

**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: Irrigation Sector Loan Project (Phase 2)

Loan Agreement: May 3, 2018

**2. Background and Necessity of the Project**

(1) Current State and Issues of the Irrigation and Agriculture Sector in Iraq

In Iraq, social and economic infrastructure was destroyed during the three successive wars since the 1980s, and the country's economy suffered recession during more than a decade of economic sanctions, but reconstruction and development have recently evolved, with support from the international society. The agriculture sector is a key industry in Iraq, accounting for nearly 10 percent of the GDP (Iraq's National Development Plan 2013 - 2017). With high unemployment rates across the nation, the agriculture sector is expected as a promising source of employment especially in rural areas suffering from the lack of job opportunities except for agriculture. Most parts of Iraq have a desert climate with an annual rainfall of less than 250 millimeters, and therefore irrigation is essential to agriculture in many regions. Agricultural productivity has remained low due to deteriorated agricultural infrastructure and salt accumulation in agricultural soils. Meanwhile, due to the declining flow of the Tigris and Euphrates Rivers and the poor management of water resources, the amount of usable water has been decreasing, which has caused concerns about the further decline of irrigated agricultural land in the future. In this context, there is an increasing need to improve water use efficiency particularly in the lower Tigris-Euphrates Basin in the south of Baghdad. It is urgent to develop and repair irrigation and drainage facilities to improve the distribution of water and expand irrigated agriculture. In the National Development Plan 2013-2017, the Government of Iraq has set three objectives: (i) increase the agricultural sector contribution to the GDP; (ii) increase plant and animal agricultural production coverage for Iraq's food basket (food security); and (iii) secure Iraq's need for water resources.

The southern part of Iraq in the lower Tigris-Euphrates Basin, especially rural and remote areas, has a high poverty rate (World Bank, 2011). In addition,

agricultural production has drastically fallen in the northwestern part of Iraq, particularly in Nineveh, due to clashes with the Islamic State of Iraq and the Levant (hereinafter “ISIL”) since 2014. Coupled with this, the prevalence of internally displaced people has worsened the chronic food shortage in rural areas. In order to alleviate the food problem, the Government of Iraq has been importing 300 to 400 million tons of wheat every year.

Against this backdrop, it has become increasingly important to develop irrigation and drainage facilities for the expansion of irrigated agriculture and the effective use of water resources so as to enhance agricultural productivity and thereby develop the irrigation and agriculture sector as a promising source of employment and reduce poverty in Iraq. In the National Development Plan 2013-2017, the Government of Iraq aims to raise agricultural yields by expanding irrigated agricultural land and make optimum use of water resources by introducing modern irrigation methods. The Irrigation Sector Loan Project (Phase 2) (hereinafter “this Project”) conforms to the development policies of Iraq as it is designed to increase agricultural production by developing irrigation and drainage facilities and promote effective use of water resources by rehabilitating deteriorated irrigation and drainage facilities.

Although approximately 3.1 million people have been internally displaced, mainly in the northwestern part of Iraq, due to the conflict with the ISIL, the Iraqi government forces have seized back most of the ISIL-controlled areas, and the internally displaced people have gradually started returning to their homes. In the implementation phase, therefore, this Project will need to pay attention to the following three risk factors: (i) gaps between and within conflict-affected and other areas; (ii) changes in the demographic balance due to internally displaced people and the possible presence of illegal residents; and (iii) landmines and other explosive remnants of war.

## (2) Development Policies for the Irrigation and Agriculture 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 “development and diversification of industries for economic growth” as a priority area and “agricultural, mining and manufacturing sectors development” as a development issue. In the irrigation and agriculture sector in Iraq, JICA has so far implemented two ODA loan projects. The Irrigation Sector Loan Project (loan

agreement signed in FY2007), preceding this Project, supported the rehabilitation of irrigation and drainage facilities, including irrigation and drainage pumps, and the procurement of construction equipment for operation and maintenance. The Khor Al-Zubair Fertilizer Plant Rehabilitation Project (loan agreement signed in FY2007) provided equipment required to rehabilitate the fertilizer plant. In addition, JICA has implemented technical cooperation projects, such as the Third-country Training Project on Water Management in Irrigated Farms, the Technical Cooperation Project for Spreading Water Users Associations for the Efficient Use of Irrigation Water, to form water users associations, enhance the management of irrigation and drainage facilities, strengthen maintenance systems, and facilitate capacity development.

### (3) Development Partners' Activity

The World Bank, the United Nations Food and Agriculture Organization, the U.S., and other donor agencies have provided technical assistance and supported the development of irrigation and drainage facilities including irrigation and drainage canals and pumping stations since the end of the Iraq War in 2003. At present, the United Nations Food and Agriculture Organization is providing technical support to the Ministry of Agriculture as well as farmers, and Italy is offering a loan of 40 million Euro to facilitate the procurement of equipment required to maintain irrigation and drainage facilities. None of these activities, however, is overlapped with this Project.

## **3. Project Description**

### (1) Project Objectives

By constructing and rehabilitating irrigation and drainage facilities and cultivating agricultural land mainly in the Tigris-Euphrates Basin, this Project aims to increase agricultural production, thereby contributing to socioeconomic reconstruction in Iraq.

### (2) Project Site/Target Area

Throughout the Republic of Iraq (except for the Kurdistan region)

### (3) Project Components

- 1) Civil engineering works and equipment: Sector loans will be provided for sub-projects, which will be selected through consultation with the Ministry

of Water Resources. The sub-projects will be selected from those that are likely to contribute to the reconstruction and improvement of the agriculture and irrigation sector in Iraq, according to the following criteria: (i) degree of contribution to the development of Iraq; (ii) emergency; (iii) reconstruction needs in Iraq; (iv) cost performance; (v) maturity of the sub-project; (vi) technical adequacy; (vii) favorable influence on water users associations; (viii) possibility of taking environmental measures; and (ix) state of security. Based on environmental and social considerations, sub-projects that may have a significant adverse impact on the environment and society will be excluded from this Project. Tentative candidate sub-projects are shown below.

- (a) Construction of new irrigation and drainage facilities (including canals, pumping stations, and agricultural land cultivation): 1 sub-project (Dhi Qar governorate)
  - (b) Rehabilitation of existing irrigation and drainage facilities (including canals and pumping stations): 2 sub-projects (Wasit and Babil governorates)
  - (c) Construction of small irrigation and drainage facilities to facilitate the activities of water users associations: 10 sub-projects (Basrah, southern Baghdad, Maysan, Dhi Qar, Karbala, and other governorates)
- 2) Consulting services: bidding assistance, construction supervision, environmental and social consideration, etc.

(4) Estimated Project Cost (Loan Amount)

17,980 million yen (loan amount: 15,465 million yen)

(5) Schedule

May 2018 to September 2026 (total 101 months). This Project will be deemed complete at the start of service (September 2025).

(6) Project Implementation Structure

- 1) Borrower: The Government of the Republic of Iraq
- 2) Guarantor: None
- 3) Execution Agency: Ministry of Water Resources
- 4) Operation and Maintenance Agency: Ministry of Water Resources

(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 FI
- ii) Reason for Categorization: As specified by the JICA Guidelines for Environmental and Social Considerations (published in April 2010), the sub-projects of this Project cannot be specified prior to JICA's approval of funding, and these sub-projects are likely to have a potential impact on the environment.
- iii) Other/Monitoring: With assistance from consultants to be hired by the Iraqi Ministry of Water Resources and paid with the ODA loan, this Project will categorize the sub-projects in accordance with Iraqi law and the JICA Guidelines for Environmental and Social Considerations and take necessary measures according to their respective categories. It is noted that this Project will not include any sub-projects falling into Category A.

2) Cross-cutting Issues

Poverty considerations: This Project is likely to contribute to poverty reduction as its target areas have high poverty rates and have been accommodating internal displaced people.

3) Gender Classification: Gender Informed (Significance)

Reason for Classification: As a result of discussions with the Government of Iraq, agreement was made to ensure the participation of women in employment and training in this Project.

(9) Other Important Issues

None in particular.

#### 4. Targeted Outcomes

##### (1) Quantitative Effects

###### Performance Indicators (Operation and Effect Indicators)

Indicator (*)	Baseline (*) (Actual value at time of study)	Target (*) [Expected value 2 years after project completion] (Actual value in 2027)
Irrigation coverage (hectare)	ha	ha
Yield of major crops (tons per year)	TPY	TPY
Number of newly formed water users associations (groups)	groups	groups
Groundwater level (meters)	m	m
pH level of farmland		
Number of beneficiary farmers (households)	households	households
Water delivery efficiency (percent)	%	%
Number of crop types (types)		
Agricultural income per household (local currency per year and per household)		
Number of complaints to water users associations about water theft (cases)	cases	cases

\* The above indicators were tentatively set through consultation with the executing agency at the time of project appraisal. This Project will also set operation and effect indicators for its sub-projects through a baseline study after they are selected.

##### (2) Qualitative Effects

Revitalization of rural economies/industries, and creation of employment opportunities.

##### (3) Internal Rate of Return

In this Project, the Iraqi execution agency will, with assistance from consultants, calculate the internal rate of return to determine the effectiveness of individual sub-projects after they are selected.

## **5. Prerequisites and External Factors**

### (1) Prerequisites

None in particular.

### (2) External Factors

The security situation will not be much worse than it is now.

## **6. Lessons Learned from Past Projects**

The ex-post evaluation of the Bohol Irrigation Project (Phase 2) in the Republic of Philippines indicated that not all project outcomes had been achieved as planned due to the prolonged budget impasse and the resulting delay in the concrete-lining work of tail-end canals that had been planned to be carried out by the executing agency. This taught the lesson that support for the concrete lining of tertiary canals should be considered at the project formulation stage so that project outcomes can be attained as early as possible. Based on this lesson learned, this Project is designed to include the development of branch and end canals in its scope so that project outcomes can be achieved as early as possible after project completion. Moreover, this Project is planned to establish a supervision system for the Ministry of Water Resources and the governorate directorates of water resources to monitor the progress of construction so as to guarantee water supply to end-users (farmland).

In the Irrigation Sector Loan Project (ODA Loan) preceding this Project, the Ministry of Water Resources, the executing agency of the project, had difficulties in agreeing with farmers on the timing of rehabilitation works because the repair of irrigation and pumping facilities needed to be scheduled for when they were not being used for farming. Therefore, this Project will, with assistance from consultants, develop a mechanism to share information between the Ministry of Water Resources in Baghdad and the directorates of water resources and water users associations in individual governorates so as to ensure information sharing and communication on the schedule of construction works between the relevant local parties and the Ministry of Water Resources.

## **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 2 (end hunger, achieve

food security and improved nutrition and promote sustainable agriculture). 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