

Summary of Joint Terminal Evaluation for the Project on Promotion of Smallholder Rice Production (Phase 2)

I. Outline of the Project	
Country: The Independent State of Papua New Guinea	Project Title: Project on Promotion of Smallholder Rice Production (Phase 2)
Issue/Sector: Agriculture Development/ Rural Development	Cooperation Scheme: Technical Cooperation Project
Division In-Charge: Team1, Agricultural and Rural Development Group 1, Rural Development Department, JICA	Total Cost: Approximately 3 million Japanese Yen
Period of Cooperation [R/D] signed: October 4 th , 2011 December 2011 – May 2015 (3.5 Years)	Partner Country's Implementing Organizations: National Department of Agriculture and Livestock (NDAL)
	Supporting Organization in Japan: Ministry of Agriculture, Forestry and Fisheries
<p>1. Background of the Terminal Evaluation</p> <p>Agriculture sector sustains the livelihood of approximately 80% of the population in Papua New Guinea (hereinafter referred to as “PNG”). Most of the agricultural products are produced by smallholder farmers cultivating cash crops, such as copra, coffee, cacao, etc. In the past, the country was used to produce its own food at subsistence level. However, in recent years, there has been an increase in the demand for imported food such as grains and meat. This is due to the increase in population, urbanization and industrial development as well as in the change in the dietary patterns of the people. In particular, there has been a gradual increase in the consumption of rice which now became a staple food in urban and rural areas. However, most of the rice is imported to meet the demand for rice consumption. It is estimated that annual rice import stands at around 200,000 tons per year valued at more than 400 million Kina. Under these conditions, the National Department of Agriculture and Livestock (NDAL) has formulated the National Rice Development Policy in 1998 and the National Food Security Policy in 2000 and set up the Rice Extension Unit (REU) in Food Security Branch (FSB) in the NDAL for the promotion of rice production in cooperation with the provincial governments.</p> <p>To strengthen the capability of smallholder farmers for rice production, the Government of PNG requested a technical cooperation with the Government of Japan. Upon receipt of the request, JICA has implemented the “Project for Promotion of Smallholder Rice Production” (hereinafter referred to as project I) in Madang, Morobe, and East Sepik provinces from 1 December 2003 to 30 November 2008 (5 years) as a Technical Cooperation Project.</p> <p>After the successful implementation of the project I, the Government of PNG requested a technical cooperation project on Promotion of Smallholder Rice Production (hereinafter referred to as the “Project”) to the Government of Japan on 14 October 2011 for the purpose of further extension of small-scale rice cultivation through the Model Farmer (MF) approach and its expansion.</p> <p>Upon receipt of this request, JICA dispatched the Detailed Planning Survey Team from 12 March to 16 April 2011 for the preparing the Project. The Project was launched in December 2011 to be implemented for three and a half years in Manus, Madang, Milne Bay, and East Sepik provinces.</p> <p>After the half life of the Project, the Mid-Term Review (MTR) was conducted in September 2013 to review the Project implementation process and Project achievements and to provide recommendations to improve the Project.</p> <p>Before the completion of the Project in May 2015, the Joint Terminal Evaluation Team (hereinafter referred to as the Evaluation Team) conducted the terminal evaluation of the Project from 15 November to 6 December 2014 in accordance with the JICA Evaluation Guidelines of June 2010.</p>	

<p>2. Project Overview</p> <p>(1) Overall Goal Rice farmers and rice production are expanded sustainably in the targeted provinces.</p> <p>(2) Project Purpose Smallholder rice farming is extended by applying and improving the Model Farmer (MF) approach and its support system in the targeted provinces.</p> <p>(3) Outputs</p> <ol style="list-style-type: none"> 1) By conducting supplementary trainings for MFs and provincial staff and improving the monitoring system, the implementation structure of rice extension services of MF approach and its support system is improved. 2) The existing mechanical rice milling services of public and private rice milling service stations is improved. 3) The implementation of the rice policies by REU) and FSB in NDAL is strengthened. <p>(4) Inputs</p> <p>Japanese Side:</p> <ol style="list-style-type: none"> 1. Japanese Experts 2. Equipment, Machineries, and Materials <p>PNG Side:</p> <ol style="list-style-type: none"> 1. Counterpart Personnel: Project Director, Project Manager, Project Coordinator, Counterpart Personnel, and Administrative Personnel 2. Lands, Buildings, and Facilities 		
2 Evaluation Team		
Members of Evaluation Team	<p>Japanese Side</p> <ol style="list-style-type: none"> 1) Team Leader: Mr. Tomochika MOTOMUA, Senior Advisor to Director General of Rural Development Department, JICA 2) Cooperation Planning Expert: Mr. Kenji KANEKO, Senior Assistant Director, Team 1, Agricultural and Rural Development Group 1, Rural Development Department, JICA 3) Rice Cultivation Expert: Mr. Nariyoshi ODASHIMA, President, Emishiya, Japan 4) Evaluation Analysis Expert: Dr. Mahmood Ul Zaman KHAN, President, Japan Soft Tech Consultants (JUST Consultants), Japan 	
Period of Evaluation	From 15 November to 6 December 2014	Type of Evaluation: Terminal Evaluation
3. Results of Evaluation		
3-1. Achievement		
<p>Output 1</p> <p>Improvement for the Monitoring and Reporting System for Rice Production and Processing</p> <p>The Project Team has reviewed the existing monitoring and reporting system for rice production and processing in the targeted four provinces of Manus, Madang, Milne Bay, and East Sepik. The Project Team has conducted a specific training for the staff of REU, provincial staff, district staff, and Local Level Government (LLG) staff for the improvement of monitoring and reporting system for rice production and processing in each of the targeted four provinces. The Project Team has trained the staff of REU, provincial staff, district staff, and LLG staff to analyze the rice situation (including number of rice farmers, total areas of their rice farming, and total quantity of their produces) in each of the targeted four provinces. The Project Team also worked with the REU to prepare very simple monitoring and reporting formats and to make analysis methods simple and easy. The staff of REU, provincial staff, district staff, and LLG staff in the targeted four provinces is very much satisfied with the simple formats</p>		

used in the improved monitoring and reporting system which made them enable to record the exact number of rice producers, total areas of their rice farming, and total quantity of their produces as well as to provide the advices to rice producers in case of facing problems in the targeted four provinces.

Implementation of Supplementary Training for MFs and Provincial Staff

The Project Team has prepared 16 modules for the Supplementary Training for MFs and Provincial Staff in the targeted four provinces. 60 provincial staff (19 in East Sepik province, 16 in Madang province, 3 in Manus province, and 22 in Milne Bay province) received the supplementary trainings for MFs and provincial staff. The participants (provincial staff) of supplementary trainings for MFs and provincial staff reported that the supplementary trainings have significantly improved their knowledge and skills regarding rice production and processing, rice extension services, mechanical rice milling services as well as for monitoring and reporting the rice situation and preparing reports.

Output 2

Review of Mechanical Rice Milling Machines at the Rice Milling Stations and Delivery of Appropriate Mechanical Rice Milling Machines in the Targeted four Provinces

The Project Team reviewed 100% accessible mechanical rice milling machines at the rice milling stations in the targeted four provinces. The Project has provided one set (one Yanmar YMM20 and one Hosokawa mechanical rice milling machines; four sets and eight mechanical rice milling machines in total) of mechanical rice milling machines for model rice milling station in each of the targeted four provinces.

Improvement and Implementation of Rice Milling and Processing Development Program

The Project Team tested the Rice Milling and Processing Services in the targeted four provinces. The Project Team conducted recovery test to analyze the efficiency of the mechanical rice milling machines in each of the targeted four provinces. From the viewpoint of the maintenance of the mechanical rice milling machines, it is necessary to ensure machine efficiency/operational hours. At the present, the rice production in the surrounding areas of rice milling stations in each of the targeted four provinces are far less than the milling capacity of the mechanical rice milling machines, particularly the milling capacity (700 kg/hour) of Yanmar YMM20 mechanical rice machine, provided by the Project to each of the targeted four provinces and, therefore, it is desirable to increase the rice production in the surrounding areas of the rice milling stations to maintain the efficiency of the mechanical rice milling machines in each of the targeted four provinces. In East Sepik province, the number of smallholder rice producers is continuously increasing and thereby the users of mechanical rice milling machines are also continuously increasing. The Project Team will continue to improve and implement Rice Milling and Processing Development Program in the targeted four provinces in the remaining period of the Project.

Preparation and Dissemination of the Guidelines on Rice Milling Services

The Project Team analyzed the situation of rice milling services in the targeted four provinces and prepared the Draft Guidelines on Rice Milling Services. The Draft Guidelines on Rice Milling Services contains procedures for establishing rice milling services; consideration of rice pricing; milling services management; maintenance and trouble shootings; and safety procedures. The Project Team reported that they have distributed the Draft Guidelines on Rice Milling Services to the staff at rice milling stations in the targeted four provinces. However, the operation manual for the mechanical rice milling machines is available, but Draft Guidelines on Rice Milling Services is not available at any of the rice milling stations in the targeted four provinces. The Project Team will again review and finalize the Draft Guidelines on Rice Milling Services in light of the problems occurred at the rice milling stations in the targeted four provinces and then distributed the revised version of Guidelines on Rice Milling Services for broad circulation within targeted and non-targeted provinces in the remaining period of the Project.

Output 3

Provision of Information/Data to the REU of FSB in NDAL and Other Relevant Stakeholders Involved in Smallholder Rice Policy Research and Development

At the time of terminal evaluation, all 17 districts in the targeted four provinces have been providing information/data about the rice situation in the designed formats to the provinces and provinces are compiling and forwarding the information/data to the REU of FSB in NDAL. The Project Team will continue support the REU for data analysis and for providing information/data to other relevant

stakeholders involved in smallholder rice policy research and development in the remaining period of the Project.

Publication of Newsletters

At the time of terminal evaluation, eight newsletters are published. The Project Team will publish remaining three issues of the newsletters in the remaining period of the Project to achieve the target of publishing 11 newsletters. The Project Team is also preparing the technical bulletins and will continue preparing technical bulletins for broad circulation within targeted and non-targeted provinces in the remaining period of the Project.

Help to the Task Force for the Preparation of Guidelines on Smallholder Rice Extension Services and Guidelines on Mechanical Rice Milling Services

At the time of terminal evaluation, nine members have been actively involved in the taskforce for the preparation of Guidelines on Smallholder Rice Extension Services. The Draft Guidelines on Smallholder Rice Extension Services explains the smallholder rice extension methods through MF approach; extension support system, monitoring and reporting system; roles and responsibilities of MFs, District staff, PDAL staff, and REU staff; and procedures for establishing smallholder rice extension through MF approach in new districts and provinces. Eight members have been actively involved in the taskforce for the preparation of Guidelines on Mechanical Milling Services. The Project Team will again review and finalize the Draft Guidelines on Smallholder Rice Extension Services and Draft Guidelines on Mechanical Rice Milling Services and then distributed the revised versions of both Guidelines for broad circulation within targeted and non-targeted provinces in the remaining period of the Project.

Strengthening of Implementation of the Rice Policies by REU of FSB in NDAL

The Project Team is helping the staff of REU of FSB in NDAL for the preparation and implementation of effective and efficient rice policies. The Project Team is also facilitating training and capacity building on Policy Research and Planning as well as Management of Rice Policies for the staff of REU of FSB in NDAL.

3-2. Summary of Evaluation Results

(1) Relevance

1) Consistency with the National Agriculture Sector Policies and Development Policies of PNG

The Project purpose “Smallholder rice farming is extended by applying and improving the MF Approach and its support system in the target provinces” and Overall Goal of the Project “Rice farmers and rice production are expanded sustainably in the targeted provinces” remained relevant with the following national agriculture sector policies of the Government of PNG.

Rice Development Policy 2004 – 2014 which aims at the sustainable transformation of the agriculture sector for economic growth, social wellbeing, food security and poverty alleviation of rural population. Smallholder rice production is the only sector which has been allocated budget among the staple food sector.

National Agriculture Development Plan 2007 – 2016 developed in 2008 to reduce costs of production and to improve quality of agriculture produce, increase income opportunities for farmers, improve contribution of women in agriculture production, and to ensure sustainable development.

PNG Development Strategic Plan 2010 – 2030. Rice is described as one of the strategic crops in the agriculture sector, which intends to empower local rice producers and to encourage local processing.

PNG Vision 2050. Agriculture is placed as one of the core strategic development areas in the PNG Vision 2050, over the medium to long-term period, to provide farmers with better and innovative agriculture practices. It also encourages projects in agricultural sector which are related with downstream processing and substitution of imported agricultural products which include rice as the largest imported crop of PNG.

2) Consistency with the Japanese Policy

“Strengthening of the Foundation of Economic Growth”, “Improvement of Social Services”, and “Environment and Climate Change” are the three priority areas of the Japan’s ODA Policy for PNG. The overall aim of the Japan’s ODA Policy for PNG is the achievement of sustainable economic growth

and improvement of living standards by improving socioeconomic conditions of the people. Agriculture is an important sector for the sustainable economic growth and for the improvement of socioeconomic conditions of the people.

The Country Program of JICA for PNG also emphasizes the “Strengthening of Economic Activities” with a cooperation program on “the improvement of industrial promotion” as one of the priority areas.

3) Appropriateness of Selection of Target Groups and Consistency with the Needs of the Target Groups

The main target groups of the Project are the smallholder rice producers, staff of NDAL, PDAL, DDAL, and LLG in the targeted four provinces. The promotion of smallholder rice production is the main responsibility of the target groups. Furthermore, the capacity building for the staff of the target groups for the effective and efficient promotion of smallholder rice production is an urgent need. Therefore, the selection of the target groups is appropriate and the Project is still in consistency with the needs of the target groups.

4) Appropriateness of Project Approach and Design

The approach to achieve the Project purpose “Smallholder rice farming is extended by applying and improving the MF Approach and its support system in the target provinces” is appropriate. The Project is using Farmer to Farmer Extension Approach for the promotion of smallholder rice farming in the targeted four provinces. Farmer to Farmer Extension Approach is most effective approach for the promotion by smallholder rice farming by which farmers can share their knowledge, skills, and experiences with other farmers in case of facing problems for rice farming. Most of the MFs those involved in the Project activities are well aware of the role of MFs and are highly motivated to provide information and techniques gained through the Project activities to other farmers interested in the rice farming.

The design of Project, including all Project activities, to achieve the Project purpose is also effective and efficient.

5) Comparative Advantage of Technical Assistance Provided by the Japanese Side

JICA has implemented numerous projects in agriculture sector throughout the world, and has necessary technical competence and experience. The Project aims to achieve its Project purpose “Smallholder rice farming is extended by applying and improving the MF Approach and its support system in the target provinces” by using advanced technical expertise and extensive experience of the Japanese Experts, organizing trainings/workshops for the Counterpart personnel, and provision of necessary equipment and materials. Thus the cooperation by Japan is very relevant to support the capacity development of Counterparts for the effective and efficient promotion of smallholder rice production.

(2) Effectiveness

The logical relationship of Outputs and the Project purpose is relevant. The Project has been on track and the Project purpose is very likely to be achieved at the completion of the Project through the combination of activities of Outputs.

One of the contributing factors towards the achievement of all Outputs and Project purpose appeared to be close working relationship among the Project Team and between the Project Team and relevant stakeholders.

The main hampering factor are frequent transfer of Counterpart personnel during the implementation of the Project and lack of human, financial, and physical resources of the relevant stakeholders.

(3) Efficiency

The inputs are appropriately provided from both Japanese side and PNG side as planned and all inputs are fully utilized to generate the intended Outputs. The quality, quantity, and timing of inputs are also appropriate.

Project activities are well received by the Counterpart personnel. Several kinds of trainings for Counterpart personnel during the implementation of the Project are appreciated by the participants. However, the Counterpart personnel faced difficulties in attending all proposed Project activities due to

their engagement in their assignments in their respective organizations.

(4) Impact

Through the various Project activities, it can be said that the impact on the Overall Goal of the Project is positive.

The important assumptions for the Outputs and Project purpose in the PDM did not affect the positive impacts of the Project. The proper allocation of human, financial, and physical resources will be required to sustain the positive impacts of the Project after the completion of the Project.

No negative/indirect/unexpected impact has been reported.

(5) Sustainability

1) Policy Aspects

The promotion of smallholder rice production is one of the major priorities guided by the National Rice Development Policy 2004 – 2014. The National Agriculture Development Plan 2007 – 2016 is also emphasizing to reduce costs of production and to improve quality of agriculture produce, increase income opportunities for farmers, improve contribution of women in agriculture production, and to ensure sustainable development. The Project has supported implementation of National Rice Development Policy 2004 – 2014 and National Agriculture Development Plan 2007 – 2016, and devotes its continuing effort to incorporate the Project achievements into PNG Development Strategic Plan 2010 – 2030 and PNG Vision 2050. It is expected that the strategies and policies in agriculture sector of the Government of PNG will remain favorable for the Project effects to be sustained after the completion of the Project in May 2015, and commitment from the Counterparts is important for its sustainability.

2) Organizational Aspects

The roles and responsibilities of Counterparts (NDAL, PDAL, DDAL, and LLG of four targeted provinces) for the Project implementation were clearly defined and shared among the concerned organizations. The staff of Counterparts reported that their institutional capacity for the promotion of smallholder rice production has been strengthened by the Project activities. The Project also fostered the capacity and relationship between relevant stakeholders of targeted four provinces for future backstopping of managerial and administrative capacity building. It is expected that the Counterparts could pursue relevant activities to keep Project effects after the completion of the Project in May 2015.

3) Financial Aspects

The disbursements of allocated funds from the Counterparts were delayed at the initial stage of the implementation of the Project. It is also noted that the financial resources of relevant stakeholders in targeted four provinces are not very sound. In order to keep continuing the Project activities after the completion of the Project in May 2015, the relevant stakeholders in targeted four provinces have to make serious efforts to secure proper funding from the concerned authorities. Therefore, financial aspects are a matter of concerns for the sustainability of Project effects after the completion of the Project in May 2015.

4) Technical Aspects

To ensure the technical sustainability of the Project, it would be necessary to continue the technical assistance, particularly trainings for the provincial staff (district staff and LLG staff), provided by the Project for the staff of Counterparts.

The Counterparts have deepened their understanding for the Project purpose and Overall Goal through various Project activities. Most of staff of the Counterparts expressed that the technical transfer has been conducted very effectively and efficiently through various Project activities.

3.3 Conclusion

Based on review of relevant documents of the Project, such as Minutes of Meetings (M/M), Detailed Planning Survey Report, R/D, PDM, PO, MTR Report, Project Progress Reports, etc.; questionnaire to relevant stakeholders; a series of meetings and discussions with Counterparts, and Japanese Experts; site visits as well as results of discussion among members of the Evaluation Team, the Evaluation Team concluded that the Project performance is satisfactory.

4. Rice Cultivation

4-1. Situation

The rice cultivation in target provinces is carried out mostly for self-consumption. The project instructs sustainable rice cycle with poor input including seed from outside. The scale of the garden is mostly less than 1,000 m². The management at garden is focused on fertilizing soil and pest control. The soil management is focused to introduce organic materials as green manure, and make farmer learn through exhibiting demo-plot. Pest damages are reportedly serious at some areas. Due to not take active measures against the damages, the project instructs to control pest with cultivative methodology such as net sweeping as well. Farmer seems to be able to control the pest since the cropping scale is not so big so far.

Post harvesting process of rice is very special part from other staple crops. That is the very attractive and crucial part, since rice in the husk last longer and rice cycle to continue to the next cycle. Furthermore, rice quality, uniform physical property, is instructed to be very important through rice cultivation cycle. Farmer counts the merit of rice cultivation; relative short period to grow, good taste and light labor intensive. Light labor burden is due to stay at extensive farming in fact. Farmer is under learning that hard working in the soil management and pest control will deliver good harvest eventually.

Extension through demo-plot by either MFs or extension officers and what farmer learns from the practice are very important in order to expand extension of rice cultivation. Demonstration-plot shows direct measure against concrete problems that farmer faces. Therefore, demo-plot is expected as a centre of rice cultivation for small holders spread deeply in rural area.

The function of it must be encouraged and developed somehow since net-working of interactive information is being developed actively based at the demo-plots as well as milling centres.

4-2. Keys of the Promotion

Two guidelines that are being finalized at this moment are keys for the smallholder rice promotion in PNG. For long time, extension activities by the PNG's government were very difficult to be implemented actively to subsistence farmers because of the geographic and social environment. The project recommended sustainable extension model with concrete methodology, and implemented interactive activities between farmers and respective governments. The guidelines show the concrete methodology; Model farmers concept, FTFEA with demo-plot and Monitoring & reporting system, and supporting system by governments.

Meanwhile, one of the most serious difficulties is unsustainable milling service that is not properly managed and operated at most of the operations. The situation made farmers collapse and be disappointed in rice farming. The weak milling service brakes the rice promotion in PNG. The guideline was compiled just in order to maintain the sustainable milling service.

Further, the information collection and monitoring & reporting system as a methodology of analysis is the solution of the obstacle that both farmers and government will. In other word, the system solved so called the most difficult obstacles; Governments can grasp farmer's situation and farmer can contact governments. These two guidelines are easily to be understood and utilized at farmer's and officer's level.

REU bears the roles; those are the utilization of the guidelines and practical work. REU promotes interactive communication, active extension activities and relation of interactive supporting that was not existed before in the provincial, district and LLG level.

The project activities what REU, PDAL, DDAL and LLG collaborate through JICA's support activities in consistent for more than 10 years are recommendable as a proper extension system what fit the very special geographical and social environment in PNG. A role expected to the food security branch in NDAL is to promote the public relation of the model of rice extension structure under REU's leading.

5. Recommendations and Lessons Learned

5-1. Recommendations

Recommendations for the Project Team

(1) Finalization of Products Prepared by the Project

The Project Team in cooperation with REU should finalize all products prepared by the Project before the completion of the Project. The Draft Guidelines for the Smallholder Rice Extension Services and Draft Guidelines for Mechanical Rice Milling Services should be finalized reflecting the results to be gained by the application of these draft guidelines and these draft guidelines must be approved by the

Joint Task Force for the preparation of these guidelines. The products prepared by the Project should be distributed not only to the targeted four provinces, but also to other provinces to promote smallholder rice production in PNG.

(2) Dissemination of Good Practices on Smallholder Rice Farming in East Sepik Province to Other Provinces

East Sepik province can serve as the model province for the promotion of smallholder rice farming for other targeted three provinces of Manus, Madang, and Milne Bay. The Project Team in cooperation with REU should share the good practices on smallholder rice farming in East Sepik province to other targeted three provinces through exchange of technical information, exchange of MFs, and exchange of rice extension officers among the East Sepik province and other targeted three provinces.

(3) Further Promotion of Smallholder Rice Production in PNG

The Project Team should discuss the good practices observed by the implementation of the Project with the NDAL and PDALs of the targeted four provinces to further promote the smallholder rice production in PNG. The Project Team should also share the good practices observed during the implementation of the Project not only with the concerned authorities of the targeted four provinces, but also with the concerned authorities of other provinces before the completion of the Project.

Recommendations for the NDAL, PDALs of the targeted Four Provinces

(1) Assignment of Counterpart Personnel for Further Promotion of Smallholder Rice Production in the Targeted Four Provinces

Some of the Counterpart personnel of PDALs in the targeted provinces are not working full-time for the extension of smallholder rice farming except for the East Sepik province and, therefore, it is strongly recommended that the PDALs of other targeted three provinces should allocate competent and experienced full-time staff to promote the effective and efficient implementation of the Project in the remaining period of the Project.

(2) Installation and Operation of Mechanical Rice Milling Machines Provided by the Project

Most of the Mechanical Rice Milling Machines provided by the Project are not being fully utilized and, therefore, it is strongly recommended that the Mechanical Rice Milling Machines provided by the Project should be installed and fully utilized as soon as possible.

(3) Dissemination of Good Practices on Smallholder Rice Farming in East Sepik Province to Other Provinces

East Sepik province can serve as the model province for the promotion of smallholder rice farming in other targeted three provinces of Manus, Madang, and Milne Bay. Therefore, it is strongly recommended to disseminate the good practices of East Sepik province to other targeted three provinces by the exchange of technical information through the exchange of smallholder rice farmers and exchange of extension officers before the completion of the Project. It is further recommended that the PDALs of three targeted provinces of Manus, Madang, and Milne Bay should also ensure budgetary allocation and its timely disbursement for the technical exchange of information through the exchange of smallholder rice farmers and exchange of extension officers among the East Sepik province and other targeted three provinces. The NDAL should also provide information necessary for the exchange of technical information through the exchange of smallholder rice farmers and exchange of extension officers among the East Sepik province and other targeted three provinces.

(4) Improvement of Products Prepared by the Project

The Project has prepared several products, such as the Draft Guidelines on Smallholder Rice Extension Services, Draft Guidelines on Mechanical Rice Milling Services, Draft Handbook for Upland Rice Farming in PNG, Draft Textbook on Post-Harvest Technologies, etc. Products prepared by the Project should be utilized and improved time to time by the NDAL and PDALs of the targeted four provinces and should also be translated into local languages for promoting the understanding and utilization of these products prepared by the Project by the MFs and other interested smallholder rice farmers.

(5) Monitoring of the Project Activities after the Completion of the Project

It is strongly recommended that the Project activities should be regularly monitored after the completion of the Project to sustain the positive impacts of the Project.

(6) Promotion of Project Concept and Promotion of Smallholder Rice Farming

After the completion of the Project, NDAL through REU should extend continuously the Project concept focusing on the smallholder rice production and rice cultivation techniques that have been developed by the Project not only to the targeted four provinces, but also to other provinces. REU should conduct supplementary trainings for advanced-level farmers. Based on the results to be obtained through the above trainings, technical-transfer methods should be established and systematized by REU within three years after the completion of the Project.

(7) Formulation of the Action Plan for the National Rice Development Policy for Achieving the Overall Goal of the Project

It is strongly recommended that the Action Plan for the National Rice Development Policy 2015 – 2013 should be prepared as soon as possible at least for the period of three years of 2015 – 2018 in consultation with the Project Team and the Action Plan should be approved by the JCC meeting which will be held in May 2015 in order to achieve the Overall Goal of the Project within three years after the completion of the Project.

(8) Prevention of the Deterioration of Rice Cultivation Techniques

It is strongly recommended that the NDAL should closely monitor the rice cultivation techniques practiced by the MFs and other interested rice farmers in order to prevent the deterioration of rice cultivation techniques transferred by the Project to the MFs and other interested rice farmers.

(9) Institutional Strengthening and Networking of the Relevant Stakeholders

It is recommended that the REU continues to enhance its technical and organizational capabilities in order to ensure the stable production of rice by smallholder rice farmers. It is also recommended that the NDAL should further strengthen the partnership with National Agriculture Research Institute (NARI), International Rice Research Institute (IRRI) and higher agricultural education institutions for better addressing potential challenges, such as the occurrence of diseased and pests in rice production.

(10) Partnership with JICA Volunteers and Coordination with Other Relevant Stakeholders

The dispatch of JICA volunteers for the Community Development will be continued for further three years to both Manus province and Milne Bay province for achieving the Overall Goal of the Project before the Ex-Post Evaluation of the Project which will be taken three years after the completion of the Project. The JICA volunteers are supposed to work for spreading smallholder rice production in the respective sites. On the other hand, the Organization for Industrial, Spiritual and Cultural Advancement-International (OISCA) in East New Britain province has been conducting the agriculture training at the national level. Therefore, in order to promote smallholder rice production effectively, NDAL and provincial governments including districts and LLGs should further strengthen the partnership with JICA volunteers. In addition, NDAL should share the products of the Project such as guidelines, handbooks, textbooks, and leaflets with other relevant organizations including OISCA for spreading the utilization of the results of the Project.

(1) **Lessons Learned**

1. Selection of the Target Provinces and Identification of Target Farmers' Needs

In order to appropriately select the target areas of the technical cooperation projects, the executing agencies of the technical cooperation projects must give full attention to the following points during the project formulation process and the detailed designing study for the effective implementation of the Project:

- a. Smallholder farmers' agricultural productive activities and their livelihood,
- b. Farmers' motivation for rice farming,
- c. Current farming techniques of smallholder farmers and their farming experience, and

d. Geographical conditions of the potential target provinces.

Furthermore, in the promotion of self-sufficient rice production the introduction of appropriate rice farming techniques to smallholder farmers taking into consideration their entire farming is needed to reduce a risk of the bankruptcy of the smallholder farmers. In this sense, the integrated farming system with rice should be introduced to smallholder farmers.

2. Agricultural Extension and Monitoring System

In order to design the activities of the technical cooperation project, it will be crucial for the detailed designing study to confirm the farming guidance systems of both central and provincial governments including the extension staff placement, the budgetary allocation and technical level of the extension officers, as well as the monitoring and reporting system. In addition, in order to secure the sustainability of the farming guidance and extension activities, it will be important to ensure the budgetary allocation for smallholder rice production by providing the support necessary for the formulation of new rice development policy and the provincial development programs as the political framework.

3. Synergy by MF Approach and the Training of Extension Officers

The practical training through demonstration plots is an effective method for promoting farmer to farmer extension. It can be judged that in case of the limitation of extension activities by the extension officers of provincial governments, the extension of rice cultivation techniques suitable for the level of farmers through the demonstration plots will be effective for the implementation of extension activities, as well as the technical transfer to MFs.

The training activities for local governments' extension officers who provide technical guidance for MFs regularly are being conducted by the Project. In order to avoid the deterioration of rice production techniques of MFs and prevent the propagation of the wrong techniques, the above mentioned training activities for the extension officers are needed.

Therefore, in order to supplement the farmer to farmer extension methods, the technical and instructional improvement of extension officers and the reinforcement of the agricultural administration in parallel should be conducted by the technical cooperation project.