

Ex-Ante Evaluation (for Japanese ODA Loan)
Southeast Asia Division 2, Southeast Asia and Pacific Department
Japan International Cooperation Agency

1. Name of the Project

- (1) Country: Kingdom of Cambodia (Cambodia)
 - (2) Project: Southwest Phnom Penh Irrigation and Drainage Rehabilitation and Improvement Project (II)
 - (3) Project Site/Target Area: Kampong Speu, Takéo, Kandal
- Loan Agreement: April 27, 2023

2. Background and Necessity of the Project

(1) Current State and Issues of the Irrigation Sector and Priority of the Project in Cambodia

In the Kingdom of Cambodia (Cambodia), agriculture accounts for 22.8% of the GDP and 35% of the employed population (World Bank, 2022), and it is the primary means of earning a living in rural and agricultural areas. The original main method of cultivation in Cambodia is using rainwater. Of the rice paddies in Cambodia, irrigation water is used in about 30% in the rainy season and only 9% in the dry season as of 2011(MOWRAM, 2012), presenting a challenge for improving productivity. Many of the existing irrigation facilities were constructed by the Pol Pot regime (1975 to 1978). Many do not function adequately due to design and construction issues as well as degradation, and operation is dependent on rainwater. There is an urgent need to repair and improve irrigation facilities. The National Strategic Development Plan (2009 to 2013) sets one of its key targets as improvement of agricultural productivity to eradicate poverty and achieve sustainable economic growth and sets forth a strategy of improving agricultural productivity and expanding the irrigation area through repair and construction of irrigation facilities. The Government of Cambodia requested the Southwest Phnom Penh Irrigation and Drainage Rehabilitation and Improvement Project (the Project) from the Government of Japan in September 2012. This Project was aimed at improving agricultural productivity in Southwest Phnom Penh by repairing and constructing irrigation facilities in the area, thereby improving the livelihoods of agricultural workers there. A loan agreement for Phase I of the Project was signed in July 2014 (total project cost of 6,772 million yen, Japanese ODA loan of 5,606 million yen).

After the Project was accepted, it became necessary to respond to a

significant increase in project costs due to exchange rate fluctuation and design changes. Priority was given to starting the Project promptly, and the scope of the Project was adjusted to what was feasible within the ODA loan limit. Later, sudden exchange rate fluctuation arose when procuring construction work, resulting in a shortage of project funds. Further reduction in the scope would hinder the irrigation effects of the Project. Moreover, the Government of Cambodia has set promoting agriculture and agricultural villages as one target in its 4th Rectangular Strategy (2018 to 2023) and National Strategic Development Plan (2019 to 2023), aiming to invest in improvement of agricultural productivity and irrigation systems. With this continued focus on irrigation in government policy, the Government of Cambodia requested an additional loan (this Loan) from the Government of Japan.

(2) Japan's and JICA's Cooperation Policy and Operations in the Irrigation Sector

Japan's Country Assistance Policy for Cambodia (July 2017) states in the priority area of support for agricultural development that Japan will work to develop agriculture being the main industry in rural areas. The JICA Country Analysis Paper for Cambodia (March 2014) also specifies development of agriculture and agricultural villages as a priority area. This Project is consistent with these policies and analyses. The Project may also contribute to SDG 1 (No poverty) and 2 (Zero hunger). As previous technical cooperation projects, JICA carried out the Improvement Agricultural River Basin Management & Development Project (September 2009 to August 2014) and the Agricultural Productivity Promotion Project in West Tonle Sap (October 2010 to March 2015). The manuals created for those projects will be used in the current Project, and the Ministry of Water Resources and Meteorology (MOWRAM) will play a central role, establishing and enhancing an irrigation association and supervising agricultural business.

(3) Other Donors' Activities

The Asian Development Bank (ADB) completed an Uplands Irrigation and Water Resources Management Sector Project to increase agricultural productivity by repairing and improving irrigation and drainage facilities in Kampong Thom and Battambang, supervising operation management, and establishing and enhancing a farmers' irrigation association. The ADB is also currently carrying out an Irrigated Agriculture Improvement Project (2019 to 2025) for the above two provinces as well as Kampong Cham and Takéo aimed

at modernizing irrigation systems and establishing a water resource information system and national water resource data management center, but there is no overlap with this Project.

In the Project for the Development of National Standard Design of Cambodia's Irrigation and Drainage (March 2022 to March 2026) that is a technical cooperation project currently underway, seminars will be held with other donors to discuss use of the design standards and collect information about other donors' plans.

3. Project Description

(1) Project Description

1) Project Objective

This Project will improve agricultural productivity in poor areas of agricultural villages in Southwest Phnom Penh by repairing and constructing irrigation and drainage facilities, thereby improving the livelihoods of agricultural workers there and advancing economic recovery from COVID-19.

2) Project Components

a) Repair and construct irrigation and drainage facilities

- Roleang Chrey area: Headworks, primary canal, secondary canal, tertiary canal, drainage canal, irrigation association building
- Kandal Stung - Bati area: intake weir, intake, embankment, adjoining facilities

*Cambodia made an agreement in June 2020 with an executing agency for work on the primary canal, secondary canal, and tertiary canal in the Kandal Stung - Bati area, funded by the Government of Cambodia.

b) Support establishment of a farmers' irrigation association and farmers irrigation group, strengthen the association, and provide farm operation guidance

c) Consulting services (detailed design, bid assistance, construction work management (short list method), soft components (establishment of an irrigation association, farm operation guidance)

3) Project Beneficiaries (Target Group)

Roleang Chrey area and Kandal Stung - Bati area residents.

(2) Estimated Project Cost

11,670 million Yen (Japanese ODA loan: 2,482 million Yen)

(3) Project Implementation Schedule/Cooperation Period

July 2014 to February 2027 (151 months). Start of facility operation (February 2026) is considered as the completion of the Project.

(4) Project Implementation Structure

- 1) Borrower: The Royal Government of Cambodia
- 2) Guarantor: None
- 3) Executing Agency: Ministry of Water Resources and Meteorology
- 4) Operation and Maintenance System: Ministry of Water Resources and Meteorology, Provincial Department of Water Resources and Meteorology

(5) Collaboration and Sharing of Roles with Other Donors

1) Japan's Activity

In the Project for the Development of National Standard Design of Cambodia's Irrigation and Drainage (March 2022 to March 2026) that is a technical cooperation project currently underway, JICA is creating standard design documents, standard design drawings, and standard design manuals for irrigation and drainage facilities and improving the capacity of MOWRAM and Provincial Department of Water Resources and Meteorology (PDWRAM) employees to create and use standard design drawings and documents. Sharing the activities, progress, and lessons from this Project with the above project may enable the creation of standard designs that are better adapted to current circumstances.

2) Other Donors' Activity

None.

(6) Environmental and Social Consideration

① Category: B

② Reason for Categorization: The project is not considered to be a large-scale agricultural project under the Japan International Cooperation Agency Guidelines for Environmental and Social Considerations (JICA Guidelines; published April, 2010) and is not likely to have significant adverse impact on the environment. In addition, it has none of the sensitive characteristics under the JICA guidelines and is not located in a sensitive area.

③ Environmental Permit: Cambodian law does not require creation of an Environmental Impact Assessment (EIA) report for this Project.

④ Anti-Pollution Measures: During the construction, various measures will

be taken to satisfy emission standards and environment standards in Cambodia with respect to air quality, water quality, and noise pollution. Example measures are appropriate management of heavy machinery, pretreatment of wastewater, and restriction of operating hours. After the service begins, water contamination will be prevented through activities such as support for appropriate agricultural activities, adoption of composting, and adoption of a checking system for the irrigation association.

- ⑤ Natural Environment: Target sites for the Project do not correspond to national parks or other areas that are easily impacted or nearby areas, and negative effects on the natural environment are expected to be minimal.
- ⑥ Social Environment: The Project involves acquisition of 8.97 ha of land and involuntary resettlement of 41 households in the Roleang Chrey area and acquisition of 4.54 ha of land and involuntary resettlement of 8 households of unofficial residents in the Kandal Stung - Bati area. Land acquisition will be carried out in accordance with a simplified resettlement plan created based on procedures in Cambodia and JICA guidelines. Compensation will be provided based on the wishes of project-affected residents and procedures for involuntary resettlement will be carried out. No specific objections to the project have been raised by project-affected residents.
- ⑦ Other/Monitoring: In this Project, MOWRAM and the Ministry of the Environment will monitor air quality, water quality, and agricultural activities during construction and service. In addition, an Inter-ministerial Resettlement Committee will monitor land acquisition and involuntary resettlement.

(7) Cross-Sectoral Issues

HIV/AIDS preventative education and other infection control measures will be implemented for the construction workers. Monitoring will also be carried out to ensure information can be obtained by any farmers with disabilities among those who are a target of this Project and to ensure there is no discrimination against farmers with disabilities during the selection of those involved in the Project. When hiring staff for construction work and operations for the Project, reasonable accommodations will be taken for applicants and employees with disabilities such as ensuring information can be obtained and ensuring safety.

For facilities that are expected to be used by general residents, measures will be taken such as installation of ramps and measures to prevent falls by people with visual impairments.

(8) Gender Category: (GI) Survey and Analysis of Need for Gender Mainstreaming

<Details of Activities/Reason for Categorization>

Although gender mainstreaming needs were investigated including the need to promote participation by women in irrigation association activities, activities to aid in gender mainstreaming including specific indicators were not established.

(9) Other Important Issues: During investigations, JICA agreed to a request from the Government of Cambodia to take contribution to economic recovery from COVID-19 into account.

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator	Reference (Actual value in 2011)	Target (2029) [3 years after project completion]
Irrigation area (ha)	840	4,060
Rice crop acreage (ha)	4,270	6,885
Rice yield (tons/year)	9,371	25,706
Per unit rice yield (tons/ha)	2.2	3.7 to 3.8

Note: The above reference and target values are only for the two areas that are the target of this loan.

(2) Qualitative Effects

Stabilization of the supply of water using irrigation, improvement in farmers' livelihoods, economic recovery from COVID-19.

(3) Internal Rate of Return

Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 20.1%. The financial internal rate of return (FIRR) is not calculated as only maintenance and management fees will be collected.

【EIRR】

Cost: Project cost (excluding tax), O&M cost

Benefit: Increase in agriculture productivity through irrigation

Project Life: 30 years

5 . Preconditions and External Factors

(1) Preconditions:

The necessary involuntary resettlement will be carried out appropriately and smoothly by the Government of Cambodia.

(2) External Factors:

Construction work on the primary canal, secondary canal, and tertiary canal in the Kandal Stung - Bati area will be carried out at the appropriate time by the Government of Cambodia.

6 . Lessons Learned from Past Projects and Application to this Project

It was learned from the ex-post evaluation for the Upper Indravati Irrigation Project in India (carried out in fiscal 2003) that active participation by the beneficiary farmers was essential. As such, in operation, maintenance, and management of canals other than the main canal, quite early on before the provision of water, ongoing support was needed to clarify the roles of those involved, assist in the early stages of the irrigation association, reinforce the irrigation association system, and promote participation by farmers.

In this Project, JICA plans to support the establishment of an irrigation association in the target areas through the implementation of soft components related to the establishment of an irrigation association within the Project scope, thereby achieving active participation by farmers in irrigation association activities from early on and promoting manifestation of the effects of the Project.

7 . Evaluation Results

The Project is consistent with the development issues and development policies of Cambodia as well as the assistance policies and analyses of Japan and JICA. The Project will help increase agricultural productivity and improve the livelihoods of farmers in the target areas by repairing and constructing irrigation facilities in the areas, thereby contributing to the achievement of SDG 1 (No poverty) and 2 (Zero hunger). Therefore, the necessity for JICA to support the Project is substantial.

8 . Plan for Future Evaluation

(1) Indicators to be used

As indicated in Section 4.

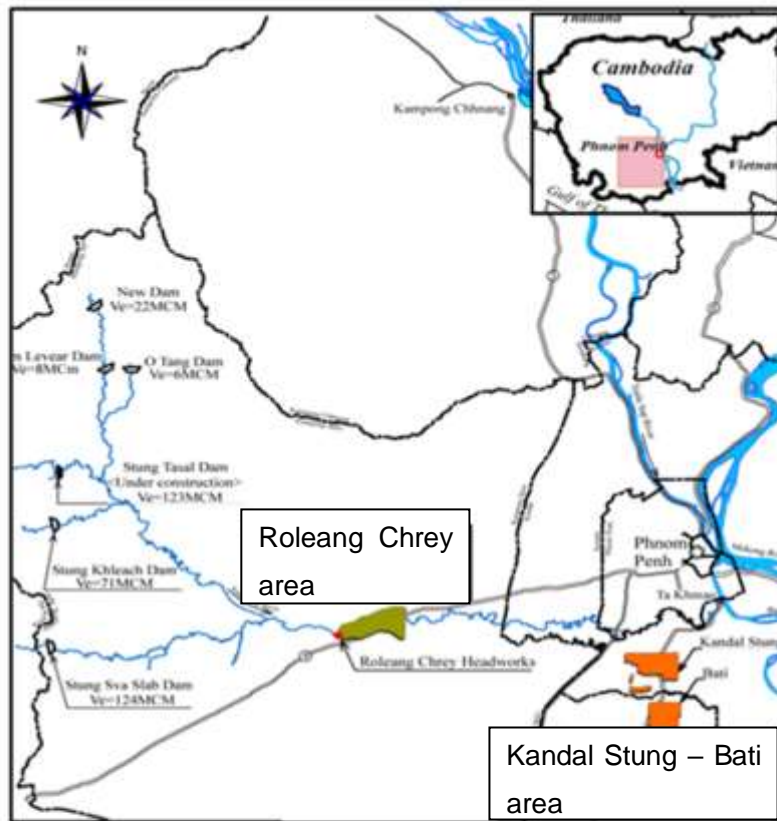
(2) Plan for Future Evaluation

Ex-post evaluation: Three years after the project completion

END

Annex: Map of the Southwest Phnom Penh Irrigation and Drainage
Rehabilitation and Improvement Project (II)

Map of the Southwest Phnom Penh Irrigation and Drainage Rehabilitation and Improvement Project (II)



LEGEND

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|------------------------------|-------------------------------------|--|
| River | Sub-projects Area | |
| Capital / Provincial Capital | Dam (under construction) | |
| National Boundary | Dam (plan) | |
| Provincial Boundary | <i>Ve: Effective Storage Volume</i> | |
| National Road | | |

Location Map of Sub-projects

Source: Created by the supervising consultant on the Southwest Phnom Penh Irrigation and Drainage Rehabilitation and Improvement Project