

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: The Kingdom of Cambodia (hereinafter referred to as “Cambodia”)
 - (2) Project Site / Target Area: Kampong Speu Province (population approx. 920,000), Takeo Province (population approx. 1.1 million), and Kandal Province (population approx. 1.35 million) (all as of 2024)
 - (3) Project: Southwest Phnom Penh Irrigation and Drainage Rehabilitation and Improvement Project (III)
- Loan Agreement: June 25, 2026

2. Background and Necessity of the Project

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

Agriculture is a key industry in Cambodia, accounting for 16.6% of GDP (2024) and 35% of the labor force (2022); it is also the primary means of livelihood in rural areas. However, rainfed agriculture remains dominant in the country, and many existing irrigation facilities, most of which were constructed under the Pol Pot regime in the late 1970s, no longer function adequately due to aging and design deficiencies. To solve these problems and improve agricultural productivity and farmers’ livelihoods, the loan agreement (L/A) for the Project was signed in July 2014.

After the Project commenced, it faced a substantial funding shortfall due to global price increases and sharp exchange-rate fluctuations. Although the project scope was initially adjusted within the maximum loan amount, it was determined that further reductions would make it difficult for the Project to deliver its originally intended benefits as agricultural support. As the Government of Cambodia continued to position agriculture and rural development as a pillar of its national strategy, an additional loan (II) was signed in April 2023 to secure the funding necessary for the continuation of the Project.

Construction commenced after the additional loan (II) agreement was signed. However, in July 2024, large-scale flooding occurred around the Prek Thnot River and the outskirts of Phnom Penh within the Project area, causing serious damage, including inundation of 425 households. As flood damage has become

increasingly severe and recurrent in recent years due to climate change, the Government of Cambodia decided, as an emergency flood control measure, to revise the design to strengthen the drainage capacity of the irrigation and drainage canals to be improved under the Project. Since there is no other effective diversion route, the appropriateness of utilizing these facilities to reduce disaster risk was confirmed, and accordingly, the Government of Cambodia requested a further additional loan from the Government of Japan. This Project is essential to Cambodia's sustainable development, as it is consistent with the flood control policy set forth in Cambodia's latest national strategy, the Pentagonal Strategy—Phase I, as well as with the Nationally Determined Contribution (NDC) under the Paris Agreement.

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

Country Assistance Policy for Cambodia (April 2024) identifies the “Realization of Sustainable and Equitable Growth” as a priority area, aiming to reduce the urban-rural disparities through agricultural and rural development and infrastructure improvement. JICA Country Analysis Paper for Cambodia (January 2025) also points out the importance of water resource management and related facility development that can both improve agricultural productivity and provide flood protection. Furthermore, the Project aligns with the JICA Global Agenda strategies for building food systems and addressing climate change, and its consistency from a policy perspective is extremely high. JICA previously implemented the technical cooperation project “Project for River Basin Water Resources Utilization in the Kingdom of Cambodia” (2014–2019). Using the manuals developed under that project, the Ministry of Water Resources and Meteorology (hereinafter referred to as “MOWRAM”) took the lead in establishing a River Basin Management Committee. At present, this committee is taking the lead in formulating plans for sustainable water resource utilization and conducting outreach activities for local residents.

(3) Other Donors' Activities

The Asian Development Bank (ADB) has been supporting, from 2019 to 2027, the modernization of irrigation systems and the establishment of a National Water Resources Data Management Center in multiple provinces. After 2027, it plans to begin constructing irrigation and water storage facilities, developing infrastructure for flood mitigation, and undertaking river basin development in Battambang Province and other areas. Since 2019, the French Development

Agency (AFD) has also been supporting integrated water resource management in specific river basins. In addition, the Republic of Korea has identified water resource management and sanitation as one of its highest-priority areas and is promoting irrigation development through the rehabilitation and construction of dams and reservoirs. The target areas and river basins supported by each donor are clearly delineated, and there is no overlap with the Project.

3. Project Description

(1) Project Description

① Project Objective

The objective of the Project is to improve agricultural productivity and mitigate flood damage in rural and deprived area in Southwest Phnom Penh by rehabilitating and improving the existing irrigations and drainage facilities, thereby contributing to improving the livelihoods of farmers in the area.

② Project Components

a) Rehabilitation and improvement of irrigation and drainage facilities

- Roleang Chrey Area: headworks, main canals, secondary canals, tertiary canals, drainage canals, and irrigation association buildings
- Kandal Stung-Bati Area: intake weir, intake, embankment, adjoining facilities

b) Consulting services (detailed design, bidding assistance, and construction supervision) and soft component (establishment of irrigation associations and farming guidance)

③ Project Beneficiaries (Target Group)

Roleang Chrey Area (approx. 15,000 people), Kandal Stung-Bati Area (approx. 14,000 people), and residents in the lower Prek Thnot River basin, including the Phnom Penh metropolitan area (approx. 590,000 people)

(2) Estimated Project Cost

43,222 million yen (Japanese ODA loan: 24,237 million yen)

(3) Schedule

07/2014–11/2031 (209 months) Commencement of facility operation (05/2030)

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 (MOWRAM)
- 4) Operation and Maintenance System: Ministry of Water Resources and Meteorology (MOWRAM)
- (5) Collaboration and Sharing of Roles with Other Donors
 - 1) Japan's Activity: Under the ongoing technical cooperation project, "Project for Development of National Standard Design Documents for Irrigation and Drainage" (2022–2026), standard design criteria and manuals for irrigation and drainage facilities are being developed, and the capacities of staff of the Ministry of Water Resources and Meteorology (MOWRAM) and the Provincial Department of Water Resources and Meteorology (PDWRAM) are being strengthened. Feedback of the knowledge and lessons learned from the Project to that technical cooperation project is expected to contribute to the formulation of standard designs better suited to local conditions. The standard designs to be formulated are expected not only to be applied to other projects currently under preparatory study, but also to be widely disseminated and utilized in construction projects implemented by the Government of Cambodia and other donors through the Policy Advisor for Flood Control and Irrigation and Drainage System Development, who is scheduled to be dispatched from March 2026.
 - 2) Other Donors' Activity: Nothing of note
- (6) Environmental and Social Considerations
 - 1) Environmental and Social Considerations
 - ① Category: B
 - ② Reason for Categorization: The Project is classified as Category B because it does not fall under large-scale projects in the agriculture sector as defined in the JICA Guidelines for Environmental and Social Considerations (promulgated in April 2010) (the "JICA Guidelines"); its adverse impacts on the environment are not likely to be significant; and it does not have characteristics that are likely to cause adverse impacts, nor is it located in or around sensitive areas as defined in the JICA Guidelines.
 - ③ Environmental Permit: An Environmental Impact Assessment (EIA) report for the Project is not required under Cambodia's domestic laws and regulations.

- ④ Anti-pollution Measures: During construction, measures such as proper management of heavy machinery, pretreatment of wastewater before discharge, and restrictions on working hours will be taken to ensure compliance with Cambodia's applicable emission/effluent and environmental standards for air quality, water quality, noise, and the like. During operation, water pollution will be prevented through support for appropriate farming practices, the introduction of compost, and the establishment of a cross-checking mechanism among irrigation associations.
 - ⑤ Natural Environment: The project area does not fall within or around environmentally sensitive areas such as national parks, and adverse impacts on the natural environment are expected to be minimal.
 - ⑥ Social Environment: The Project involves land acquisition of 16.88 ha and the involuntary resettlement of 32 households in the Roleang Chrey Area, and land acquisition of 2.78 ha and the involuntary resettlement of 8 households of informal dwellers in the Kandal Stung-Bati Area. Land acquisition under the original design proceeded in accordance with domestic procedures and a simplified resettlement plan prepared in line with the JICA Guidelines, and compensation and resettlement procedures reflecting the views of affected persons were implemented and completed by February 2025. Additional land acquisition in the Roleang Chrey Area associated with the design change (2.09 ha of the above) and involuntary resettlement (5 of the aforementioned households) will be carried out in the same manner. No particular opposition to the Project has been expressed by affected persons.
 - ⑦ Other/Monitoring: Under the Project, MOWRAM and the Ministry of Environment will monitor air quality, water quality, farming activities, and the like during construction and operation. In addition, the Inter-ministerial Resettlement Committee will monitor land acquisition and involuntary resettlement.
- (7) Cross-sectoral Issues
- ① Climate Change / Biodiversity: The Project may contribute to climate change adaptation from the perspective of reducing increasingly severe flood damage associated with climate change.
 - ② Other: Infectious disease prevention measures, including HIV/AIDS prevention education for construction workers, are being implemented.

In addition, care is being taken to ensure that information is provided in accessible ways so that target farmers with disabilities can better understand it. Furthermore, for facilities such as headworks that the general public are expected to use, measures such as the installation of signs and ramps and stairs on canal slopes will be taken to prevent falls and water-related accidents.

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

<Details of Activities/Reason for Categorization> Although gender mainstreaming needs, such as the status of women's participation in irrigation association activities, were identified, no specific initiatives contributing to gender mainstreaming with concrete indicators were planned. The Project plans to promote women's participation in irrigation association activities by encouraging women to participate in training programs and other activities and, in designing facilities such as gates, by taking into account ease of use for women.

(9) Other Important Issues: None.

4 . Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator	Baseline (Actual value in 2011)	Target (2035) [5 years after project completion]
Irrigated area (ha)	840	4,060
Area planted with rice (ha)	4,270	6,885
Rice yield (tons/ha)	2.2	3.7–3.8
Improvement of the Flow Capacity of the North Main Canal in the Roleang Chrey Area (m ³ /s)	15.6	100.0
Flooded area (ha/event)	2,639 (Actual value in 2024)	2,516

* The baseline and target values above are limited to the two areas covered by this loan. In the ex-ante evaluation sheet for Phase I, baseline values were presented for five areas.

* Under the Project, in the Roleang Chrey Area, only the North Main Canal will be widened and concrete-lined for flood control. Since improvement of the waterway downstream of the North Main Canal under a project by the Government of Cambodia is indispensable for the Project's flood drainage effects to materialize, the ex-post evaluation will take place after completion of that

waterway. In addition, flood control measures for the South Main Canal are planned under another project for which support through a Japanese ODA loan is under consideration, and the likelihood that the ex-post evaluation cannot be conducted properly while that project is under construction is high. Therefore, the ex-post evaluation will be conducted five years after project completion.

* If the Project, the Government's canal and river works, and the above-mentioned flood control project for the South Main Canal are all completed, the inundated area is expected to be 0 ha in the event of a flood equivalent to the largest flood in the past ten years (i.e., equivalent to the actual 2024 flood). However, when each project's share of contribution is calculated based on the length of the respective waterways, the Project accounts for 11.4% of the total. For estimation purposes, this ratio was applied, and the Project's effect was estimated as a reduction of approximately 123 ha in inundated area.

(2) Qualitative Effects: Stabilization of irrigation water supply, improved livelihoods of farmers, and reduction of damage in the event of flooding.

(3) Internal Rate of Return: Based on the assumptions listed below, the economic internal rate of return (EIRR) for the Project is 24.5%. Since the Project charges only operation and maintenance fees, FIRR is not calculated.

[EIRR]

Cost: Project cost (excluding taxes), operation and maintenance costs

Benefit: Improved agricultural productivity through irrigation, lower damage costs in the event of flooding

Project Life: 50 years

5. External Factors and Risk Control

(1) Preconditions: Additional resettlement required for widening the main canal will be implemented appropriately and smoothly by the Government of Cambodia.

(2) External Factors: None.

6. Lessons Learned from Past Projects

The ex-post evaluation of the "Upper Indravati Irrigation Project" in India (evaluation year: 2003) and similar projects yielded the following lesson: Because active participation by beneficiary farmers is indispensable in irrigation projects, in the operation and maintenance of canals other than the main canals it is important, well before water delivery begins, to: (1) clarify the roles of the relevant parties, (2) involve irrigation associations from an early stage, (3) strengthen the capacity of irrigation associations, and (4) provide continuous support to promote farmers' participation.

The Project includes a soft component to support the establishment and capacity strengthening of irrigation associations in each area, thereby securing active

farmer participation in irrigation association activities from an early stage and helping to achieve the Project's intended effects.

7 . Evaluation Results

The Project is consistent with Cambodia's development issues and development policies, as well as with Japan's and JICA's cooperation policies and analyses. Through promoting improved agricultural productivity and strengthening disaster risk reduction functions, it will contribute to improving the livelihoods of farmers in the target area and reducing flood damage. The Project is also expected to contribute to SDG Goal 1 (no poverty), Goal 2 (zero hunger), and Goal 13 (climate action). Therefore, the need to support implementation of the Project is high.

8 . Plan for Future Evaluation

(1) Indicators to be Used

As indicated in Section 4.

(2) Future Evaluation Schedule

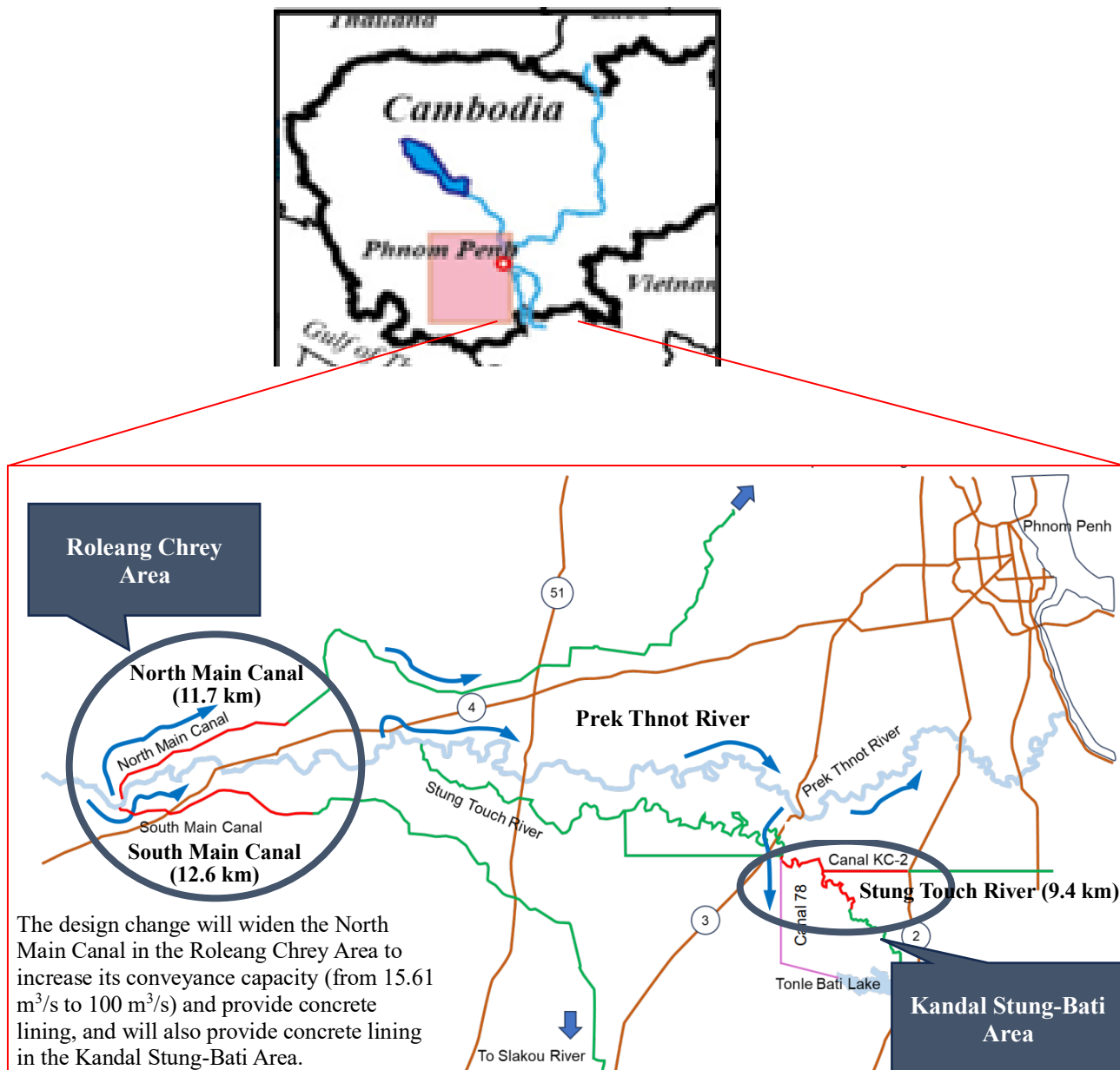
Ex-post evaluation: Five years after project completion

END

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

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



[Legend]

- Red lines: Canals and rivers to be rehabilitated and improved under the Project
- Green lines: Canals and rivers to be rehabilitated and improved under a project of the Government of Cambodia

Source: Adapted from materials prepared by the implementation supervision consultant for the Southwest Phnom Penh Irrigation and Drainage Rehabilitation and Improvement Project