

### **Overseas Training of Timorese CPs**

Name	Training Course	Duration of Training/Agency of Training
Mr. Deolindo de Oliveira	Country-focused training on "Participatory irrigation management system" for Timor-Leste	3.5 weeks (2012.9.6 - 9.28) JICA Hokkaido Center
Mr. Leoneto Pedro Hornay	The farmer - led extension method training in	1 month (2011.4.4 - 4.29)/ Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Japan
Mr. Abel Soares D. C.	Facility maintenance and water management for irrigation and drainage	1 month (2012.1.8 - 2.8) Yamagata Pref.
Mr. Francisco Antonio X. D. C.	Country-focused training on "Participatory irrigation management system" for Timor-Leste	3.5 weeks (2012.9.6 - 9.28) JICA Hokkaido Center
Mr. Alexio da Silva<*	Country-focused training on "Participatory irrigation management system" for Timor-Leste	3.5 weeks (2012.9.6 - 9.28) JICA Hokkaido Center
Mr. João Soares<*	Country-focused training on "Participatory irrigation management system" for Timor-Leste	3.5 weeks (2012.9.6 - 9.28) JICA Hokkaido Center

<\* Marino (traditional water guard)

#### **(4) Provided Equipment**

Equipment in value of USD 143,170, approximately equivalent to JPY 1,1310,400 (1.00 USD =79.00 JPY as of October 2012) was provided for the Project. Breakdown of equipment provided is shown in ANNEX 6.

#### **Timorese Side**

##### **(1) Counterparts (CPs)**

At the commencement of the Project, 19 CPs were assigned, and currently 18 CPs (3 at central and 15 at district levels) are assigned for the Project activities at the central and regional levels. There was few turnover of the CPs. However, some CPs are not assigned to the Project on the full-time basis.

List of Timorese CPs are as shown in ANNEX 6.

##### **(2) Local Cost Sharing from the Timorese Side**

The Timorese side has shared a local cost such as salary of CPs, utilities, etc.

Exact amount of the local cost sharing by MAF Manatuto is difficult to show. Instead, annual budget and expenditure of MAF Manatuto from F.Y.2010 to F.Y.2012 are shown in the table as below:

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### Annual Budget of MAF Manatuto (USD)

No.	Description		F.Y.2010<*	F.Y.2011	F.Y.2012 (plan)	Total
1	Salary	Received Budget	216,320.00	510,287.00	162,000.00	888,607.00
		Expenditure	148,056.00	148,572.00	146,828.00	443,456.00
2	Goods and Services	Received Budget			179,000.00	179,000.00
		Expenditure	68,264.00	361,715.00	162,438.00	592,417.00
3	Capital Minor	Received Budget				0.00
		Expenditure				0.00
4	Development (Infrastructure)	Received Budget				0.00
		Expenditure				0.00
5	Operational Budget District in Manatuto	Received Budget	68,264.00	42,000.00	35,000.00	145,264.00
		Expenditure	68,264.00	42,000.00		110,264.00
Total Budget			284,584.00	552,287.00	376,000.00	1,212,871.00

<\*: F.Y. Fiscal Year

(Source: MAF Manatuto)

### (3) Facility and Equipment

Office space is available for Japanese experts (long-term experts) in MAF Manatuto building. In addition, 2 rooms in a storehouse are temporarily used as an office and a meeting room for the Project activities. The Timorese side arranged office appliances (desks, chairs, bookshelves, etc.).

#### 3.1.2. Achievements of Main Activities

Achievements of the main activities are summarized in the table below. They are also described in relation to the achievements of Output in the subsequent sections.

#### Summary of Achievement of Main Activities

Output/Activities	Progress
<b>Output 1: Capacity of MAF Manatuto Office to guide the farmers will be strengthened.</b>	
1.1. To provide technical trainings on improved rice cropping system and irrigation system to officers (Technical and Extension) of MAF Manatuto Office.	<p>&lt;Improved Rice Cropping System (IRCS)&gt;                      * For cropping system improvement, 5 materials on IRCS (No.1-No.5 in ANNEX 7) were prepared in October-November 2011, and will be modified/upgraded when necessity rises.                      * Technical training "MAF Manatuto Officers Training on IRCS" was conducted 5 times until the end of October 2012 for officers of extension and rice cultivation technique. (Farmers also participated in a part of the trainings)                      * Most of the extension officers still need help from Japanese experts to conduct their duties and need to improve their capacities in the latter half of the Project.                      * Programs and curriculums have been under preparation and will be completed in November 2012.</p> <p>&lt;Irrigation&gt;                      * 6 textbooks (No.24-29 in ANNEX 7) for irrigation system were prepared before the technical trials.                      * 14 Technical trainings, "MAF Manatuto Officers Training on Irrigation" and "MAF Manatuto Officers and Farmers OJT", were conducted 4 times and 10 times, respectively.                      * Officers are expected to improve understanding how to control river flow and intake water. In particular, ability to plan construction work needs improvement.</p>

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<p>1.2. To establish monitoring system on improved rice cropping system and irrigation system by officers (Technical and Extension) of MAF Manatuto Office.</p>	<p>&lt;Improved Rice Cropping System (IRCS)&gt;  * Monitoring system was designed and conducted on trial basis in October 2011 targeting 10 farmers who attended MAF Manatuto Officers Training on IRCS. However, it had been suspended since the departure of the short-term expert of rice cultivation until the arrival of the expert in June 2012.  *In October 2012, the system was established reflecting the experiences in 2011 and been conducted by the Project with assistance of the short-term expert (rice cultivation).  &lt;Irrigation System&gt;  * Monitoring items for Laclo intake; sedimentation, velocity, and water level, were decided in November 2011 and are measured on weekly basis.  *Monitoring format was prepared and have been used by officers in charge. They are used to conduct monitoring.</p>
<p>1.3. To guide the farmers with improved rice cropping system and irrigation system by officers (Technical and Extension) of MAF Manatuto Office.</p>	<p>&lt;Improved Rice Cropping System (IRCS)&gt;  *Materials (textbook (Rice cropping system in the Laclo irrigation scheme; No.6 in ANNEX 7), newsletter (August and September 2012), IRCP 2 Technical Memo (monthly), etc.), to guide farmers were prepared based on the 1<sup>st</sup> phase materials.  *Programs and curriculum on the improved rice cropping system (IRCS) are under preparation.  &lt;Irrigation System&gt;  *6 textbooks (No.24-29 in ANNEX 7) for irrigation system were prepared before the technical trials.  * 14 technical trainings, MAF Manatuto Officers Training on Irrigation and MAF Manatuto Officers and Farmers OJT, conducted by Timorese CPs with support from Japanese experts 4 times and 10 times, respectively.</p>
<p><b>Output 2: &lt;Laclo Irrigation Scheme&gt; Improved rice cropping system will be maintained.  &lt;Other Irrigation Areas&gt; Improved rice cropping system will be adopted.</b></p>	
<p>&lt;Laclo Irrigation Scheme&gt;  2.1. To guide and monitor the farmers in order to maintain improved rice cropping system.</p>	<p>&lt;Improved Rice Cropping System (IRCS)&gt;  * The monitoring started in October 2012 and the result shows that IRCS components have not been disseminated sufficiently in the target area except for land leveling (for details see 3.1.3 (2))  *Farmers seem to have a tendency to avoid IRCS practices, as laborious farming is required. It was also observed that the farmers lose the timing of cropping waiting for the government support for agricultural Input (seeds and fertilizer). To raise farmers' interest and awareness by showing efficient and labor-saving cropping practices is a crucial issue from now on.</p>
<p>&lt;Other Irrigation Areas&gt;  2.2. To conduct a baseline survey in order to categorize each irrigation area and identify detailed activities for each area.</p>	<p><u>Baseline Survey</u>  *A baseline survey was conducted from July to October 2011 by extension officers with support from the Japanese experts.  * Data/information collected from 85 households (10 out of 156 in Malarahun, 31 out of 33 in Dirimane, 43 out of 156 in Rembor and 1 out of 89 in Sumasse). Sau could not be surveyed because of refusal by farmers.  <u>Categorization of each irrigation area</u>  * In general, characteristics of each area (traditional sowing, lack of weeding, etc.) were understood based on the baseline survey. However, more clarification was necessary.  * Since then, the Project has made efforts for clarifying approach methods on IRCS for each area. However, as a result, the Project concluded that there is not such a significant difference as to categorize and handle it different way.</p>
<p>2.3. To disseminate improved rice cropping system.</p>	<p><u>Demonstration Plot</u>  * For a dissemination purpose, arrangement of demonstration plots and farmers training were planned and implemented.  *5 demonstration plots were arranged by renting farmers' rice fields (4 in Laclo and 1 in Rembor) in the 1<sup>st</sup> year.  * Dissemination activities were conducted in the demonstration plots.  * In the 2<sup>nd</sup> year, demonstration plots were aggregated into 2 plots in MAF Manatuto test paddy field and a rented farmer's field in Laclo for efficient dissemination.  * Comparison study of IRCS and conventional cultivation plots (with and without fertilizer) were conducted from April 2012. However, in October</p>

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	<p>2012, the plots were encroached by buffaloes and the results could not be obtained.</p> <p><b>Farmers Training</b></p> <p>* Farmers training (IRCS Farmers Training) was conducted 4 times so far. Malarahun (12 and 15 participants, March and April 2012, respectively), Sau (17 participants, March 2012), as well as farmers workshop in Malarahun.</p> <p><b>Text/Materials</b></p> <p>* Farmers IRCS training was conducted in the village of Sau, Malarahun and Laclo (MAF Plot) by extension officers.</p> <table border="1"> <thead> <tr> <th>Village</th> <th>Participants</th> </tr> </thead> <tbody> <tr> <td>Malarahun (27 participants)</td> <td>The 1<sup>st</sup> and 3<sup>rd</sup> IRCS Farmers Training (12 in March and 15 in April 2012)</td> </tr> <tr> <td>Sau (17 participants)</td> <td>The 2<sup>nd</sup> IRCS Farmers Training (17 in March 2012)</td> </tr> <tr> <td>MAF Plot (35 participants)</td> <td>The 4<sup>th</sup> IRCS Farmers Training (6 in October 2012) The 1<sup>st</sup> to 3<sup>rd</sup> IRCS Training (practical) (10 and 8 in October and 11 in November 2011)</td> </tr> </tbody> </table> <p>* Text/materials for extension activities targeting farmers were prepared (No.2 and 6 in ANNEX 7). However, the contents need improvement and updating.</p> <p>* A technical package (4 components of IRCS: quality seeds, land leveling, line transplanting, and weeding) that can be applied to the entire target area is under preparation and will be completed in December 2012. Using the package, one-day course targeting farmers will be conducted before the rice-cropping season every year from 2013.</p>	Village	Participants	Malarahun (27 participants)	The 1 <sup>st</sup> and 3 <sup>rd</sup> IRCS Farmers Training (12 in March and 15 in April 2012)	Sau (17 participants)	The 2 <sup>nd</sup> IRCS Farmers Training (17 in March 2012)	MAF Plot (35 participants)	The 4 <sup>th</sup> IRCS Farmers Training (6 in October 2012) The 1 <sup>st</sup> to 3 <sup>rd</sup> IRCS Training (practical) (10 and 8 in October and 11 in November 2011)
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<p>&lt;Laclo Irrigation Scheme &amp; Other Irrigation Areas&gt;</p> <p>2.4. To produce quality seeds and distribute to the farmers.</p>	<p>* Quality seed production program is planned and implemented by MAF Manatutuo.</p> <p>* In the 1<sup>st</sup> cropping in the field of MAF Manatutuo in 2011, seed production (dried) resulted in; 6.8ton/3.2ha in total: IR64 (1.8ton), Nakroma (3.6ton), Barito (0.5ton) and Membrano (0.9ton), respectively.</p> <p>* Although the Project produced quality seeds as above in 2011, as the production is implemented by MAF Manatutuo, the Project decided to focus on monitoring the status of quality seeds distribution from 2012.</p> <p>* The 1<sup>st</sup> monitoring was conducted in October 2012 (see detail in 3-1-4)</p>								
<p>2.5. To fabricate simplified agricultural tools and equipment developed by the previous project and introduce them.</p>	<p>* Direct sowing machine, the prototype introduced in the 1<sup>st</sup> phase of the Project, was modified by a short-term expert of agricultural machine.</p> <p>* As a result of a trial, it was figured out that the machine should be improved as for capacity of straight line sowing and mud lifting.</p> <p>* The Project concluded that the sowing machine is a little too big for farmers to use by themselves, and the decision to use it is pending for the time being.</p> <p>* Instead, the Project plans to transfer the farmers the skills to fabricate simple tools for rice cultivation (for weeding, line-marking, leveling, and making rice husk charcoal for seedbed) and conducted training in October 2012.</p>								
<p><b>Output 3:</b></p> <p><b>&lt;Laclo Irrigation Scheme&gt;Irrigation system will be properly maintained by Water Users' Association (WUA) &lt;Other Irrigation Areas&gt;Through the trials of appropriate technologies, existing community (traditional) irrigation method will be improved.</b></p>									
<p>&lt;Laclo Irrigation Scheme&gt;</p> <p>3.1. To promote activities of the WUA through monitoring WUA's Operation &amp; Maintenance.</p>	<p>* Monitoring of WUA's O&amp;M practice started in November 2010 and it was found out that bookkeeping was not made properly. Guidance by the Project for proper bookkeeping had been given until April 2012.</p> <p>* Also it was found out that irrigation system in Laclo were not fully functional due to lack of scouring gate on the settling basin, improper gate control operation, damaged irrigation facilities, etc. WUA handled with the issues only by excavating sedimentation by heavy equipment.</p> <p>* Inappropriate management of WUA (financial predicament, lack of transparency of management, etc.) led to resignation of the management at the time and restructuring. The detail in chronological order is as follows;</p> <ul style="list-style-type: none"> <li>- In early 2011 WUA management dismissed 4 Marino (traditional water guard)* to reduce expenses, which intensified the member farmers'</li> </ul>								

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	<p>sense of mistrust against the WUA management and led WUA to dysfunction in April 2012.</p> <ul style="list-style-type: none"> <li>- As a result, MAF Manatuto, in collaboration with the Project, put WUA under interim control.</li> <li>- To solve the problem, meetings were held with traditional villages authorities and got agreement of applying traditional practices into irrigation management again.</li> <li>- In May 2012, Marino restarted to manage irrigation water and the situation was back on the track of recovery.</li> </ul> <p>*WUA (Committee Domi in the local language) was reorganized newly in October 2012 with involving traditional authorities including Marino in the management and is expected to fully function in the latter half of the Project.</p>
<p>&lt;Other Irrigation Areas&gt; 3.2. To conduct a baseline survey in order to categorize each irrigation area and identify detailed activities for each area.</p>	<p><u>Baseline Survey</u></p> <p>* A baseline survey by extension officers, and the "Socio-economic survey" by NGO consultant to collect information of the project target areas were conducted in the first year from July to October 2011 and from November 2011 to January 2012, respectively. The result of both survey were analyzed and a report was prepared in November 2011 and March 2012, respectively.</p> <p>* In order to clarify the approach method on irrigation activities for each area, situation analysis (stakeholder identification, problem identification, categorization of irrigation area, etc.) was conducted and detailed trial activities of each area were decided in September 2012.</p>
<p>3.3. To conduct participatory training with farmers and trial on appropriate technologies for community (traditional) irrigation.</p>	<p>*Trials were conducted 10 times from March 2011 and revision was made each time.</p> <p>*Before the trials, consultation with farmers are conducted by technical officers.</p> <p>* As of October 2012, technical officers are familiar with appropriate technologies, but need improvement.</p>
<p>3.4. To prepare a manual for appropriate technologies for community (traditional) irrigation.</p>	<p>*Draft manuals were prepared (No.24 and No.25 in ANNEX 7), and revision will be made based on trial results.</p>

<\* Marino is a highly respected customary title transmitted from generation to generation in and around the target area, and has been playing central roles in water utilization for rice cropping, by conducting rituals of water god since long time before modern irrigation system was introduced by Portugal in 1960s. It is a widely recognized custom that farmers maintain and clean irrigation canals under the instruction by Marino. Marino accepts a part of rice yield from farmers as reward.

### 3.1.3. Achievements of Output

#### (1) General

In the 1<sup>st</sup> half of the Project cooperation period from November 2010 until October 2012, the Project activities were behind the schedule in general. As a result, Output was not generated as much as expected yet.

The Project appears to have spent too much time on planning, whereas implementation did not follow smoothly. For example, a baseline survey is a task that should be conducted as soon as possible after the commencement of the Project. However, in reality, it was conducted from July to October 2011, approximately 8 months after the commencement of the Project, which was late considering the size of the target area and cooperation period of 4 years.

In addition, the Project has faced various inhibiting factors, such as, unstable river flows in the target area, lack of road network, troubles associated with mismanagement of WUA, etc.

***Output 1: Capacity of MAF Manatuto Office to guide the farmers will be strengthened.***

According to the Japanese experts, capacity of officers of MAF Manatuto to guide farmers was strengthened to some extent as a whole, but not to a satisfactory extent for the middle point of the Project cooperation period. Timorese CPs are expected to further improve their capacities with support from the Japanese experts in the latter half of the Project (pp.15-17).

***Output 2: (Laclo Irrigation Scheme) Improved rice cropping system will be maintained.***

***Output 2: (Other Irrigation Areas) Improved rice cropping system will be adopted.***

The 1<sup>st</sup> monitoring of IRCS in Laclo Irrigation Scheme and other irrigation areas were conducted in October 2012.

In Laclo area, the monitoring results on maintenance of IRCS are not quite satisfactory as 50%, 50% and 6% of surveyed 79 monitored farmers answered they used quality seeds, practiced line transplanting and conducted multiple time weeding.

In the irrigation areas other than Laclo, 25%, 28% and 0% of surveyed 71 farmers answered they used quality seeds, practiced line transplanting and conducted multiple time weeding.

Overall, the rate that IRCS is applied in both Laclo irrigation scheme and other irrigation areas are considered insufficient except for land leveling (100% both in Laclo and other areas) (pp.17-19).

***Output 3: (Laclo Irrigation Scheme) Irrigation system will be properly maintained by Water Users' Association (WUA)***

***Output 3: (Other Irrigation Areas) Through the trials of appropriate technologies, existing community (traditional) irrigation method will be improved.***

Maintenance of the irrigation system by WUA in Laclo irrigation scheme and improvement of traditional irrigation system in other irrigation areas are delayed due to following reasons:

- Damages as well as dysfunction of irrigation structures, such as sedimentation at the intake and in canals, repeatedly caused by flooding in rainy season,
- Frequent and intensive change of river conditions that make difficult the remedial construction works,
- Improper design and alignment of irrigation and drainage canals without due consideration of topographic and soil conditions,
- Disintegration of WUA as a result of improper management, and,
- Difficulty in accessing the areas due to lack of the road network.

However, even under the unfavorable conditions, the Project made a certain progress as follows:

Under the guidance of MAF Manatuto and the Project, WUA was reorganized in October 2012 involving traditional authorities (traditional water guard, village chiefs, etc.) and is expected to be fully operational before long.

Technical trials by the Project for reducing sedimentation, the most crucial issue to be handled with, using gabion showed reasonable results. Application of the technique will be made on a full-scale basis in the latter half of the Project.

In case of Lacle, it is expected that introduction of gabions, in conjunction with recovery and strengthening of WUA function; namely, proper gate operation and sedimentation cleaning, will ensure the smooth operation and maintenance of the irrigation system. As for other areas, application of the gabions will be also effective for stable water intake (pp.19-20).

## (2) Achievement of Output by Indicators

**Output 1: Capacity of MAF Manatuto Office to guide the farmers will be strengthened.**

**Indicator 1-1: Times of guidance/training for officers (Technical and Extension) of MAF Manatuto Office (7 times), and the number of participants (10 persons).**

<Improved Rice Cropping System>

Technical training was conducted 5 times until the end of October 2012 for 8 extension officers and 2 officers for rice cultivation technique, as shown in the table below:

**IRCS (Improved Rice Cropping System) Training**

Nos.	Date	Title	Contents	Location	Participants	
					Officers	Farmers
1	2011.5.23	IRCS practical training	Line transplanting	Hatusadan demo. plot	11	
2	2011.7.5	IRCS practical training	Weeding	Hatusadan demo. plot	8	
3<*	2011.10.6	IRCS officers training (lecture)	Seed bed, leveling, transplanting	MAF Manatuto Office	4	
	2011.10.10	The 1st IRCS training (practical)	Seed bed, transplanting	MAF Manatuto plot	10	10
4	2011.10.11	IRCS officers training (lecture)	Weeding	MAF Manatuto Office	4	
	2011.10.26	The 2nd IRCS training (practical)	Weeding, land leveling	MAF Manatuto plot	7	8
5	2011.11.9	IRCS officers training (lecture)	IRCS general	MAF Manatuto Office	4	
	2011.11.16	The 3rd IRCS training (planned)	IRCS general	Malarahun	4	11

<\* A lecture cum practical training is counted as "1 time".

Preparation of training curriculum is under progress and will be completed in November 2012.

Although the achievement in terms of indicator is satisfactory at the time of the middle point, Timorese extension officers are expected to further improve their capacities with support from the Japanese experts in the latter half of the Project. Capacity assessment of extension officers by Japanese experts is as summarized as follows.

**Capacity Assessment of Extension Officers**

Necessary Abilities for Extension	Average Grade of 7 Extension Officers<*	
	2011.3	2012.10
Knowledge on IRCS	2.7	3.8
Ability of Giving Lecture on IRCS	1.8	2.6
Ability on IRCS Practices	2.7	3.2
Communication Ability with Farmers	3.0	3.2
Ability for Planning and Management	1.9	2.7
Ability to Give Feedback from Activities	2.1	2.7
Motivation/Attitude	3.0	3.4

<\*: As of October 2012, 7 extension officers are assigned to the Project.

Grading Criteria:

5. Possible to carry out an excellent job without the Japanese expert support.
4. Possible to carry out a satisfactory job without the Japanese expert support.
3. A little help from the Japanese Expert is needed to reach the goal level.
2. A lot of help from the Japanese Expert is needed to reach the goal level.
1. Impossible to carry out a satisfactory job, even after capacity development with the Japanese Expert.

<Irrigation System>

Technical trainings, “MAF Manatuto Officers Training on Irrigation” and “MAF Manatuto Officers and Farmers OJT”, were conducted 4 times and 10 times, respectively.

**MAF Manatuto Officers Training on Irrigation**

Date	Training Title	Contents	Location		Participants
1	2011.8.22-29	Laclo Sedimentation Survey	Sedimentation analyze	Laclo	10
2	2011.11.10	Laclo Intake technical trial	Sedimentation protection with gabion	Laclo	12
3	2011.9.22	Irrigation technical trials	Appropriate technologies for repair branch canal	Laclo & other area	4
4	2011.12.5	Sedimentation Control for Intake Facilities	Sediment protection	Laclo & other area	10

**MAF Manatuto Officers and Farmers OJT**

	Date	Training title	Contents	Location	Number of Participants	
					Officers	Farmers
1	2011.3.2	Installation of Large-size Sandbags	Using large sandbags for water intake	Sau	2	8
2	2011.3.30	Installation of Diversion Dike	Traditional diversion dike formation with stream closure	Sumasse	3	17
3	2011.5.18	Trial Construction: Gabion	Making gabion with sandbags	Office	2	28
4	2011.10.27	Trial Construction: Intake and Erosion Control Structure	Using gabion for water intake	Maralahun	1	11
5	2012.02.14	Trial Construction: Intake and Diversion Dike	Change of flow and decrease of water velocity by spur dike and intake structure	Sau (Dirol 1)	3	19
6	2012.02.17	Repair of Canals on Slope Shoulder	Repair of canals on slope shoulder with gabion	Sumasse (Ilatum)	3	17
7	2012.02.23	Gabion Installation in the River	Using gabion to change river flow toward intake	Maralahun	3	34
8	2012.03.21	Trial Construction: Water Intake by Spur Dike Installation	Setting of spur dikes at upper and downstream of the intake to reduce water velocity and maintain water level	Sau (Dirol 1)	3	15
9	2012.04.20	Erosion Control of Paddy Fields with Spur Dike	Using spur dike at intake for erosion control	Sau (Dirol 3)	1	25
10	2012.06.25-7.4	Durability Test of Spur Dikes by Foundation Improvement	Setting gabions on the sandbags buried in the riverbed for foundation improvement	Sau (Sau)	18	69

Although the indicator was satisfied, Timorese technical officers are expected to further improve their capacities with advice from the Japanese experts in the latter half of the Project.

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### Capacity Assessment of Technical Officers

Necessary Abilities for Irrigation	Average Grade of 3 Technical Officers	
	2011.3	2012.10
Understanding and Explanation on Participatory Development by Farmers	1.6	2.4
Ability of Construction Planning	1.0	2.0
Instruction to Farmers for Gabion Works	1.0	3.2
Construction Supervision	1.0	2.8
Heavy Equipment Operation	1.0	2.0

Grading Criteria:

5. Possible to carry out an excellent job without the Japanese expert support.
4. Possible to carry out a satisfactory job without the Japanese expert support.
3. A little help from the Japanese expert is needed to reach the goal level.
2. A lot of help from the Japanese expert is needed to reach the goal level.
1. Impossible to carry out a satisfactory job, even after capacity development with the Japanese expert.

***Indicator 1-2: Times of monitoring to the farmers by officers (Technical and Extension) of MAF Manatuto Office (6 times).***

As for irrigation, monitoring items for Laclo intake; sedimentation, water velocity, and water level, were decided in November 2011 and has been measured on weekly basis.

Monitoring of the farmers in terms of IRCS was conducted in October 2012 for the first time, and will be conducted on annual basis in 2013 and 2014.

Therefore, the indicator will be satisfied by the end of the Project cooperation period. However, involvement of MAF Manatuto officers in IRCS monitoring is not yet sufficient at the time of the Mid-term Review.

The results of the 1<sup>st</sup> monitoring are as described in the subsequent sections.

***Indicator 1-3: Preparation of extension materials (7 types).***

4 types of extension materials (seedbed preparation, land leveling, and line transplanting) were prepared based on 1<sup>st</sup> phase materials, in addition to the materials of appropriate irrigation techniques. Extension materials for selection of quality seeds and monitoring are under preparation and will be completed in the latter half of the Project.

***Output 2: <Laclo Irrigation Scheme> Improved rice cropping system will be maintained.***

***Indicator 2-1: The number of farmers who continuously adopt improved rice cropping system (80 % of farmers).***

The results of the baseline survey conducted from July to October 2011, and the monitoring implemented in October 2012 are as summarized in the table below.

According to the baseline survey, 80%, 79% and 9% of 256 surveyed farmers answered they used quality seeds, practiced line transplanting and multiple time weeding. In the monitoring, those figures were 50% (39 out of 79), 50%(39 out of 79) and 6% (5 out of 79).

The rate of technical skills of IRCS applied in Laclo irrigation scheme is considered insufficient except for land leveling.

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### Results of the Baseline Survey and the Monitoring

Monitoring Item	The Results of the Baseline Survey (2011.7-2011.10) <*1		IRCS Monitoring (2012.10) <*2	
	Laclo Irrigation Scheme	Other Areas	Laclo Irrigation Scheme	Other Areas
Rate of Utilization of the Seeds Recommended for IRCS (4 varieties)	80%	59%	50%	25%
Rate of Application of the Seed Selection	—	—	0%	0%
Land Leveling Ratio	—	—	100%	100%
Puddling<*3	—	—	86%	95%
Rate of Line Transplanting	79%	35%	50%	28%
Weeding	Machine Weeding by IRCP1 method 9%	Machine Weeding by GIZ method 10%	6%	0%

<\*1: The number of samples; 256 in Laclo irrigation scheme and 85 in other irrigation areas.

<\*2: The number of samples; 79 in Laclo irrigation scheme and 71 in other irrigation areas

<\*3: Including soil crushing of several times in case of using a tractor or hand-tractor.

**Output 2: <Other Irrigation Areas> Improved rice cropping system will be adopted.**

**Indicator 2-2: More than one (1) technical skill in improved rice cropping system will be adopted (340 farmers or 50% of farmers).**

According to the baseline survey, 59 %, 35% and 10% of 85 surveyed farmers answered they used quality seeds, practiced line transplanting and multiple time weeding. In the monitoring, those figures were 25%, 28% and 0% of 71 monitored farmers, respectively.

The rate of technical skills of IRCS applied in other irrigation areas is considered insufficient except for that of land leveling.

**Indicator 2-3: Distribution rate of quality seeds (10% of farmers).**

Distribution of quality seeds (seeds of recommended varieties) is conducted by MAF Manatuto office.

According to a MAF Manatuto officer, the status of seed distribution in 2012 is as follows:

#### Distribution of Quality Seeds in 2012

Variety	The Number of Distribution Farmers	Total Amount of Distribution (kg)	Farmland Area of Distribution Farmers (ha)	Average Amount of Distribution by Area (ha)	Average Per Capita Amount of Distribution (kg/person)
Nakroma	84	2,396	122.3	19.5	28.5
Barito	81	2,360	121.7	19.3	29.1
Membrano	73	816	41.2	19.8	11.1
IR64	71	365	18.9	19.3	5.1
Total	309	5,937	304.1		

Meanwhile, based on the baseline survey by the Project, the rate of utilization of recommended varieties is 80% in Laclo, and 59% in other areas. Meanwhile, according to the 1<sup>st</sup> monitoring, the ratios are 50% and 25%, respectively.

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Then, whichever results are accurate, the baseline survey or the monitoring, the indicator 2-3 is satisfied. But the indicator is considered to be too modest taking into consideration the survey results. Selection of seeds with salt solution (even with freshwater) is not conducted in the target area according to the monitoring.

**Indicator 2-4: Times of training for farmers (10 times), and the number of participants (100 farmers).**

IRCS Farmers training was conducted in the village of Sau, Malarahun and Laclo (MAF Plot) as shown in the table below.

Title	Contents	Date of Training	Venue	Participants
1 <sup>st</sup> IRCS farmers training	Seedbed	2012.3.27	Malarahun	12
2 <sup>nd</sup> IRCS farmers training	Line transplanting	2012.3.28	Sau	17
3 <sup>rd</sup> IRCS farmers training	Line transplanting	2012.4.19	Malarahun	15
4 <sup>th</sup> IRCS farmers training	Seed bed, Agricultural tool making	2012.10.23	MAF Plot	6

Farmers also attended the IRCS Training (practical) (participants:10 and 8 in October and 11 in November 2011).

Achievement according to the indicator 2-4 is considered reasonable at the middle point of the Project as far as the number of times of implementation is concerned.

However, IRCS training is considered complete only when 4 components, namely, use of quality seeds, line transplanting, weeding (multiple times), land leveling, are transferred to farmers. So far, land leveling and weeding were not included in the trainings above. More efficient and careful training plan is necessary in the latter half of the Project.

**Output 3: (Laclo Irrigation Scheme) Irrigation system will be properly maintained by Water Users' Association (WUA)**

**Indicator3-1: Water is distributed according to the water distribution schedule.**

As irrigation facilities are not functioning properly, and much time was spent on reorganization of the WUA, water distribution based on water distribution schedule has not been conducted at the time of the Mid-term Review.

As a preparatory process for water fee collection, cultivator of each paddy field was reviewed for formulating a water distribution schedule.

In August and September 2012, 21 farmers together with 2 technical officers of MAF Manatuto visited WUA Maliana I to observe its operation for reorganization of WUA Laclo.

**Indicator3-2: Water fee collection rate (more than 70%).**

According to the baseline survey, water fee collection rate was approximately 70%.

As WUA was under the process of reorganization until recently, data about water fee collection rate is not available.

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**Output 3: (Other Irrigation Areas) Through the trials of appropriate technologies, existing community (traditional) irrigation method will be improved.**

**Indicator3-3: Times of training for appropriate technologies for community (traditional) irrigation (3 times).**

As is summarized in the table below, training of farmers on appropriate technologies for community traditional irrigation was conducted 10 times.

**MAF Manatuto Officers and Farmers OJT**

	Date	Training title	Contents	Location	Number of Participants	
					Officers	Farmers
1	2011.3.2	Installation of Large-size Sandbags	Using large sandbags for water intake	Sau	2	8
2	2011.3.30	Installation of Diversion Dike	Traditional diversion dike formation with stream closure	Sumasse	3	17
3	2011.5.18	Trial Construction: Gabion	Making gabion with sandbags	Office	2	28
4	2011.10.27	Trial Construction: Intake and Erosion Control Structure	Using gabion for water intake	Maralahun	1	11
5	2012.02.14	Trial Construction: Intake and Diversion Dike	Change of flow and decrease of water velocity by spur dike and intake structure	Sau (Dirol 1)	3	19
6	2012.02.17	Repair of Canals on Slope Shoulder	Repair of canals on slope shoulder with gabion	Sumasse (Ilatum)	3	17
7	2012.02.23	Gabion Installation in the River	Using gabion to change river flow toward intake	Maralahun	3	34
8	2012.03.21	Trial Construction: Water Intake by Spur Dike Installation	Setting of spur dikes at upper and downstream of the intake to reduce water velocity and maintain water level	Sau (Dirol 1)	3	15
9	2012.04.20	Erosion Control of Paddy Fields with Spur Dike	Using spur dike at intake for erosion control	Sau (Dirol 3)	1	25
10	2012.06.25-7.4	Durability Test of Spur Dikes by Foundation Improvement	Setting gabions on the sandbags buried in the riverbed for foundation improvement	Sau (Sau)	18	69

**Indicator3-4: Manual for appropriate technologies for community (traditional) irrigation.**

2 draft manuals for appropriate technologies for community (traditional) irrigation were prepared. The results of experimental construction will be reflected for modification and upgrading of the manuals.

**Manual for Appropriate Technologies for Community**

Title of the Manual	Contents	Remarks
Gabion	Gabion with sandbag	No.24 in ANNEX7
Soil filling	Soil filling & Gabion	No.25 in ANNEX7

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### 3.1.4. Achievement of the Project Purpose

**Project Purpose:** *Productivity of rice farmers in the Project Area will be improved.*

**Indicator:** *<Laclo Irrigation Scheme> Rice productivity will be maintained (2.5ton/ha).*

According to the results of the 1<sup>st</sup> monitoring conducted in October 2012, rice yield by varieties in Laclo irrigation scheme is as follows:

Varieties	The number of user farmers of the variety	Yield (kg)	Cultivated Area (ha)	Unit Yield (ton /ha)
Recommended 4 varieties (Nakroma, Barito, Membrano, and IR64) <*	35 (44.3%)	77,739 (43.7%)	26.1 (43.5%)	3.0
Local Varieties	29 (36.7%)	61,913 (34.8%)	22.8 (38.0%)	2.7
Hybrid	14 (17.7%)	35,555 (20.0%)	10.1(16.8%)	3.5
Unknown	1(1.3%)	2,632 (1.5%)	1.0 (1.7%)	2.6
<b>Total</b>	<b>79</b>	<b>177,839</b>	<b>60.0</b>	<b>3.0</b>

<\*: Recommended varieties for IRCS

35 out of 79 farmers (44.3%) used the recommended varieties and the unit yield was 3.0 ton/ha.

Therefore, the rice productivity of the recommended varieties is maintained. However, the rate of usage needs to increase in the latter half of the Project.

**Indicator:** *<Other Irrigation Areas> Rice productivity will be increased by 20 %.*

According to the results of the 1<sup>st</sup> monitoring conducted in October 2012, rice yield by varieties in other irrigation areas is as follows:

Varieties	The number of user farmers of the variety	Yield (kg)	Cultivated Area (ha)	Unit Yield (ton /ha)
Recommended 4 varieties (Nakroma, Barito, Membrano, and IR64) <*	18 (25.4%)	32,608 (28.4%)	17.5 (26.0%)	1.9
Local Varieties	42 (59.2%)	56,210 (48.9%)	40.0 (59.4%)	1.5
Hybrid	10 (14.1%)	25,206 (21.9%)	8.8 (13.1%)	2.9
Unknown	1(1.4%)	880 (0.7%)	1.0 (1.4%)	0.9
<b>Total</b>	<b>71</b>	<b>114,904</b>	<b>67.3</b>	<b>1.7</b>

<\*: Recommended varieties for IRCS

Unit yield in the areas is 1.7 ton/ha according to the 1<sup>st</sup> monitoring, which is the same as the baseline survey results.

Usage and unit yield of recommended varieties in the areas is 25.4% and 1.9 ton/ha, respectively.

Since the baseline survey did not give information on unit yield of the recommended varieties, whether the indicator is satisfied or not will be judged in the latter half of the Project based on the figures obtained from the 1<sup>st</sup> monitoring.

### 3.2. Implementation Process

#### 3.2.1. Modification of the PDM

The current PDM (version 1.0) was approved in the 3<sup>rd</sup> JCC in December 2011 in terms of modification of indicators.

Version	Modification	Date of Approval
Version 0.0		June 2010, as attached in R/D
Version 1.0	Indicators are described quantitatively	December 2011, approved in the 3 <sup>rd</sup> JCC

The current PDM has ambiguous descriptions and need modification (chapter 5: Recommendation).

#### 3.2.2. Meetings

The following meetings were held up to September 2012, for smooth operation of the Project.

Date	Meeting	Participants
January 2011	1 <sup>st</sup> Joint Coordination Committee Meeting	21
April 2011	2 <sup>nd</sup> Joint Coordination Committee Meeting	35
September 2011	1 <sup>st</sup> Quarterly Meeting	17
November 2011	2 <sup>nd</sup> Quarterly Meeting	13
December 2011	3 <sup>rd</sup> Joint Coordination Committee Meeting	13

In addition to the above, weekly meetings were conducted up until the middle of 2012. However the meeting has not been conducted since without even noticing.

#### 3.2.3. Public Relation Activities

No noteworthy public relation activities have been conducted by the Project so far except for distribution of newsletter (from September 2012 on monthly basis).

#### 3.2.4. Acceleration and Inhibiting Factors

- (1) Improper management of and ignorance of traditional water management system by WUA raised feeling of mistrust of farmers against WUA management members and led to dysfunction and reorganization of WUA.
- (2) Imported rice is widely available at the local market at low prices. Some farmers regard rice as a less attractive cash crop, and do not have incentives to cultivate rice other than for a self-consumption purpose.
- (3) A part of the target area is difficult to access due to lack of road network.
- (4) In rainy season, flood frequently occurs and causes damage to irrigation facilities, roads and paddy fields, and hampered the progress of the Project.

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#### **4. Results of the Mid-term Review**

##### **4.1. Results of the Review based on the Five Criteria**

###### **4.1.1. Relevance**

The Relevance of the Project is **High**, based on the following reasons:

###### **(1) Consistency with the Timorese Government Policy**

In the “Strategic Development Plan (SDP) from 2011 to 2030”, the Timorese government aims at reducing import of rice to attain self-sufficiency of rice during 10 years from 2011 until 2020 through improving productivity and increasing production of rice.

###### **(2) Japanese Aid Policy/Strategy**

In Japan’s aid strategy to Timor-Leste, agriculture and rural development are regarded as of the prioritized areas.

In order to generate job opportunities, reduce poverty, and secure food supply in the country, the Japanese government states that it will assist agriculture sector, one of the most crucial sectors in Timor-Leste, to improve productivity and food self-sufficiency as well as to promote agri-business.

###### **(3) Needs of local Communities**

Farmers in the target area are eager to cultivate rice. However, at the same time, they have been troubled with unstable irrigation water supply.

In addition, farmers have suffered from low rice productivity due to lack of rice cultivation techniques especially in the areas other than Laclo.

The Project activities, aiming at stabilizing irrigation water intake, and simple and efficient introducing rice cultivation techniques, are relevant to the needs of local communities.

###### **(4) Relevance as a means**

The target area of the Project, Manatuto district, is regarded as one of the most suitable areas for rice cultivation in Timor-Leste along with Baucau, Bobonaro and Viqueque districts.

As regards technology transfer of rice cropping in Manatuto district, Japan has sufficient experiences to begin with emergency grant aid provided for rehabilitation of Laclo irrigation system (507ha) in 2003, just after the independence. The grant aid was followed by the Development Study for Agriculture and Fishery Development, and as a result, mid-term integrated agriculture development plan was formulated in 2004.

Based on these achievements, a technical cooperation project “Irrigation and Rice Cultivation Project in Manatuto (Phase I)” was implemented for 5 years from October 2005 to March 2010.

The Project (IRCP2), the 2<sup>nd</sup> phase of the technical cooperation was designed based on the achievements of the 1<sup>st</sup> phase. Therefore, implementation of the Project is considered appropriate as a means from the standpoint of utilizing effectively the past experiences of the aid and technical cooperation of Japan, ensuring sustainability of the past achievements in the area, and exerting impacts on the agricultural development policy of Timor-Leste.

#### 4.1.2. Effectiveness

**Effectiveness** of the Project is judged **Moderate** at the moment of the Mid-term Review based on the following reasons:

Judging from the achievement that has not been generated as expected until the middle point of the Project cooperation period, there is slight concern whether the Project Purpose will be fully achieved or not by the end of the cooperation period.

In the field of extension, participation of MAF Manatuto officers has not been sufficient, which is considered one of the reasons for the delay of the Project. Input of local human resources may be necessary to supplement the lack of full-time CPs and accelerate dissemination of IRCS.

However some favorable factors in the field of irrigation are recognized as follows:

- Technical transfer to CPs are steadily in progress, although slow,
- In the field of irrigation, controlling sedimentation at intake structure by semi-permanent gabion structures is considered feasible taking into consideration frequent and intensive changes of conditions in Laclo and Sumasse River, and,
- In Laclo, combination of gate operation, utilization of gabions, and maintenance activities by WUA may greatly reduce sedimentation that has significantly hampered the stable water supply to paddy fields in the target areas. In other irrigation areas, installation of gabions to reinforce traditional irrigation practices will be also effective, in terms of cost and technical simplicity.

#### 4.1.3. Efficiency

**Efficiency** of the Project is judged **Low-Moderate** because of improper Input and Output that fell short of expectation.

##### Input

Up to the Mid-term Review, it is difficult to conclude that Input (human resources, equipment and budget) by both the Japanese and Timorese sides has been made reasonably.

There were some issues to be pointed out as follows:

- Timing and duration of short-term experts by the Japanese side were not appropriate in the 1<sup>st</sup> year of the Project,
- In particular, the timing of dispatch of the rice cultivation expert was not made appropriately for rice cultivation period,
- Timorese CPs were not assigned on a full-time basis and faced difficulty in conducting the Project activities on top of their duties of MAF, and,
- Training in Japan is not necessarily highly evaluated by ex-trainees, as the situation in Japan in agriculture is quite different from that in Timor-Leste.

##### Output

In general, Output has not been generated as expected as described in 3-1-3. The main reasons for the delay are as follows:

- Delay of planning and implementation of the baseline survey in the 1<sup>st</sup> year of the Project,



- Subsequent delay of categorization of approaches for extension activities for irrigation areas other than Laclo,
- Frequent change of river flows and large amount of sedimentation that hamper stable water intake to paddy fields, and
- Improper organization management of Laclo WUA that resulted in its dysfunction.

#### **4.1.4. Impacts**

It is premature to judge the Impacts caused by the Project. Therefore, only general and provisional description is given as follows:

##### **(1) Prospect of the Overall Goal Achievement**

***Overall Goal :Improved irrigation and rice cultivation will be adopted in other irrigation areas in Timor-Leste.***

***Indicator: The result of the project will be applied to other irrigation areas in Timor-Leste by 2020.***

It is difficult to judge the future achievement of the Overall Goal at the time of the Mid-term Review based on the accomplishments of the Project so far.

The 1<sup>st</sup> monitoring results were somewhat disappointing in terms of dissemination of IRCS both in Laclo and other irrigation areas, and extension activities need acceleration and intensification in the latter half of the Project and beyond to achieve the Overall Goal.

However, high relevance of the Project with the national policy is a favorable factor which ensures policy support from the Timorese government. Important assumptions in the PDM necessary to achieve the Overall Goal “The government policy for improving rice productivity is maintained.” are considered to be satisfied in the foreseeable future.

In addition, trial by the Project for controlling sedimentation by combination of gate operation, utilization of simple irrigation structure (gabion), and maintenance activities by farmers can be a practical and effective solution in and around the target area considering unstable river conditions and cheaper construction cost as compared with permanent structure.

##### **(2) Policy Impacts**

As described in 3-1-2, one of the reasons that led to dysfunction and reorganization of WUA Laclo was ignorance of the function and values of traditional customs in the “modern” water management activities.

When the newly organized WUA becomes fully functional during the Project period, importance of consensus making with farmers with paying respect to traditional sense of value will be recognized by the Manatuto local government and may be effectively applied in its agriculture development strategies.

##### **(3) Technical Impacts**

### Introduction of temporary structures (gabions)

Timor-Leste is a mountainous island country, and many of the rivers have steep gradients, and change the paths frequently due to sudden and large amount of surface discharge. Consequently, it is difficult to intake irrigation water constantly from rivers by constructing permanent intake structures.

The Project aims at responding to the situation by applying gabion structures that are simple, inexpensive for farmers to construct, and consequently replaceable every year.

As permanent structures are costly to construct but not function for a long time period, usage of the gabion structure is considered practical and effective measures to enable stable water intake even at least on a short-term basis.

When the Project proves that the gabion structure will function reasonably, the technique has a possibility of replication in other areas.

#### **(4) Environment Impacts**

So far, no negative impacts on environment are observed.

#### **4.1.5. Sustainability**

It is too early to judge the sustainability of the Project at the time of the Mid-term Review. Only general and provisional description of the prospect of sustainability is given below:

##### **(1) Policy Aspect**

It is reasonable to assume that the Project will receive continuous support even after the Project cooperation period because of high relevance with the National Development Strategy.

##### **(2) Institutional Aspect**

From the commencement of the Project, there was virtually no turnover of the CPs, which is favorable for ensuring sustainability of the Project from both the institutional and technical viewpoints.

Strengthening of the capacity of MAF Manatuto to guide the farmers, as an institution, will be obtained as a result of capacity development of individual CPs. In that sense, continuous effort of each CP is necessary from now on, and at the same time, more active involvement of the Timorese CPs in the Project activities is required.

##### **(3) Technical Aspect**

In order to ensure technical sustainability of the Project, the following issues need to be handled with by the Timorese side;

- Removal of sedimentation at intakes and in canals,
- Proper operation and management of WUA through coordination of traditional and modern irrigation system, and,

In order to ensure technical sustainability of the Project, the following issues need to be handled with by the Timorese side;

- Removal of sedimentation at intakes and in canals,
- Proper operation and management of WUA through coordination of traditional and modern irrigation system, and,
- Establishment of an implementing structure for IRCS extension in full participation of extension officers and to improve cropping techniques.

In the latter half of the Project, CPs are expected to fully develop their capacities to handle with the above issues by the end of the Project period.

When full involvement of extension officers in the Project activities is not possible, introduction of farmer-to-farmer extension system may be one of the solutions to ensure the sustainability.

#### **(4) Financial Aspect**

The Timorese government needs to formulate a strategy to replicate IRCS to other areas for securing budget and allocate it effectively.

#### **4.2. Conclusion**

During the past 2 years from November 2010, both the Timorese and the Japanese Project Team members have made an effort to improve the productivity of rice farmers in the Project area.

However, at the middle point of the cooperation period, the progress of the Project is behind the schedule in part.

At the beginning of the Project, baseline survey took too much time to complete, thus caused chain reaction delays in subsequent activities. Furthermore, allocation of relevant short-term experts was not made at appropriate timing to accelerate the progress.

On top of these, the Project faced various inhibiting factors: unstable river flows in the target area, lack of road network, troubles associated with mismanagement of WUA, etc.

Capacity of officers of MAF Manatuto to guide farmers was strengthened to some extent as a whole, but not to a satisfactory extent for the middle point of the cooperation period. Timorese CPs need to improve their capacities with support from the Japanese experts in the latter half of the Project.

As regards CPs in the field of extension, they had difficulty in participating in the Project activities on a full-time basis in the former half of the Project. However, their more active involvement is indispensable to disseminate IRCS in the target area.

Hence, both the Timorese and Japanese sides must present practical solutions to improve the situation for enabling more intensive participation of extension officers and/or utilization of local human resources such as farmer-to-farmer extension system, in the latter half of the Project.

The Project was supposed to start monitoring activities soon after the baseline survey results were obtained in order to verify the maintenance and adoption of IRCS.

However, introduction and implementation of the monitoring system were delayed, due to suspension of monitoring activities during the absence of the short-term expert to take charge, and monitoring did not start until October 2012 on a full-scale basis.

According to the 1<sup>st</sup> monitoring results, establishment or adoption of IRCS in Laclo and other areas were found unsatisfactory except for land leveling. Multiple time weeding is hardly disseminated at all in the target area.

Maintenance of the Laclo irrigation system by WUA and improvement of traditional irrigation system in other areas were delayed due to the factors such as; disintegration of WUA as a result of improper management, damages as well as deterioration of irrigation structures, frequent and intensive change of river conditions, improper design and alignment of irrigation and drainage canals, and, difficulty in accessing the areas due to lack of the road network.

Meanwhile, technical trials for sedimentation control using gabion showed reasonable results. It is expected that application of the technique will be made on a full-scale basis by the initiative of Timorese CPs in the latter half of the Project.

Based on the verification of achievement of the Project, and various conditions under which the Project is put, evaluation based on the five evaluation criteria was executed. The results are as summarized in the table below.

**Summary of Evaluation by Five Evaluation Criteria**

Evaluation Criteria	Evaluation	Reasons/Remarks
Relevance	High	(+) Relevance with Timorese policies (+) Relevance with JICA's aid strategy (+) Relevance with the needs of local communities
Effectiveness	Moderate	(-) Delay of Activities/Output
Efficiency	Low-Moderate	(-) Output not generated as expected (-) Improper Input in the 1 <sup>st</sup> year of the Project
Impacts (prospect)		•Some positive impacts expected •No negative impacts observed so far
Sustainability (prospect)		(+) High relevance with Timorese policies (-) Insufficiency of human resources for extension activities

Specific and concrete actions to be taken for acceleration of the Project activities are summarized in Chapter 5 "Recommendations".

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## **5. Recommendations**

### **5.1. Recommendation to the Project**

#### **(1) Revision of PDM (Ver. 1.0)**

The Team recommends to revise the current PDM (ver. 1.0) and proposes the revised PDM (ver. 2.0) shown in the ANNEX 9. "Increasing rice cultivation acreage" is added as an indicator for the Project purpose, and activities and indicators related to Output 3 are clarified in the revised PDM.

#### **(2) Thorough Information Sharing by Regular Meeting**

The Team recommends the Project to secure close communication among Japanese experts and CPs at both of Manatuto and Central levels. Though regular meetings among them were conducted several times in the first half of the Project period, it has not been organized recently, according to the interviews by the Team. Director of NDIWM and Director of MAF Manatuto are requested to hold the monthly and weekly meetings respectively, to discuss the Project planning and to share the progress as soon as possible. In addition to that, the Director of MAF Manatuto is also requested to hold regular meetings with all the stakeholders such as village chiefs, WUA and farmers in order to promote mutual understanding of the Project.

#### **(3) Promotion of Awareness on IRCS and Improvement of Training Systems**

It is necessary to increase the number of farmers recognizing the benefits of IRCS to let the IRCS be disseminated continuously. Therefore it is very significant for the Project to produce and distribute materials (pamphlets and poster, etc.), introducing the effect of the IRCS, actively and continuously.

Also the Project is required to implement the IRCS training based on the revised training curriculum including all core skills (utilization of quality seeds, land leveling, line transplanting, and weeding), so that participant farmers can learn all the necessary skills in a day. The Team observed that the IRCS training based on the original curriculum is not always efficient since the trainings were conducted on an item by item basis. Farmers had to participate several times on a different day.

#### **(4) Measures to be taken for Acceleration of the Project Activities**

There is slight concern that the Project Purpose will not be fully achieved by the end of the cooperation period, since some delays of the project activity have been observed especially while the short-term experts are away from Timor-Leste. MAF Manatuto and the Project are requested to designate the responsible person clearly in charge of each project activities in addition to considering staffing CPs as mentioned in 5.2 in order to catch-up and prevent further delay. And it is also indispensable for the Project to take measures such as thorough takeover from Japanese experts to other Japanese experts/CPs and vice versa, when Japanese experts are away from Timor-Leste and/or Japanese experts are replaced.

## **5.2. Recommendation to the Timorese Side**

### **(1) Effective and Efficient Operational Participation by Extension Officers**

Extension officers who shall be the core of the extension activities are burdened with usual routine works of MAF as well as other donors besides the Project, even though expansion of extension services on IRCS to the outside of Laclo Irrigation area is planned. Therefore, MAF including Manatuto Office and the Project are requested to consider the following measures in order to ensure efficient work environment for extension officers.

- Review of staffing plan and increase of the number,
- Focus on priority area for the Project activity if necessary,
- Secure the transportation means for extension officers, and,
- Instructions should be given to extension workers assigned to the Project on the purpose and significance to be involved in IRCP2.

### **(2) Strengthening the Activities by Timor-Leste Side**

Some of the Project activities such as data acquisition for IRCS monitoring are operated mainly by Japanese experts and local staffs who are hired by the Project because of insufficient allocation or tight schedule of MAF CPs, even though the intention of this Project is supposed to strengthen the capacity of officers (technical and extension) of MAF Manatuto Office to guide farmers. Hence, MAF and the Project are strongly recommended, considering the fact that the project period is only two years remained, to review the staffing plan and Project activity plan respectively so as to ensure the CPs of Timor-Leste can join for all activities of the Project. It is also important for ensuring the sustainability of the Project.

### **(3) Linkage with MAF Manatuto in Quality Seeds Distribution**

Utilization of quality seeds of the recommended rice varieties is indispensable for performing maximum effect of IRCS. MAF Manatuto that controls the quality seeds multiplication and distribution and the Project are recommended to link closely with each other through coordination, monitoring and providing guidance in line with the seeds distribution plan of the Project.

## **5.3. Recommendation to the Japanese Side**

### **(1) Development of Practical Manual for Appropriate Technologies**

Appropriate technologies should be practically developed through current trials on maintenance for irrigation facilities to be applied widely in the field level. Therefore, JICA should consider dispatching a short-term expert to develop the practical manual based upon the examination of the appropriateness.

### **(2) Appropriate Input by JICA**

Regarding dispatching short-term experts and procuring equipment, JICA should input such resources in a timely manner considering local cropping season. Furthermore, JICA should consider to dispatch third-country experts and to conduct third-country trainings in terms of locational and linguistic convenience. The achievements of agricultural cooperation by JICA should be utilized in Timor-Leste.

## **6. Lessons Learned**

### **(1) Communication in the Field**

In case that an interpreter is required to communicate between Japanese experts and CPs, it is important to assign at least one Japanese expert who is familiar with the local language to avoid the communication gap, which may lead to serious obstacle for smooth launch in the initial stage of the Project.

### **(2) Smooth Implementation of a Baseline Survey**

In case the utilization of local consultants for a baseline survey is expected to be not available in advance at the launch of the project, it is necessary to consider dispatching short-term experts as needed.

### **(3) Efficiency of Input**

In case the agricultural situation and the local environment are significantly different from Japan, it is desirable to examine a possibility of inputting resources from the third countries that are similar in terms of location and language, as substitute for input from Japan.

**Schedule of the Mid-Term Review Study**  
(From Oct 28 to Nov 14, 2012)

Date		Japanese Team				Timorese Team	Stay	
		Mr. Yamane	Mr. Tanaka	Dr. Higashino	Dr. Yoshida	Mr. Vicente Mr. Boaventura Mr. Andre		
Oct 27	Sat			Arrived at Dili			Dili	
Oct 28	Sun			Meeting with JICA Office Move to Manatuto / Discussion with experts			Manatuto	
Oct 29	Mon			Discussion with experts / Move to Dili			Dili	
Oct 30	Tue			Meeting with JICA, MAF (NDIWM, NDAH, NDSDAC)			Dili	
Oct 31	Wed			Move to Manatuto / Site Survey			Manatuto	
Nov 1	Thu			Field interview/observation			Manatuto	
Nov 2	Fri			Field interview/observation, Move to Dili			Dili	
Nov 3	Sat			Documentation			Dili	
Nov 4	Sun			Documentation			Dili	
Nov 5	Mon			Move to Manatuto, field observation, back to Dili			Dili	
Nov 6	Tue			Documentation			Arrived at Dili	Dili
Nov 7	Wed			<b>Timorese Team joined</b> Meeting among the Mid-Term Review Team at MAF Move Dili to Manatuto Site visit along Semasse River and Irrigation Area				Manatuto
Nov 8	Thu	Meeting with WUA members of Lacro Irrigation Scheme Interview with Technical and Extension Officers, MAF Manatuto Meeting with JICA Experts <b>Mr. Yamane and Mr. Tanaka joined</b>				Manatuto		
Nov 9	Fri	Meeting with Farmers and leaders of secondary canal management Site visit Lacro water intake gate and canal Discussion with Experts Timorese team				Dili		
Nov 10	Sat	Site visit Malarahun Irrigation Area and observe trial site of appropriate technologies Meeting with Experts			Move Manatuto to Dili	Dili		
Nov 11	Sun	Documentation				Dili		
Nov 12	Mon	Documentation				Dili		
Nov 13	Tue	AM Internal meeting (all members of Mid-term Review Team) PM Discussion Meeting with MAF (DG, NDPP, NDIWM, NDAH & NDACD)				Dili		
Nov 14	Wed	AM Signing ceremony PM 4th Joint Coordinating Committee Meeting				Dili		



## Project Design Matrix (version 1.0 (current version))

Project Title: Irrigation and Rice Cultivation Project in Manatuto Phase-II  
 Target Area: Irrigation Areas in Manatuto Sub-District (Laclo Irrigation Scheme, and Malarahun, Sau, Sumasse, Rembor, Dirimane Irrigation Areas)  
 Target Groups: Farmers who make use of Irrigation Facility in Manatuto Sub-District (Approximately 1,300 Agricultural households), and eight (8) Extension

Project Period: 11.2010~11.2014  
 Prepared on 5 December 2011  
 PDM-II Version\_1.0

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<b>Overall Goal</b> Improved irrigation and rice cultivation will be adopted in other irrigation areas in Timor-Leste.	The result of the project will be applied to other irrigation areas in Timor-Leste by 2020.	Result of Interview	
<b>Project Purpose</b> Productivity of rice farmers in the Project Areas will be improved.	<Laclo Irrigation Scheme> Rice productivity will be maintained (2.5ton/ha). <Other Irrigation Areas> Rice productivity will be increased by 20 %	Baseline Survey by the Project Social Survey such as rice yield survey by the MAF Manatuto Office	1 The government policy for improving rice productivity is maintained.
<b>Outputs</b> 1 Capacity of MAF Manatuto Office to guide the farmers will be strengthened.	1-1 Times of guidance/training for officers (Technical and Extension) of MAF Manatuto Office ( 7 times), and the number of participants (10 person ) . 1-2 Times of monitoring to the farmers by officers (Technical and Extension) of MAF Manatuto Office (6 times). 1-3 Preparation of extension materials ( 7 types).	1-1 Project Report 1-2 Project Report 1-3 Project Report	1 The price of rice is stable (the price is not down). 2 Rice market is secured.
2 <Laclo Irrigation Scheme[1]> Improved rice cropping system[2] will be maintained.  <Other Irrigation Areas[3]> Improved rice cropping system will be adopted.	<Laclo Irrigation Scheme> 2-1 The number of farmers who continuously adopt improved rice cropping system( 80 % of farmers). <Other Irrigation Areas> 2-2 More than one (1) technical skill in Improved rice cropping system will be adopted ( 340 farmers or 50 % of farmers) <Laclo Irrigation Scheme and Other 2-3 Distribution rate of quality seeds ( 10 % of farmers) . 2-4 Times of training for farmers ( 10 times), and the number of participants ( 100 farmers ).	2-1 Monitoring result by MAF 2-2 Monitoring result by MAF 2-3 Monitoring result by MAF 2-4 Monitoring result by MAF	
3 <Laclo Irrigation Scheme> Irrigation system will be properly maintained by Water Users' Association (WUA).[ 4 ]  <Other Irrigation Areas> Through the trials of appropriate technologies, existing community (traditional) irrigation method will be improved.	<Laclo Irrigation Scheme> 3-1 Water is distributed according to the water distribution schedule. 3-2 Water fee collection rate (more than 70%). <Other Irrigation Areas> 3-3 Times of training for appropriate technologies for community (traditional) irrigation (3 times). 3-4 Manual for appropriate technologies for community (traditional) irrigation.	3-1 Records of WUA's operation and accountant note/(and/or)Project Report 3-2 Result of interview from WUA member 3-3 Monitoring result by MAF 3-4 Monitoring result by MAF	

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Activities	Japanese side	Inputs	
<p>1-1 To provide technical trainings on improved rice cropping system and Irrigation system [5] to officers (Technical and Extension) of MAF Manatuto Office.</p> <p>1-2 To establish monitoring system on improved rice cropping system and Irrigation system by officers (Technical and Extension) of MAF Manatuto Office.</p> <p>1-3 To guide the farmers with improved rice cropping system and Irrigation system by officers (Technical and Extension) of MAF Manatuto Office.</p>	<p>Japanese side</p> <p>1 Dispatch of Long-term Experts (1) Team Leader / Irrigation and Water (2) Management Coordinator / Capacity Building</p> <p>2 Dispatch of Short-term Experts (1) Agricultural machinery (2) Rice Cultivation (3) other relevant experts will be dispatched, when necessity arises.</p>	<p>Timor-Leste side</p> <p>1 Assignment of counterpart personnel and administrative staff (1) &lt;Central Level&gt; a. National Director of Irrigation &amp; Water Management (as Project Director) b. National Director of Agriculture &amp; Horticulture c. National Director for Support to the Development of Agriculture Community</p> <p>(2) &lt;Local Level&gt; a. District Director, Manatuto District b. Chief of Technical Section, Manatuto District c. Chief of Extension Section, Manatuto District d. Technical Officers, Manatuto District e. Extension Officers</p> <p>(3) Administrative staff •Driver •Others</p>	<p>1. Serious natural disaster will not occur. 2. Counterparts of Timor-Leste side are assigned as planned. 3. Government subsidy for farmers (fuel for tractor, fertilizer, etc) is continuously maintained. 4. Farmers will continue rice cropping.</p>
<p>&lt;Laclo Irrigation Scheme&gt;</p> <p>2-1 To guide and monitor the farmers in order to maintain improved rice cropping system.</p> <p>&lt;Other Irrigation Areas&gt;</p> <p>2-2 To conduct a baseline survey in order to categorize each irrigation area and identify detailed activities for each area.</p> <p>2-3 To disseminate improved rice cropping system.</p> <p>&lt;Laclo Irrigation Scheme &amp; Other Irrigation Areas&gt;</p> <p>2-4 To produce quality seeds and distribute to the farmers.</p> <p>2-5 To fabricate simplified agricultural tools and equipment developed by the previous project and introduce them.</p>	<p>3 Provision of Equipment 4 Training of Counterparts</p> <p>5 Dispatch of study team when necessary 6 Allocation of operational costs for the Project</p>	<p>2 Seed farm, Office and Project Facilities 3 Allocation of operational costs for the Project • Water and Electricity charges including fuel for generator • Vehicles</p>	
<p>&lt;Laclo Irrigation Scheme&gt;</p> <p>3-1 To promote activities of the WUA through monitoring WUA's Operation &amp; Maintenance.</p> <p>&lt;Other Irrigation Areas&gt;</p> <p>3-2 To conduct a baseline survey in order to categorize each irrigation area and identify detailed activities for each area.</p> <p>3-3 To conduct participatory training with farmers and trial on appropriate technologies for community (traditional) irrigation.</p> <p>3-4 To prepare a manual for appropriate technologies for community (traditional) irrigation.</p>			<p style="text-align: center;">Pre-conditions</p> <p>1 Farmers will agree with implementation of the Project.</p> <p>2 The security of the Project site is maintained.</p>

[1] Laclo Irrigation Scheme: 507ha.  
 [2] Improved Rice Cropping System: Established at IRCP Phase I Project including land preparation, weeding, plant spacing, usage of quality seeds.  
 [3] Other Irrigation Areas: Malarahun, Sau, Sumasse, Rembor, Dirimane Irrigation Areas, Total: 564 ha.  
 [4] Irrigation System by Water Users' Association: Proper water distribution and maintenance by the Water Users' Association.  
 [5] Irrigation System: Irrigation System established at IRCP Phase I for Laclo Irrigation Scheme, and Irrigation Method to be improved at IRCP Phase II for Other Irrigation Areas.

# \*\* In the objectively verifiable indicators will be finalized within six (6) months after commencement of the Project.

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ANNEX 3 Plan of Operation

Project title: Irrigation & Rice Cultivation Project in Manatuto Phase II

----- Plan of PO  
 ..... Added duration of PO  
 \_\_\_\_\_ Actual duration

Activities of the Project	2011						2012						Progress & Next year plan	2013						2014						Responsible Person in IRCP 2	
	1-2	3-4	5-6	7-8	9-10	11-12	1-2	3-4	5-6	7-8	9-10	11-12		1-2	3-4	5-6	7-8	9-10	11-12	1-2	3-4	5-6	7-8	9-10	11-12	MAF	JICA
1-1 To provide technical trainings on improved rice cropping system and irrigation system [5]to officers (Technical and Extension) of MAF Manatuto Office.																									Leoneto	Acasio	
The training to officers (Technical and Extension) Improved rice cropping																											
(1) make the textbook/material on improved rice cropping			-----										The teaching textbook and materials for farmers were developed through the officers and the farmers training.			-----									Leoneto	Kawada	
(2) develop the program/curriculum on improved rice cropping			-----										IRCS practical training on seed bedding, transplanting and weeding for officers were conducted in two times in May 2011.			-----									Leoneto	Kawada	
(3) implement the technical training on improved rice cropping			-----										The program was not completed because of taking time for collecting information. In 2012, the technical training should be conducted continuously.			-----									Leoneto	Kawada	
Irrigation system																											
(4) make the textbook/material on irrigation system (Laclo, other area)					-----								Technical transfer to C/P Conducted technical transfer through OJT, such as technical trails. But, not yet established technical system and training system on irrigation system.			-----									Acasio	Furudono	
(5) develop the program/curriculum on irrigation system (Laclo, other area)					-----								Next year, the project will make draft of these activities. And after monitoring technical trials and supporting WUA, the project will revise these.			-----									Acasio	Furudono	
(6) implement the technical training on irrigation system (Laclo, other area)					-----										-----									Acasio	Furudono		
1-2 To establish monitoring system on improved rice cropping system and irrigation system by officers (Technical and Extension) of MAF Manatuto Office.																											
Improved rice cropping																											
(1) develop the monitoring plan (monitoring items, monitoring methods, monitoring schedule, etc.) on improved rice cropping			-----										Monitoring training items and methods were prepared. In 2012, the monitoring contents and method should be modified through monitoring activities. The monitoring manual should be prepared.												Leoneto	Kawada	
(2) make the manual for the monitoring on improved rice cropping			-----																					Leoneto	Kawada		
Irrigation system																											
(3) develop the monitoring plan (monitoring items, monitoring methods, monitoring schedule, etc.) on irrigation system (Laclo, other area)			-----										Planned sediment monitoring in Laclo. But, not yet plan for other areas. And more items must be added. It will considered with activities of short term expert "Sediment(22.Nov-7.Dec)"and "Irrigation & Drainage(Jan-Feb)".			-----									Acasio	Furudono	
(4) identify the monitoring contents through actual monitoring on irrigation system ( other area)			-----												-----									Acasio	Furudono		
(5) make the manual for the monitoring on irrigation system (Laclo, other area)			-----												-----									Acasio	Furudono		

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1-3 To guide the farmers with improved rice cropping system and irrigation system by officers (Technical and Extension) of MAF Manatuto Office.																
Improved rice cropping system																
The training farmers by the officers (Technical and Extension) (1) make the textbook/material on improved rice cropping system																Leoneto Kawada
(2) develop the program/curriculum on improved rice cropping system																Leoneto Kawada
(3) implement the technical training on improved rice cropping system																Leoneto Kawada
Irrigation system																
(4) make the textbook/material on irrigation system (Laclo, other area)																Acasio Furudono
(5) develop the program/curriculum on irrigation system (Laclo, other area)																Acasio Furudono
(6) implement the technical training on irrigation system (Laclo, other area)																Acasio Furudono
<Laclo Irrigation Scheme>																
2-1 To guide and monitor the farmers in order to maintain improved rice cropping system.																
(1) identify problems which prevent farmers from conducting the improved cropping system through the farmers survey																Leoneto Kawada
(2) examine the method to guide and monitor the farmers in order to maintain the system																Leoneto Kawada
(3) guide and monitor the famers using modified method																Leoneto Kawada
<Other Irrigation Areas>																
2-2 To conduct a baseline survey in order to categorize each irrigation area and identify detailed activities for each area.																
(1) design the baseline survey(items, schedule, procedures, method etc.)																Leoneto Kawada
(2) conduct the survey																Leoneto Kawada
(3) identify detailed activities for each area, base on the survey results.																Leoneto Kawada
2-3 To disseminate improved rice cropping system.																
(1) prepare the program of improved rice cropping system (Schedule, method etc.)																Leoneto Kawada
(2) conduct the program																Leoneto Kawada

for

2-4 To produce quality seeds and distribute to the farmers.									The plan for 2011 was designed. Quality seeds was produced depend on the program (IR64, Nakroma, Marito, Membramo).										
(1) make plan to produce quality seeds.									Seed production program was designed as the policy of seed production. The plan was not revised because of collecting information on the seed deliveries. In 2012, quality seed should be produced and the production plan should be considered.										Acasio Kawada
(2) revise the plan base on seed deliveries to farmers.										Acasio Kawada									
2-5 To fabricate simplified agricultural tools and equipment developed by the previous project and introduce them.																			
(1) prepare the program of fabrication simplified agricultural tools and equipment (cost, schedule, demonstration plan etc.)									The draft program was prepared in the report of the short term expert. SATE was designed, but not fabricated yet. Weeder was monitored through IRCS training for extension officers and the farmers. SATE was not distributed because of not fabricated yet. In 2012, SATE should be distributed and monitored after the fabrication and trials. SATE distributed should be monitored in the villages.										Acasio Kawada
(2) fabricate simplified agricultural tools and equipment based on the program										Acasio Kawada									
(3) carry out the demonstration based on the program										Acasio Kawada									
(4) distribute the simplified agricultural tools and equipment based on the program										Acasio Kawada									
<Lacro Irrigation Scheme>																			
3-1 To promote activities of the WUA through monitoring WUA's Operation & Maintenance.																			
(1) monitor WUA's O&M practice (Accounting, Actual water distribution etc.)									WUA has some problem with organization management and O&M activities. It must be organized again. And it has some constraint & difficulties such as sediment, heavy machineries. Counter measures must be considered. Organization management will be considered with short term expert "participatory development." O&M activities will be considered through technical trial & will be considered with short term expert "sediment", "Irrigation & Drainage."										Acasio Furudono
(2) identify the problems about O&M and analyze them (including the sedimentation)										Acasio Furudono									
(3) revise the current O&M manual (if necessary)										Acasio Furudono									
(4) provide advice on the WUA's activities										Acasio Furudono									
(5) conduct any other activities to promote efficient water use in Lacro Irrigation Scheme (if necessary)										Acasio Furudono									
<Other Irrigation Areas>																			
3-2 To conduct a baseline survey in order to categorize each irrigation area and identify detailed activities for each area.																			
(1) design the baseline survey (items, schedule, procedures, method etc.)									Baseline survey was conducted in 2011. Find out some typical problems & planned some trial activities. But, it was not enough for situation analysis. the project plans to conduct supplementary survey with short term expert "Irrigation & Drainage." for irrigation system, and "Participatory Development" for farmers organizations.										Acasio Furudono
(2) conduct the survey										Acasio Furudono									
(3) conduct Situation Analysis (Stakeholder identification, Problem Identification, Categorization of Irrigation areas, etc.)										Acasio Furudono									
(4) Planning detailed trial activities for each area										Acasio Furudono									
3-3 To conduct participatory training with farmers and trial on appropriate technologies for community (traditional) irrigation.																			

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(1)Conduct trial of appropriate technologies & revise it. (□It will be detailed after baseline survey.) (□Technologies include facilities and water distribution improvement.)						Planned appropriate technical trials. These are now on going with C/P. participatory canal & intake repairment were conducted. Next year, try to establish method for technical trial and training with short term expert "participatory development".								Acasio	Furudono
3-4 To prepare a manual for appropriate technologies for community (traditional) irrigation.															
(1)Develop an O&M Manuals for irrigation areas based on the results and experiences of the trial						Not yet started. It will be start next year base on appropriate technologies trials monitoring.								Acasio	Furudono
(2) support farmers in appropriate O&M, utilizing the developed O&M manual.															Acasio

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ANNEX 4 Allocation of JAPANESE EXPERTS from November 2010 until November 2012

EXPERTS	Position Field of Expertise	Year																																			
		2010			2011												2012												2014								
		10 31	11 30	12 31	1 31	2 29	3 31	4 30	5 31	6 30	7 31	8 31	9 30	10 31	11 30	12 31	1 31	2 28	3 31	4 30	5 31	6 30	7 31	8 31	9 30	10 31	11 30	12 31	1 31	2 28	3 31						
Long-term Expert		JFY2012 (2nd Year)												JFY2013 (3rd Year)																							
1 Mr. Seigo Furudono	Chief advisor/Water management	22																									21										
2 Dr. Akihiro Kawada	Project coordinator/Capacity building	11																																			
Short-term Expert																																					
1 Mr. Aiki Kato	Rice cultivation													21	19														14	25							
2 Mr. Etsuo Hashiguchi	Agricultural machinery													24	21																						
3 Dr. Kyoji Takaki	Sedimentation													21		7																					
4 Mr. Ryosuke Hoshi	Irrigation/Drainage																									4/24											
5 Ms. Kumiko Adachi	Participatory rural development																									12	18										

NOTE: (\*1)The figures above the bars in the table indicate the dates of the beginning and the termination of the assignment

(\*2) JFY:Japanese Fiscal Year

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**ANNEX 5 Provided Equipment**

No.	Date of Arrival	Description				Amount	Unit Price Currency	S-total	Place of Storage	Frequency of Use	Condition
		Item	Manufacturer	Model Number	R/P						
1	2011.12.5	Motor cycle	Honda	Megapro	L	4	\$ 2,075	\$ 8,300	Office	A	A
2	2012.2.11	Vehicle	Toyota	Land Cruiser Prado LJ150R-GKMEE	J	1	¥ 4,550,000	¥ 4,550,000	Office	A	A
3	2012.6.4	Concrete mixer	non-brand	HR178F	L	1	\$ 1,400	\$ 1,400	Office	B	A
4	2012.6.11	Personal computer	Hewlet Packard	ProBook 4430s	L	3	\$ 845	\$ 2,535	Office	B	A
5	2012.7.27	Total station	Pentax	R-423VDN	J	1	¥ 2,025,360	¥ 2,025,360	Office	*1	A
6	2012.8.22	Excavator	Caterpillar	303.5D CR	J	1	¥ 3,718,000	¥ 3,718,000	Office	*1	A
7	2012.9.5	Measure (Digital stand)	A&D	HV-15KGL	J	1	¥ 47,000	¥ 47,000	Office	*1	A
8	2012.9.5	Metal sieve	non-brand	75MM/53MM/37.5MM/19MM/9.5MM/4.75MM/2.0MM/850µM/425µM/250µM/106µM/75µM	J	12	¥ 11,200	¥ 134,400	Office	*1	A
9											
10											
18											
19											
20											

\*1:Received in August 2012

**Note:**

**R/P: Route of Procurement** (J: From Japan, L: Local, E: Carried by Expert)

¥:JapaneseYen

**Frequency of Use** (A: Always - B: Often - C: Sometimes)

\$:Doller

**Condition** (A: Good - B: Fair - C: Bad)



ANNEX 6 Allocation of Timorese CPs from November 2010 to October 2012

Counterpart Name	Position Assignment Field	2010			2011												2012												2013		
		10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
		31	30	31	31	29	31	30	31	30	31	31	30	31	30	31	31	28	31	30	31	30	31	31	30	31	30	31	31	28	31
		JFY2010 (1st Year)			JFY2011 (2nd Year)												2 (3rd Year)														
1 Mr. Martinho L. Soars	Irrigation/National Directorate for Irrigation and Water Management	→																													
2 Mr. Gil Ranger da Cruz.	Agriculture/National Directorate for Agriculture and Horticulture	→																													
3 Mr. Januario Marcal de Araujo.	Extension/National Directorate for Agricultural Community Development	→																													
4 Mr. Deolindo de Oliveira	Irrigation/District Director	→																													
5 Mr. Leoneto Pedro Hornay	Extension/Chief Extension Officer	→																													
6 Mr. Sebasião Pinto	Irrigation/Chief Technical Officer	→																													
7 Mr. Acacio Marques<*1	Extension/Extension Officer-Irrigation/Chief Technical Officer	→																													
8 Mr. Abel Soares D. C.	Irrigation/Technical Officer	→																													
9 Mr. Francisco Antonio X. D. C.	Irrigation/Technical Officer	→																													
# Mr. Nivio S. L. D. Reissureição	Irrigation/Technical Officer	→																													
11 Mr. Lourenço B. Soares	Extension/Extension Officer	→																													
# Mr. Tiago de Carvalho	Extension/Extension Officer	→																													
# Mr. Marcos da Silva	Extension/Extension Officer	→																													
# Mr. Felisberto Soares	Extension/Extension Officer	→																													
# Mr. Santiago D. C. Lopes	Extension/Extension Officer	→																													
# Mr. Eduardo L. Guamão	Extension/Extension Officer	→																													
# Ms. Clara D. Silva	Extension/Extension Officer	→																													
# Mr. Valente Guamão da Silvar	Extension Officer	→																													
# Mr. Jose Arui B. Saco	Technical Officer for Crop	→																													
# Mr. Domingos S. de Carvalho<*2	Extension/Extension Office/Technical Officer for Crop	→																													

<\*1 Extension Officer from November 2010 to June 2011, Chief Technical Officer of Irrigation from July 2011 up to date

<\*2 Extension Officer from November 2010 to June 2011, Technical Officer of Crop from July 2011 up to date

## ANNEX 7 List of Training Materials

	Subject	Title	Contents
1	Agriculture basic	The first workshop for extension & technical officers	Fertilizer
2	Improved Rice Cultivation System (IRCS)	Agricultural Techniques of Irrigation and Rice Cultivation Project in ManatutoPhase II	4 component of IRCS (quality seeds, leveling, transplanting, weeding)
3	Agriculture basic	Agriculture Seminar "Nursery"	Making nursery
4	Agriculture basic	Transplanting	Land leveling/transplanting
5	Agriculture basic	IPM and Agricultural Organic	Integrated Pest Management
6	IRCS	Rice cropping system in the Lacro irrigation scheme	Improved Rice Cropping System
7	IRCS practical (News letter)	IRCPII technical memo	Topics of IRCS
8	Agricultural machine	Direct paddy seeder	Direct paddy seeder specification and drawing
9	Agricultural machine	Basic electric	Principle of electric
10	Agricultural machine	Basic electric	Principle of electric
11	Agricultural machine	Magnetism	Principle of magnetism
12	Agricultural machine	Magnetism	Principle of magnetism
13	Agricultural machine	Motor & Alternator	Principle of motor and alternator
14	Agricultural machine	Motor & Alternator	Principle of motor and alternator
15	Agricultural machine	Principle of engine	Principle of engine
16	Agricultural machine	Principle of engine	Principle of engine
17	Agricultural machine	Fuel injection pump	System and structure of fuel engine pump
18	Agricultural machine	Fuel injection pump	System and structure of fuel engine pump
19	Agricultural machine	Power train	Basic of power train
20	Agricultural machine	Power train	Basic of power train
21	Agricultural machine	Steering system	Basic of steering system
22	Agricultural machine	Steering system	Basic of steering system
23	Agricultural machine	Structure of brake for farm tractor	Structure of brake for farm tractor
24	Appropriate technologies	Gabion	Gabion with sandbag
25	Appropriate technologies	Soil filling	Soil filling & Gabion
26	Appropriate technologies	Intake repair	spur dike & intake
27	Irrigation O&M	SEDIMENT CONTROL FOR INTAKE FACILITIES I	INTAKE
28	Irrigation O&M	SEDIMENT CONTROL FOR INTAKE FACILITIES II	INTAKE
29	Irrigation O&M	Intake improve	Countermeasure of sedimentation

## ANNEX 8 List of Trainings

### 1. MAF Manatuto Officers Training on IRCS

	date	title	contents	location	participant number	
					officer	farmer
1	2011.5.23	IRCS practical training	Line transplanting	Hatusadan demo. plot	11	
2	2011.7.5	IRCS practical training	Weeding	Hatusadan demo. plot	8	
3	2011.10.6	IRCS officers training (lecture)	Seed bed, leveling, transplanting	MAF Manatuto Office	4	
4	2011.10.10	The 1st IRCS training (practical)	Seed bed, transplanting	MAF Manatuto plot	10	10
5	2011.10.11	IRCS officers training (lecture)	Weeding	MAF Manatuto Office	4	
6	2011.10.26	The 2nd IRCS training (practical)	Weeding, land leveling	MAF Manatuto plot	7	8
7	2011.11.9	IRCS officers training (lecture)	IRCS general	MAF Manatuto Office	4	
8	2011.11.16	The 3rd IRCS training	IRCS general	Malarahun	4	11

### 2. MAF Manatuto Extension Officers OJT

	term	title	contents	location	participant number
1	2011.3 – 2011.9	Demonstration plot	Paddy field management	Laclo (Dimoni, Hatusadan, Mataes, Ihun we'en), Rembor	10

### 3. Farmers IRCS Training

	Date	title	contents	location	participant number
1	2012.3.27	IRCS farmers training	Seed bed	Malarahun	12
2	2012.3.28	IRCS farmers training	Line transplanting	Sau	17
3	2012.4.19	IRCS farmers training	Line transplanting	Malarahun	15
4	2012.10.23	IRCS farmers training	Seed bed, Agricultural tool making	MAF plot.	6

### 4. Data Collection

	term	contents
1	2011.7 – 2011.10	Base line survey (Basic agricultural data)
2	2011.11 – 2012.3	Socio-economic survey

5. MAF Manatuto Officers Training on Irrigation

	date	training title	contents	location	participant number
1	2011.8.22-29	Laclo Sedimentation Survey	sedimentation analyze	Laclo	2
2	2011.11.10	Laclo Intake technical trial	sedimentation protection with gabion	Laclo	4
3	2011.9.22	Irrigation technical trials	appropriate technologies for repair branch canal	Laclo & other area	3

6. MAF Manatuto Officers & Farmers OJT

	date	training title	contents	location	number of participants
1	2011.10.27	Irrigation technical trials	appropriate technologies for intake	Maralahun	3
2	2012.01.24	Irrigation technical trials	appropriate technologies for Scouring gate	Laclo (Kilela)	2
3	2012.02.14	Irrigation technical trials	appropriate technologies for spur dikes & intake	Sau(Dirol 1)	22
4	2012.02.17	Irrigation technical trials	appropriate technologies for canal at top of slope	Sumase (Ilatum)	20
5	2012.02.23	Irrigation technical trials	appropriate technologies for spur dikes	Maralahun	37
6	2012.03.21	Irrigation technical trials	appropriate technologies for spur dike & intake	Sau(Dirol 1)	15
7	2012.04.20	Irrigation technical trials	appropriate technologies for spur dike & intake	Sau(Dirol 3)	25
8	2012.06.25-7.4	Irrigation technical trials	appropriate technologies for spur dike & intake	Sau(Sau)	69

**ANNEX 9 : Itemed to be revised in the Current PDM**

Current	Revision	Reasons
<p><b>【Target Groups】</b> Farmers who make use of Irrigation Facility in Manatuto Sub-District (Approximately 1,300 Agricultural households), and eight (8) Extension Officers</p>	<p>Target Groups: Farmers who make use of Irrigation Facility in Manatuto Sub-District (Approximately 1,300 Agricultural households), <u>MAF Manatuto Officers and Water User's Association</u></p>	<p>According to the PDM description, the target groups, which shall be transferred technique from the Project, are not only farmers and extension staffs but also technical staff and WUA in the related activities to irrigation.</p>
<p><b>【Indicator of Project Purpose】</b> &lt;Laclo Irrigation Scheme&gt; Rice productivity will be maintained (2.5ton/ha).</p>	<p>&lt;Laclo Irrigation Scheme&gt; 1. Rice productivity will be maintained (2.5ton/ha). 2. <u>Rice cultivation area in arable land will be increased.</u></p>	<p>It is recognized that the Project purpose is not only to focus yield per unit area (t/ha) but also expanding rice cultivation acreage through double cropping and extension of irrigable areas by the combination of IRCS and proper irrigation in Laclo Irrigation Scheme. Therefore, an additional Indicator, which is mentioned on increasing rice cultivation acreage as an additional indicator of the Project purpose is added.</p>
<p><b>【Indicators of Output 3】</b> &lt;Laclo Irrigation Scheme&gt;  3-1 Water is distributed according to the water distribution schedule. 3-2 Water fee collection rate (more than 70%).</p>	<p>&lt;Laclo Irrigation Scheme&gt; 3-1 Water is distributed according to the water distribution schedule. 3-2 <u>Times of excavation (decreased than the average number of the past two years)</u> 3-3 <u>Number of examples on maintenance works conducted with appropriate technologies</u> 3-4 Water fee collection rate (more than 70%)</p>	<p>As the results of examination of the indicators of Output 3, additional indicators on sedimentation and maintenance works with appropriate technologies are recommended to add so as to express an exact expected output.</p>
<p>&lt;Other Irrigation Areas&gt;  3-3 Times of training for appropriate technologies for community (traditional) irrigation (3 times). 3-4 Manual for appropriate technologies for community (traditional) irrigation.</p>	<p>&lt;Other Irrigation Areas&gt; 3-5 Times of training for appropriate technologies for community (traditional) irrigation (3 times) 3-6 Manual for appropriate technologies for community (traditional) irrigation 3-7 <u>Number of trials of appropriate technologies (6 times and more)</u></p>	
<p><b>【Activities】</b> &lt;Laclo Irrigation Scheme&gt; 3-1 To promote activities of the WUA through monitoring WUA's Operation &amp; Maintenance.</p>	<p>&lt;Laclo Irrigation Scheme&gt; 3-1 <u>To support WUA on organization management</u> 3-2 <u>To take necessary measures for sedimentation in Laclo irrigation area</u> 3-3 <u>To support maintenance for irrigation facilities with appropriate technologies</u></p>	<p>Due to unclear descriptions on the activities in Laclo Irrigation Scheme, previous Activity 3-1 was broken down into the detailed activities.</p>

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<p>3-3 To conduct participatory training with farmers and trial on appropriate technologies for community (traditional) irrigation.</p>	<p>3-5 To conduct participatory training <b>and trial with farmers on</b> appropriate technologies for community (traditional) irrigation</p>	<p>The sentence was changed to express exact meaning, because the trial on appropriate technologies is conducted with farmers' participation.</p>
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## PROJECT DESIGN MATRIX (Revision proposed by the Mid-Term Review Team)

Project Title: Irrigation and Rice Cultivation Project in Manatuto Phase-II

Target Area: Irrigation Areas in Manatuto Sub-District (Laclo Irrigation Scheme, and Malarahun, Sau, Sumasse, Rembor, Dirimane Irrigation Areas)

Target Groups: Farmers who make use of Irrigation Facility in Manatuto Sub-District (Approximately 1,300 Agricultural households), MAF Manatuto Officers and Water Users' Association

Project Period: 11.2010~11.2014  
To be revised on 14 November 2012  
PDM-II Version 2.0

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<b>Overall Goal</b>			
Improved Irrigation and rice cultivation will be adopted in other irrigation areas in Timor-Leste.	The result of the project will be applied to other irrigation areas in Timor-Leste by 2020.	Result of Interview	
<b>Project Purpose</b>			
Productivity-of rice farmers in the Project Areas will be improved.	<p>&lt;Laclo Irrigation Scheme&gt;</p> <p>1 Rice productivity will be maintained (2.5ton/ha).</p> <p>2 Rice cultivation area will be increased.</p> <p>&lt;Other Irrigation Areas&gt;</p> <p>3 Rice productivity will be increased by 20 %.</p>	Baseline Survey by the Project Social Survey such as rice yield survey by the MAF Manatuto Office <u>Information from MAF, WUA, National Statistics Directorate</u>	1 The government policy for improving rice productivity is maintained.
<b>Outputs</b>			
1 Capacity of MAF Manatuto Office to guide the farmers will be strengthened.	<p>1-1 Times of guidance/training for officers (Technical and Extension) of MAF Manatuto Office (7 times), and the number of participants (10 person)</p> <p>1-2 Times of monitoring to the farmers by officers (Technical and Extension) of MAF Manatuto Office (6 times)</p> <p>1-3 Preparation of extension materials (7 types)</p>	<p>1-1 Project Report</p> <p>1-2 Project Report</p> <p>1-3 Project Report</p>	<p>1 The price of rice is stable (the price is not down).</p> <p>2 Rice market is secured.</p>
2 <Laclo Irrigation Scheme[1]> Improved rice cropping system[2] will be maintained.  <Other Irrigation Areas[3]> Improved rice cropping system will be adopted.	<p>&lt;Laclo Irrigation Scheme&gt;</p> <p>2-1 The number of farmers who continuously adopt improved rice cropping system (80 % of farmers).</p> <p>&lt;Other Irrigation Areas&gt;</p> <p>2-2 More than one (1) technical skill in improved rice cropping system will be adopted (340 farmers or 50 % of farmers) .</p> <p>&lt;Laclo Irrigation Scheme and Other Irrigation Areas&gt;</p> <p>2-3 Distribution rate of quality seeds (10 % of farmers)</p> <p>2-4 Times of training for farmers (10 times), and the number of participants (100 farmers)</p>	<p>2-1 Monitoring result by MAF</p> <p>2-2 Monitoring result by MAF</p> <p>2-3 Monitoring result by MAF</p> <p>2-4 Monitoring result by MAF</p>	
3 <Laclo Irrigation Scheme> Irrigation system will be properly maintained by Water Users' Association (WUA).[4]  <Other Irrigation Areas> Through the trials of appropriate technologies, existing community (traditional) irrigation method will be improved.	<p>&lt;Laclo Irrigation Scheme&gt;</p> <p>3-1 Water is distributed according to the water distribution schedule.</p> <p>3-2 Times of excavation (decreased than the average number of the past two years)</p> <p>3-3 Number of examples on maintenance works conducted with appropriate technologies</p> <p>3-4 Water fee collection rate (more than 70%)</p> <p>&lt;Other Irrigation Areas&gt;</p> <p>3-5 Times of training for appropriate technologies for community (traditional) irrigation (3 times)</p> <p>3-6 Manual for appropriate technologies for community (traditional) irrigation</p> <p>3-7 Number of trials of appropriate technologies (6 times and more)</p>	<p>3-1 Records of WUA's operation and accountant note(and/or)Project Report</p> <p>3-2 Project Report</p> <p>3-3 Project Report</p> <p>3-4 Result of interview from WUA member</p> <p>3-5 Monitoring result by MAF</p> <p>3-6 Monitoring result by MAF</p> <p>3-7 Project Report</p>	

Activities	Inputs		
1-1 To provide technical trainings on improved rice cropping system and irrigation system [5] to officers (Technical and Extension) of MAF Manatuto Office	<b>Japanese side</b> 1 Dispatch of Long-term Experts (1) Team Leader / Irrigation and Water Management (2) Coordinator / Capacity Building	<b>Timor-Leste side</b> 1 Assignment of counterpart personnel and administrative staff (1) <Central Level> a. National Director of Irrigation & Water Management (as Project Director) b. National Director of Agriculture & Horticulture c. National Director for Support to the Development of Agriculture (2) <Local Level> a. District Director, Manatuto District b. Chief of Technical Section, Manatuto District c. Chief of Extension Section, Manatuto District d. Technical Officers, Manatuto District e. Extension Officers, Manatuto District (3) Administrative staff · Driver · Others	1. Serious natural disaster will not occur. 2. Counterparts of Timor-Leste side are assigned as planned. 3. Government subsidy for farmers (fuel for tractor, fertilizer, etc.) is continuously maintained. 4. Farmers will continue rice cropping.
1-2 To establish monitoring system on improved rice cropping system and irrigation system by officers (Technical and Extension) of MAF Manatuto Office	2 Dispatch of Short-term Experts (1) Agricultural Machinery (2) Rice Cultivation (3) Other relevant experts will be dispatched, when necessity arises.		
1-3 To guide the farmers with improved rice cropping system and irrigation system by officers (Technical and Extension) of MAF Manatuto Office	3 Provision of Equipment		
<Laclo Irrigation Scheme>	4 Training of Counterparts	2 Seed Farm, Office and Project Facilities	
2-1 To guide and monitor the farmers in order to maintain improved rice cropping system	5 Dispatch of study team when necessary	3 Allocation of operational costs for the Project · Water and Electricity charges including fuel for generator · Vehicles	
<Other Irrigation Areas>	6 Allocation of operational costs for the Project		
2-2 To conduct a baseline survey in order to categorize each irrigation area and identify detailed activities for each area			
2-3 To disseminate improved rice cropping system			
<Laclo Irrigation Scheme & Other Irrigation Areas>			
2-4 To produce quality seeds and distribute to the farmers			
2-5 To fabricate simplified agricultural tools and equipment developed by the previous project and introduce them			
<Laclo Irrigation Scheme>			
3-1 To support WUA on organization management			
3-2 To take necessary measures for sedimentation in Laclo irrigation area			
3-3 To support maintenance for irrigation facilities with appropriate technologies			
<Other Irrigation Areas>			
3-4 To conduct a baseline survey in order to categorize each irrigation area and identify detailed activities for each area			Pre-conditions
3-5 To conduct participatory training and trial with farmers on appropriate technologies for community (traditional) irrigation			1 Farmers will agree with implementation of the Project.
3-6 To prepare a manual for appropriate technologies for community (traditional) irrigation			2 The security of the Project site is maintained.
[1] Laclo Irrigation Scheme: 507ha. [2] Improved Rice Cropping System: Established at IRCP Phase I Project including land preparation, weeding, plant spacing, usage of quality seeds. [3] Other Irrigation Areas: Malarahun, Sau, Sumasse, Rembor, Dirimane Irrigation Areas, Total: 564 ha. [4] Irrigation System by Water Users' Association: Proper water distribution and maintenance by the Water Users' Association. [5] Irrigation System: Irrigation System established at IRCP Phase I for Laclo Irrigation Scheme, and Irrigation Method to be improved at IRCP Phase II for Other Irrigation Areas.			



