

Ex-Ante Evaluation

1. Name of the Project
Country: The Republic of Indonesia Project: Participatory Irrigation Rehabilitation and Improvement Management Project Loan Agreement: March 28, 2008 Loan Amount: 12,310 million yen Borrower: The Republic of Indonesia
2. Necessity and Relevance of JBIC's Assistance
<p>The agricultural sector in Indonesia is an important industry which accounts for 13% of GDP and absorbs 44% of the workforce (2005). However, Indonesia's rice production has been destabilized by external factors including abnormal weather and the sharp rise in the price of fertilizer and agricultural chemicals following the currency crisis. In 2006, it reached the point where approximately 2 million tons of rice had to be imported. On the island of Java, which is one of the country's main rice producing regions, the area of arable land is decreasing due to the advance of urbanization and industrialization, and because a nationwide expansion of irrigated land cannot be expected, the reliance on imports is expected to continue. In addition, Indonesia's population continues to grow, and with demand for rice forecasted to grow, increasing rice production is an important issue that needs to be addressed from the standpoint of food security.</p> <p>In the National Medium Term Development Plan (RPJM: 2004-2009), the Government of Indonesia states its two highest priority objectives: making the growth rate of the agricultural sector average 3.5% annually up to 2009 and improving the income and welfare of farmers. The government also calls for a revitalization of agriculture in order to realize domestic economic growth and food self-sufficiency under a basic policy of enhancing the capabilities of farmers, strengthening assistance organizations, and improving food self-sufficiency, agricultural productivity, competitiveness and added value.</p> <p>Japan's Country Assistance Plan for Indonesia (November 2004) positions the creation of a fair and democratic society as a priority area and promotes assistance in the development and management of infrastructure as a key to the development of agricultural and fishing communities. In addition, JBIC's Medium-Term Strategy for Overseas Economic Cooperation Operations (April 2005) specifies assistance for poverty reduction, development of infrastructure for sustained growth, and support for human resources development as priority areas. This project is thus consistent with the policy.</p> <p>Indonesia has a large population, and achieving a stable supply of rice, its staple food, is crucial from the standpoint of food security. The western region of Indonesia (Java, Sumatra and Kalimantan islands), which is the target area of this project, is a major rice-producing region accounting for approximately 80% of rice production (2006). In this region, the rehabilitation and extension of irrigation facilities and introduction of an appropriate operation and maintenance system are directly linked to an increase in rice production. Therefore, there is a strong necessity for JBIC's assistance for rehabilitating irrigation facilities and improving operation and maintenance systems with a view to achieving sustained food security.</p>

3. Project Objectives and Outline

The objective of the project is to increase the production of rice in the western region of Indonesia (Java, Sumatra and Kalimantan islands) by improving, rehabilitating and extending existing irrigation facilities and assisting in the development of operation and maintenance systems, thereby contributing to the food security of Indonesia.

4. Project Description

(1) Target Area

Nine provinces in western region of Indonesia

(2) Project Outline

- (a) Civil engineering work: Rehabilitation and extension of existing irrigation facilities (head works, primary, secondary and tertiary canals, etc.)
- (b) Consulting services: tender assistance, construction supervision, assistance in strengthening of Water User's Association, water management, and asset management
- (c) Strengthening of Water User's Association, water management, asset management

(3) Total Project Cost/Loan Amount

29,375 million yen (Japanese ODA Loan Amount: 12,310 million yen)

(4) Schedule

April 2008-December 2013 (69 months). The project will be completed when the guarantee period is completed.

(5) Implementation Structure

- (a) Borrower: The Republic of Indonesia
- (b) Executing Agency: Directorate General of Water Resources, Ministry of Public Works (DGWR)
- (c) Operation and Maintenance System: DGWR (head works, primary and secondary canals) and irrigation association (tertiary canals)

(6) Environmental and Social Considerations

(a) Environmental Impacts /Land Acquisition and Resettlement

(i) Category: B

(ii) Reason for Categorization: This project is classified as Category B because, based on Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations (established April 2002), it is considered that any adverse impact it may have on the environment would not be serious since it does not concern a large-scale facility of the irrigation sector, and because, under the environmental guidelines, its characteristics would not have an impact, and the target region would not be susceptible to such impact.

(iii) Environmental Permit: Before construction work starts, approval will be obtained for subprojects for which it is required that environmental impact assessment reports be prepared and approved under Indonesia's domestic laws.

(iv) Anti-pollution Measures: As a measure against the contamination of water of rivers into which fertilizers and agricultural chemicals are discharged, the district governments plan to provide guidance to farmers concerning the use of fertilizers and agricultural chemicals so that they meet Indonesia's domestic standards.

(v) Natural Environment: It is expected that adverse impacts on the natural environment will be minimal since the project target areas do not include sensitive areas such as national parks and their surrounding areas.

(vi) Social Environment: Sites totaling approximately 360ha for all subprojects will be acquired in line with Indonesia's domestic procedures. No residents will be resettled.

(vii) Other/Monitoring: The executing agency will monitor the water quality and the like.

(b) Promotion of Poverty Reduction: Implementation of this project is expected to contribute to improving income and reducing poverty among farmers of the regions targeted by the subprojects.

(c) Promotion of Social Development (gender perspective, measures for infectious diseases including AIDS, participatory development, consideration for the handicapped, etc): This project will adopt a participatory approach in accordance with the Water Resources Law and pursuant to government regulations and ordinances of the Minister of Public Works concerning operation and maintenance of irrigation facilities, and Water User's Association will be responsible for operation and maintenance of tertiary conduits.

(7) Other Important Issues

None.

5. Outcome Targets

(1) Evaluation Indicators (Operation and Effect Indicators)

Indicator Name	Baseline (2007 actual)			Target (2018, 5 years after project completion*)		
	(1) Rehabilitation	(2) Rehabilitation and extension	(3) Extension	(1) Rehabilitation	(2) Rehabilitation and extension	(3) Extension
Area benefited from the project (ha)	4,470	2,482	0	7,346	5,950	4,924
Cropping Intensity (%/year)	112.6	114.3	132	151.2	200	176
Rice production (ton/year)	33,474	26,918	12,972	50,817	51,319	34,592

Rice Yield (ton/ha/season)	Wet season 3.2	Wet season 3.4	Wet season 2.0	Wet season 3.8	Wet season 4.3	Wet season 4.0
	Dry season 3.9	Dry season 3.3	Dry season 2.0	Dry season 4.5	Dry season 4.3	Dry season 4.0
Rate of WUA Presence (%)	57.5	41.6	0	100	100	100

*Since the yield of agricultural products is expected to reach 50% of targeted yield one year after project completion and 100% five years after completion, the target year has been set to five years after completion.

(2) Beneficiaries: Approximately 137,000 households

(3) Internal Rate of Return (Economic Internal Rate of Return)

Based on the assumptions given below, the economic internal rate of return (EIRR) of this project will be 20.8%.

[EIRR]

(a) Cost: Project cost (excluding tax)/operation and maintenance expenses

(b) Benefit: Increase in income from agricultural production

(c) Project Life: 30 years

6. External Risk Factors

Abnormal weather due to effects of climate change

7. Lessons Learned from Findings of Similar Projects Undertaken in the Past

Because in past ex-post evaluations of similar projects in the irrigation field it was known that operation and maintenance after completion had a major influence on the benefits derived from the project, it was indicated that project formation and implementation management must be carried out keeping in mind the establishment of an operation and maintenance system. In as much as this project focused primarily on the rehabilitation of existing irrigation facilities, it is planned to provide support for construction supervision, quality control and operation and maintenance in consulting services.

8. Plans for Future Evaluation

(1) Indicators for Future Evaluation

(a) Area benefited from the project (ha)

(b) Cropping Intensity (%/year)

(c) Rice production (ton/year)

(d) Rice Yield (ton/ha/season)

(e) Rate of WUA Presence (%)

(f) Economic internal rate of return

(2) Timing of Next Evaluation

Five years after project completion