

Country Name	Irrigation and Rice Cultivation Project in Manatuto (Phase 1) (Phase 2)
Timor-Leste	

I. Project Outline

Background	<p>In Timor-Leste which became independent in 2002, most of the labor force was engaged in agriculture and fishery industries, and their livelihood was dependent on agriculture, particularly paddy rice. However, rice productivity remained low, due to the outflow of the working population, destruction of some irrigation facilities, and suspension of public and private services which were caused by political turmoil. The Government of Japan supported rehabilitation of the Laclo Irrigation System in Manatuto District through the United Nation Development Programme. It also conducted the “Study on Integrated Agricultural Development of East Timor” (2001-2002) and implemented a pilot project in the Laclo Irrigation Scheme. Based on these experiences, the “Irrigation and Rice Cultivation Project in Manatuto” was implemented from 2005 to 2010 for increasing rice productivity. As the project’s result, appropriate methods for cultivation and seed production were identified, but issues remained regarding expansion of these methods and capacity development of the Ministry of Agriculture and Fisheries for supporting farmers. Thus, the second phase was requested.</p>																												
Objectives of the Project	<p>Through improved irrigation and rice cultivation methods, strengthened water users’ associations and enforced system for supporting farmers, the projects aimed at improving rice productivity, thereby contributing to adaptation improved irrigation and rice cultivation in other irrigation areas in the country.</p> <p><Phase 1> Overall Goal: Improved rice cultivation system and Operation and Maintenance method of irrigation facilities will be adopted in at least two other irrigation schemes in Timor-Leste. Project Purpose: Productivity of rice in the Project site will be improved.</p> <p><Phase 2> Overall Goal: Improved irrigation and rice cultivation will be adopted in other irrigation areas in Timor-Leste. Project Purpose: Productivity of rice in the Project areas will be improved.</p>																												
Activities of the project	<p>1. Project site: <Phase 1> Laclo Irrigation Scheme in Manatuto District. <Phase 2> Irrigation areas in Manatuto Sub-district (Laclo Irrigation scheme, Malarahun, Sau, Sumasse, Rembor, Dirimane Irrigation areas)</p> <p>2. Main activities: <Phase 1> Selection of improved rice varieties, demonstration of rice cropping methods and use of machinery, training of MAF personnel, farmers and NGOs on operation and maintenance of irrigation facilities and management of water users’ association, etc. <Phase 2> Training of MAF personnel on improved rice cropping and irrigation system and monitoring, production and distribution of improved seeds, training of farmers and extension workers on improved rice cropping system, establishment of the rice production center, etc.</p> <p>3. Inputs (to carry out above activities)</p> <table border="0"> <tr> <td>Japanese Side</td> <td>Timor-Leste Side</td> </tr> <tr> <td><Phase 1></td> <td><Phase 1></td> </tr> <tr> <td>1) Experts from Japan: 8 persons</td> <td>1) Staff allocated: 8 persons</td> </tr> <tr> <td>2) Training in Japan: 8 persons</td> <td>2) Land and facilities: Office space, equipment, etc.</td> </tr> <tr> <td>3) Training in the third country: 8 persons (3 for the Philippines, 5 for Indonesia)</td> <td>3) Operation cost.</td> </tr> <tr> <td>4) Equipment: vehicles, office equipment, agricultural equipment, etc.</td> <td><Phase 2></td> </tr> <tr> <td>5) Operation cost for construction of offices, construction of waterways, training room, storage facilities, etc.</td> <td>1) Staff allocated: 24 persons</td> </tr> <tr> <td><Phase 2></td> <td>2) Land and facilities: Office space, training facility, and equipment, etc.</td> </tr> <tr> <td>1) Experts from Japan: 19 persons</td> <td>3) Operation cost for electricity of office space, materials for facility rehabilitation, etc.</td> </tr> <tr> <td>2) Training in Japan: 12 persons</td> <td></td> </tr> <tr> <td>3) Training in the third country: 30 persons (Indonesia)</td> <td></td> </tr> <tr> <td>4) Equipment: Vehicles, office equipment, rice mills, etc.</td> <td></td> </tr> <tr> <td>5) Operation cost for facility rehabilitation, outsourcing surveys, etc.</td> <td></td> </tr> </table>			Japanese Side	Timor-Leste Side	<Phase 1>	<Phase 1>	1) Experts from Japan: 8 persons	1) Staff allocated: 8 persons	2) Training in Japan: 8 persons	2) Land and facilities: Office space, equipment, etc.	3) Training in the third country: 8 persons (3 for the Philippines, 5 for Indonesia)	3) Operation cost.	4) Equipment: vehicles, office equipment, agricultural equipment, etc.	<Phase 2>	5) Operation cost for construction of offices, construction of waterways, training room, storage facilities, etc.	1) Staff allocated: 24 persons	<Phase 2>	2) Land and facilities: Office space, training facility, and equipment, etc.	1) Experts from Japan: 19 persons	3) Operation cost for electricity of office space, materials for facility rehabilitation, etc.	2) Training in Japan: 12 persons		3) Training in the third country: 30 persons (Indonesia)		4) Equipment: Vehicles, office equipment, rice mills, etc.		5) Operation cost for facility rehabilitation, outsourcing surveys, etc.	
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Project Period	<p><Phase 1> June 2005 to March 2010 (Extended period: June 2008 to March 2010)</p> <p><Phase 2> November 2010 to November 2015 (Extended period: November 2014 to November 2015)</p>	Project Cost	<p><Phase 1> (ex-ante) 300 million yen (actual) 281 million yen</p> <p><Phase 2> (ex-ante) 310 million yen (actual) 323 million yen</p>																										
Implementing Agency	<Phase 1 and Phase 2> Ministry of Agriculture and Fisheries (MAF), MAF Manatuto Office																												

Cooperation Agency in Japan	<Phase 1 and 2> None.
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II. Result of the Evaluation

<Special perspectives considered at the ex-post evaluation>

- The two projects (Phase 1 and Phase 2) had same objectives, while the target area was expanded in the Phase 2. Therefore, at the ex-post evaluation, these two projects were considered as one intervention and evaluated. For verification of effectiveness, indicators of the Phase 2 were used.

1 Relevance

<Consistency with the Development Policy of Timor-Leste at the time of ex-ante evaluation and project completion>

The sector plan in accordance with “National Development Plan” (2004) included a priority program for improvement of crop production in irrigation areas, and then increasing agricultural productivity and self-sufficiency were prioritized in the “Strategic Development Plan” (2011-2030). Thus, the project was consistent with Timor-Leste’s development policies from the time of the ex-ante evaluation of the Phase 1 to the project completion of the Phase 2.

<Consistency with the Development Needs of Timor-Leste at the time of ex-ante evaluation and project completion>

Although most of the labor force was engaged in agriculture and fishery industries, and their livelihood was dependent on agriculture, particularly paddy rice, rice productivity remained low, which became more serious due to the outflow of the younger generation to the urban area. The project was consistent with Timor-Leste’ development needs for improving rice productivity, as well.

<Consistency with Japan’s ODA Policy at the time of ex-ante evaluation>

After the independence of Timor-Leste in 2002, Japan supported nation building of Timor-Leste, and under the priority program of agriculture and rural development, rehabilitation of irrigation facilities and training were targeted for agricultural promotion¹. Agriculture and rural development remained a priority program as of 2010². The project was consistent with Japan’s assistance policy at the time of ex-ante evaluation of both the Phase 1 and Phase 2.

<Appropriateness of the Project Design/Approach>

The project approach for increasing rice productivity through improved irrigation and rice cultivation methods was appropriate for Manatuto where agriculture was the main industry and located near the capital city Dili. However, rice production was not fully diffused to farmers in other areas because they had difficulty in selling rice. One of the factors was related to the marketing support. It was added at the end of the Phase 2, it should have been considered from the beginning of the Phase 1.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose was partially achieved. In both the Laclo Irrigation Scheme and other irrigation areas, the rice productivity exceeded the target value (Indicator 1 and 3), attributed to improved seeds, line transplanting and weeding. On the other hand, data of cropping of rice could not be confirmed (Indicator 2), because no sufficient data for verification was compiled by the project. It was presumed by the Japanese experts that the area of cropping of rice was being reduced due to the decrease in the number of farmers and abandonment of cultivation.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

It can be judged that the project effects have not continued at the time of ex-post evaluation. Data on rice productivity for the Laclo Irrigation Scheme and other irrigation areas were not able to be confirmed at the ex-post evaluation, such data have not been collected by MAF. However, according to MAF Manatuto Office, rice productivity in these areas have been decreasing due to lack of technical support to the farmers and a problem of sediments in the irrigation facilities. Regarding the cropping intensity, data for the Laclo Irrigation Scheme and other 5 areas were not confirmed, but only data of the cultivated area of rice irrigation in Manatuto Municipality could be obtained, which shows the increase from 1,103ha in 2016 to 1,600ha in 2019. As another supplemental information, recommended varieties developed by the project such as Nakroma and Barito have been cultivated by farmers in Manatuto Municipality.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has not been achieved by the time of ex-post evaluation. Although MAF Manatuto Office has developed a dissemination plan of IRCS methods (use of recommended seeds, seed selection, land leveling, paddling, line transplanting, weeding, etc.) to other areas, it has not been realized due to the shortage of budgets and extension workers.

<Other Impacts at the time of Ex-post Evaluation>

No other positive or negative impacts have been confirmed at the time of the ex-post evaluation.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is low.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Productivity of rice in the Project areas will be improved.	<Laclo irrigation scheme> 1. Rice productivity will be maintained (2.5 tons/ha).	<u>Status of achievement: Achieved (Not verified).</u> (Project Completion) - In the farmers’ plots for technical comparison, rice productivity reached 3.8 tons/ha on average. - In the farmers’ demonstration plots where line transplanting and weeding were conducted, rice productivity reached 4.8 tons/ha on average. The increase was 0.9 tons/ha and 25%, compared to ordinary plots. (Ex-post Evaluation) - Data on rice production in Laclo irrigation scheme were not available.

¹ Ministry of Foreign Affairs. “ODA Databook 2005”

² Ministry of Foreign Affairs. “ODA Databook 2010”

		<Supplemental data> - In Manatuto District, rice productivity was decreasing until 2017, but increased in 2018: <table border="1"> <thead> <tr> <th></th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> </tr> </thead> <tbody> <tr> <td>Rice productivity (t/ha)</td> <td>4.05</td> <td>3.11</td> <td>2.24</td> <td>3.69</td> </tr> </tbody> </table>		2015	2016	2017	2018	Rice productivity (t/ha)	4.05	3.11	2.24	3.69
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	2. Cropping intensity of rice will be increased by 50%.	Status of achievement: <u>Not achieved (Not verified).</u> (Project Completion) - Data of cropping intensity of rice were not available. According to the terminal evaluation team, it was considered that the rice cropping intensity rate was not improved as planned, based on their site visits and interviews with counterparts, JICA experts, farmers, etc. (Ex-post Evaluation) - Data of cropping intensity of rice were not available. <Supplemental data> - The cultivated area of rice irrigation in Manatuto Municipality increased from 1,103 ha in 2016 to 1,600 ha in 2019.										
	<Other irrigation areas> 3. Rice productivity will be increased by 20%.	Status of achievement: <u>Achieved (Not verified).</u> - In the demonstration plots where line transplanting and weeding were conducted of the farmers, rice productivity reached 4.8 tons/ha on average. The increase was 0.9 tons/ha and 25%, compared to ordinary plots. (Ex-post Evaluation) - Data on rice production in areas other than Lacle irrigation scheme were not available.										
(Overall goal) Improved irrigation and rice cultivation will be adopted in other irrigation areas in Timor-Leste.	1. The result of the project will be applied in other irrigation areas in Timor-Leste by 2020.	Status of achievement: <u>Not achieved.</u> (Ex-post Evaluation) - Methods for improved irrigation and rice cultivation developed by the project have not been adopted in areas other than the target area.										

Source: Project Completion Report and information provided by MAF Manatuto Office.

3 Efficiency

Although the total project cost of the two projects was within the plan (ratio against the plan: 99%), the project period excluding the evacuation period³ during the Phase 1 exceeded the plan (ratio against the plan: 120%). Most outputs were achieved as planned, while some were partially achieved. Therefore, the project efficiency is fair.

4 Sustainability

<Policy Aspect>

“Strategic Development Plan” (2011-2030) has been still effective, which prioritizes rice cropping. Besides, local rice consumption through school feeding has been promoted by the “National Education Strategic Plan” (2011 to 2030).

<Institutional Aspect>

At the time of the ex-post evaluation, MAF Manatuto Office had 108 personnel in total. The Agriculture and Horticulture Department had 73 personnel including 23 extension workers. The number of the extension workers was not sufficient to cover 29 villages in Manatuto District. The Rice Production Center has not been operated and not sold rice since 2016 since farmers did not have a sufficient harvest to bring. They were required to bring a minimum of 500kg of rice, but it was difficult for them. Another reason was that the Center is located far from the farmers’ residences. Irrigation water has been distributed based on the annual plan prepared by the irrigation officer of MAF Manatuto Office (3 days for 7 secondary canals, 3 days for the other 7 canals and 1 day for the normalization work in the intake). The Water Users Association (WUA) had been supposed to manage the irrigation facilities, but due to the lack of coordination skills, the irrigation officer, instead, has taken the responsibilities. WUA has annually removed sediments in the main canal by using excavators of the Ministry of Public Works or MAF. Secondary canals have been manually cleaned by WUA members.

<Technical Aspect>

According to MAF Manatuto Office, its personnel including extension workers have sustained sufficient skills for supporting farmers’ irrigation rice cropping, as they have academic background in agriculture. Training for farmers and MAF Manatuto Office has not been conducted since 2017, due to budget constraints. Materials on IRCS developed by the project were distributed to all of farmers’ groups, but it was found at the ex-post evaluation that some farmers have still referred to them. WUA has sustained sufficient skills for manual cleaning works in the canal, while sediments in the intake have been under MAF’s responsibility.

<Financial Aspect>

According to MAF Manatuto Office, although they have planned 1-2 million USD per year for agricultural activities including operation and maintenance costs of the irrigation facilities, they have got approval for only 113,000 USD on average per year, which has not been sufficient to disseminate IRCS methods to other areas in the District, train its personnel and farmers, cover extension expenses such as fuel for motorbikes, etc. Regarding WUA, they had a budget of 700 USD at the time of the project completion, but after they were spent for operation and maintenance of irrigation facilities, they have not had any income, because the Rice Production Center has not made profits from selling rice. It had been expected by the project that water fees would be collected from farmers, but presently they have provided harvested rice to the “Marino” instead of money.

<Evaluation Result>

There have been some challenges in the institutional, technical and financial aspect. Therefore, the sustainability of the effects is low.

5 Summary of the Evaluation

The Project Purpose was partially achieved, and the project effects have not been continued. The project efforts such as improved seeds, line transplanting, and weeding contributed to increase in productivity, but the cropping intensity was not expanded. Since the

³ JICA experts had to evacuate abroad due to the political unrests for seven months from June 2006 to December 2006.

project completion, the cropping area has increased in Manatuto Municipality, but it was presumed that the productivity was decreasing in the project area as a whole. IRCS methods have not been diffused to other areas, either. Regarding sustainability, human and financial constraints have hindered extension and technical support for farmers. As for efficiency, the project period exceeded the plan.

Considering all of the above points, this project is evaluated to be unsatisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- It is recommended to MAF Manatuto Office to secure budgets to diffuse recommended varieties to areas other than the target area, as the first step to diffuse IRCS methods.

Lessons Learned:

- Since the project completion, rice productivity in these areas have been decreasing and the Rice Production Center has not been operated and not sold rice. One of the reasons is that the Center is located far from the farmers' residences. At the project formulation stage, local situations should be observed, and the accessible site should be carefully decided.



Current Situation at the Intake of Laclo Irrigation Scheme



Rice Milling Machine at the Rice Production Center