

Ex-Ante Evaluation
Middle East Division II, Middle East and Europe Department
Japan International Cooperation Agency

1. Name of the Project

Country: The Republic of Iraq

Project: Basrah Water Supply Improvement Project (II)

Loan Agreement: May 2, 2018

2. Background and Necessity of the Project

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

The water supply situation in the Republic of Iraq (hereinafter “Iraq”), compared favorably with that in neighboring countries before the Gulf War in 1991. Since the end of the Iraq War in 2003, with an average annual economic growth rate of around 5 percent and an annual population growth rate of 2.5 percent (United Nations, World Population Prospects, 2012) between 2004 and 2015, Iraq has gradually developed new economic infrastructure, such as power and oil facilities. On the other hand, existing water supply capacities have significantly deteriorated due to poor maintenance and rehabilitation works.

In Basrah, the second largest city in Iraq, the water supply coverage has reached nearly 90 percent as of 2017 (the combined population of Basrah and Hartha covered by this Project is estimated at 1.47 million (Ministry of Planning of the Republic of Iraq)), but the local water supply capacity is only 707,000 cubic meters per day, falling short of the demand of 868,000 cubic meters per day, and 10 percent of the households have access to water supply services for less than 12 hours a day. The target area is being served by 12 water treatment plants, each of which has a fixed service district. They cannot cover water shortage in another district since their transmission and distribution networks are not connected to one another. This has prevented a systematic, efficient water supply. Moreover, due to the deterioration and shortage of existing water treatment facilities, the quality of supplied water falls significantly short of international standards. Also, the raw water has an extremely high total dissolved solids salt level of more than 3,000 milligrams per liter.

The National Development Plan (NDP) 2013-2017 has set a target for the water supply sector of “guaranteeing all people access to portable water” and set the first goal of increasing water coverage and reducing waste. The Basrah Water Supply Improvement Project (hereinafter “this Project”) is included in the

list of priority projects in the NDP 2013-2017 to improve access to safe drinking water through water supply development.

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

This Project is in line with Japan's Country Development Cooperation Policy for the Republic of Iraq (July 2017), which identifies "basic living infrastructure rehabilitation" as a priority area and "improvement of water, sewage and environment" as a particularly important development issue. In the water supply sector, JICA has so far provided an ODA loan of approximately 118.5 billion yen through the following three projects: Basrah Water Supply Improvement Project (loan agreement signed in June 2008); Water Supply Improvement Project in Kurdistan Region (loan agreement signed in March 2009); and Water Sector Loan Project in Midwestern Iraq (loan agreement signed in March 2010).

(3) Development Partners' Activity

In addition to the Emergency Water Supply Project started in 2008 by the World Bank (109.5 million dollars; completed in 2015), Iraq's water supply sector has received support since 2014 from the UNICEF (WASH (Water, Sanitation and Hygiene); 24.24 million dollars spent as of February 2017; under implementation), the DfID (support for water supply, sanitation, and medical and pharmaceutical supplies; a total of 20 million pounds sterling) and the World Bank (emergency support loan in 2015; allocating approx. 60 million dollars out of the total assistance of 350 million dollars to water and sanitation; under implementation). Most of them were emergency humanitarian support for water supply and water treatment system improvement. Recent years have seen no major infrastructure projects in the water supply sector.

3. Project Description

(1) Project Objectives

By developing water supply facilities, including a water treatment plant and a water transmission and distribution network, in Basrah and Hartha cities in Basrah Governorate in southern Iraq, this Project aims to improve water supply in the cities, thereby contributing to economic and social reconstruction in both cities.

(2) Project Site/Target Area

Basrah City and Hartha City in Basrah Governorate in southern Iraq (these two cities have a combined population of 1.47 million as of 2017)

(3) Project Components

1) Civil engineering works

- i) Installation of a water ring main (a 25 km water ring main and a 12.5 km water pipe connecting the newly constructed water treatment plant to the transmission reservoir)
- ii) Establishment of the transmission system (construction of a transmission reservoir (25,000 m³) and a transmission pumping station (860,000 m³)) (under construction)
- iii) Construction of a new water treatment plant (with an output capacity of 334,000 m³) (under construction)
- iv) Construction of a RO plant (construction costs incurred by the Government of Iraq and not covered by the ODA loan) (under construction)

2) Consulting services (detailed design, bidding assistance, construction supervision, contract support for operation and maintenance assistance for the RO plant, technical transfer and training, etc.) (under implementation)

(4) Estimated Project Cost (Loan Amount)

Out of the total project cost of 97,670 million yen, this Project will provide a loan of up to 19,415 million yen, equivalent to the remainder after deducting the amount disbursed during the first phase (42,969 million yen) from the total loan amount (62,384 million yen).

The total project cost and the loan amount have increased due to capacity expansion required to keep pace with demographic shifts caused by changes in the security situation after the Iraq War, as well as price hikes, construction cost increases caused by difficulties in the procurement of construction materials and the recruitment of skilled workers as a result of growing demands for infrastructure, and security cost increases.

(5) Schedule

July 2008 to August 2020 (total 146 months). This Project will be deemed complete at the start of service (August 2020).

(6) Project Implementation Structure

- 1) Borrower: The Government of the Republic of Iraq
- 2) Guarantor: None
- 3) Execution Agency: Ministry of Municipalities and Public Works (MMPW)
- 4) Operation and Maintenance Agency: Basrah Water Directorate (local waterworks bureau under the MMPW)

(7) Collaboration and Division of Roles with Other Projects and Donors

None in particular.

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

1) Environmental and Social Consideration

- i) Category B
- ii) Reason for Categorization: This Project is not located in any of the sensitive areas nor does it have any of the sensitive characteristics or falls under the sensitive sectors listed in the JBIC Guidelines for Confirmation of Environmental and Social Considerations (published in April 2002). This Project is unlikely to have a significant adverse impact on the environment.
- iii) Environmental Permit: An Environment Impact Assessment (EIA) report for this Project is not required by law of the Republic of Iraq.
- iv) Anti-pollution Measures: The sludge and contaminated water generated after the commencement of service are likely to have only a minor impact on the environment since the water treatment plant of this Project is designed to discharge wastewater diluted to meet the national and EU requirements for insoluble substance content. Although some water pipes will be replaced, none of the existing asbestos cement pipes will be removed or disposed of in this Project.
- v) Natural Environment: The project site is not located in protected areas such as national parks. This Project is not likely to have an impact on the Upper Basin, which was inscribed in the Ramsar List in 2014 and in the World Heritage List in 2016.
- vi) Social Environment: The construction of water transmission facilities may require the acquisition of small plots of land. If that is the case, the acquisition process will be carried out in accordance with the

national procedures. Involuntary resettlement will not be triggered by this Project.

vii) Other/Monitoring: Environmental and social monitoring will be carried out, in accordance with the existing environmental monitoring plan, by the contractor during construction and by the Basrah Water Directorate after the commencement of service.

2) Cross-cutting Issues: None in particular.

3) Gender Classification: Not subject

(9) Other Important Issues

None in particular.

4. Targeted Outcomes

(1) Quantitative Effects

Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline	Target (Year 2020 or 2 years after project completion)
Water supply amount from the newly constructed water treatment plant (m ³ /day)	-	199,000
Quality of water treated at the newly constructed water treatment plant (turbidity; NTU)	-	Not more than 10 (measured in the transmission reservoir)
Quality of water treated at the newly constructed water treatment plant (TDS; mg/l)	-	Not more than 900 (measured in the transmission reservoir)

(2) Qualitative Effects

Economic and social reconstruction in Basrah city and Hartha city

(3) Internal Rate of Return

Based on the conditions indicated below, the economic internal rate of return (EIRR) of this Project is estimated to be 3.92%. Since the annual cash flow will be negative during the project life period, the financial internal rate of return (FIRR) is not calculated.

[EIRR]

Cost: Project costs and operation and maintenance expenses (excluding tax)

Benefit: Increased tap water use and reduced costs (costs for purchasing RO treated water, bottled drinking water, water from water trucks, pumps, and tanks)

Project Life: 30 years

[FIRR]

Cost: Project costs and operation and maintenance expenses (excluding tax)

Benefit: water supply revenues

Project Life: 30 years

5. Prerequisites and External Factors

(1) Prerequisites

None in particular.

(2) External Factors

The security situation will not drastically worsen.

6. Lessons Learned from Past Projects

The ex-post evaluation of the Urban Water Supply and Sanitation Improvement Program in India indicated that it is essential to estimate the demand for water supply services and the willingness and capacity of residents to pay, set the highest affordable water rates, and make a realistic plan for providing water connections to individual houses.

Based on the above-mentioned lessons learned, this Project is designed to ensure that the MMPW, the Ministry of Finance of the Republic of Iraq, and the Ministry of Planning of the Republic of Iraq will discuss and deliberate water rates, water-rate setting processes, and tariff collection methods, according to the medium- and long-term water supply plan formulated by the MMPW. The progress will be followed up by consultants.

7. Evaluation Results

This Project conforms to the development issues and policies of Iraq as well as the assistance policy of Japan and JICA's analysis documents. Moreover, this Project is likely to contribute to the achievement of SDG 6 (ensure availability and sustainable management of water and sanitation for all). Therefore, it is highly necessary for JICA to implement this Project.

8. Plan for Future Evaluation

(1) Indicators to be Used

Per 4. (1) - (3)

(2) Timing

Ex-post evaluation: 2 years after project completion