

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The People's Republic of Bangladesh

Project: Karnaphuli Water Supply Project (Phase2)

Loan Agreement: March 10, 2013

Loan Amount: 34,847 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 Sector in Bangladesh

The supply of safe drinking water has not yet sufficiently been achieved in Bangladesh. It is estimated that, despite a considerable improvement in 1990s, 81% of the people has access to safe drinking water in 2010. In addition, the improvement of water supply through developing the surface water has become an urgent issue, taken into account that 90% of the drinking water both in urban and rural areas have been depending on the groundwater, while the groundwater level has declined due to the excessive pumping of groundwater, together with serious arsenic contamination of groundwater. Particularly, the water supply coverage (pipe water supply) remained at 20% as of 2010, which forced many of the residents to purchase expensive bottles of water. Assuming further increases in urban

population for the coming period, it is an urgent issue in urban areas to improve water supply using surface water. In addition, water supply facilities, including distribution networks, have been dilapidated and maintained in inappropriate manners, resulting in as high as 30-40% of non-revenue water in urban areas.

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

The "Sixth National Five-Year Development Plan (2011-2015)" has positioned, for the purpose of achieving the UN Millennium Development Goals, the improvement in access to safe water supply and sanitary conditions as one of its top priorities, and has set a goal to achieve 100% coverage of water supply. "National Water Management Plan" (2004), "National Sanitation Strategy" (2005), "Sector Development Plan - Water Supply and Sanitation in Bangladesh" (2011-2025) and other plans have articulated to improve the access to safe water through developing water supply facilities in responding to the population increase in urban areas. Furthermore, water demands are expected to increase in the coming period, which requires providing enough amount of water supply and establishing efficient water supply service system. In this regard, the Government of Bangladesh has set a target, including the Project, to enhance water supply coverage in the main 4 cities (Dhaka, Chittagong, Khulna, Rajshahi) from 65% in 2005 up to 90% in 2025 and 95% in 2050.

Therefore, the Project is to directly contribute to these development policies, plans and strategies.

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

“JICA Country Analytical Work for Bangladesh”, prepared by JICA in February 2012, analyzed and positioned the water supply sector as one of the prioritized issues in the urban development program. “Country Assistance Policy for Bangladesh”, issued in June 2012, set ‘accelerating economic growth, which benefit all the population, for achieving transition to a middle income country’ as a priority area for the assistance, articulating ‘urban development’ as a development issue. The Project is in line with the direction suggested in the policy and the analytical work. Major achievements of Japan’s assistance are as follows.

- ODA Loan: Karnaphuli Water Supply Project (L/A signed in 2006), Khulna Water Supply Project (L/A signed in 2011)
- Technical Cooperation: Project for Advancing NRW (Non-Revenue Water) Reduction Initiative (PANI) of Chittagong WASA (2009 - 2014)

(4) Other Donors' Activity

Main donor organizations in the urban water sector in Bangladesh include JICA, World Bank (WB), and Asia Development Bank (ADB). WB has supported the development of water supply and sanitation in Dhaka City and Chittagong City, while ADB has assisted developing water supply in Dhaka City, Khulna City and middle rural cities. In 2008, a partnership framework for aid coordination regarding the assistance to the urban water and sewage sector was agreed among Government of Bangladesh, WB, ADB, Denmark, Korea and Japan.

(5) Necessity of the Project

The Project aims at strengthening the capacity of water supply in Chittagong City through the improvement of water supply facilities, such as a water treatment plant, transmission pipes and so forth, enabling the City to supply the water to its residents properly and efficiently. “Karnaphuli Water Supply Project” and other water sector projects have currently been implemented. However, further capacity development for water supply is urgently needed, taken into account that the water demands are expected to increase in the coming period, following the current population increase. The implementation of the Project is expected to fill the gap between water demand and supply as well as to realize proper and efficient water distribution, which would contribute to improve living environments for Chittagong residents. This is in line with development policies of the Government of Bangladesh as well as assistance policies of the Government of Japan and JICA, which underpins the necessity and relevance of the Project to be implemented by JICA. Meanwhile, the Project is a successor of the on-going “Karnaphuli Water Supply Project”.

3. Project Descriptions

(1) Project Objective(s)

The objective of the Project is to increase sustainable access to safe water for the people in Chittagong city, by constructing water supply facilities, thereby contributing to the improvement of the living environment of the citizens.

(2) Project Site/Target Area: Chittagong City, Chittagong Division, Bangladesh

(3) Project Components (Including the Procurement Method)

- 1) The construction of water intake facilities, water treatment plants, transmission pipelines (international competitive bidding)
- 2) The improvement of distribution pipelines (international competition bidding, domestic competition bidding)
- 3) Consulting service (detailed designs, bidding assistance, construction supervision, etc) (a short-list method)

(4) Estimated Project Cost (Loan Amount)

Total Project Cost: 44,390 million Yen, including ODA Loan Amount 34,847 million Yen

(5) Schedule

From March 2013 to January 2022 as planned (107 months in total). The time of starting the operation (January 2021) is to refer to the completion of the Project.

(6) Project Implementation Structure

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

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

1) Environmental and Social Consideration

① Category: B

Reason for Categorization: The project is not located in a sensitive area, nor has it sensitive characteristics, nor falls it into sensitive sectors under the JICA guidelines for environmental and social considerations (April 2010), and its potential adverse impacts on the environment are not likely to be significant.

② Environmental Permit: The Report of Environmental Impact Assessment (EIA) for the Project was approved by the Department of Environment, Ministry of Environment and Forest in September 2007.

③ Anti-Pollution Measures: Antiseptic solutions, etc, which are utilized in the water treatment plant, will be managed properly in accordance with the national standards. In addition, both drainage water from the water treatment plant and noises and fluctuations from the pump station are to meet the national drainage standards and noise/fluctuation standards.

④ Natural Environment: Since the Project area is not located in and around a

susceptible area, such as national parks, negative impacts on national environment are estimated to be minimal.

⑤ Social Environment: Since the land required for the Project will be managed within the area which was acquired for Phase 1, there is no need for further land acquisition and resettlement for the Project.

⑥ Other / Monitoring: The executing agency of the Project is to conduct monitoring activities on water quality, noises and fluctuations during the construction and the operation.

2) Promotion of Poverty Reduction: The Project is to supply water to areas including slum areas where 40% of the total residents in Chittagong City reside.

3) Promotion of Social Development (e.g. Gender Perspective, Measure for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Handicapped etc.): No information specifically mentioned

(8) Collaboration with Other Schemes and Donors

GIS database, established in the on-going Technical Cooperation Project for “Advancing NRW (Non-Revenue Water) Reduction Initiative (PANI) of Chittagong WASA (2008 - 2010) “, will be utilized for the improvement of distribution pipelines in the Project. Meanwhile, WB has been supporting the construction of water and sewage facilities in the City, which requires clear demarcation in terms of water supply areas.

(9) Other Important Issues: No information specifically mentioned.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicator	Baseline (Actual Value in 2012)	Target (2023) 【Expected value 2 years after project completion】
Population Served* (1,000 persons)	1,363	2,008
Amount of water supply (m ³ /day)	219,000	505,000
Rate of facility utilization (%)	100	100
Unaccounted-for-water rate (%)	33	23
Percentage of population served (%)	47	51
Water supply amount per capita (Liter/ person / day)	107	120

* Targeting water supply through pipes by CWASA

2) Internal Rate of Return

Based on the conditions indicated below, Economic Internal Rate of Return (EIRR) of the Project is estimated to be 10.51%.

【EIRR】

Cost: The Project cost (excluding tax)

Operation and management cost/benefit: Willingness to pay regarding new water supply, cost reduction effects (costs for alternative water sources, etc)

Project life: 30 years

(2) Qualitative Effects

Improvement of living environments for residents in Chittagong City

5. External Factors/Risk Control

Delays in civil engineering works caused by flooding and other natural disasters; setting the optimum level of water tariff for securing financial soundness of the Executing Agency

6. Evaluation Results and Lessons Learned from Past Projects

(1) Evaluation results of similar projects

Ex-post evaluations of similar projects, such as “Sri Lanka Towns North of Colombo Water Supply Project”, suggested a lesson that it is important for the whole process, including intake, treatment, transmission and distribution, to be carried out as planned as a unified project to generate the target outcomes to be expected.

(2) Lessons for the Project

For the improvement of water supply service in Chittagong City, it is an important issue not only to increase water supply capacities but to improve water distribution networks. Based on the aforementioned lessons, the Project is planned to be implemented as a single project for the improvement of the intake, transmission and distribution networks. Therefore, there is no risk that water supply with stable quality and quantity is not ensured due to dilapidated distribution networks even if the water treatment plant is newly established.

7. Plan for Future Evaluation

(1) Indicators to be Used

- 1) Population served, amount of water supply (m³/day), rate of facility utilization(%),Unaccounted-for-water rate (%), percentage of population served (%), water supply amount per capita (Liter/ person / day)

- 2) Economic Internal Rate of Return (EIRR) (%)

(2) Timing of Next Evaluation : 2 years after the completion of the Project

END