

RISK ASSESSMENT AND RISK MANAGEMENT PLAN

Risk Description	Rating	Mitigation Measures	Responsibility
Political			
1. Changes in government affects commitment to developing PPP for irrigation.	H	ADB maintains close dialogue with the government and other stakeholders to ensure commitment remains. Project communication strategy keeps farmers and local politicians committed.	BWDB, PMDC
Transboundary			
2. Water availability in the river is decreasing because of increased uptake from upstream countries.	M	Government of Bangladesh pursues international dialogue on transboundary water sharing agreement through the Joint River Commission. The project increases water use efficiency and water productivity. The project does not increase the irrigated area beyond existing command areas.	MOWR, BWDB
Institutional			
3. BWDB personnel resist transfer of management, operations, and maintenance to private operators	H	BWDB field staff are provided opportunities to join private operators. Project communication strategy ensures farmers and BWDB staff stay committed to the change and support the IMO option.	BWDB
4. The private sector shows little interest in PPP for irrigation despite government promotion	H	The project follows a two-stage approach. The first stage comprises the project establishing the sustainability of the scheme by using the C-IMO. The second stage comprises recruitment of the M-IMO. There is thorough risk analysis and allocation of the risks to the parties that can best control them. The government finances the viability gap. A communication campaign enhances private sector awareness on the project objectives and PPP approach.	MOF, BWDB
5. Financing of recurrent operation and maintenance of project assets after project completion is uncertain.	S	BWDB will finance level 1 infrastructure. The Project Agreement includes assurance that the government will allocate BWDB adequate resources to carry out the necessary O&M activities. A third-party M-IMO will be engaged to manage, operate, and maintain the secondary and tertiary irrigation assets. Farmers have expressed willingness to pay an annual ISF that exceeds the M-IMO requirements depending on provision of quality service delivery, which will be closely monitored by the BWDB and the farmers. The ISF for each year will be prepared and approved by the Implementation Coordination Committee with farmer representatives.	BWDB
6. Price increase in farm inputs, power, and/or decrease in farm gate prices endanger the financial sustainability of the M-IMO	M	The project through the M-IMO supports farmers' organizations for collective purchase and/or production of quality farm inputs and commercialization of the production. Risk allocation clearly defined in M-IMO contract with mitigation measures.	BWDB, IMO
Environmental and social			
7. Farmers object to paying for water delivery (Ganges–Kobadak Irrigation Project and Teesta Barrage Irrigation Project)	M	Ganges–Kobadak Irrigation Project and Teesta Barrage Irrigation Project design involve intensive consultation with farmers and follow a participatory modernization approach. Farmers of Ganges–Kobadak Irrigation Project and Teesta Barrage Irrigation Project visit Barind Multipurpose	BWDB, PMDC

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		Development Authority irrigation system and Muhuri Irrigation Project.	
8. Private pump operators protest and oppose the modernization program (Muhuri Irrigation Project)	L	Intensive consultation continues during project implementation. Private operators offered to be recruited by the IMO as pump operators.	BWDB, PMDC
9. Climate change affects the performance of the irrigation scheme and endangers the financial sustainability of the IMO.	M	Disaster- and climate-change-related risk reduction measures are incorporated into the design criteria. Risk allocation is clearly defined in IMO contract, with mitigation measures.	BWDB, PMDC
10. Cultural barriers could limit participation of women	S	The stakeholder communication strategy will promote women participation in the project. Women will be included in the different training programs (more productive irrigated agriculture methods, pump operators, prepaid card water unit vendors). Evaluation of challenges encountered during the gender action plan implementation will be conducted at project completion.	BWDB, PMDC, ADB
Project Management			
11. BWDB does not provide adequate staff to the PMU	L	A specific loan covenant is provided to ensure the Ministry of Finance supports BWDB staff requirement for the PMU, including recruitment from the market if required. PMU staff are supported with experienced project management consultants and receive specific training in ADB procurement and disbursement procedures.	MOF, BWDB, ADB
12. Tension arises between PMU, IMO, and farmers	M	An implementation coordination committee is established to resolve potential conflict in the Muhuri Irrigation Project. The project communication strategy ensures stakeholders are kept aware of the project achievements and issues.	BWDB, ICC
13. Delayed payment to the project consultants and contractors	L	Standard operating procedures (time and responsibilities of payment, interest on delayed payment, etc.) are agreed to expedite processing of contractors' claims. Adequate provisions were included in the bidding documents. Payments to the contractors and consultants by ADB's direct payment method have been agreed with the executing agency. ADB will monitor payments to the contractors and will facilitate direct payments, wherever required.	BWDB, ADB
14. Weak financial management capacity that may lead to material misstatement in project financial statements and qualified audit reports	S	Measures include providing continuous training to the PMU and its accounts staff in ADB's financial reporting and audit requirements; requiring more comprehensive financial information to be submitted as part of quarterly progress reports; including detailed instructions and reporting templates in the PAM and procuring an accounting software package at the PMU level to capture receipts and payments under ADB financing.	BWDB
15. Low quality of civil works because of corruption	S	Increased transparency through the project communication strategy. Independent construction supervision. Provision of procurement consultant expertise. Reduced number of contracts. Financial and procurement activities are centralized in Dhaka PMU.	BWDB

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16. Prolonged impact of the COVID-19 pandemic on global value chains could delay procurement of goods and services, resulting in delayed project completion.	S	Monitor the situation in Bangladesh and update construction work schedule regularly (all the civil works are already procured). Process loan extension if required.	BWDB
17. Higher than expected inflation of materials and labor	M	Inclusion of increased contingencies.	BWDB
Technical			
18. Power supply does not meet pumping requirement and endangers Muhuri Irrigation Project modernization efficiency	M	Double pumping capacity installed to allow faster pumping if load shedding is higher than project estimates. Existing private diesel pumps kept mobilized to provide emergency backup. 60 ha solar pumping piloted under Muhuri Irrigation Project; first 2,000 ha of modernization may be expanded if successful.	BWDB, IMO

H = high, S = substantial, M = moderate, L = low.

ADB = Asian Development Bank, BWDB = Bangladesh Water Development Board, C-IMO = construction-phase irrigation management operator, COVID-19 = coronavirus disease, ha = hectare, ICC = implementation coordination committee, IMO = irrigation management operator, M-IMO = management-phase irrigation management operator, MOF = Ministry of Finance, MOWR = Ministry of Water Resources, PMDC = Project Management and Design Consultant, PMU = project management unit, PPP = public-private partnership.

Source: Asian Development Bank.