

Ex-Ante Evaluation

1. Name of Project
Country: The Republic of Indonesia Project: Decentralized Irrigation System Improvement Project in Eastern Region of Indonesia (II) Loan Agreement: March 28, 2008 Loan Amount: 8,967 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 (2005) 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. In addition, the eastern region of Indonesia, which is the target region of this project, lags behind in development, and for this reason the government is taking active steps to spur development as a priority objective in order to redress regional disparities. The proportion of the population below the poverty line in this region is 18.8% (as of 2004), higher than the national average of 16.6%. In particular, per capita GDP (2004) in the nine eastern provinces targeted by this project is less than half the national average. This project is expected to correct social disparities and be effective in reducing poverty by accelerating development in the agricultural field which absorbs 54% of the workforce in nine eastern provinces of Indonesia.</p> <p>Japan's Country Assistance Program 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 a foundation for sustained growth, and support for human resources development as priority areas. This project is thus consistent with the strategy.</p>

Indonesia has a large population, and improving agricultural productivity in order to secure a stable supply of rice, its staple food, is crucial from the standpoint of food security. In addition, development of the agricultural sector in the eastern region, which absorbs 54% of the workforce in the target provinces and where economic development lags behind, can be expected to correct social disparities and be effective in reducing poverty. Therefore, since the aim of this project is to increase income and reduce poverty among farmers by improving agricultural sector productivity through the expansion of irrigation facilities in the eastern region, the necessity for JBIC assistance is high.

3. Project Objectives and Outline

The Objective of this project is to increase production of rice, the staple food, in the nine eastern provinces of Indonesia by improving, rehabilitating and extending irrigation facilities and assisting in the development of operation and maintenance systems, thereby contributing to food security and improving the income of farmers in the target region.

4. Project Description

(1) Target Area

Nine provinces in eastern region of Indonesia

(2) Project Outline

- (a) Civil engineering work: Improvement/rehabilitation and extension of existing irrigation facilities, and new construction (Weir, head works, primary, secondary and tertiary conduits, etc.)
- (b) Consulting services: tender assistance, construction supervision, assistance in strengthening capabilities of local government officials, Water User's Association for water management (including farming assistance), asset management, etc.)
- (c) Strengthening of Water Use's Association, water management, asset management

(3) Total Project Cost/Loan Amount

18,200 million yen (Japanese ODA Loan Amount: 8,967 million yen)

(4) Schedule

April 2008-March 2013 (60 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: With respect to major irrigation facilities including dams, head works, primary, secondary canals, DGWR if the irrigation area is 3,000ha or more, the provinces if more than 1,000ha and less than 3,000ha. The Water Use's Association will handle terminal irrigation facilities including tertiary canals.

(6) Environmental and Social Considerations

- (a) Environmental Impact /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 area 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, obtaining the assistance of consultants in the consulting services.

(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 plans 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 areas to be targeted by the project target areas do not include sensitive areas such as national parks and their surrounding areas.

(vi) Social Environment: Sites totaling approximately 161ha will be acquired for this project 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: The average poverty rate in the 14 districts where the subprojects targeted by this project are located is 22.2% (2004), higher than both the national average of 16.7% (2004) and the average of Indonesia's eastern region of 18.8% (2004). In addition, by improving and rehabilitating irrigation facilities in the agricultural sector, which absorbs 54% of the workforce in the target provinces, by improving operation and maintenance, including strengthening independent operation and maintenance of terminal irrigation facilities by farmer's organizations, and by improving farming, a stable supply of irrigation water and an increase in farm income focused on rice is expected, leading to a reduction in poverty. Therefore, this project falls into the category of poverty reduction projects.

(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*)		
Area benefited from the project (ha)	70,255			81,600		
Cropping Intensity (%/year)	161			210		
Rice production (ton/year)	464,946			660,306		
Rice Yield (ton/ha/season)	Improvement/Rehabilitation	Extension	New construction	Improvement/Rehabilitation	Extension	New construction
	Wet season 4.2	Wet season 3.0	Wet season 2.9	Wet season 4.7	Wet season 4.5	Wet season 4.5
	Dry season 3.9	Dry season 3.0	Dry season 2.9	Dry season 4.6	Dry season 4.5	Dry season 4.5
Rate of WUA Presence (%)	63%		0%	100%		

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

(2) 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 15.4%.

[EIRR]

(a) Cost: Project costs (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 the 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. 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