

Ex-Ante Evaluation (for Japanese ODA Loan)**1. Name of the Project**

Country: India

Project: West Bengal Piped Water Supply Project

Loan Agreement: March 28, 2013

Loan Amount: 14,225 million yen

Borrower: The President of India

2. Background and Necessity of the Project**(1) Current State and Issues of the Water Supply/Sewerage and Sanitation Sector in India**

In India, accessibility to safe water has been improved from 72% in 1990 to 88% in 2008. The country has been reaching its goal of establishing sustainable access to drinking water throughout India under the Twelfth Five-Year Plan (April 2012 through March 2017). However, water resource development and construction of water supply systems are not keeping up with the increasing demand for drinking water stemming from India's increasing population and economic growth. Today, the country suffers from an excessive dependence on groundwater and chronic problems such as a broken and uneven water supply. Even worse, groundwater in some areas contains substances harmful to humans such as fluoride and arsenic. In particular, fluoride and arsenic levels in the water in northern and western part of the country are far beyond the WHO guidelines, calling for urgent action to ensure the supply of safe drinking water. The sewerage systems in the country are also troubled. Specifically, the percentage of facilities connected to sewer pipes remains extremely low—just 28% even in urban areas. Due to a drastic influx of population into urban areas and rapid industrialization, wastewater has overflowed treatment capacity and is passing untreated into rivers and the like, threatening living conditions and sanitation for local residents. The organizations providing drinking/sewerage water services face technical and financial challenges in operation/maintenance, such as high ratios of non-revenue water, undervalued fares, and a lack of trained employees.

(2) Development Policies for the Water Supply/Sewerage and Sanitation Sector in India and Priority of the Project

The Union Government set a policy agenda under the Twelfth Five-Year Plan (April 2012 through March 2017) for supplying drinking water to the entire

population in urban areas. In 2009, the Union Government further formulated the National Rural Drinking Water Programme (NRDWP) to supply safe and sufficient drinking water in rural areas as soon as possible and to promote sustainable maintenance. Also, under the strategic plan related to rural water supply that was formulated in 2010, the Government set a goal to use its waterworks to supply safe and sufficient drinking water to the entire population in rural parts of India by 2022. The waterworks improvement program is expected to continue under the same strategic plan in the Twelfth Five-Year Plan. The plan aims to boost coverage of the drinking water supply system to 55% by 2017 (currently at 30%). The project fulfills the strategic plan and is defined as one that contributes to increased coverage of the drinking water supply system in rural areas.

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

As a part of environmental measures, priority goals were formulated by the Government of Japan for improving poverty and environmental issues under the Country Assistance Program for India. The Country Assistance Program will consider the rapid growth of urban population and support the supply of adequate and safe drinking water and the remediation of poor public sanitation in order to improve living standards and prevent water contamination in major rivers. Further, in rural areas, water supply development projects are supported as part of the development of basic infrastructure for the living environment of the poor. In Japanese ODA loans for India in the water supply/sewerage and sanitation sector, there are 26 projects with loans totaling 501.6 billion yen (14.1% of the entire approved amount). Under non-Japanese ODA loans, JICA is currently providing Technical Assistance Related to ODA Loan, Capacity Development Project for Non-Revenue Water Reduction in Goa. JICA's other contributions include dispatching policy advisors in charge of the sewerage water sector to the Ministry of Urban Development since May 2011.

(4) Other Donors' Activity

The World Bank (WB) pointed out that achieving rapid and comprehensive growth, ensuring sustainable development, and boosting efficiency in service supply were priority areas under the country assistance strategy scheme. The bank decided to provide support for constructing water works and improving the sanitary environment to assist in these areas.

The Asian Development Bank (ADB) currently supports the drinking/sewerage

water sector as a part of poverty reduction. The bank defined the following priority items: ① providing support in priority states (Madhya Pradesh, Kerala, and North Eastern states), ② emphasizing the financial soundness of institutions in charge of project operation, ③ considering impoverished groups, and ④ supporting pilot projects that facilitate fund diversification, including private investment.

(5) Necessity of the Project

The project site, Puruliya District, is located in the western region of the West Bengal State and has a population of approximately 2.93 million. The project site is a frontier area, about 300 km away from the state capital of Kolkata. The area is one of the most underdeveloped in the West Bengal state, with a low literacy rate and low income level. Nearly 90% of the population lives in rural areas. The percentage of households under the poverty line is 43.7%, higher than the national average of 26.1%.

The Union Government formulated a policy to encourage greater use of water systems to ensure a safe and sufficient water supply. The government of West Bengal coined the slogan "from wells to waterworks" for its policy, while making progress towards constructing waterworks throughout the state. However, the coverage of the drinking water supply system in the Puruliya District is 16.8%, which is lower than the state average of West Bengal 38.0%. In other words, the district is most backward in West Bengal in terms of coverage.

Because the Puruliya District has a limited amount of surface stream water available, most residents rely heavily on groundwater to supply their household water. However, groundwater levels are lower during the dry season because of the recent surges in water demand resulting from the region's growing population. Water shortages therefore occur when people become unable to pump the groundwater. Moreover, it was confirmed that some of the groundwater in Puruliya District contains naturally derived fluoride at levels beyond WHO guidelines for drinking water. Thus supplying safe drinking water through constructing waterworks is considered to be a pressing issue.

The project aims to supply safe and sufficient drinking water to residents in the Puruliya District. Therefore, the aim of the project satisfies the development policies of the Government of India as well as the support policies of the Government of Japan and JICA. Consequently, JICA's support for the project is highly necessary and relevant.

3. Project Description

(1) Project Objectives

The objective of the project is to provide safe and adequate drinking water supply to people in the Purulia District suffering from acute scarcity of potable water, by constructing piped water supply schemes, thereby improving health and quality of life in the district.

(2) Project Site/Target Area: Puruliya District, West Bengal State

(3) Project Components¹

- 1) Construction of drinking water facilities (e.g. water intake facilities, water purification plants, water lines, pump stations, distribution reservoirs, and water supply networks)
- 2) Consultation service (e.g. reviewing detailed design and bidding documents, bidding support, supervision of construction work, capacity building of relevant organizations, and supporting resident education activities)

(4) Estimated Project Cost (Loan Amount)

20,740 million Yen (Loan Amount: 14,225 million Yen)

(5) Schedule

Planned between March 2013 and February 2022 (total of 108 months). Project completion is defined as the commencement of the service of the facilities (February 2021).

(6) Project Implementation Structure

- 1) Borrower: The President of India
- 2) Executing Agency: Public Health Engineering Department, Government of West Bengal (PHED)
- 3) Operation and Maintenance System: Same as 2) (partial relegation to municipal governments is planned)

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

1) Environmental and Social Consideration

- ① Category: B
- ② Reason for Categorization: The project is classified as Category B because it does not fall under the sector or characteristics that may have

¹ As a result of a detailed geo-hydrological survey by consultants hired by the executing agency and a review on the survey by project management consultants (PMC), the executing agency applied for a change in the scope in February 2018 after commencing this project. The new scope plans to use a dam as a water resource instead of that initially planned. The scope was agreed among the Government of India, the executing agency, and JICA. The change of the scope resulted in changes in 3. (4) Estimated Project Cost, 3. (5) Schedule, 3. (7) Environmental and Social Consideration Category, and 4. Targeted Outcomes.

an undesirable impact on the environment as defined by the JICA Environmental and Social Guidelines (established in April 2010) and it is not considered to have a significant impact on the environment.

- 2) Promotion of Poverty Reduction: The project will implement awareness activities for local residents including impoverished groups. Topics include public health and conservation of the water environment.
 - 3) Promotion of Social Development (e.g. Gender Perspective, Measures for Infectious Diseases Including HIV/AIDS, Participatory Development, Consideration for the Person with Disability, etc.): The aspect of gender will be taken into consideration in the capacity building of relevant organizations and awareness activities.
- (8) Collaboration with Other Donors: N/A
- (9) Other Important Issues: The project aims to reduce the adverse impact of climate change through improving living conditions for local residents. The improvements should be achieved by securing a safe and stable drinking water supply by constructing drinking water facilities. The project therefore contributes to climate change adaptation measures.

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes(Operation and Effect Indicator)

Indicator	Baseline (Actual Value in 2012)	Target (2023) 【Expected value 2 years after project completion】
Population with access to water supply* (thousands of people)	-	710
Coverage of the water supply system** (%)	-	100
Water supply quantity (m ³ /day)	-	69,060
Available water per capita per day (L)	-	70
Number of Village Water and Sanitation Committee to be established***	-	52

* The beneficiary population by bulk water supply in Puruliya District

** The percentage aimed at by the executing agency

*** The number of Village Water and Sanitation Committee in Manbar-1, Purulia-I, Puncha Barbazar, and Arsha blocks

2) Internal Rate of Return

Based on the conditions indicated below, the Economic Internal Rate of Return (EIRR) of the project was calculated as 13.04%.

【EIRR】

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

Benefit: Reducing time for water collection, Willingness to pay for water charge, and health promotion by improving water quality (including fluoride elimination)

Project Life: 30 years

(2) Qualitative Effects

Improvement in living conditions of residents in Puruliya District, West Bengal State, enhancing the operation and maintenance capacity of the executing agency and municipal governments, and adapting to climate change

5. External Factors and Risk Control

Economic stagnation and deterioration in political situation in India and the surrounding area of the project as well as natural disasters

6. Lessons Learned from Past Projects

(1) Result of Evaluation of Similar Past Projects

A lesson learned from the results of the Philippines' ex-post evaluation of the Boracay Environmental Infrastructure Project was that when the operating party differs from the executing party, it is critical to secure involvement of the operating party from the project planning stage to foster ownership. A lesson learned from the results of Indonesia's ex-post evaluation of the Rural Areas Infrastructure Development Project (3) was that when managing small, diverse projects, it is absolutely imperative to set up a systematic management system and define its operation throughout the entire process from central control functions to the margins.

(2) Lessons for the Project

Operation and maintenance of drinking water facilities in the towns for the project will be delegated not to the executing party but to respective local municipal governments. Therefore, based on lessons learned, JICA will provide educational activities and training programs for the municipal governments and local residents to educate them about their roles and responsibilities in the operation and maintenance of the relevant facilities. The executing agency will compile detailed information related to project progress collected at the project sites to create a database so that the agency can manage the data in a consolidated manner. In this way, the agency can achieve efficient operation.

7. Plan for Future Evaluation

(1) Indicators to be Used

- 1) Population with access to water supply (thousands of people)
- 2) Coverage of the water supply system (%)
- 3) Water supply quantity (m³/day)
- 4) Available water per capita per day (L)
- 5) Number of water control associations to be established
- 6) Internal Rate of Return (EIRR) (%)

(2) Timing

Two years after the project completion

The Ex-Ante Evaluation was revised as the Indian side applied for a change in the scope in February 2018.