

## Ex-ante Evaluation

### **1. Name of the Project**

Country: The People's Republic of Bangladesh

Project: Small Scale Water Resources Development Project

(Loan Agreement: December 11, 2007; Loan Amount: 5,313 million yen; Borrower: The Government of the People's Republic of Bangladesh)

### **2 Necessity and Relevance of JBIC's Assistance**

#### 1. Present state and issues facing the water resource sector in Bangladesh

Over 90% of Bangladesh lies within the plateau formed by alluvial soil carried by the three major river systems. With 80% of its annual precipitation occurring in the rainy season (from June to October), flooding triggered by runoffs from neighboring countries often wash away the soil, residential buildings and farmlands, especially causing damage to poor people. Moreover, due to the lack of adequate drainage systems, farmlands remain submerged for a long time after a flood, causing serious damage to agricultural production. In stark contrast, during the dry season, farming output is decreased by as much as 30% due to drought. In light of these conditions, it is essential to develop agriculture by improving the productivity of the limited amount of farmland available in Bangladesh by reducing the damage flooding inflicts on farmlands and elsewhere, as well as by shortening the period when farmlands remain submerged. It will also be necessary to promote aqua-farming that effectively uses reservoirs and other water resources.

#### 2. Policies of the water resource sector in Bangladesh and the position of this project

In 1999, a National Water Policy was adopted calling for, among other things, the promotion of small-scale irrigation, the use of both surface water and ground water, and the promotion of crop diversification for efficient water utilization. The National Water Management Plan the government adopted in 2004 advocates the strengthening of the country's agriculture and fisheries industry sector for the purpose of increasing food production, promoting agricultural diversification, maintaining food self-sufficiency, and improving nutrition. Toward this end, the plan emphasizes small-scale infrastructure development for the management of water resources on farmlands, and the spread of technologies in agriculture and fisheries to facilitate the effective use of that small-scale infrastructure. In 2000, the Guidelines for Participatory Water Management were adopted, and efforts now are being made to formulate projects in which local residents participate.

#### 3. JBIC's assistance policy for the water resource sector of Bangladesh and actual performance

In its Medium-Term Strategy for Overseas Economic Cooperation Operations (FY2005–2007), JBIC sets "assistance for agricultural and rural development as more direct ways to reduce poverty" as its priority area for Bangladesh. Being a project that aims at poverty reduction through the promotion of agriculture and fisheries by effectively utilizing water resources in rural areas, this project is consistent with JBIC's assistance policy. Thus, JBIC's support for the project is highly necessary and relevant.

### **3. Project Objectives**

The objective of this project is to increase and streamline agriculture and fisheries production through effective utilization of water resources by developing small-scale infrastructure for control of water resources in the northeastern and central regions of Bangladesh, and thereby contribute to the economic and social development as well as poverty reduction in these regions.

### **4. Project Description**

#### (1) Target Area

Northeastern region (greater Mymensingh area, greater Sylhet area) and central region (greater Faridpur area)

#### (2) Project Outline

- (a) Facilities survey/design and infrastructure development (flood control, drainage improvement, surface water storage, irrigation)
- (b) Capacity building related to activities in agriculture and fisheries by water management cooperatives
- (c) Consulting services (project monitoring and supervision, etc.)

#### (3) Total Project Cost / Loan Amount

7,538 million yen (Yen Loan Amount: 5,313 million yen)

#### (4) Schedule

October 2007–February 2014 (77 months). The definition of project completion is “when the construction (civil work and earth work) is completed.”

#### (5) Implementation Structure

- (a) Borrower: The Government of the People’s Republic of Bangladesh
- (b) Executing Agency: The Local Government Engineering Department (LGED)
- (c) Operation and Maintenance System: LGED will carry out large-scale maintenance and repair work in the aftermath of natural disasters, replacement of decrepit facilities and the like. Water management cooperatives will carry out the daily operation and maintenance of the facilities with the advice of the executing agency.

#### (6) Environmental and Social Consideration

##### (a) Environmental Effects / Land Acquisition and Resident Relocation

###### (i) Category: B

###### (ii) Reason for Categorization

This project is not likely to have significant adverse impact on the environment due to the fact that the project sector and project characteristics are not likely to exert impact and the project is not located in a sensitive area under the “Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations” (established in April 2002). Thus this project is classified as Category B.

(iii) Environmental Permit

Preparation of the Environmental Impact Assessment (EIA) report related to the project is not required under the domestic law of Bangladesh.

(iv) Anti-Pollution Measures

This project is expected to meet the domestic environmental standard of Bangladesh by adopting a design at the detailed design stage that minimizes the impact of drainage. Additionally, the executing agency will provide water management cooperatives guidance on the proper use of agricultural chemicals, fertilizer, etc.

(v) Natural Environment

The project site is not located in or around sensitive areas, such as national parks, and so adverse impact on the natural environment is assumed to be minimal.

(vi) Social Environment

This project involves land acquisition of about 300 ha and the acquisition will be implemented in accordance with the domestic procedures of Bangladesh. The project does not involve resident relocation.

(vii) Other/Monitoring

In this project, the executing agency will monitor water and soil quality.

(b) Promotion of Poverty Reduction

The per capita GDP in 12 of the 15 provinces targeted by the project is below the national average. In selecting the areas to be targeted in the subprojects, in addition to giving priority to those areas with a high proportion of poor people, consideration is given to promoting employment among poor women. Therefore, this project will be categorized as the “poverty reduction promotion project.”

(c) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases including AIDS, Participatory Development, Consideration for the Handicapped, etc.)

In hiring workers for minor civil engineering work, in collaboration with the Labour Contracting Society, priority will be given to poor women.

(7) Other Important Issues

In formulating the subprojects, in addition to considering the views of those residents who benefit from them, the project will design them so that the effectiveness of the project will be continued by having the water management cooperatives, which are resident organizations, operate and maintain the infrastructure facilities. In addition, since appropriate implementation of agricultural and fishery activities is indispensable for attaining the project objective, efforts will be made to increase the effectiveness of the project by closely monitoring the beneficiaries.

**5. Outcome Targets**

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2005 actual)	Target (2016, 2 years after completion)
Area benefited by the project (ha)	–	167,000
Number of farm households benefited by the project	–	259,000

Number of water management cooperatives	–	200
Collection rate of irrigation water charge (%)	–	100
Rice yield (ton/year)	778,396	1,000,000
Fish catches (ton/year)	10,000	27,000

Note: The above figures were calculated on the basis of 200 subproject candidates at the present stage.

(2) Internal Rate of Return (Financial and Economic Internal Rate of Return)

The economic internal rate of return (EIRR) of the project varies widely: flood control = 24.8%, drainage improvement = 55.7%, surface water storage = 17.4% and irrigation = 45.8%. The average EIRR for the four types of subprojects is 36.0%.

EIRR:

- (a) Cost: Project cost (excluding tax), operation and maintenance expenses
- (b) Benefit: Increase in agriculture and fisheries production
- (c) Project Life: 30 years

Note: The above figures are based on calculations from the sample subproject.

**6. External Risk Factors**

Delays in construction work due to flooding and other natural disasters.

**7. Lessons Learned from Findings of Similar Projects Undertaken in the Past**

1. In the projects that beneficiaries have a large stake in, it is important to have a sense of participation from the start. In the case of projects that are scattered throughout the country, support for strengthening the monitoring and supervision system is worth considering. In the projects comprised of many small subprojects, the comprehensive capacity of the executing agency is important. Given these lessons, in this project, efforts will be made to promote resident participation from the planning stage and to strengthen the system of monitoring and supervision of the executing agency.
2. The lesson is that it is possible to effectively enhance the effects of irrigation projects by providing farmers with appropriate training. Thus, in this project, the training department of the executing agency (LGED) and other agencies will cooperate with each other to set up a system to effectively provide training for farmers.
3. The lesson is that, in order to maximize the effects and impacts of the project, it is useful to integrate relating infrastructure such as farm roads, markets, etc. and to include a regional development component. Thus this project attempts to bring about a multiplier effect by targeting the same regions that were targeted in past projects.

**8. Plans for Future Evaluation**

(1) Indicators for Future Evaluation

- (a) Area benefited by the project (ha)
- (b) Number of farm households benefited by the project
- (c) Number of water management cooperatives

- (d) Collection rate of irrigation water charge (%)
- (e) Rice yield (ton/year)
- (f) Fish catches (ton/year)

(2) Timing of Next Evaluation

Two years after project completion