

Ex-ante Project Evaluation

August 29, 2011

Southeast Asia Division 4

Southeast Asia and Pacific Department

Japan International Cooperation Agency

1. Name of project (country name)

Country:	Kingdom of Cambodia
Name of project:	West Tonle Sap Irrigation and Drainage Rehabilitation and Improvement Project
L/A signing date:	August 23, 2011
Loan amount:	4,269,000,000 yen
Borrower:	The Royal Government of Cambodia

2. Background and need for project

(1) Progress of development (current status) of and issues concerning the irrigation sector in Cambodia

Agriculture forms the backbone of Cambodia's economy. Agriculture accounts for more than 30% of GDP and employs 70% of the nation's working population. More than 80% of Cambodia's population (and more than 90% of its impoverished population) lives in rural areas. Accordingly, the Cambodian government positions agricultural and rural development as a priority issue in its effort to achieve poverty reduction and economic growth. However, many of the irrigation facilities currently existing in Cambodia were constructed during the period of civil war during the latter half of the 1970s¹, and consequently a high percentage of these facilities do not function adequately due to problems with their design, construction or old age. Thus, of the approximately 2.25 million hectares of paddy field area in Cambodia (2008), only approximately 580,000 hectares, or 26% of paddy field area, are actually irrigated. Agriculture, and particularly rice cultivation, is the key industry in the area around Tonle Sap Lake, which is the target region of this Project. However, despite having high water resource potential, farmers in this region depend on rainwater because irrigation facilities there do not function. Productivity

¹ Cambodia suffered from civil war and political upheaval for 20 years following a coup d'état in 1970. During the time Cambodia was ruled by forces aligned with Pol Pot, who seized control of the government in 1975, many canals and small-scale dams were built by Cambodians pressed into forced labor. These facilities were constructed with the political goal of dramatically increasing rice production based on radical Communist ideals.

in the area remains low as a result. Moreover, the region is vulnerable to changes in precipitation amounts and patterns arising from climate change and other factors. Given these conditions, JICA formulated master plans for 21 regions as part of a development study titled “Basin-wide Basic Irrigation and Drainage Master Plan Study” (February 2007 to February 2009), which was implemented based on a request by the Royal Government of Cambodia to promote efficient use of water resources in four river basins having high development priority. This Project will upgrade irrigation facilities in six regions which were identified as priority projects.

(2) Cambodia’s development policy and positioning of this Project in the irrigation sector

In its National Strategic Development Plan (2009 - 2013), the Cambodian government established higher agricultural production as a key goal in reducing poverty and achieving sustainable economic growth. Moreover, its sector development policy lays out a path for raising agricultural productivity and expanding irrigated area by upgrading and constructing irrigation facilities. Furthermore, the Ministry of Water Resources and Meteorology’s “action plan for development water resources and meteorological management” advocates promoting water resources management and the development of irrigation facilities.

(3) Japan and JICA’s aid policy and achievements in the irrigation sector

Japan’s Country Assistance Strategy for Cambodia establishes agricultural and rural development as a priority development issue. This strategy seeks to support the development of irrigation facilities, improvement of water management systems, and nurturing of water users’ groups in order to raise agricultural productivity. Based on this, JICA has established a “program for development and management of water resources and irrigation” for the purpose of promoting agricultural and rural development as a means of strengthening Cambodia’s economic foundation. This Project will be implemented as part of this program. JICA has supported Cambodia’s irrigation sector by providing continuous technical cooperation since the mid-1990s and implementing two grant aid projects.

(4) Responses of other aid organizations

The Asian Development Bank (hereafter “ADB”), French Development Agency (hereafter “AFD”), South Korea, China, and others are supporting the upgrade and maintenance of irrigation facilities in various regions, particularly in the region around the Tonle Sap Lake. The United Nations Food and Agriculture Organization (hereafter “FAO”), Australia, and others are providing assistance in the farming sector, where assistance in the agricultural field is being coordinated through technical working groups concerned with agriculture and water.

(5) Need for the project

Raising productivity in rural regions and improving the livelihood of farmers are essential to poverty reduction in Cambodia. Moreover, bringing stability to water supply by developing irrigation facilities has extremely high urgency as a countermeasure to changes in precipitation amounts and patterns that are caused by climate change. There are still widespread rural areas that lack irrigation facilities. Thus, given the achievements of past cooperation involving grant aid and technical cooperation, it is thought that engaging in whole-area development using yen loans will be useful in effectively promoting irrigation facility development at the water-basin level for regions having high rice cultivation potential. Accordingly, JICA's support for this Project has high necessity and validity.

3. Project summary

(1) Project purpose

Targeting impoverished rural areas in six regions of three provinces on the western side of the Tonle Sap, the Project will raise agricultural production in the targeted areas and, by extension, contribute to improved livelihood among the areas' farmers by upgrading and developing irrigation and drainage facilities and establishing, strengthening farmer water users' groups, and providing agricultural extension techniques.

(2) Name of project site and targeted regions

Battambang, Pursat, and Kompong Chhnang Provinces

(3) Project summary (including procurement methods): Development of irrigation and drainage facilities in six regions (total of 12, 760 hectares)

- 1) Upgrade and new construction of irrigation facilities (weirs and main/secondary/tertiary channels) (international competitive bidding/local competitive bidding)
- 2) Soft component (support for water users' groups, supply of materials for agricultural extension services, etc.) (local competitive bidding, etc.)
- 3) Consulting service (detailed design [D/D], bidding assistance, construction supervision) (international competitive bidding)

(4) Total project cost

4,932,000,000 yen (of which, amount covered by yen loan: 4,269,000,000 yen)

(5) Project implementation schedule (cooperation period)

Planned for the period between August 2011 and September 2017 (70 months). The Project will be considered completed when facilities begin service (July 2016)

(6) Project implementation system

- 1) Borrower: The Royal Government of Cambodia
- 2) Guarantor: None
- 3) Organization implementing Project: Ministry of Water Resources and Meteorology (MOWRAM)
- 4) System for operations, administration, maintenance, and management: MOWRAM and Department of Water Resources and Meteorology will operate and maintain weirs and main and secondary channels; water users' groups will operate and maintain tertiary channels.

(7) Environmental and social consideration, poverty reduction, social development

- 1) Environmental and social considerations
 - a) Category classification: B
 - b) Rationale for category classification: It is deemed that the Project does not apply to any of the large-scale projects in the agricultural sector that are listed in "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established in April 2002) and that its adverse impact on the environment will not be significant. Moreover, it is deemed that the Project is not relevant to the sensitive characteristics and areas that are mentioned in these guidelines. Thus, the Project is classified as Category B.
 - c) Environmental permits: Under the laws of Cambodia, there is no requirement to prepare an Environmental Impact Assessment (EIA) report for the Project. (The size of the targeted regions falls below the size that requires an EIA [5,000 hectares].)
 - d) Measures for pollution control: No particular impact is anticipated in terms of water pollution or soil contamination caused by fertilizers and agrochemicals following the start of the Project, as fertilizers and agrochemicals will be used and disposed of appropriately through awareness-raising activities that include farming guidance for farmers.
 - e) Natural environment: The Project site is not located in a sensitive area, such as a national park, or in the surroundings of a sensitive area, and thus it is anticipated that its adverse impact on the natural environment will be minimal. In addition, fishways will be built in the weirs based on consideration on the Project's impact on aquatic organisms.
 - f) Social environment: Under the Project plan, approximately six households will be

relocated and approximately 208 ha of land will be acquisitioned. Said relocation and land acquisition will proceed in accordance with procedures in Cambodia.

g) Other matters and monitoring: MOWRAM will monitor land acquisition, resident relocation, water quality, soil quality, and other matters associated with the Project.

2) Promotion of poverty reduction: The Project site is located in an impoverished region. The Project will promote poverty reduction by providing farming guidance to farmers, including impoverished farmers, among other activities.

3) Promotion of social development (gender perspective, measures addressing infectious diseases such as AIDS, participatory development, consideration of handicapped people, etc.); The Project will involve resident-participatory maintenance and management of irrigation facilities by organizing water users' groups.

(8) Coordination with other schemes, donors, etc.

Technical cooperation projects titled the "Improvement of Agricultural River Basin Management and Development Project" (September 2009 to September 2014) and "Agricultural Productivity Promotion Project in West Tonle Sap" (October 2010 to March 2015), which involve establishing model districts within the Project's targeted regions and activities to improve irrigation management capabilities and farming practices, are currently underway. The Project will support the executing agency's work to expand the results of these technical cooperation projects to all regions targeted by the Project.

(9) Other notes: The Project will contribute to efforts to adapt to climate change by improving responses to changes in precipitation amounts and patterns through the upgrade and development of irrigation facilities.

4. Project effects

(1) Quantitative effect

1) Operation and effect indicators

Indicator	Standard value (2009 actual value)	Target value (2019) (3 years after Project is completed)
Irrigated area (hectares)	760	12,760
Rice planting area (hectares)	14,260	16,800

Number of farmer water users' groups (FWUG)	0	52
Rice production (tons/year)	22,000	54,000
Rice yield (tons/hectares)	1.5	3.2

2) Internal rate of return: Based on the assumptions below, the economic internal rate of return (EIRR) is calculated at 14.7%.

Cost: Project cost (excluding tax), operation and maintenance cost

Benefit: Increased agricultural production due to irrigation

Project life: 30 years

(2) Qualitative effect: Stabilized supply of irrigation water, improved farmer livelihood

5. External conditions and risk control

None in particular

6. Evaluation results for similar projects in the past and lessons for this Project

It is known from ex-post evaluations of previous similar projects in the irrigation field that post-completion maintenance and management have a significant influence on the realization of project effects. Moreover, it has been shown that project formulation and implementation management must be conducted with consideration for establishing an operation and management system. Activities implemented under this Project will support the organization and functional reinforcement of FWUGs utilizing the model district that the "Improvement of Agricultural River Basin Management and Development Project" (technical cooperation project) set up in a portion of the targeted regions and aim to support the realization of Project effects through collaboration with technical cooperation.

7. Future evaluation plans

(1) Indicators to be used in future evaluation

- 1) Irrigated area (hectares)
- 2) Planted area (hectares)
- 3) Number of FWUGs established
- 4) Rice production (ton/year)
- 5) Rice yield (ton/hectares)
- 6) Internal rate of return: EIRR (%)

(2) Timing of future evaluation

Three years after Project completion