

Ex-ante Evaluation

1. Name of the Project

Country: People's Republic of Bangladesh

Project: Karnaphuli Water Supply Project

Loan Agreement: June 29, 2006; Loan Amount: 12,224 million yen; Borrower: The Government of the People's Republic of Bangladesh

2. Necessity and Relevance of JBIC's Assistance

Due to a lack of capital investment for waterworks in Bangladesh, the development of facilities remains stalled in a state of inadequacy in both urban and rural areas. Even in major cities the water supply is insufficient, and in Chittagong the water supply service coverage remains at 48%.

In Dhaka and Chittagong water supply and sewerage authorities carry out water supply and sewerage projects. Although the water supply and sewerage authorities are furnished with a certain degree of technical capability, their capabilities in terms of management aspects is inadequate, and their fragile financial structures impose difficulty for any investment, even on a small scale.

As a result, water supply services remain inadequate in terms of both quality and quantity, which serves as a factor in keeping the living environment of residents to a low level. In addition, especially in Chittagong City, which is Bangladesh's industrial base, a lack of industrial water has made the installation of private wells a must for large-scale factories, which also acts as a disincentive for private investment.

With contribution to the achievement of the Millennium Development Goals (MDGs) (reducing by half the proportion of people without sustainable access to safe drinking water) in mind, in 2001 the Government of Bangladesh formulated the National Water Management Plan. Through the plan, the Government sets the goal of enabling the entire populace access to safe water and sewerage services by the year 2010 and raising the water supply diffusion rate in urban areas to 75% by 2010, and to 90% by 2025. The improvement of water supply in major cities where the populations are rapidly rising, particularly Chittagong with its notable gap between supply and demand, has been accorded a high level of priority.

The National Policy for Safe Water Supply and Sanitation which was formulated in 1998 laid out a broad framework for improving the policy structure on such items as setting water rates to reflect cost, strengthening the autonomy of the water supply and sewerage authorities, and reducing non-revenue water. However, specific measures are not being taken. The setting of water rates requires approval by the government and delays in revising fees are becoming primary factors placing pressure on finances. While explicit subsidies are not paid to the water service authorities, there are years in which these authorities are unable to repay their debts to the government in full, which come to serve as virtual subsidies.

The water supply and sewerage sector constitutes a part of "infrastructure development for

sustainable growth,” which is one of the prioritized areas in the Japan Bank for International Cooperation (JBIC)’s Medium-Term Strategy for Overseas Economic Cooperation Operations established in April 2005, and is also coming to be one of the prioritized areas for the Country-Based ODA Task Force. As such, this project is in accord with JBIC’s assistance policy.

Based on the above, JBIC’s assistance in this project is highly necessary and relevant.

3. Project Objectives

This project aims to increase the supply of water for consumer and industrial use in Chittagong City by improving water supply facilities, and thereby aspires to improve the living environment of the local residents and the investment environment.

4. Project Description

(1) Target Area

Chittagong City

(2) Project Outline

The project will carry out the procurement of the following necessary materials and equipment, construction, and the procurement of services in the target area mentioned above.

- (a) Construction of a water treatment plant (production capacity of 136,000m³ per day) and a water intake facility
- (b) Construction of transmission pipes and distribution mains
- (c) Engineering consulting services (technical guidance on matters including detailed design, construction management, and leakage control measures, as well as standardization of technical specifications)
- (d) Institutional development consulting services (assistance and training for the executing agency to develop long-term business plans, reduce non revenue water based on GIS, and improve billing and accounting using IT.)

(3) Total Project Cost/Loan Amount

17,037 million yen (ODA Loan Amount: 12,224 million yen)

(4) Schedule

Planned for June 2006 – September 2010 (52 months in total)

(5) Implementation Structure

- (a) Borrower: The Government of the People’s Republic of Bangladesh
- (b) Executing Agency: Chittagong Water Supply and Sewerage Authority (CWASA)
- (c) Operation and Maintenance System: Same as (b)

(6) Environmental and Social Considerations

- (a) Environmental Effects/Land Acquisition and Resident Relocation
 - (i) Category: B
 - (ii) Reason for Categorization

This project does not fall under the category for sectors or attributes prone to producing effects and areas which are easily affected as listed in the JBIC Guidelines for Confirmation of Environmental and Social Considerations (established April 2002). For this reason, and because it has been judged that undesirable effects on the environment will not be significant, this project falls into Category B.

(iii) Environmental Permit

An Environmental Impact Assessment (EIA) report related to this project gained the primary approval necessary to begin construction work in January 2006 from the Department of Environment (DoE) of the Ministry of Environment and Forests (MoEF) of the Bangladesh Government. The final approval which is needed for the operation of facilities should be acquired prior to the start of operations.

(iv) Anti-Pollution Measures

The antiseptic substances and other items to be used at the water purifying plant will be properly managed according to Bangladesh's standards. It is expected that drainage from the water treatment plant and noise and vibration from the pump station will meet Bangladesh's drainage standards as well as its noise and vibration standards.

(v) Natural Environment

Since the project target areas and the surrounding areas do not fall under the heading of locations earmarked for conservation (such as national parks), nor as habitats for valuable species or similar designations, it is not foreseen that the project will have any particularly negative impacts.

(vi) Social Environment

Approximately 16ha of land acquisition will be needed, and the appropriate procedures will be taken based upon Bangladesh's Land Acquisition Act. It is not expected that the relocation of residents will be required.

(vii) Others/Monitoring

The executing agency and others will monitor water quality as well as noise and vibration during construction work and during the provision of services.

(b) Promotion of Poverty Reduction: Assistance for the formulation of a plan to expand future water supply to the city's slum areas is being reviewed.

(c) Promotion of Social Development (e.g. Gender Perspective): The CWASA, which conducts operation, maintenance, and management, is staffing female employees as meter attendants for the first time ever.

(7) Other Important Issues

In coordination with this project, capacity-building through a JICA technical cooperation project in a form that supplements the consulting services is currently under review.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2005)	Target (2013 [three years after
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		completion of project])
Supplied by this project		
Water produced (1,000m ³ /d)	-	136
Utilization ratio (%)	-	100
Water quality (turbidity [NTU])	-	< 1
Water quality (color)	-	5
Chittagong City overall		
Population served (1,000 people)	1,280	2,220
Service Coverage (%)	48	72
Number of connections (individual)	39,553	75,200
Non-revenue water ratio (%)	29	28

(2) Internal Rate of Return

Economic Internal Rate of Return: 11.4%,

Financial Internal Rate of Return: 1.9%

(a) Costs: Project costs, operation and maintenance costs

(b) Benefit: water revenue and connection fees (timesaving costs and the like are included in EIRR)

(c) Project life: 30 years

6. External Risk Factors

(1) Delayed implementation of other projects which are being planned at the target area for this project.

(2) Deterioration of the financial status of the executing agency due to proper rate revisions of water rates and overdue payments from the government sector.

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

(1) The project plan was formulated taking into consideration the water delivery and supply network as a whole, based on the lesson that it is necessary to carefully examine the project scope outside of the ODA loan as well, such as repairing the existing water supply network, when increasing the water purifying and delivering capacity.

(2) The lesson has been learned that to ensure the continuity and self-sustaining development of projects it is necessary to consider measures for strengthening management (education and training for employees such as the implementation of management consulting services, follow-ups by JICA experts, etc.) from the project formation stage. Based on this lesson, JBIC will be providing assistance for improving management and capacity-building from the formation stage onward.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

(a) water produced (1,000m³/d), (b) utilization ratio (%) (c) water quality (turbidity [NTU]), (d) water quality (color), (e) population served (1,000 people), (f) service coverage (%), (g) number of connections (individual), (h) non-revenue water ratio (%)

(2) Timing of Next Evaluation
After project completion