Ex-ante Evaluation

1. Name of the Project

Country: India
Project: Agra Water Supply Project
(Loan Agreement: 03/30/2007; Loan Amount: 24,822 million yen; Borrower: The President of India)

2. Necessity and Relevance of JBIC's Assistance

In India, water usage is increasing together with the growth in population. Reliance on groundwater is lowering the groundwater level, leading to a serious imbalance in the supply and demand of water. As a result of the sudden population influx in urban areas and industrialization, the discharge of wastewater exceeds disposal capacity, and raw sewage is discharged into rivers in amounts that far exceed the self purification capacity. As a result, the public health and living conditions of local residents are threatened by diarrhea and hepatitis, etc., that are caused by the polluted water.

The 10th 5-Year Plan (April 2002-March 2007) by the Government of India proposes to supply adequate and safe drinking water to the entire population, to clean up the major polluted rivers and to improve the river catchment area environment. Based on this, in the National Water Policy (April 2002), Ministry of Water Resources aims to give priority to the allocation of water resources for drinking water, irrigation, and hydroelectric power, in that order. Ministry of Environment and Forests also has been working on cleaning up of rivers and lakes, starting with the River Ganga in 1985 and is in the process of construction of sewerage facilities under the National River Conservation Plan and the National Lake Conservation Plan. In the current administration's Common Minimum Programme (May 2004) and Jawaharlal Nehru National Urban Renewal Mission (JNNURM) legislated in 2005, there is a commitment to expansion of public investment in urban infrastructure development, including water supply and sewerage facilities. Furthermore in JNNURM, large-scale subsidy from the central government is planned for urban infrastructure development, on the condition that state governments and municipalities implement managerial reforms, such as strengthening their financial structure and delivery of basic services to the urban poor.

In JBIC's current Medium-Term Strategy for Overseas Economic Cooperation Operations, the priority sectors in assistance to India are "Economic Infrastructure Development" and "Environmental Improvement." The assistance provided by this project is consistent with the strategy.

In the area surrounding the city of Agra, which is in the state of Uttar Pradesh in northern Indian, home of the Taj Mahal and one of the top tourist spots in India, it has become necessary to supply more water to meet the increased water usage of the rapidly growing population (from 750,000 in 1981 to 1,260,000 in 2001). Moreover, development of a new water source is considered necessary because the Yamuna River, which provides the water supply for Agra and the surrounding area, is polluted by the inflow of untreated sewage from large cities situated upstream, such as Delhi, and a massive amount of chlorine is used to purify it, leading to a high cost for purification and a tendency among people to avoid using it for drinking water due to concerns about its health effects. Consequently, this project is to install water supply facilities, including aqueduct facilities to bring water from an irrigation canal of the Ganges River, to provide an alternative water source to respond

to the increasing demand for water and to realize the safe and reliable water supply, and thus this project is highly necessary and relevant.

3. Project Objectives

The objective of this project is to provide safe and reliable water supply service by constructing aqueduct facilities to Agra and the surrounding area, by using an irrigation canal of the Ganges River as a water source, and by improving and expanding existing water facilities in the city of Agra in the state of Uttar Pradesh in northern India, thereby contributing to improvement of the living conditions of residents, including the poor.

4. Project Description

(1) Target Area

City of Agra and the surrounding area in the state of Uttar Pradesh

(2) Project Outline

(a) Water supply facilities: Construction of intake facilities, aqueduct (approximately 130 km from the irrigation canal of the Ganges River to the city of Agra) and pump stations, repair (225,000 m^3/day) and expansion (144,000 m^3/day) of water treatment plants in Agra, and replacement and expansion of the water distribution network.

(b) Social development: Awareness raising campaign for residents and assistance for house connections for each poor household.

(c) Consulting Services (detailed design, bidding assistance, construction management, management improvement, etc.)

(3) Total Project Cost/Loan Amount

29,265 million yen (Yen Loan Amount: 24,822 million yen)

(4) Schedule

February 2007 – March 2014 (86 months)

(5) Implementation Structure

(a) Borrower: The President of India

(b) Executing Agency: Uttar Pradesh Jal Nigam

(c) Operation and Maintenance System: Irrigation Department, Government of Uttar Pradesh (water intake facilities), Agra Jal Sansthan (water supply facilities within the city of Agra), Uttar Pradesh Jal Nigam (aqueduct, pump stations for Agra and the surrounding area)

(6) Environmental and Social Consideration

(a) Environmental Effects/Land Acquisition and Resident Relocation

(i) Category: B

(ii) Reason for Categorization

This project is classified as Category B because it was determined that the project will not have any significant undesirable impact on the environment given that the characteristics of the sector is not likely to exert impact, and the characteristics of the region make it

unsusceptible to impact, based on the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established April 2002).

(iii) Environmental Permit

The EIA report is not required for the project in the country's legal system

(iv) Anti-Pollution Measures

No ground subsidence is foreseen due to intake of surface water from the irrigation canal of the Ganges River.

(v) Natural Environment

The project area is not in or near an area that is susceptible to impact, such as a nature preserve, and it is likely to have minimal adverse impact on the natural environment.

(vi) Social Environment

This project requires the acquisition of approx. 6.3 ha of land, and so compensation procedures are proceeding in accordance with the domestic procedures of India, together with temporary usage of 175.4 ha of land for construction activities. The project requires no resettlements.

(vii) Other/Monitoring

Agra Jal Sansthan will monitor the water quality, etc., in this project.

(b) Promotion of Poverty Reduction

As an urban poverty measure, it is planned to improve the water distribution network and assist each household with house connections in order to improve water service to the poor mainly in slum areas.

(c) Promotion of Social Development (e.g. Gender Perspective)

None

(7) Other Important Issues

- In this project site, JBIC is also implementing the Yamuna Action Plan Project. To purify the water of the Yamuna River, construction of seven sewage treatment plants has been completed, and construction of two more is planned.
- Resident participation will be promoted through group discussion, etc., in awareness raising campaign concerning water service connections, saving water, and fee payment, etc.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicator)

Indicator	Baseline (2005)	Target (2016, 2 years after completion)
Total population served (thousand persons)	897	1,435
Amount of water supply (m^3/day)	238,090	340,743
Non-revenue water rate (%)	67	30

Ratio of population using pipe water for drinking (%)	20	90

(2) Internal Rate of Return

Economic Internal Rate of Return (EIRR): 12.6%

(a) Cost: Project cost (excluding tax), operation and maintenance expenses

(b) Benefit: Increase in willingness to pay water bills, reduction of medical-related expenses, reduction of operation and maintenance expenses

(c) Project Life: 40 years

6. External Risk Factors

None

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

From ex-post evaluations of similar projects in the past, it has been learned that it is important to improve the existing water distribution network and to conduct public relations and awareness raising campaign for the project targeting the residents in order to boost the projects effects. In this project, in addition to improving and expanding the existing water distribution network, public relations and awareness raising campaign for the residents will be implemented.

Moreover, the need was pointed out for studying measures for strengthening the management of the executing agency in water projects, starting from the project formation and appraisal stage. In this project, it is planned to implement measures to reduce unaccounted-for water, improve finances, and improve customer service.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

(a) Total population served (thousand persons)

(b) Amount of water supply (m^3/day)

(c) Non-revenue water rate (%)

(d) Percentage of population served (%)

(e) Ratio of population using pipe water for drinking (%)

(f) Internal rate of return: EIRR (%)

(2) Timing of Next Evaluation

After project completion