

1. Name of the Project

Country: Republic of India
Project: Odisha Integrated Sanitation Improvement Project (II)
Loan Agreement: March 31, 2016
Loan Amount: 25,796 million yen
Borrower: The President of India

2. Background and Necessity of the Project

(1) Present State of Development and Problems of the Sewerage Sector in India

In India, the generation of sewerage has been increased due to rapid population expansion and industrialization. Meanwhile, just 30% of the amount of generated sewerage is treated by sewerage facilities, and sewer network service ratio reaches only 36% for the whole India. Therefore, a lot of raw sewerage is being discharged into rivers without any treatment. As a result, infectious diseases and bad odor are appeared via polluted water, thereby compromising hygiene condition of habitants and deteriorating the living environment. In addition, sewerage service providers in India face a number of technical and financial difficulties with respect to management and maintenance of the facility, including low house connection rates, low water tariffs, lack of capacity, and personnel shortages.

(2) India's Development Policies for the Sewerage Sector and the Role of the Current Project

Under the current 12th Five-Year Plan, the Government of India takes up establishment of sustainable access to sewerage and sanitation facilities for all urban population in India. Especially, the Government of India focused on sewerage facilities corresponding to water supply facilities and recycled sewage to tackle water scarcity. The project intends to carry out construction of sewerage facilities corresponding to water supply facilities in the urban area where has no sewerage facility, and therefore meets the Indian government's sewerage policy.

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

In Japan's Country Assistance Programs for India (May 2006), the Japanese government designated as priority area reducing poverty and environmental problems in India as well as providing support for sewerage development as part of its efforts to solve environmental problems. Meanwhile, in its Country Analysis Paper (March 2012), JICA prioritizes the development of industrial and urban infrastructure in India, and aims to support sewerage development in order to prevent water contamination in the major rivers, solve poor public sanitation, and improve life quality. Previously, JICA received authorization to provide ODA loans to India of the amount of 245.8 billion yen for 12 projects in sewerage sector (some projects include water supply improvement in their component).

(4) Other Donors' Activities

In its Country Assistance Strategy for India, the World Bank notes population increases in medium-sized cities and changes resulting from industrialization as high priority issues; the World Bank is working to support sewerage development to resolve these issues. The Asian Development Bank (ADB) is also engaged in supporting India's sewerage sector alongside implementing poverty reduction measures; in addition to developing facilities, the bank also focuses on establishing facility management and maintenance systems based on international standards, enhancing organizations and technical skills, and promoting Public-Private Partnerships (PPP) based on lessons learned in other countries.

(5) Necessity of the Project

The eastern Indian state of Odisha has a higher poverty rate in India while it has rich natural resources, such as iron ore and coal, and industrialization and population growth in the state have been recently advanced. However, in the cities of Bhubaneswar, the state capital, and Cuttack, former state capital, most of public sewerage facilities including sewerage network and sewerage treatment plant, have not been improved. As a result of discharging sewage, environmental issues have been generated including water pollution of river, soil and groundwater, infectious disease by contaminated water, health damage of community residents, and odor derived from polluted water, which has threatened sanitation and living environment of the community residents. The population is expected to keep growing and water supply amount increase, thereby the volume of polluted water increase. Thus, the improvement of sewerage treatment facility and rainwater drainage system has become an urgent issue.

While the Project commenced in 2007, the fund is expected to become shortage due to the circumstances which was not able to be expected at the commencement, such as the new road construction, extension of sewers based on the population growth, and rising of materials and equipment price. Accordingly, the Government of India, in addition to responding them on their own funding, submitted the request for additional loan to the Government of Japan. In order for smooth implementation of the Project as well as early achievement of the project effects, additional input of funds through ODA Loans is essential. Therefore, JICA's support for implementing this project is highly necessary and relevant.

3. Project Description

(1) Project Objective

The Project is to provide reliable sewerage services and improve rainwater drainage system in the cities of Bhubaneswar and Cuttack in the eastern Indian state of Odisha by improving their sewerage facilities and rainwater drainage facilities, thereby contributing to the improvement of sanitation and living environment of residents in the areas.

(2) Project Site/Target Area

Bhubaneswar and Cuttack in the eastern Indian state of Odisha

(3) Project Components

- 1) Sewerage Facility (Bhubaneswar): construction of sewerage treatment plant, pump station, and sewers (international competitive bidding)
- 2) Sewerage Facility (Cuttack): construction of sewerage treatment plant, pump station, and sewers (international competitive bidding)
- 3) Rainwater Drainage Facility (Cuttack): construction and repair of drainage system, construction of pump station, repair of water gate (international competitive bidding)
- 4) Social Development: improvement of sanitation environment in slum areas, awareness raising of residents (international competitive bidding)
- 5) Consulting Services: detailed design, bidding support, construction supervision, improvement of management (short-list method)

(4) Project Cost

56,071 million yen (Loan amount: 25,796 million yen)

(5) Project Implementation Schedule

May 2007 – June 2018 (134 months in total). The project completion is defined as the commencement of the service (June 2018)

(6) Project Implementation Structure

- 1) Borrower: The President of India
- 2) Executing Agency: Orissa Water Supply and Sewerage Board (OWSSB)
- 3) Operation and Maintenance System: Water Corporation of Odisha. Limited (WATCO) will operate and maintain the sewerage facilities improved in the Project. Since WATCO does not have experience in maintenance of sewerage facility, the Project will provide support to capacity enhancement which contains the improvement of financial management including setting of sewerage rate system, in addition to support related to technical aspects. For several years after the completion, operation and maintenance of the facilities will be commissioned to the contractor of facility work.

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

1) Environmental and Social Considerations

① Category: B

② Reason for Categorization: The Project is not located in sensitive characteristics and sectors, nor does it fall into sensitive areas under the JBIC Guidelines for Confirmation of Environmental and Social Considerations (April 2002), and its potential adverse impact on the environment is not likely to be significant.

③ Environmental Permit: Preparation of Environmental Impact Assessment (EIA) is not required for the project under Indian laws. The Project has obtained a clearance from Odisha State Pollution Control Board concerning the drainage standards from sewerage facilities and design of treatment plants.

④ Anti-Pollution Measures: Sewage and sludge are treated to adhere to Indian environmental standards, and thus there is no serious negative impact on sewerage discharged and sludge treatment.

⑤ Natural Environment: As the project site is not located in sensitive areas such as a national park or its vicinity, adverse effects of the project is expected to be minimal.

⑥ Social Environment: The Project will require for approximately 107.7 acres of land acquisition for construction of sewerage treatment plant and pump station, of which 106.7 acre of land has been acquired in accordance with the JBIC guidelines, domestic laws of the country, and the compensation policy provided by the executing agency. The acquisition of the rest of 1.0 acre will be processed under the same procedures. No resettlement of residents is required.

⑦ Other/Monitoring: OWSSB monitors air quality, water quality, noise, and waste management during the construction work while WATCO will monitor the quality of water discharged from sewerage treatment plant, contents of sewage sludge, air quality, and noise when in service.

2) Promotion of Poverty Reduction: The Project will improve common toilet and carry out public relation and awareness raising activities or improving sanitation and living environment in the project site including impoverished groups.

3) Promotion of Social Development (e.g. Gender Perspective, Measures to Prevent Infectious

Diseases Including AIDS, Participatory Development, Consideration for Handicapped, etc.): In order to promote the participation of female residents to public relation and awareness raising activities for individual house connection, etc., the aspect of gender will be taken into consideration in the contents of activities upon considering their venue, timing, etc.

- (8) Collaboration with Other Schemes and Other Donors: none in particular.
 (9) Other Important Issues: none in particular.

4. Targeted Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicator)

Indicators	Baseline (actual value in 2005)		Target (2020) [2 years after project completion]	
	Bhubaneswar	Cuttack	Bhubaneswar	Cuttack
Population Covered (1,000 persons)	-	55	260	387
Capacity of Wastewater Treated (m ³ /day)	-	5,500	28,800	42,500
Rate of STP facility utilization (%)*	-	-	60	50
Average effluent BOD concentration (mg/L)	-	-	<10	<10
Sewage coverage (%)**	-	10	60	50
Maximum inundation area (ha)		470		30
Annual inundation (time)		3-5		<3

* The Rate of STP Facility Utilization has been calculated by dividing the amount of wastewater treated by capacity of wastewater treated.

** The sewage coverage has been calculated by dividing the population covered for treated sewage water / target population for treated sewage water.

(2) Qualitative Effects

The qualitative effects of the Project include the improvement of sanitation and living environment (reduction of odor, inundation damage, etc.), improvement of health condition by reducing waterborne infectious disease, awareness raising of residents about the improvement of living environment, and adoption to climate change.

(3) Internal Rate of Return

Based on the conditions indicated below, the economic internal rate of return (EIRR) of the Project will be 12.9%. Due to the low charge level, a calculation result of the financial internal rate of return (FIRR) showed a negative value. As the charge is planned to increase gradually, monitoring will be conducted during the project implementation.

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

Benefit: Willingness to pay sewerage charge, reduction of economic loss due to disease, reduction of medical-related expenditure, and reduction of economic loss by inundation

Project Life: 40 years

5. External Factors and Risk Control

Deterioration of the political and economic situations and the regions surrounding the project site as well as natural disaster in India

6. Evaluation Results and Lessons Learned from Past Projects

(1) Results of Evaluation of Similar Past Projects

The ex-post evaluation of the Urban Water Supply and Sanitation Improvement Program in India

(1996-2001) and other findings show that it is necessary to consider realistic plans for establishing a sewerage tariff system that imposes the maximum possible fees on users and for individual house connection by correctly assessing demand for sewerage services as well as residents' willingness and capability to pay sewerage charge.

(2) Lessons for the Project

To benefit from the above lesson, suitable sewerage tariff system will be introduced as part of this project based on data on residents' willingness and capability to pay sewerage charge which is surveyed under consulting service. In addition, preparation of necessary legal system and public relations activities for raising residents' awareness to promote house connection will be conducted as part of social development efforts.

7. Plans for Future Evaluation

(1) Indicators for Future Evaluation

- 1) Population Covered (1,000 persons)
- 2) Capacity of Wastewater Treated (m³/day)
- 3) Rate of STP facility utilization (%)*
- 4) Average effluent BOD concentration (mg/L)
- 5) Sewage coverage (%)**
- 6) Maximum inundation area (ha)
- 7) Annual inundation (time)
- 8) Economic internal rate of return (%)

(2) Timing

Two years after project completion