

Japanese ODA Loan

Ex-Ante Evaluation(for Japanese ODA Loan)

Middle East Division 1,
Middle East and Europe Department
Japan International Cooperation Agency

1. Name of the Project

- (1) Country: Morocco
- (2) Project: The Project for Agricultural Water Development in the Southeast Area of Gharb Plain
- (3) Project Site / Target Area: Provence of Sidi Kacem and Sidi Slimane
- (4) Loan Agreement: November 20, 2025

2. Background and Necessity of the Project

- (1) Current State and Issues of the Agriculture ・ Irrigation Sector/Area and the Priority of the Project in Morocco

The Kingdom of Morocco (hereinafter referred to as “Morocco”) saw its GDP growth rate fall to -6.3% in 2020 due to the pandemic of COVID-19, but it has achieved steady growth of an average of 4.9% in the 2000s and 3.5% in the 2010s (World Development Indicators, hereinafter referred to as “WDI”), and recorded 3.4% in 2023 and 3.2% in 2024. The agricultural sector is an important industry, accounting for 26% of exports of agricultural products and foodstuffs (IMF, 2022), and 38% of the labor force is engaged in it (World Bank, 2020), while 80% of the population in rural areas earns their income from agriculture (World Bank, 2019). On the other hand, the majority of arable land is in arid and semi-arid regions, and 84% of agriculture is rain-fed, so it is easily affected by rainfall (World Bank, 2018). In the 2019-2020 drought, the production of major grains in 2020 fell by about 50% compared to the average for 2016-2020. In particular, the Gharb Plain, one of Morocco’s most important agricultural areas surrounded by three river systems including the Ouergha river system, is the most water-rich area in Morocco. Of the irrigable area (224,000 ha), about 50% (110,000 ha) is not equipped with irrigation facilities (Sebou Basin Management Authority, 2018), and as it relies on groundwater that is becoming depleted and unstable rainwater, it is vulnerable to the effects of drought and other factors.

As the impact of climate change on agricultural production becomes more serious, it is expected that the pressure on limited water resources will increase further due to rising temperatures and the progression of droughts in the future

(World Bank, 2021), and there is a need for more efficient and sustainable use of water resources and the efficiency and stabilization of agricultural production through this.

The “New Development Model” (2021-2035), which is positioned in the long-term national development strategy of Morocco, emphasizes the importance of improving food security by stabilizing agricultural production in response to climate change and making more efficient use of limited water resources. The national agricultural plan “Green Generation 2020-2030” lists “promoting sustainable agriculture” as one of its priority initiatives, through measures such as increasing the agricultural sector's contribution to GDP and promoting water conservation programs. Furthermore, the National Drinking Water Supply and Irrigation Program 2020-2027 (hereafter referred to as the “Irrigation Program”), a national water supply and irrigation plan that is expected to involve investment of 1.7 trillion yen, has “management of demand in the agricultural sector and the efficient use of water” as one of the priority areas, it is planned to achieve water-saving irrigation on 60% of all irrigated farmland (50% as of 2019) by 2027.

In this context, the Moroccan government has planned the development of irrigation facilities on approximately 72,000 hectares of the Gharb Plain as one of the priority projects of its irrigation program, with the aim of making effective use of the abundant water resources of the Gharb Plain to improve agricultural productivity, increase production, and stabilize production. This project is part of the priority project, and by sending the water of the Ouergha River to the irrigation network that will be developed in the 30,000 ha of cultivated land in the southeast through the development of the main agricultural waterway and ancillary facilities, it will contribute to the promotion of agricultural development that adapts to climate change in the country by improving the efficiency and stability of water resource use.

Furthermore, the branch canals and irrigation network that connect to the secondary trunk canals are planned to be developed and operated through a PPP (Public Private Partnership) with the participation of private companies. In addition, the primary trunk canal to be constructed under this project is also scheduled to be connected to the trunk canal of the irrigation network (Northwest Expansion Project) for the 42,000 ha of the Garb Plain northwest region scheduled to be developed after 2030, and the maximum water intake volume of the primary trunk canal is also planned to accommodate the expansion project.

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From the perspective of adapting to climate change, this project is consistent with the goals of the country's "Nationally Determined Contribution (NDC)" under the Paris Agreement, which addresses the impact of climate change in the water and agricultural sectors.

(2) Japan's and JICA's Policy Cooperation Policy and Operations in the Agriculture • Irrigation Sector/Area

The Country Assistance Policy for the Kingdom of Morocco (September 2020) states that "strengthening economic competitiveness" is one of the priority areas, and that it will promote the strengthening of the productivity and competitiveness of the agricultural and fisheries industries. In addition, in the priority area of "promoting social development with consideration for inclusiveness and sustainability", it states that it will promote sustainable development by supporting the development of social infrastructure such as water resource development, and by supporting measures against climate change and environmental impact. The JICA Country Analysis Paper for the Kingdom of Morocco (November 2014) states that, in the priority area of "strengthening economic competitiveness and sustainable economic growth", support for agriculture and fisheries is being provided, and that cooperation is being developed to contribute to increasing the added value of agriculture and fisheries. In the JICA Global Agenda (Issue-specific Project Strategy) "Agriculture and Rural Development (Sustainable Food Systems)", ensuring food security through stable production and supply of food is listed, and this project is in line with these policies and analysis. Furthermore, as this project promotes agriculture that is adapted to climate change, it is expected to contribute to Sustainable Development Goals (SDGs) Goal 2 "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" and Goal 13 "Take urgent action to combat climate change and its impacts".

In addition, Japan has provided ODA loans to the sector, including the "Abda-Doukkala Upper Scheme Irrigation Project" (L/A signed in 1996) and the "Support Program for the Green Morocco Plan (Agricultural Sector Reform)" (L/A signed in 2016), as well as ODA grant "Expansion Plan for Irrigation Canal Network Equipment" (1990), technical cooperation to support the spread of drip irrigation, such as the "Project for Improvement of Irrigation System at the Abda Doukkala Irrigated Area" (2011–2016), and JOCV dispatch.

(3) Other Donors' Activities

The World Bank, the African Development Bank (AfDB), and other organizations are supporting the development of irrigation facilities in other regions.

3. Project Description

(1) Project Description

① Project Objective

The objective of the Project is to enhance the efficient use of water resources and to increase and stabilize agricultural production by the construction of hydro-agricultural main canals and auxiliary facilities in the Gharb plain, thereby helping to promote agricultural development in the country that is adaptable to climate change.

② Project Components

(A) Construction of the first main canal (box culvert approx. 11km), pump station, the second main canal (3 pipelines approx. 58km in total), reservoir, and procurement of equipment, etc. (international competitive bidding/local competitive bidding)

(B) Consulting services (detailed design review, bidding documents preparation support, bidding assistance, construction supervision, project supervision support (e.g., environmental and social considerations monitoring assistance) (short list method)

③ Project Beneficiaries (Target Group)

Direct beneficiaries: Farmers using the irrigation facilities (about 25,000 farmers from about 3,600 households in the Garb area)

Final beneficiaries: Consumers in Sidi Kacem and Sidi Slimane Provinces (about 810,000 people)

(2) Estimated Project

89,030 million Yen (Japanese ODA loan: 64,577 million Yen)

(3) Schedule

11/2025-12/2030 (62 months)

The commencement of service in December 2032 is considered as the completion of the Project. Although construction work is expected to be completed by December 2029, service will start only after the PPP project is finished. Therefore, the start of service is scheduled for December 2032, which aligns with the anticipated completion date of the PPP project.

(4) Project Implementation Structure

- 1) Borrower: The Government of the Kingdom of Morocco
- 2) Executing Agency: Office Régional de Mise en Valeur Agricole du Gharb:
ORMVAG
- 3) Operation and Maintenance System :
 - ① The first main canal: ORMVAG
 - ② The second main canal: Public-private partnership (PPP)
- (5) Collaboration and Sharing of Roles with Other Donors: N/A
 - 1) Japan's Activity : N/A
 - 2) Other Donors' Activity: N/A
- (6) Environmental and Social Consideration
 - ① Category: A
 - ② Reason for Categorization

This project falls under the agricultural sector as defined in the "Guidelines for Environmental and Social Considerations of the Japan International Cooperation Agency" (April 2010)
 - ③ Environmental Permit

The Environmental Impact Assessment (EIA) report for the project was prepared in March 2024 and approved by the Ministry of Agriculture, Marine Fisheries, Rural Development, Water and Forests, although it is not required by the country's domestic law.
 - ④ Anti-Pollution Measures

During construction, impacts are expected to be minimized by implementing mitigation measures such as water sprinkling to prevent dust, installation of shielding, and installation of turbid water treatment facilities (e.g., settling ponds) to ensure that air and water quality meet domestic emission and environmental standards.
 - ⑤ Natural Environment

The project site is not located in or near a sensitive area of a national park and is expected to have minimal undesirable effects on the natural environment; mammals and reptiles listed as endangered by the IUCN have been identified, but no negative impacts on the habitats of these species are expected from the implementation of this project. In addition, construction vehicle traffic and construction activities are expected to impact reptiles during construction, but impacts are expected to be minimized through visual inspection and mitigation measures such as moving the reptiles out of the construction zone.

⑥ Social Environment

The project entails the acquisition of approximately 124 ha of land and the involuntary resettlement of 8 households (33 people) out of 1,644 households / 6,905 affected people, in accordance with the land acquisition plan prepared in line with the Moroccan national procedures and JICA Guidelines for Environmental and Social Considerations. Livelihood restoration support for the affected people is planned, including priority employment in construction related to the Project, support for the introduction of drip irrigation facilities, and support for farming. No specific objections to the project have been raised by the affected residents.

⑦ Other/Monitoring

Air quality, water quality, noise and vibration during construction will be monitored by the contractor under the supervision of the executing agency, and during service, the use of irrigation water will be monitored by the executing agency.

(7) Cross-Sectoral Issues

The Project will contribute to climate change adaptation because the Project will address the effects of climate change through the stabilization of agricultural water supply by improving irrigation facilities. The population that will benefit from adaptation measures under the Project is 25,000.

(8) Gender Category

【 Not applicable 】 ■ GI (Gender Mainstreaming Needs Assessment and Analysis)

Reason for classification: Although gender analysis was conducted in the Preparatory Survey for Cooperation, it did not lead to the establishment and planning of initiatives and indicators that contribute to gender mainstreaming. The project has already identified the needs of both men and women in the preparatory survey for the agricultural support measures targeting affected residents and beneficiaries to be implemented as part of the consulting services in this project. After the start of the project, a gender specialist will be assigned to provide gender-sensitive support. In addition, it was confirmed that the implementing agencies will promote the participation of women in the activities of water users' associations.

(9) Other Important Issues

N/A

4 . Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2022)	Target (2034) [2 years after project completion*1]
Water transmission efficiency from primary to secondary trunk canals (%)	N/A	90
Area of farmland irrigated by surface water to be supplied from the facilities to be developed under the project (ha)	N/A	20,000
Planned planting ratio in dry season (%)	21.4*2	62.1

*1 Based on the timing of the project effects, the target values are those after 2 years of project completion.

*2 The dry-season cropping ratio as of 2022, utilizing groundwater, is provided as a reference value.

(2) Qualitative Effects

Contribution to food security and climate change countermeasures (adaptation measures), economic and industrial revitalization of rural areas, etc., and water resource conservation through reduced groundwater use.

(3) Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 10.6%. In this project, the financial internal rate of return (FIRR) is not calculated because the project operation (recovery of construction and maintenance costs) will not be conducted through the collected fees (water user fees).

【EIRR】

Cost : Project costs, maintenance costs (including renewal costs), and electricity costs (all excluding taxes)

Benefit : Planned increase in farm household income

Project Life : 30 years

5 . External Factors and Risk Control

(1) Preconditions

The effectiveness of the project is contingent on the progress of the

headworks being constructed by the host government and the construction of the branch canals and irrigation network to be implemented through the PPP. The implementing agency will provide regular reports on the progress of these works.

(2) External Factors

The PPP entity will operate and maintain a portion of the Project and construct the terminal irrigation facilities, and the schedule and progress of implementation will be monitored from time to time, as the project physical condition and progress of the PPP project will affect water distribution.

6 . Lessons Learned from Past Projects

In the ex-post evaluation of the “Agusan River Lower Basin Irrigation Project” for the Republic of the Philippines (evaluation year: 1995), it was pointed out that high electricity charges pose a major challenge for the maintenance and management of pump irrigation systems. Therefore, it was recommended to examine the financial self-sustainability of the burden associated with pump irrigation maintenance and management costs.

For this project, in order to ensure proper maintenance of pump irrigation, it is necessary to confirm financial self-sustainability. Specifically, this involves verifying whether water charges can be appropriately collected from the PPP entity, whether the PPP project design enables the PPP entity to collect the necessary water charges from farmers, and whether provisions exist for compensation in the event that revenues from the PPP entity fall short. Where necessary, monitoring should also be conducted regarding supplementary budgetary allocations from the host government.

7 . Evaluation Results

This project is consistent with Morocco’s development challenges and policies as well as Japan’s and JICA’s cooperation policies and analyses. By promoting sustainable agricultural development through the establishment of irrigation infrastructure adapted to climate change, the project will contribute to Morocco’s food security and climate change countermeasures (adaptation measures). It is also expected to contribute to SDG Goal 2 “End hunger: Ensure food security through sustainable agriculture” and Goal 13 “Take urgent action to combat climate change: Promote adaptation measures in the agricultural sector.” Therefore, the necessity of supporting the implementation of this project is

considered to be high.

8 . Plan for Future Evaluation

(1) Indicators to be Used

As indicated in Sections 4.

(2) Future Evaluation Schedule

Ex-post evaluation: 2 years after the project completion

END