely basis.</p> <p>(iii) Sustainable command areas included in the investment design. Agreed rules and operational procedures.</p> <p>(iv) Technologies identified that support investment goals.</p> <p>(v) Investments are cost effective and appropriate irrigation fees established in a transparent manner reflecting actual costs.</p> <p>(vi) Fit-for-purpose infrastructure.</p> <p>Review other potential large scale schemes. Planning and design to be taken up by end 2019.</p>	<p>PMDC consultants under IMIP to implement a review of potential schemes in 2016.</p> <p>Planning and design for additional schemes to be taken up in 2019 under separate funding.</p>	<p>2015 under the IMIP project. Review of all large scale irrigation would be undertaken by the PMDC consultants in 2016.</p> <p>(iii) Stage 3 schemes to be implemented by Government after 2023.</p>
3/ Development of Strategic	A framework conducive to implementing the specified		Ministry of Water Resources and WARPO with contracted	Irrigation Policy developed on the

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<p>Frameworks to better define the roles of the different parties</p>	<p>approach is essential to define relationships between various parties, their rights, roles, and responsibilities.</p> <p>A. Overall <i>1. Policy Framework</i> The 2000 Water Policy adequately defines the necessary policies for engagement of private sector to manage large scale irrigation.</p> <p><i>2. Plan Framework</i> Initiate Updating of National Water Management Plan . Complete NWMP Update.</p> <p>B. Irrigation Management</p>	<p>A.1. (i) The National Water Policy endorses concept related to PPP and adequately define the institutional framework necessary to implement this approach. (ii) A guideline that covers the complete system of law within the water sector to help ensure consistency and synergy of different management approaches for small and large irrigation is proposed.</p> <p>A.2. (i) An updated NWMP with improved data to refine and better focus future investment priorities. The existing Plan (2004) was to be updated every five years.</p> <p>B.1. (i) Updated guidelines will</p>	<p>legal support. WARPO with financial support together with the support under IMIP through the PMDC.</p> <p>Led by Ministry of Water Resources and includes representatives from BWDB, LGED, WARPO, and Local Government.</p> <p>Ministry of Water Resources, Ministry of Finance, BWDB</p> <p>BWDB and Water Management Improvement Project (WMIP) with the help of the PMDC will ensure that all specified entities are established, appropriately staffed and trained and are functional.</p>	<p>basis of lessons learned from IMIP, 2016.</p> <p>National Water Code drafted by 2016. Enacted by 2018</p> <p>Initiate NWMP Update Jan 2014. Complete Update Dec 2015.</p> <p>Institutional structures in place by March 2014</p>

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	<p><i>1. Involving Irrigators</i></p> <p>Update the 2000 Guidelines for Participatory Water Management (GPWM) to ensure adequate and appropriate stakeholder participation in large scale schemes where MOM responsibilities have been assigned to IMOs</p> <p>Revise the 2003 Irrigation Service Charge and develop improved guidelines of approaches for collection and use of the funds.</p> <p><i>2. Bangladesh Water Development Board</i></p> <p>Establish an IMIP Project Management Unit under the ADG Planning.</p> <p>Establish and Train a PPP Cell.</p> <p>Establish an IMIIP Monitoring Cell under Chief Monitoring.</p> <p>Establish a Safeguards Cell under Chief Engineer Monitoring</p>	<p>provide for and define a PPP approach for major irrigation and will provide increased specificity on how interveners relate to local stakeholders.</p> <p>(ii) A revised Irrigation Service Charge Ordinance will take a more realistic account of the real costs of the provided services and approaches to address collection issues.</p> <p>B.2.</p> <p>(i) IMIIP Management Unit ensures focused and quality program delivery.</p> <p>(ii) PPP Cell ensures fair and operable lease agreements and contracts, and coordination with PPP cell under the PMO's office.</p> <p>(iii) Monitoring Cell to provide independent verification of the performance of various stakeholders and</p>	<p>Lessons learnt from the IMO in Muhuri, will be reviewed by the PMU, PMDC and independent panel of experts. Draft guidelines based on the findings to be prepared and communicated to MOWR.</p> <p>Project Management and Design Consultants working with the Irrigation Management Operator and the Implementation Coordination Committee.</p>	<p>Stakeholders in synch with project operations by June 2015</p> <p>Lessons incorporated by June 2016</p> <p>Activities to be initiated in 2014 and completed by June 2018</p>

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	<p>Amend and adopt the draft BWDB Operation and Maintenance Policy 2010 to incorporate new approaches where MOM responsibilities have been assigned to an IMO.</p> <p><i>3. Progress in PPP for Irrigation Management</i> Establish information, communication, and education strategy and plan, and start its implementation. Develop PPP management systems for subsequent large scale irrigations scheme modernization projects (Teesta and or GK) based on the proposals and lessons learnt from Muhuri Irrigation Project.</p>	<p>intervention impacts.</p> <p>(iv) Environmental and social objectives of the program are being met or adhered to.</p> <p>(v) Ensure MOWWR and BWDB OM Policy captures MOM reform including transfer of O&M to IMOs</p> <p>B.3.</p> <p>(i) Well informed stakeholder group able to participate meaningfully in program implementation and long-term operation and maintenance.</p> <p>(ii) Lessons from Tranche 1 investments are appropriately incorporated into Tranche 2.</p>	<p>PMU supported by the PMDC consultants. Lessons learnt to be incorporated into the IMIP training and awareness program,</p>	<p>Activities to be initiated in 2014 and completed by June 2018</p>