Ex-ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country:	The People's Republic of Bangladesh
Project:	Khulna Water Supply Project
Loan Agreement:	May 18, 2011
Loan Amount:	15,729 million yen
Borrower:	The Government of the People's Republic of Bangladesh

2. Background and Necessity of the Project

(1) Current State and Issues of the Water Supply Sector in Bangladesh

In Bangladesh, the safe and stable supply of water has not been fully achieved. Access to safe water for the people of Bangladesh showed great improvement in the 1990s, however, the rate of achievement as of 2005 remains at approximately 70% as the effects of arsenic contamination became obvious. Bangladesh relies for 90% of its drinking water on groundwater, but the Government of Bangladesh has established a policy of promoting the improvement of water supply through the development of surface water due to the serious arsenic contamination of groundwater and lowered groundwater levels in large cities, in particular in Dhaka. Therefore, the full-scale development of water supply systems using surface water is becoming an issue to be resolved. The percentage of population covered by the piped water supply system as of 2005 remains at 39% even in urban areas (major cities and medium-sized cities).

(2) Development Policies for the Water Supply Sector in Bangladesh and the Priority of the Project

Safe water and sanitation are raised as one of the primary issues in the Poverty Reduction Strategy Paper (PRSP), which is positioned as the top priority for the national development strategy and the National Strategy for Accelerated Poverty Reduction II, which was recently revised. With the achievement of the UN Millennium Development Goals in mind, the Government of Bangladesh has set a goal whereby all of the people in the nation can have access to safe water by 2011. In the National Water Resource Management Plan (2004) and the Sector Development Program (2005), etc., it is planned to promote the improvement of access through improvements in water supply systems corresponding to the increase in the population in urban areas and the securing of alternative water resources in areas where access to safe water is difficult due to arsenic contamination, in rural areas in particular. Especially in urban areas, the achievement of a coverage rate for piped water supply of 90% by the year 2025 has been set for four major cities (Dhaka, Chittagong, Khulna and Rajshahi) based on the need to secure sufficient water supplies to satisfy the demand that is expected to keep growing in the future and to build systems to effectively provide water services.

(3) Japan and JICA's Policy and Operations in the Water Supply Sector

In the light of Japan's Country Assistance Program for Bangladesh (May 2006), JICA has positioned the water supply sector in Bangladesh as one of the priority areas for the "environment" (including countermeasures against arsenic contamination) among the development issues pertaining to "social development and human security," one of the priority sectors for aid. JICA has been providing support for the improvement of the water supply in urban and rural areas with the priority placed on the improvement of the urban environment and countermeasures against arsenic contamination. The following is a list of major aid projects in the past within the water supply sector:

- ODA Loan: Karnaphuli Water Supply Project
- Technical cooperation: Project for Advancing NRW Reduction Initiative (PANI) of Chittagong WASA, Project for Strengthening Capacity for Water Quality Analysis and Monitoring System and Project for Sustainable Arsenic Mitigation, etc.

(4) Other Donors' Activities

The World Bank has been providing support for water supply and sewage projects in Dhaka and Chittagong by positioning the improvement of access to safe water and sanitation as a priority issue pertaining to poverty reduction. The Asian Development Bank (ADB) has been providing support for the improvement of water supply systems in Dhaka and the improvement of water supply and sewage systems in local medium-sized cities by positioning the improvement of water supply and sanitation in urban areas and urban development as priority issues for social development. In addition, the ADB is planning to provide support for the Project through cofinancing with JICA.

(5) Necessity of the Project

The objective of the Project is to supply stable amounts of quality water to Khulna, a central city in the southwestern region of Bangladesh, and by doing so, to improve the living environment of the residents of the target areas. Although Khulna City is the third largest city in Bangladesh following Dhaka and Chittagong, unlike these two cities, no large-scale improvement of the water supply and sewage facilities has been carried out there. It is an urgent task to improve the water facilities to satisfy the demand for water in the city. The Project is also in line with the objectives of priority support areas and sectors specified in Japan's Country Assistance Program for Bangladesh, and, therefore, the necessity and relevance of JICA's support for this Project is high.

3. Project Description

(1) Project Objectives

The objectives of the Project are expand reliable access to portable water and to adapt to climate change by expanding the capacity of water supply system, thereby contributing to the improvement of living environment in Khulna City.

(2) Project Site/Target Area: Khulna District and Bagerhat District, Bangladesh

(3) Project Components

1) Water intake facilities, water treatment plant and impounding reservoir
2) Clear water transmission and distribution networks
3) Consulting services (detailed design, bidding assistance, construction supervision, strengthening of institutional capabilities, etc.)

* JICA and ADB are planning to provide support for 1) and 2) above, respectively. As for 3), JICA is planning to provide support for the portion related to 1) and ADB is planning to provide support for the portion related to 2) and the strengthening of institutional capabilities.

(4) Estimated Project Cost (Loan Amount)

31,082 million yen (the amount of the yen loan is: 15,729 million yen)

(5) Schedule

It is scheduled to be carried out between May 2011 and June 2016 (62 months in total). The

Project will be completed when the facilities begin operating (June 2016).

(6) Project Implementation Structure

1) Borrower: The Government of the People's Republic of Bangladesh
2) Executing Agency: Khulna Water Supply and Sewerage Authority
3) Operation / Maintenance: Khulna Water Supply and Sewerage Authority

(7) Environmental and Social Consideration / Poverty Reduction / Social Development

1) Environmental and Social Consideration:
   a) Categorization: B
   b) Reasons for the Categorization: This project is not considered to have any significant negative impact on the environment, given the characteristics of the project and the characteristics of the project area, under the "Japan Bank for International Cooperation Guidelines for the Confirmation of Environmental and Social Considerations" (established in April 2002).
   c) Environmental Permit: The Initial Environmental Examination (IEE) report concerning the Project was approved by the Department of Environment (DOE), Ministry of Environment and Forestry in October 2010. The EIA report concerning the Project was approved in February 2011.
   d) Anti-Pollution Measures: Impacts from noise, vibration, fine dust and exhaust gases, etc., are expected during construction. After starting operations, negative impacts from ground subsidence are not projected since the water will be taken from rivers. As for the impact of exhaust gases, fine dust, noise and vibration, etc., during the construction, no significant impact is expected since a range of measures will be put in place, including watering, covering the construction equipment and materials with an anti-scattering cover, and the appropriate management of delivery vehicles and heavy construction machinery.
   e) Natural Environment: Since the Project area does not fall under the category of a susceptible area, such as a national park, the negative impact on the natural environment is estimated to be minimal.
   f) Social Environment: This project involves land acquisition (29.58 ha of which 25.15 ha are private land), which will be implemented in accordance with the procedures stipulated in the domestic laws of Bangladesh, and it is confirmed that the residents affected by the Project will be compensated by the replacement cost. The number of the residents affected by the Project due to land acquisition will be 125 and no local residents are to be resettled. It is confirmed that the residents affected by the Project will be compensated by the replacement cost, and a Grievance Redress Committee will be set up to handle grievances from the residents, if any.
   g) Others / Monitoring: In the Project, the executing agency will monitor the air quality, noise, vibration, water quality, ecological systems of fish, land acquisition, etc., during the construction (quarterly).
2) Promotion of Poverty Reduction: In low income communities where the connection to each household is difficult, a communal tap is planned to be installed, which is expected to contribute to the improvement of access to safe water for the poor.
3) Promotion of Social Development: The Project is planned to be implemented by giving consideration to gender, such as the securing of equal opportunities for participation in water user groups and training, etc.

(8) Collaboration with Other Donors: The Project is expected to be implemented under a parallel financing arrangement in cooperation with the ADB**.**

(9) Other Important Issues: The construction of impounding reservoir will contribute to adaptation to climate change by serving as facility that responds to the growing impact of salinity intrusion caused by the elevation of the sea level in the future.

4. Targeted Outcomes

(1) Quantitative effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (2010)	Target (2018) [Expected level 2 years after project completion]
Population served (thousand persons)*	237	706
Amount of the water supply (m^3/day)*	30,100	165,437
Rate of facility utilization (%)	NA	51
Unaccounted for water rate (%)*	35.9	20.0
Percentage of population served (%)*	22.6	62.3

*Water supply through piped water supply system of KWASA

2) Internal Rate of Return

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) of the Project is 14.9%.

[EIRR]

Cost: Project costs (excluding taxes), operation and maintenance costs

Benefits: Water supply to new users and a reduction in water purchasing costs, etc.

Project Life: 30 years

(2) Qualitative Effects

The improvement of the living environment of the residents of the target areas and adaptation to climate change

5. External Factors and Risk Control

Delay in the civil engineering works caused by flooding and other natural disasters, maintenance of the optimum level of water tariff required for securing the financial strength of the executing agency.

6. Lessons Learned from Past Project

Ex-post evaluations of similar projects in the past have noted that it is important for the whole process, including the intake, treatment, transmission and distribution, to be carried out as planned as a unified project to generate the target outcomes to be expected. The Project is planned to be implemented, through cofinancing with the ADB, as a single project for the improvement of the intake, treatment, transmission and distribution networks. The entire progress will be confirmed by the executing agency, ADB and JICA through periodical monitoring meetings, etc. In addition, it is noted that the improvement and strengthening of the management of the water supply entity is important in order to ensure the sustainability of the project. In the Project, the ADB plans to provide support for strengthening institutional capabilities and improving the management of the executing agency. JICA will also follow the progress as needed.

7. Plan for Future Evaluation

(1) Indicators to be used

1) Population served (in units of one thousand people), the amount of water supply (m^3/day), rate of facility utilization (%), unaccounted for water rate (%) and percentage of population served (%)
2) EIRR (%)

(2) Timing: 2 years after project completion