

Agenda for the Seventh Joint Coordinating Committee Meeting (JCC) on  
the Sustainable Rice Development Project (SRDP) in Sierra Leone

Venue: Conference Hall, MAFFS, Youyi Bldg.

Date: 24 January, 2014

Time: 9:30 – 10:30

**Agenda**

1. Silent prayers
2. Self-introduction
3. Chairman's opening remarks
4. Presentation and discussion of terminal evaluation report

**MAFFS/JICA-SRDP Joint Coordinating Committee Meeting 7**

**Attendants List (1/2)**

Date: 24/01/2014

Place: Conference Hall, MAFFS, Youyi Bldg., Freetown

#	Name	Designation	Organization	Mobile phone no.	e-mail address
1	Joseph S. Sesay	Minister	MAFFS		<a href="#">_____</a>
2	Lovell Thomas	Deputy Minister II	MAFFS		<a href="#">_____</a>
3	Francis A-R Sankoh	Chief agricultural officer	MAFFS		<a href="#">_____</a>
4	Ibrahim Shamie	Director, crops	MAFFS		<a href="#">_____</a>
5	Adikali Samura	Deputy secretary	MAFFS		<a href="#">_____</a>
6	M.L. Banie	Ag. Deputy Director	MAFFS		<a href="#">_____</a>
7	Mohamed A. Sheriff	Deputy Director, PEMSD	MAFFS		<a href="#">_____</a>
8	Alphonsou K. Turay	Ag. Director, AED	MAFFS		<a href="#">_____</a>
9	Brima S.T. Kebbie	Deputy Secretary	MAFFS		<a href="#">_____</a>
10	A.B. Yillah	Deputy Director, AED	MAFFS		<a href="#">_____</a>
11	Sid M. Kamara	Assistant director, crops	MAFFS		<a href="#">_____</a>
12	Sheku T. Kamara	ACAO	MAFFS		<a href="#">_____</a>
13	Denis M. Kamara	Training Consultant	MAFFS		<a href="#">_____</a>
14	Joseph S. Koroma	Director, PEMSD	MAFFS		<a href="#">_____</a>
15	Mohamed S. Kabiru	National Secretary General	NaFFSL		<a href="#">_____</a>

**MAFFS/JICA-SRDP Joint Coordinating Committee Meeting 7**

**Attendants List (2/2)**

Date: 24/1/2014

Place: Conference Hall, MAFFS, Youyi Bldg., Freetown

#	Name	Designation	Organization	Mobile phone no.	e-mail address
16	Daniel S. Fornah	Head, Outreach, PDMO	SLARI		_____
17	Richard Bockard	Research officer	SLARI		_____
18	Toshihisa Hasegawa	Head, Sierra Leone Field Office	JICA-SLFO		_____
19	Akihira Sano	Project Formulation Advisor	JICA-SLFO		_____
20	Takashi Kimijima	Chief Advisor	JICA-SRDP		_____
21	Masanori Kurisu	Head, Joint Terminal Evaluation Team	JICA HQ		_____
22	Maki Kato	Member, Joint Terminal Evaluation Team	JICA HQ		_____
23	Keiko Itagaki	Member, Joint Terminal Evaluation Team	JICA		_____
24	B.J.Bangura	Head, Joint Terminal Evaluation Team Deputy director, Extension	MAFFS		_____
25	Joseph S. Bangura	Member, Joint Terminal Evaluation Team Assistant director, PEMSD	MAFFS		_____
26	Umaru Sankoh	Member, Joint Terminal Evaluation Team District agricultural officer, Kambia	MAFFS Kambia		_____
27	Mohamed Conteh	Senior Publicity Officer	MAFFS		_____
28	Mohamed M. Koroma	Publicity Officer	MAFFS		_____
29					
30					

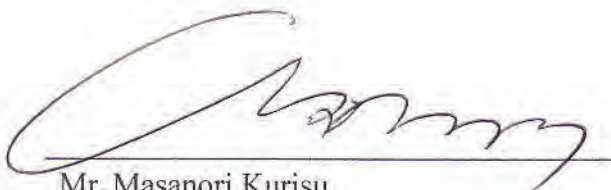
**MINUTES OF MEETING  
BETWEEN  
JAPAN INTERNATIONAL COOPERATION AGENCY  
AND  
THE AUTHORITY CONCERNED  
OF THE GOVERNMENT OF THE REPUBLIC OF SIERRA LEONE  
ON  
THE TERMINAL EVALUATION FOR  
THE SUSTAINABLE RICE DEVELOPMENT PROJECT  
IN SIERRA LEONE**

The Joint Evaluation Team (hereinafter referred to as “the Team”), which consists of three members from the Japan International Cooperation Agency (hereinafter referred to as “JICA”) headed by Mr. Masanori Kurisu and three members from the Government of Sierra Leone headed by Mr. Bakarr J. Bangura, was organized to review the progress on the Sustainable Rice Development Project in Sierra Leone (hereinafter referred to as “the Project”) from 8 to 24 January 2014.

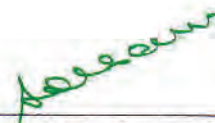
After intensive study and analysis of the activities and achievements of the Project, the Team prepared the Joint Terminal Evaluation Report (hereinafter referred to as “the Report”) presented it to the Joint Coordinating Committee (JCC) meeting held on January 24, 2014.

The JCC discussed the major issues presented in the Report, was accepted on the matters referred to in the document attached hereto.

Freetown, 24 January 2014



Mr. Masanori Kurisu  
Leader  
Japanese Terminal Evaluation Team  
Japan International Cooperation Agency



Hon. Joseph Sam Sesay  
Minister  
Ministry of Agriculture, Forestry and Food Security

### Attached Document

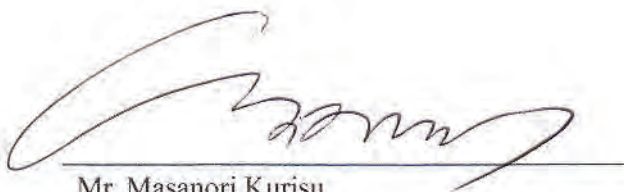
1. The Team presented the Report, Appendix, to the Ministry of Agriculture, Forestry and Food Security (hereinafter referred to as the “MAFFS”), Attachment I, and the MAFFS agreed to the findings outlined therein.
2. Government of Japan is currently in the process of considering the proposal for the next project with MAFFS. JICA is highly interested in further disseminating the outputs of the Project and believes it is essential to coordinate with MAFFS as well as other donor agencies to maximize the extent and effectiveness of its realization. From this perspective, MAFFS and JICA agreed to continue discussing the details of the future collaboration.

Attachment I: Joint Terminal Evaluation Report



THE JOINT TERMINAL EVALUATION REPORT  
ON THE SUSTAINABLE RICE DEVELOPMENT PROJECT  
IN SIERRA LEONE

Freetown, 23 January 2014



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Mr. Masanori Kurisu  
Leader  
Japanese Terminal Evaluation Team  
Japan International Cooperation Agency



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Mr. Bakarr J. Bangura  
Leader  
Sierra Leonean Terminal Evaluation Team  
Ministry of Agriculture, Forestry and Food Security

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## Abbreviations

ABC	Agricultural Business Center
ADPK	Agricultural Development Project in Kambia
AfDB	African Development Bank
ASREP	Agricultural Sector Rehabilitation Project
BES	Block Extension Supervisor
CAADP	Comprehensive Africa Agriculture Development Programme
CARD	Coalition for African Rice Development
CBO	Community Based Organization
DAO	District Agriculture Officer
FBO	Farmer Based Organization
FEW	Frontline Extension Worker
FFS	Farmer Field School
GAFSP	Global Agriculture and Food Security Program
GDP	Gross Domestic Products
HQ	Headquarters
IFAD	International Fund for Agricultural Development
IVS	Inland Valley Swamp
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
K	Potassium/Kalium
MAFFS	Ministry of Agriculture, Forestry and Food Security
MAFFS-K	Ministry of Agriculture, Forestry and Food Security Kambia District Office
MC	Monitoring Committee
MM	Minutes of Meeting
MOU	Memorandum of Understanding
N	Nitrogen
NSADP	National Sustainable Agriculture Development Plan
NRDS	National Rice Development Strategy
ODA	Official Development Assistance
P	Phosphorus
PDM	Project Design Matrix
PO	Plan of Operation
PR	Progress Report
PRSP	Poverty Reduction Strategy Paper
RARC	Rokupr Agricultural Research Centre
RCPRP	Rehabilitation and Community-based Poverty Reduction Project
R/D	Record of Discussion
S	Sulfur
SCP	Smallholder Commercialisation Programme
SLARI	Sierra Leone Agricultural Research Institute
SMS	Subject Matter Specialists
TP-R	Technical Package for Rice
Zn	Zinc



## 1. Introduction

### 1-1. Objectives of the Joint Terminal Evaluation

This terminal evaluation study (hereinafter referred to as “the Study”) on the Sustainable Rice Development Project in Sierra Leone (SRDP, herein after referred to as “the Project”) is conducted to serve the following objectives:

- (1) To review the inputs to the Project, the progress and achievements of the Project’s activities based on the Project Design Matrix (PDM) and the Plan of Operations (PO), and also to exchange opinions with the Sierra Leonean authorities concerned through visiting the Project sites;
- (2) To review the Project based on the five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability);
- (3) To identify issues affecting the Project and, based on the evaluation results, to make necessary recommendations on the Project activities for the remaining period of the Project to both Sierra Leonean and Japanese sides;
- (4) To draw out lessons learned from the Project activities in order to reflect them on future projects in the interest of making them more effective, efficient and sustainable;
- (5) To formulate the Joint Terminal Evaluation Report; and
- (6) To participate in the Joint Coordinating Committee (JCC) meeting in order to present and discuss the results of the Terminal Evaluation on the Project with the Sierra Leonean authorities concerned and sign on the Minutes of Meeting.

### 1-2. Members of the Joint Evaluation Team

#### 1-2-1 Japanese Evaluation Team Members

No.	Field	Name	Present Occupation
1	Leader	Mr. Masanori Kurisu	Director, Arid and Semi-Arid Farming Area Division 2, Rural Development Department, Japan International Cooperation Agency (JICA)
2	Evaluation Planning	Ms. Maki Katoh	Special Advisor, Arid and Semi-Arid Farming Area Division 2, Rural Development Department, JICA
3	Evaluation and Analysis	Ms. Keiko Itagaki	Consultant, International Development Associates, Ltd.

#### 1-2-2 Sierra Leonean Evaluation Team Members

No.	Field	Name	Present Occupation
1	Leader	Mr. Bakarr J. Bangura	Deputy Director of Extension, Extension Division, Ministry of Agriculture, Forestry and Food Security (MAFFS)
2	Member	Mr. Umaru M. Sankoh	District Agriculture Officer (DAO), MAFFS Kambia District Office (MAFFS-K)
3	Member	Mr. Joseph S. Bangura	Assistant Director of Planning, Evaluation, Monitoring and Statistics Division, MAFFS

### 1-3. Schedule of the Evaluation Study

The Study was conducted from January 8<sup>th</sup> to 24<sup>th</sup>, 2014. The detailed schedule is attached as Annex 1.

## **1-4. Methodology of the Terminal Evaluation**

### 1-4-1 Method of Evaluation

The Study was conducted by the joint terminal evaluation team (hereinafter referred to as “the Team”), composed of both Sierra Leonean and Japanese evaluation team members indicated in the section 1-2 above. The Team reviewed the Project based on the materials showing the framework of the Project such as PDM (attached as Annex 2), PO (attached as Annex 3) and the Record of Discussion (R/D). The review activities include analysis on reports, field observations, and interviews with officials of MAFFS Headquarters (HQ), MAFFS-K, Rokupr Agricultural Research Centre (RARC), JICA experts, farmers participated in the Project and other personnel concerned with the Project. The five evaluation criteria, i.e. relevance, effectiveness, efficiency, impact, and sustainability, were used for the terminal evaluation. Each of the five evaluation criteria is defined in the following sub-section.

### 1-4-2 Evaluation Criteria (Five Evaluation Criteria)

#### (1) Relevance

Relevance refers to the validity of the Project Purpose and the Overall Goal in connection with the development policy of Sierra Leone as well as the needs of beneficiaries and foreign assistance policy of Japan.

#### (2) Effectiveness

Effectiveness refers to the extent to which the expected benefits of the Project have been achieved as planned. It also examines whether these benefits have been brought about as a result of the Project.

#### (3) Efficiency

Efficiency refers to the productivity of the implementation process. It examines whether the inputs of the Project have been efficiently converted into outputs.

#### (4) Impact

Impact refers to direct and indirect, positive and negative impacts caused by the implementation of the Project, including the extent to which the overall goal has been or is expected to be attained.

#### (5) Sustainability

Sustainability refers to the extent to which the Project can be further developed by the authorities concerned of Sierra Leone and the extent to which the benefits generated by the Project can be sustained under national policies, technology, systems and financial state.

### 1-4-3 Evaluation Questions and Sources of Information

#### (1) Evaluation Questions and Indicators

The Evaluation Grid is attached as Annex 4.

#### (2) Sources of Information Used for the Evaluation

Following sources of information were used for this evaluation study.

- 1) Project planning documents such as R/D, PDM, Minutes of Meetings (hereinafter referred to as “M/M”) and PO
- 2) Periodical reports of the Project
- 3) Interviews and discussions with the Japanese experts
- 4) Interviews and discussions with the counterpart personnel
- 5) Record of inputs and utilization, and other relevant documents
- 6) Project documents on the progress and achievements of the Project
- 7) Field visits to the target area and discussion with the beneficiaries
- 8) Discussions with other Sierra Leonean authorities concerned

## 1-5 Limitations of the Study

- There are the following limitations in this evaluation study, which may have somewhat influenced the results.
- (1) The Study was conducted in a limited time, thus there may have been any aspects which could not thoroughly be reviewed or analyzed.
  - (2) The coverage of the interviewees is also limited to a part of the entire group of relevant personnel and beneficiaries of the Project, which implies the possibility that some findings may be skewed, reflecting the subjective opinions of the particular individuals interviewed.
  - (3) Some of the data obtained from the Project are also based on the limited number of samples, which may have influenced the analysis of the tendencies.
  - (4) Some of the Team members could not participate in a part of the Study, which created some gap among individual members in terms of the understanding and assessment of the achievements of the Project which are derived from various discussions, field interviews and observations.

## 2. Outline of the Project

### 2-1 Background of the Project

Rice is a staple food in Sierra Leone, annual consumption of which is 104kg per person. However, self-sufficiency rate of rice was less than 70% in 2007. Of the 640,000 rice farmers in the country in 2004, about 85 percent were small-scale rice farmers, owning less than 1 ha of farm land. Under such circumstance, enhancement of productivity and profitability of such small-scale farmers was a key issue from the food security and poverty reduction perspectives.

Kambia district is located on the Guinean border and its economic and social development indicators such as access to safe water and grain self-sufficiency rate is below the national average. Of the 280,000 population in this District, 80 percent is engaged in the agricultural sector. JICA implemented the "Agricultural Development Project in Kambia" (hereinafter referred to as the "ADPK") between 2006 and 2009, through which agricultural technical packages and agricultural technical support guidelines were developed in order to improve productivity of the agricultural sector in the district. The technical package on rice production (TP-R) created under this project set the yield rate of 1.0~1.5 Mt/ha without fertilizer application as a goal, and provided guidance particularly on land preparation, seeding, crop management, and post-harvest processing for cultivation of both direct-seeding upland rice as well as inland valley swamp lowland rice. After the completion of the project, a request was made by the Government of Sierra Leone to start another technical cooperation project, with the aim to revise further the TP-R and to disseminate the revised TP-R to rice farmers in Kambia district. Responding to the request, JICA dispatched a survey team to Sierra Leone in February 2010 for formulating detailed plan, and a four-year technical cooperation project, the Sierra Leone Sustainable Rice Development Project in Sierra Leone (i.e. the Project), started in October 2010.

This new Project underwent the Mid-Term Review in June-July 2012, based on whose recommendations some modifications of the PDM and PO were made. The Project is scheduled to terminate in September 2014.

### 2-2 Summary of the Project

The framework of the Project was originally agreed upon as stipulated in the R/D signed on 19 July 2010. The Project design was modified as outlined in the PDM version 2 on 10 July 2012 as the results of the Mid-Term Review. The Project summary described in the PDM version 2 is as follows (for more details, see the PDM and PO).



(1) Project Title

The Sustainable Rice Development Project in Sierra Leone

(2) Overall Goal

- 1) To increase rice production in Kambia district.
- 2) To apply the Technical Package on Rice Production (TP-R) and extension method all over Sierra Leone.

(3) Project Purpose

To establish rice production techniques and its extension method which are applicable throughout Sierra Leone.

(4) Outputs

- 1) To revise the TP-R, which can realize higher yield and profit, through on-farm verification.
- 2) To extend TP-R to small-scale farmers through Farmers Based Organizations (FBOs) in Kambia district
- 3) To extend the contents of TP-R and an extension method to officials of MAFFS's district agricultural offices other than MAFFS-Kambia (MAFFS-K).

### 3. Achievements of the Project

During the Study, the performances of the Project including inputs, activities and outputs, as well as the implementation processes were reviewed to assess the degree of achievements, the results of which are described in the following:

#### 3-1 Inputs

The Team has confirmed that the Project has availed the following inputs in accordance with the plan stated in PDM and PO.

##### 3-1-1 Japanese Side

(1) Dispatch of experts

A total of eleven (11) experts was dispatched to the Project, covering various fields of expertise such as rice cultivation techniques improvement, extension, cultivation technology development, post-harvest, farmers organizing, small scale swamp development, rice cultivation and trial/research, guidance on chemical analysis, extension materials development and so forth. The total duration of their assignments by the end of September 2013 has been about 93 man/months, the details of which are shown in the Annex 5.

(2) Provision of equipment and machineries

Equipment and machineries of the approximate total value equivalent to 400,000 US Dollars were provided for the Project activities, including vehicles, motorbikes, office equipment such as computers, printers and photocopiers, laboratory equipment and so forth. It is to be noted that rice seeds, fertilizer, and other production inputs for FBOs supported under the Smallholder Commercialisation Programme (SCP) were also provided. The details of the machinery and equipment provided by JICA are found in Annex 6.

(3) Training of counterpart personnel in Japan and the third countries

By the end of September 2013, nine (9) counterpart personnel were dispatched to Japan, Malawi and Egypt for training courses on the subjects relevant to the scope of the Project, such as "Rice Cultivation Techniques for Africa", "Agricultural Extension Planning and Management", "Promotion of African Rice Development through Strengthening Coordination between Coalition for African Rice Development (CARD) and Comprehensive Africa Agriculture Development Programme (CAADP) for Sub-Sahara African Countries" and so forth. The details of these training of counterpart personnel are found in Annex 7.

(4) Bearing of local costs

A total sum of 1,334 million Sierra Leonean Leones (SLL) was provided to supplement the operational

expenses for the Project activities by the end of September 2013, as indicated in the following Table 3-1. The expenses for a borehole construction and installation of electric cables at RARC were covered by a part of these Project's funds.

Table 3-1: Local Expenses borne by the Japanese Side (SLL)

Project Year	1 <sup>st</sup> Year (Oct. 2011 – Mar. 2012)	2 <sup>nd</sup> Year (Apr. 2012 – Sep. 2012)	3 <sup>rd</sup> Year (Oct. 2012 – Sep. 2013)	Total
Local Expenses	237,148,224	622,553,800	473,867,400	1,333,569,424

Source: Documents prepared for terminal evaluation by the Project (November 2013)

### 3-1-2 Sierra Leonean Side

#### (1) Assignment of Sierra Leonean counterpart personnel

By September 2013, a cumulative total of twenty-three (23) counterpart personnel was assigned to the Project: three (3) persons from MAFFS HQ, sixteen (16) persons from MAFFS-K, one (1) person from SLARI, and three (3) persons from RARC. A list of these counterpart personnel is found in Annex 8.

#### (2) Provision of Facilities

The necessary office spaces with office furniture and electricity have been provided for the Project at MAFFS-K and RARC since the beginning of the Project. In April 2013, an additional office space was provided at the MAFFS HQ to enhance communications between the Project and relevant officers at MAFFS HQ, as well as to promote information sharing and coordination with other donor projects. Apart from the provision of offices, expenses for RARC's office renovation (150,000 SLL) were shouldered by Sierra Leonean side. RARC also provided the land for the net-house.

## 3-2 Achievement of the Outputs

The Project has implemented its activities as per the plan stipulated in the PDM and PO with approved modifications made at the time of the Mid-term Review. The Team reviewed the performance of the Project including inputs and output indicators as well as the implementation processes of the Project, the results of which are described in the following:

### 3-2-1. Output 1

Description	Assessment
To revise the Technical Package on Rice Production (TP-R) which can realize higher yield and profit, through on-farm verification	Most likely to be achieved
<i>Indicators:</i>	
1-1 More than 3.0 Mt/ha of yield is obtained more than 80% of locations of on-farm verification, where revised TP-R is applied, in the cropping seasons by 2013.	Likely to be achieved
1-2 Revised TP-R, that includes method on appropriate dosage of fertilizer and profitability, is developed.	Most likely to be achieved
1-3 A manual on TP-R for use of extension workers is produced.	Most likely to be achieved

TP-R is being revised based on the technical package on rice production that was developed through ADPK, the foregoing technical cooperation project of JICA, by adding techniques necessary to increase yields such as appropriate application of fertilizer, i.e. composition, amount, and timing of application, as well as the cultivation management measures to maximize the effects of fertilizer such as on-farm water management. The Project has conducted on-farm verification of the revised TP-R in a number of locations in the target areas, the results of which are summarized in the following Table 3-2. The number of verification plots that achieved the yield of 3.0Mt/ha or more has been increasing with progressive modifications of the treatment. The target yield was obtained in 75% of the plots in dry season 2012/13. At the time of the Study, the Project was starting the last

verification, and it is expected that the target yield would be achieved in 80% or more of the verification plots. The highest yield performance of the on-farm verification in the dry season 2012/13 marked 3.6Mt/ha, while two on-farm verifications in rainy season 2013 achieved 3.1Mt/ha and 4.1Mt/ha. It should be noted, however, that the proper on farm water management and leveling of soil are the essential pre-requisites to achieve the maximum yield performances.

Table 3-2: Yield performances of the on-farm verifications

Cropping season	No. of verification plots <sup>(1)</sup>	Verification plots with yield of 3.0 t/ha or more	
		No.	%
Rainy season 2011	8	1	12.5
Rainy season 2012	19	7	36.8
Rainy season 2013	12	5	41.7
Dry season 2012/13	4	3	75.0
Dry season 2013/14	16	(To be confirmed)	

Note 1: Different treatment was verified in each plot.

Source: Progress Report (PR) 3, PR5 and PR6 of the Project.

In view of the fact that soil nutrients are generally poor in the country, application of fertilizer is considered as an important component in revising the TP-R. As for the examination on the appropriate fertilizer dosage, soil fertility assessment trials (pot experiments) were conducted to identify the deficient nutrients in soils in the target areas. Based on these experiments, it was revealed that the positive effects of additional P, and to a lesser extent N and K, would be offset without sufficient S. However, the S is not widely available in Sierra Leonean fertilizer markets and ready-to-purchase fertilizer often contains only N, P, and K. Therefore the Project has come up with the tentative dosage as N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O=45-45-45kg/ha<sup>1</sup>, which is currently being applied in the farms of the FBOs.

In addition, the soil analysis of the samples collected from districts other than Kambia also indicated similar patterns of nutrient deficiency. It is thus assumed that the recommendations to be derived from the verification activities in Kambia may, in a broad sense, be applicable to In-Valley Swamps (IVS) in other districts. The Project is currently conducting another set of on-farm verifications to confirm the findings from previous verifications and to determine the final recommendations on optimum fertilizer dosage, taking into consideration the cost-benefit analysis.

The draft of the extension guides has already been prepared but with the tentative dosage of fertilizer application, which is under review by the relevant stakeholders. Through continuous examination and discussions, further modifications would be made to compile the final version by the end of the Project.

### 3-2-2. Output 2

Description	Assessment
To extend TP-R to small-scale farmers through Farmers Based Organizations (FBOs) in Kambia district	Almost achieved
<i>Indicators:</i>	
2-1 More than 300 FBO farmers receive training on TP-R.	Achieved
2-2 More than 50% of the FBO farmers who received training apply several techniques of the TP-R.	Achieved
2-3 Extension materials for disseminating revised TP-R are prepared.	Almost achieved
2-4 A guideline on implementation of Farmer Field School (FFS) on rice cultivation based on the TP-R is developed.	Almost achieved

<sup>1</sup> This dosage is different from the RARC's standard dosage, i.e. 60-40-40, which has been an issue for discussion. The endorsement of RARC on this new recommendation is essential for the MAFFS to officially endorse the TP-R as a whole.

At the time of the Study, it was said that there are 65 FBOs in Kambia district, and the Project has worked with 32 among them that are producing rice in IVS<sup>2</sup>. Since the beginning of the Project until 30 September 2013, thirteen (13) sessions of training on various topics included in the TP-R targeting FBO farmers and farmer facilitators were organized, as shown in the Table 3-3 below. The total attendance in these training is 561 person-days, exceeding the target indicator.

Table 3-3: Training provided for FBO farmers and farmer facilitators

Title of the training course	Duration (Days)	Date	No of Participants (person-day)	Participants
Small irrigation development in IVS for the second cropping (1)	7	26 <sup>th</sup> Mar. – 4 <sup>th</sup> Apr., 2012	70	FBO Farmers, Masunthu
Small irrigation development in IVS for the second cropping (2)	6	5 <sup>th</sup> Apr. – 12 <sup>th</sup> Apr., 2012	59	FBO Farmers, Robis
Review of the farming practices	3	31 <sup>st</sup> May – 2 <sup>nd</sup> Jun., 2012	58	FBO farmers, 20 FBOs
Review of the farming practices	3	22 <sup>nd</sup> , 23 <sup>rd</sup> and 29 <sup>th</sup> Jun., 2012	50	FBO Farmers, 20 FBOs
Review of the farming practices	1	29 <sup>th</sup> Jun., 2012	10	Farmer facilitators
Field visit to good practice FBO field at Laya	1	9 <sup>th</sup> Nov., 2012	9	FBO farmers, 3 FBOs
Field visit to good practice FBO field at Masunthu	1	14 <sup>th</sup> Nov., 2012	14	FBO farmers, 5 FBOs
Field visit to good practice FBO field at Masiaka	1	26 <sup>th</sup> Nov., 2012	13	FBO farmers, 6 FBOs
Review of the farming practices Feature of dry season cropping	1	27 <sup>th</sup> Dec., 2012	50	FBO farmers, 3 FBOs
Review of the farming practices Feature of dry season cropping	1	5 <sup>th</sup> Jan., 2013	52	FBO farmers, 3 FBOs
Review of the farming practices Feature of dry season cropping	1	28 <sup>th</sup> Jan., 2013	52	FBO farmers, 5 FBOs
Review of dry season cropping	2	17 <sup>th</sup> and 18 <sup>th</sup> May., 2013	59	FBO farmers, 10 FBOs
Review of the farming practices	3	19 <sup>th</sup> – 21 <sup>st</sup> Jun., 2013	65	FBO farmers, 19 FBOs
<b>Total</b>	<b>31</b>		<b>561</b>	

Source: Documents prepared for terminal evaluation by the Project (November 2013)

To grasp the degree of adoption of learned techniques by the farmers, the Project conducted a preliminary survey during February and March 2013, with fifty (50) randomly-selected farmers in five (5) FBOs, i.e. *Masineh*, *Masunthu*, *Mathoreneh*, *Rotifunk* and *Tolokuray*, that were supported by the Project in 2011 and 2012. The following Table 3-4 summarizes the results of the survey.

Table 3-4: Adoption rate of rice cultivation techniques by sample FBO farmers

TP-R techniques		Adoption rate (%)	TP-R techniques		Adoption rate (%)
1	Cropping calendar preparation	14	9	Bund construction	76
2	Land preparation before sowing	88	10	Careful uprooting	84
3	Sowing at dry nursery	64	11	Use of 3 weeks-old seedling	86
4	Sun-exposed nursery	68	12	Transplant 2-3 seedlings per hill	96
5	Germination test	48	13	Shallow planting	94
6	Seed rate calculation	2	14	Planting density (20-25 cm)	46
7	Paddling	96	15	Water control	72
8	Leveling	80	16	Weeding	68

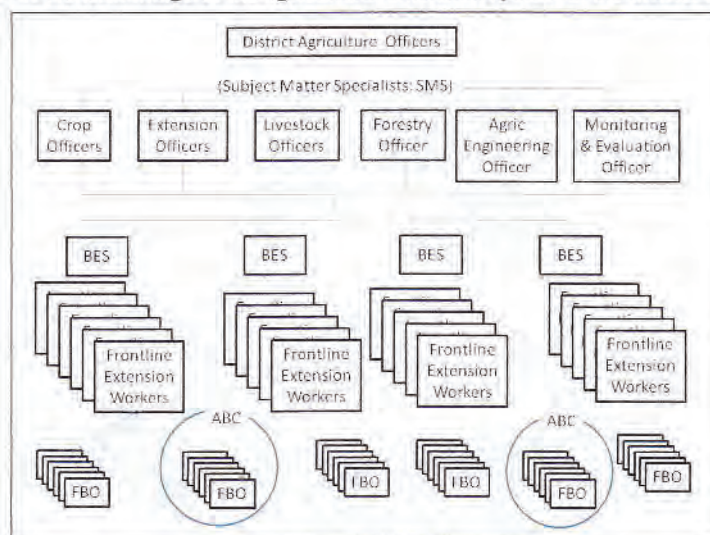
Source: PR 5 of the Project

<sup>2</sup> The actual number of FBOs supported by the Project was 40, including several FBOs producing rice in lowland but not in IVS, which could furnish the Project with the general understanding on the rice production ecologies other than IVS and comparative reference in developing revised TP-R.

Of the sixteen (16) techniques in TP-R, twelve (12) techniques have been adopted by more than 50% of the interviewed farmers. There were seven (7) techniques practiced by more than 80%. The most commonly applied techniques are the transplanting of 2-3 seedlings per hill and puddling (96%), followed by shallow planting (94%) and land preparation before sowing (88%). On the other hand, few farmers adopted seed rate calculation (2%) and cropping calendar preparation (14%).

In the setup of the MAFFS district offices, the extension activities are generally carried out as shown in the Figure 3-1 below. The Project also tried to strengthen the capacities of extension officers for effective dissemination of the revised TP-R.

Figure 3-1: General image of the agricultural extension system at the district levels<sup>3</sup>



Source: Drawn by the Team based on the interview with MAFFS

The Project has already prepared the draft extension materials on these individual technical components of the revised TP-R with the tentative recommendation on the fertilizer application, which have been shared with various stakeholders to obtain comments for further elaboration, and the final version with modifications based on their comments and feedbacks would be compiled before the end of the Project.

Similarly, the draft version of the extension guides, including guidelines and extension materials on the individual technical components of the revised TP-R, again with the tentative recommendation on the fertilizer application, have already been formulated and distributed to relevant staff of MAFFS-K and MAFFS HQ. The Project will further consult with those who are to utilize the guides so as to compile the final version before the end of the Project.

### 3-2-3. Output 3

Description	Assessment
To extend the contents of TP-R and an extension method to officials of MAFFS's district agricultural offices other than MAFFS-Kambia	Most likely to be achieved
<i>Indicator:</i> 3-1 30 officials acquire knowledge and skills of TP-R and extension method.	Most likely to be achieved

The Project is currently planning to conduct the training on TP-R in March-April 2014 for about 100 relevant officers from MAFFS districts offices nationwide, as summarized in the Table 3-5 below. Through the discussion

<sup>3</sup> It should be noted that the FBOs and ABCs are the specific names of organizations to be established under the SCP, in which the Frontline Extension Workers (FEW) and Block Extension Supervisors (BES) are given additional functions to guide these organizations as the "Community Facilitator" and/or as the "FFS Supervisor".



with MAFFS HQ, the Project considered that the target number of officers to be trained may not be enough to bring about expected impacts; it was thus decided to invite more officers, including Block Extension Supervisors (BES), crop officers and extension officers. The relevant officers of MAFFS, MAFFS-K and RARC are expected to play active role in implementation of this training.

Table 3-5: Draft Plan of the training on TP-R for the agricultural officers of other districts

Batch	Schedule	No. of participants					No. the target districts
		DAO	Crop Officers	Extension Officers	BES	Total	
1	March 17 – 19, 2014	4	4	4	22	34	4
2	March 24 – 26, 2014	4	4	4	22	34	4
3	March 31 – April 2 2014	5	5	5	21	36	5
Total		13	13	13	65	104	13

Source: Interview with MAFF HQ and JICA experts

### 3-3 Prospect of Achievement of the Project Purpose

Description	Prospect of Achievement
To establish rice production techniques and its extension method which are applicable throughout Sierra Leone	Fair
<i>Indicators:</i> 1. TP-R and extension method are officially endorsed by MAFFS. 2. 80% of MAFFS officials who received training in each district confirm effectiveness of the TP-R and its extension methods.	Fair Fair

Upon examination of the prospect for achievement of the Project purpose, there was a discussion among the Team members in terms of the applicability of the revised TP-R. As the revised TP-R has been developed based on the conditions of the IVS in Kambia district while there are other ecologies for rice production in Sierra Leone, such as mangrove swamps, bolilands, riverains and uplands, the Team agreed that the applicability should also be limited to the IVS<sup>4</sup>. With this interpretation, the prospect of achievement of the Project purpose was assessed as follows.

As examined in the previous sections, the development of the revised TP-R is well underway, but the one critical component, i.e. fertilizer application, remains to be finalized. The decision-making authorities of the MAFFS have so far been informed in detail on the accomplishment of the Project with concrete data through various meetings and seminars. In addition, they have been convinced of the effectiveness of the TP-R through direct observations and interaction with the participating farmers upon their field visit organized by the Project. It is thus generally assumed that, once the Project submits the revised TP-R with finalized recommendation on the fertilizer application, the MAFFS would accept and officially endorse the TP-R as the standards of rice cultivation to be disseminated to the IVS in the country.

As the training for the MAFFS officials from districts nationwide is scheduled to be conducted in March/April 2014, those officials would extend what they learn to the farmers in their respective areas in the rainy season 2014. This schedule does not allow sufficient time for the Project to monitor the activities of participants or for the participants to really attest to the effectiveness of the TP-R, as the yield of the rainy season may not accurately be assessed until November 2014 at the earliest, after the completion of the Project. Arrangements are thus to be made so as to provide opportunities for participants to observe the implementation of TP-R during the field visit in Kambia district, which may allow participants to better grasp the effectiveness of the TP-R and its extension method, so that a questionnaire survey may be conducted by the Project even before

<sup>4</sup> This interpretation may need to be reflected in further modification of PDM so as to avoid confusions at the time of the ex-post evaluation, which is scheduled to be conducted three years after the completion of the Project.

the actual yield can be measured in the respective districts of the participants. Nonetheless, it will be necessary for the MAFFS to conduct follow up and monitoring after the completion of the Project to evaluate the degree of application and effectiveness of the revised TP-R and its extension method.

Hence the Team foresees a fair prospect for the achievement of the Project purpose.

### **3-4 Implementation Processes of the Project**

#### **(1) Decision making and monitoring mechanism**

The JCC, which is the decision-making authority of the Project, chaired by the Minister, has so far been held six (6) times to review the progress of Project activities, to endorse the plans for the upcoming period, and to make decisions on the issues related to the Project implementation. As to the issues related to day-to-day operations, the Project manager from MAFFS-K has close and regular contacts with Japanese experts. For the monitoring of the field activities, the project assistants hired by the Project have played a vital role as the mediator between the Project personnel and the FBOs in the field. These functions for decision-making and monitoring seem to have contributed to the effective coordination among the relevant stakeholders and thus to the smooth implementation of the Project.

#### **(2) Communication among the relevant stakeholders of the Project**

Despite the fact that the Project could not organize any regular meeting among the relevant personnel because of the scattered locations of the target FBOs across the district, relatively short and intermittent assignments of the Japanese experts, involvement of personnel from different institutions, and so forth, the Project has been able to communicate well with counterpart personnel and relevant stakeholders as well as the participating farmers. During the interviews, the counterpart personnel and farmers acknowledged with appreciation the efforts made by the Project to keep them informed about the Project activities. It should be noted that they reported to the Team that they had little problems in their working with the Project, because of the planning and scheduling of activities upon prior consultations.

### **3-5 Measures taken to address the Recommendations made at the Mid-term Review**

At the time of the Mid-term Review conducted in June/July 2012, there were nine (9) issues raised as recommendations for the Project and MAFFS to address in order to ensure smooth and effective implementation of the Project activities for the rest of the cooperation period, encompassing from technical to managerial aspects of the Project. The Team confirmed that the Project has made efforts to take various measures to respond to these recommendations, the details of which are shown in the Annex 9.

## **4. Results of Review**

Through the Study, the relevance, effectiveness, efficiency, impact and sustainability of the Project were assessed, the major findings of which are described in the section below.

### **4-1 Relevance**

The relevance of the Project is evaluated as high based on the following confirmations:

#### **4-1-1 Relevance to the needs of the target regions / societies and beneficiaries.**

The Project is aiming to improve the rice productivity in Kambia district where a vast majority of the residents are engaged in agriculture, over 90% of who are cultivating rice as staple food, yet they could not attain the self-sufficiency in food. In such context, the farmers, extension officers and other relevant personnel very much appreciated the technical support from the Project. It was repeatedly shared during the interviews that the

rice cultivation techniques introduced by the Project have already brought about notable increase of yields, and that the farmers have been encouraged to continue application of these techniques. It is therefore understood that the contents and focus of the Project have adequately addressed the needs of the target areas, communities, and beneficiary farmers.

#### 4-1-2 Relevance to the development policies of the Sierra Leonean Government

Despite of the presidential election in November 2012, the Project is still consistent with the policies of the government of Sierra Leone, as the incumbent president was re-elected and there has not been any notable change either in the national development plans of Sierra Leone at higher level such as the Poverty Reduction Strategy Papers i.e. "Agenda for Change (2007-2012)" and "Agenda for Prosperity (2013-2017)", or in the sector development policy such as "National Sustainable Agriculture Development Plan (NSADP: 2010-2030)". To increase the agricultural productivity and competitiveness, particularly among the smallholder farmers, still remains as one of the major thrusts of these plans. Also, the "Smallholder Commercialization Programme (SCP: 2010-2015)," i.e. the five-year breakdown program under the NSADP, has been a flagship program of MAFFS, as well as the National Rice Development Strategy (2009-2018) that aims to enhance the rice production in the country, with which the Project is closely aligned so as to contribute toward its successful realization. The Project is thus considered to be very much consistent with these policy directions of the government of Sierra Leone.

#### 4-1-3 Consistency with the Official Development Assistance (ODA) policies of the Japanese Government

In the Country Assistance Policy for the Republic of Sierra Leone of the Japanese government formulated in December 2012, human resources development in agriculture sector is regarded as one of its priority areas. Accordingly, the current Rolling Plan puts its emphasis on the development of human infrastructure in agriculture sector with its Agricultural and Rural Development Program, of which the Project is recognized as one of the centerpieces. Also, it is clearly stipulated that, taking into consideration that Sierra Leone is a member of the CARD Initiative Countries, the government of Japan would support the establishment of more productive and profitable rice cultivation model and its dissemination for small scale farmers. From these viewpoints, it is assessed that the relevance of the Project to the Japanese aid policies is secured.

#### 4-1-4 Appropriateness of the Project design

As Kambia district was once considered as one of the "rice granaries" of the country, where the oldest research institute specialized on rice in Africa is located, the selection of target area is considered appropriate. With long history of rice cultivation, experiences and technology on rice cultivation have been accumulated in Japan both in extension and research, thus the relevance in terms of the Japan's technical advantage is also assessed as considerably high. Another aspect related to the Project design is the approach of the Project. While there are various donor supports in agriculture sector in Sierra Leone, especially to the SCP, it is generally perceived that most of donor projects are concentrated on physical development of infrastructure and provision of inputs. The Project focused on capacity development of extension workers and farmers through technical cooperation, which is considered appropriate in view of complementarities of donor assistance and aid effectiveness.

## 4-2 Effectiveness

The effectiveness of the Project is assessed as high though the following analysis:

#### 4-2-1 Achievement of the Project purpose

The Project purpose is to establish rice production techniques and its extension method which are applicable throughout Sierra Leone. Through the training and field guidance by the Project, application of improved techniques and notable increase of yield have been reported from the FBOs, and a fairly large number of members of those FBOs have also started applying the learned techniques in their individual plots, which implies the effectiveness of the TP-R. The results of the soil analysis of the various samples from other districts indicated that the fertilizer recommendation derived from field verification in Kambia district could be applicable nationwide. Hence, the Project purpose would satisfactorily be achieved by the end of the cooperation period.

#### 4-2-2 Contribution of outputs to the achievement of the Project purpose

The Project purpose is to be achieved through three means corresponding with the outputs; firstly an improved technical package of rice production techniques is developed, i.e. output 1, then the developed package is disseminated to the farmers and relevant stakeholders involved in or to support the rice production within Kambia district, i.e. output 2, and lastly, the package is to be further disseminated to the districts other than Kambia, i.e. output 3. The logical sequence between these outputs and Project purpose is appropriate, and as the outputs are being achieved as described in the previous section, the Team considers that these outputs would adequately contribute to the achievement of the Project purpose.

#### 4-2-3 Analysis of factors

##### (1) Promoting factors

It was fortunate for the Project that the continuity of the involvement of counterpart personnel in key positions for implementation was secured, such as the promotion of the Monitoring and Evaluation Officer of MAFFS-K to the DAO. The Project has also employed some of the retired extension officers who have been working in the target areas, who could play a vital role in Project implementation with their accumulated knowledge and experiences in the field. The continuity of involvement of experienced personnel who have already had rapport with target farmers as well as with the Project was found to have contributed to a considerable degree to the smooth implementation of the Project.

##### (2) Hampering factors

The Project was designed in close alignment with the SCP, the national flagship program. It was presumed that the SCP would provide various supportive measures to facilitate extension officers to conduct FFS as well as to promote production activities of the FBOs, with which the Project activities and inputs were designed. However, the support for the extension activities planned under the SCP has not been provided due to the delay in signing of Memorandum of Understanding (MOU) in this regard between the MAFFS and Global Agriculture and Food Security Program (GAFSP), which resulted in increased financial requirements for the Project. Insufficient support in terms of mobility as well as incentives for the extension officers, for example, understandably brought some negative effects on their motivations for and performances in the field activities. The delay of the SCP implementation also casts questions in terms of sustainable dissemination as well as application of the revised TP-R in future, as the fertilizer application is one of the most important components of the package.

Another aspect that drew the concern of the Team was the physical and social environments in the target areas of the Project. The villages of the target FBOs are scattered across rural areas, where insufficient means of communication and physical infrastructures are generally observed. It is also difficult in these areas to avail sufficient number of qualified human resources who could assist logistics of the Project activities. Although the Project could manage to proceed with its activities through the efforts of the relevant personnel

and with assistance from MAFFS-K, these conditions may need to be noted as potentially hampering factors for the field operations of the Project.

#### 4-2-4 Important assumptions

Although the yield performances in a few FBOs have negatively been affected by the flooding of the plots in rainy season 2013, the Project activities have not been hampered by any notably serious climate problem. The majority of the trained district technical staff has continued their services to promote rice production of the FBOs in their respective areas. As for the fertilizer, the FBOs have been provided with necessary fertilizer by the Project, although the presumed provision of fertilizer through the SCP was delayed. Therefore, the Team understood that there has not been much influence caused by the change of the important assumptions.

#### 4-3 Efficiency

The efficiency of the Project is assessed as high, despite some difficulties encountered as described in the following:

##### 4-3-1 Inputs by Japanese Side

The Japanese experts in the relevant fields of expertise have properly played their expected roles in the course of the implementation of the Project, which is appreciated by the counterpart personnel as well as by the members of the FBOs. However, some Project personnel regret that the assignment of the Japanese experts has generally been short and intermittent. Coupled with the fact that the counterpart personnel were assigned from different institutions, it was difficult to work as one cohesive project team that enables mutual sharing and close consultation.

The equipment and machineries required for the Project activities and technical transfer have duly been provided and kept in good conditions. These machinery and equipment are fully utilized in training, regular monitoring activities and management of the Project.

The timing, duration and subjects of the overseas training under the arrangement of the Project are generally assessed as adequate. The ex-training participants unanimously appreciate that their learning from the training were very useful.

##### 4-3-2 Inputs by Sierra Leonean Side

The counterpart personnel were duly assigned from MAFFS, RARC and MAFFS-K to participate in the Project activities. It should not be denied, however, that the degree of the involvement of some counterpart personnel could have further been enhanced.

The Team regrets that the Sierra Leonean government could not manage their funds as agreed on the R/D to be allotted for operational expenses mainly due to the delay in the implementation of the SCP, which required additional financial arrangement for the part of the Project.

##### 4-3-3 Utilization of the outcomes and experiences of foregoing JICA technical cooperation project

Prior to the Project, there was ADPK, another technical cooperation project assisted by JICA, through which improved rice cultivation techniques were already identified in the TP-R. Not a small number of the counterpart personnel of the Project had also participated in the precedent ADPK, and had acquired basic knowledge on and practical experiences in improved rice cultivation techniques. It should thus be noted that utilization of the readily available human resources together with the tangible outcomes of ADPK have contributed to the efficiency of the Project to a considerable degree.

#### 4-4 Impact

Relatively high and positive impacts are expected from the implementation of the Project, as described in the following:

##### 4-4-1 Prospect of Achievement of the Overall Goals

Description	Prospect of Achievement
1. To increase rice production in Kambia district 2. To apply the Technical Package on Rice Production (TP-R) and extension method all over Sierra Leone	1. Moderate 2. Moderate
<i>Indicators:</i> 1. Rice production is increased 30% in Kambia district compared with the rice production in 2014. 2. Extension workers of the district agricultural offices in the country other than Kambia district disseminate revised TP-R using extension method developed under the Project to farmers more than 10,000 persons by the end of 2018.	Moderate  Moderate

Upon examination of the prospect for achievement of overall goals, the same discussion was raised on the applicability of the revised TP-R as in the discussion on the Project purpose. By applying same interpretation that the applicability of TP-R should be limited to IVS, the Team tried to make a projection through rough estimation based on the yield data on the FBOs. It should be noted, however, that the data referred in the examination do not cover all of the IVS, nor by any means represent general trends of rice production in the IVS in the districts.

The following Table 4-1 summarizes the yield performances of the group farms of the FBOs where the revised TP-R with tentative recommendation of fertilizer application was practiced. Although the participating FBOs are not same in all seasons, a gradual increase is observed. As to the rainy season cropping, the rate of yield increase over two years have already reached to 43%<sup>5</sup>, while the yield of dry season cropping could increase by 41.4% in one year.

Table 4-1: Yield performances of the group farms of the FBOs

Cropping season	No. of group farms	Average yield (Mt/ha)	Increase from previous season		Increase from the first year	
			(Mt/ha)	(%)	(Mt/ha)	(%)
Rainy season						
2011	21	1.33				
2012	10	1.66	0.33	24.9	0.33	24.9
2013	14	1.90	0.24	14.5	0.57	43.0
Dry season						
2011/12	8	1.73				
2012/13	10	2.44	0.72	41.4	0.72	41.4

Source: Consolidation of the data from PR3, PR5 and PR6 of the Project

As far as these data are concerned, the prospect for achieving the target indicator for the overall goal 1 seems to be high, but under the condition that similar interventions will be extended to other FBOs in Kambia district through the continuous efforts of the MAFFS-K after the completion of the Project. The issues and measures related to the sustainability of the future interventions are separately discussed in the following section 4-5.

As for the overall goal 2, i.e. dissemination of TP-R to the farmers in districts other than Kambia, the Team could not obtain any basis for assessment at the time of the Study except for the number of agricultural officers to be trained on TP-R, based on which a rough projection was made. As it is planned to train relevant officers

<sup>5</sup> It should be noted that the trend of yield increase continues despite the fact the Project reduced the dosage of the fertilizer to be applied by 25 % in the rainy season 2013.

including 65 BES each of whom is to guide 8 frontline extension workers, it is expected that 520 extension officers would be equipped with TP-R. Based on the assumption that each of these extension workers would annually disseminate TP-R to at least one FBO, composed of 30 farmers on average, the total coverage by the end of 2018, about four years after the Project, would exceed 15,000 farmers. Although there may be a room for consideration in terms of the applicability of the TP-R that is limited to the ecologies of IVS, it is generally considered that the target is achievable, yet under the condition, again, that appropriate supportive measures would be taken to facilitate the field activities of the extension officers and that proper monitoring would be conducted after the completion of the Project.

#### 4-4-2 Positive Impacts

During the Study, the Team found that there have been positive impacts from the Project on the agricultural production, income and food security of the participating farmer beneficiaries. With introduction of improved rice cultivation techniques, increases in yield performances have been reported by all of the interviewed FBOs, although the degrees of increase vary. Many of them are no longer suffering from the food shortage in the crucial months before the harvest, while securing the seeds for the next cropping season, and some of them can even obtain additional cash income from the sale of production surplus.

Aside from these tangible changes, some of the interviewed FBOs shared with the Team that the relationship among the group members has improved, even though some groups had existed prior to the intervention of the Project, through intensive collaboration with external monitoring, which made them discuss and share information more frequently. It should also be noted that many of the FBOs have already disseminated what they have learnt from the Project to other farmers in and around their communities. They receive favorable recognition by the local authorities such as village headmen, and in some cases, even their fields have been visited by the paramount chief of their respective chiefdom. Such opportunities have made them feel proud of themselves, or feel that they are gaining respects from other farmers. Although these are not always the case for all of the FBOs interviewed, such social cohesiveness and self esteem should be appreciated as positive impacts derived from the undertaking of the Project activities.

#### 4-4-3 Negative Impacts

There has not been any negative impact observed or reported at the time of the Study.

### 4-5 Sustainability

The sustainability of the Project is assessed as lower moderate, as there are aspects that need further reinforcement, while a fair sustainability is expected in a few other aspects as described in the following:

#### 4-5-1 Policy and institutional sustainability

The Project was designed and has been implemented in close alignment with the SCP, which is the national flagship program of the current administration. As the SCP is an initial part of the longer-term development plan of the agriculture sector of the Sierra Leonean Government, it is anticipated that the improvement of agricultural productivity, especially among the smallholders, will continue to be a key strategy, and that self sufficiency of rice will remain as one of the primary objectives of the agricultural plans and programs. It is thus assumed that the policy support would continuously be secured for the coming years.

As to the institutional aspects, the issue of utmost importance is the official endorsement of the TP-R as a standard of rice cultivation in IVS throughout the country, once the revised version is finalized. To ensure continuous dissemination of TP-R and its expected impacts in the future, a certain monitoring mechanism should also be established within the institutional arrangements of MAFFS both at HQ and at the district level, which



has not yet been planned or even discussed among relevant stakeholders at this stage.

Therefore, the sustainability in policy aspects is assessed as high, while there should be further efforts to be made to secure institutional sustainability of the Project.

#### 4-5-2 Organizational and financial sustainability

The activities of the Project have been carried out in line with the existing organizational structure of agricultural extension and within the scopes of their mandates, continuity of which seemed to be assured, yet the operational functions of these organizations tend to be hampered by insufficient resource allocation. It has repeatedly been pointed out that the financial resources allotted to the extension as well as to the research activities by the government itself are limited, which has chronically been augmented by various supports from donors. The insufficient human resource allocation is found to be another constraint to realize continuous and close monitoring of the activities of the FBOs and to conduct on-farm researches that are essential for further dissemination of TP-R. Although there are efforts being made by MAFFS to increase the number, as well as to develop the capacities, of extension officers and researchers, the process would inevitably take time. In current situation, the Team observes that the effective coordination among the donor-assisted programs and projects is required to secure the organizational and financial sustainability of the implementing agencies.

For the part of the FBOs, there seem to be various challenges: the farmers are generally suffering from the insufficiency of production capital. While some FBOs have already existed prior to the intervention of the Project, and all target FBOs of the Project have been selected after they were trained through FFS under the SCP, most of the FBOs are operating in a rather informal manner, and they are still in the embryo stage in terms of management capacities. Without proper organizational management, their financial basis may not be sustainable. The organizational and financial sustainability of the FBOs may largely depend on the possible future supports to the FBOs, such as guidance, supervision and consultation in terms not only of production technologies but also of organizational management.

#### 4-5-3 Technical sustainability

The Project has conducted extensive training on the TP-R and its extension methods for the extension officers in Kambia district through seminars, training courses, and guidance in their field activities. Some of the extension officers have already acquired knowledge and skills to effectively transfer the technologies to farmers. However, the number of those who are technically competent enough to continuously play their expected role in further dissemination of the TP-R is still limited, so that further capacity development of extension officers is essential. It is also important to train the agricultural officers, including BES and extension officers who have gained experience through the Project to be the trainer for the future training on the revised TP-R so as to ensure the technical sustainability of the implementing agencies.

The Team confirmed that most of the participating FBOs have achieved increase in the yield by applying the revised TP-R, while the degree of increase varies among FBOs, which has also drawn attention and interests of other farmers in and around their communities, resulted in the spontaneous diffusion of the technologies. Nonetheless, the uncertainty of availability and affordability of fertilizer was unanimously raised by the interviewed farmers as well as by the extension officers as most critical issue for continuous adoption of the revised TP-R. In some FBOs, although the dry season cropping is undertaken in their group farms, the farmers told the Team that they do not cultivate in their individual plots because they cannot afford fertilizer and that they may waste the seeds if they grow rice in dry season. This case may be an indication of their misperception that the TP-R cannot bring benefits without fertilizer application. Members of some other FBOs, however, are adopting only the affordable technologies of the revised TP-R, excluding application of fertilizer, and obtaining better yield than before. Therefore, in order to ensure the technical sustainability at the FBO levels, it is deemed



essential either to provide proper financial or any other form of support, or to introduce the technical components of the revised TP-R in an à la carte and/or step-by-step manner.

#### **4-6 Conclusions**

The Team has confirmed that the expected outputs have largely been achieved without any critical problem or notable delay in the implementation of the Project. It was also assured that the Project would successfully achieve its purpose within the cooperation period.

### **5. Recommendations**

#### **5-1 Recommendations for the Remaining Period of the Project**

##### **5-1-1 Finalization of the TP-R**

It is expected that the Project would finalize the TP-R with the results of the current on-farm verification. The Team recommends the Project to carefully analyze the data and thoroughly discuss with relevant stakeholders to finalize the revised TP-R so as to facilitate the process of obtaining the official endorsement of the revised TP-R.

In preparation of the final version of the TP-R, the composition of the package should cautiously be examined. The revised TP-R is to be developed in line with and as a set of technical standards for the SCP, therefore the higher yield than the one attained by the original TP-R was set as the target of package development. Fertilizer application and fertilizer-related technical components have thus become inevitable parts and parcel of the revised TP-R, pre-requisite for the application of which is the secured availability of fertilizer for the FBOs. During the implementation of the Project, the progress of the SCP has always been monitored so as to confirm the feasibility of the revised TP-R to be developed, but there has not been tangible progress or any concrete decision made to date in terms of the support for FBOs to avail fertilizer. In view of sustainability, it is essential for the Project to examine the composition of the final version of the revised TP-R and to find out the appropriate ways to introduce the package in future dissemination, such as selective application of a part of the package or step-by-step introduction of a set of several integral components, allowing the trained agricultural officers to decide, based on the local contexts, whatever the feasible technical components to be disseminated, not necessarily as the complete set of all.

##### **5-1-2 Promotion of the TP-R to the donor communities**

As the Project has publicized its activities as well as the concepts and technical components of TP-R through presentations at various donor meetings, distribution of newsletters and direct communication, many donors have now become aware of the TP-R. Some donors do appreciate the TP-R, and are eager to utilize it in the activities of their projects and programs, especially in those that support the SCP. As the TP-R is the major output of the Project, it is important for the Project to further disseminate information on the TP-R as well as to continue consultation so as to promote the TP-R to be utilized in whichever the applicable projects and programs of other stakeholders who support the SCP and/or promotion of rice production. As the Project plans to organize a final seminar by the end of the cooperation period where the final version of the TP-R would be presented, it is also recommended to the Project to invite a wide range of audience to the seminar, including the donor agencies, NGOs and other institutions that have potentials of making good use of the TP-R and its extension method.

#### **5-2 Recommendation for the Future (after the Completion of the Project)**

##### **5-2-1 Sustainable dissemination of the TP-R**

Although an initial training for relevant agricultural officers of the districts all over the country to disseminate the finalized TP-R will be conducted by the Project during its cooperation period, further dissemination of the

TP-R after the completion of the Project should be continued through the efforts of the implementing agencies. It is thus recommended to MAFFS, SLARI and RARC to formulate concrete training and dissemination plans with specific measures to ensure effective dissemination of TP-R to the farmers by the trained officers while providing close supervision and monitoring through cascade of current extension mechanism. It is also the responsibility of MAFFS to secure the funds to implement these plans, either through accelerated coordination with donor agencies, or through mobilizing whatever the available resources to realize the planned activities, even on a limited scale. The relevant authorities of MAFFS are requested to put their committed efforts to sustain the outcomes and impacts of the Project.

#### 5-2-2 Efforts to ensure the implementation of the SCP

As mentioned in the earlier part of this report, delayed implementation the SCP activities has brought some difficulties in the implementation processes, and, more importantly, would cast questions in terms of sustainability of the Project. As the realization of the SCP Component 1 is a pre-condition for the revised TP-R to be effectively applied, it is recommended to MAFFS to make steady steps towards sound implementation of the SCP, including hiring of new and qualified extension workers. Also, it is essential for MAFFS to strengthen the mechanism to monitor and evaluate the SCP activities and outcomes, to analyze the inhibiting factors and countermeasures, as well as to draw out useful feedback to the subsequent activities.

#### 5-2-3 Improvement of the Quality of IVS Development

Water management is one of the most important technical components of the revised TP-R which highlights the fertilizer application as the essential factor to realize higher yields. The IVS development and rehabilitation of lowland farms are thus considered as basic requirements for better application of the TP-R. However, the Project has observed in Kambia district that some of the engineering works carried out under the programs of other donor agencies were not of optimal quality, leaving inadequately prepared lands for the paddy fields, as paddy field generally require finer-tuned land leveling compared to regular land preparation. As the land rehabilitation and/or consolidation require engineering work, most of which cannot be accomplished by the farmers' own initiatives and casual labor, it is recommended to MAFFS to better coordinate with the donors who sponsor the IVS development as well as with any other stakeholders who can improve the quality of work in the IVS development.

#### 5-2-4 Development and/or update of rice cultivation techniques in other ecologies

There are five recognized ecologies for rice production in Sierra Leone, i.e. mangrove swamps, IVS, bolilands, riverains and uplands, among which the IVS is regarded as the most potential ecology in the NRDS. Accordingly, the revised TP-R has been developed by the Project based on IVS conditions, which is thus, in principle, for the application to the IVS. In view of future promotion of rice production in Sierra Leone as a whole, as envisioned in the NRDS, it is recommended to MAFFS, SLARI and RARC to make efforts to develop and/or update cultivation techniques to increase rice production also in ecologies other than the IVS.

## 6. Lessons Learnt

### 6-1 Careful alignment and close coordination with the projects and program of other donor agencies

It was found out during the implementation of the Project that some of the farmlands of the target FBOs of the Project were rehabilitated by other donors' projects under the SCP, or the farmlands were developed in the areas where the Project was supporting the FBOs. Though the Project was benefitted from such interventions from other donors, as such physical development made it easy to introduce water management and other related components of the TP-R, it should not be overlooked that the synergy was of accidental nature, not as the results

of prior consultation and/or coordinated planning. There was another incidence, on the contrary, that several FBOs which had already been supported by the Project received overlapping input supports from another donor's projects, again, under the SCP. There are many projects and programs of different donor agencies implemented under the SCP, but such duplication of activities could have been avoided if better coordination was made. It is therefore essential for any future project which aims to contribute to a comprehensive program of the recipient government, to which various supports from other donors are also extended, that careful alignment and close coordination with interventions of other donor agencies should be made, not only at the initial stage of planning and designing, but throughout the course of the project implementation.



## Annex 1: Schedule of the Terminal Evaluation

Date	Day	Masanori Kurisu (JICA HQ) Team Leader Maki Katoh (JICA HQ) Evaluation Planning	Keiko Itagaki (Consultant) Evaluation Analysis	Sierra Leonean Team Members Mr. B.J. Bangura (Leader) Mr. J.S. Bangura (Member) Mr. Umaru Sankoh (Member)
6-Jan	Mon		Depart Japan	
7-Jan	Tue		Arrive in Sierra Leone	
8-Jan	Wed		9:00 Meeting at JICA SLFO 10:00 Courtesy call on and interview with Director General (DG), MAFFS 12:00 Explanation of evaluation to Sierra Leonean evaluation team members 16:00 <del>WB Mr. Hardwick Tchale</del>	12:00 Discussion on the evaluation study
9-Jan	Thu		10:00 Interview with Director of SLARI Leave Freetown for Rokupr	
10-Jan	Fri		11:00: Interview with counterpart personnel of RARC 12:00: Interview with DAO and heads of division, extension workers, MAFFS-K PM: Site visit (2 sites)	
11-Jan	Sat		Site visit (2 sites)	
12-Jan	Sun		AM: Interview with Japanese experts PM: Leave Kambia for Freetown	
13-Jan	Mon	Depart Japan	Data analysis & report preparation	
14-Jan	Tue	Arrive in Sierra Leone	Data analysis & report preparation	
15-Jan	Wed		08:30: Meeting with SLFO Staff and Experts at JICA SLFO 10:00: WFP Deputy Country Director (Ms. Yakiya) at WFP 11:00: MAFFS Director General interview and C/P 15:00: Courtesy call on and interview with Director General, SLARI	
16-Jan	Thu		10:00: Courtesy call on Vice. Minister of Agriculture, Forestry and Food Security Leave Freetown for Rokupr 14:00: Interview with CP (Research coordinator, outreach program, chemical analysis) of RARC Observation of RARC facilities 15:30 (tentative): Leave Rokupr for Kambia	
17-Jan	Fri		9:00 Meeting with DAO, MAFFS-K, and Presentation from CP on the project activity and results - Site visit, Interview with FBO farmers	
18-Jan	Sat		- Field visit to the rice producing areas in the mangrove swamps	
19-Jan	Sun		- Leave Kambia for Freetown - Internal meeting	
20-Jan	Mon		9:00 Meeting with Africa Rice Center Rice Research Coordinator Dr. Bert Meertens at JICA SLFO - Preparation of Evaluation Report at SLFO (Meeting of Joint Evaluation Team)	
21-Jan	Tue		9:00 BRAC Country Representative Mr. Tapan Kumar Larmaker at BRAC 16:00 IFAD Country Officer Ms. Mariatu Kamara at IFAD	Circulation of draft report to relevant officers to obtain comments and feedback
22-Jan	Wed		9:00 Meeting with FAO Senior Technical Officer Rural Institutions Building Mr. Walter de Oliveira at FAO 14:00 Meeting with AfDB (ASREP: Mr. Farah Konkofa KOROMA) at AfDB	
23-Jan	Thu		- Preparation of Evaluation Report at JICA SLFO - Signing of Evaluation Report at MAFFS, Freetown	
24-Jan	Fri		AM: Joint Coordinating Committee (JCC)/Signing of Minutes of Meeting PM: Reporting to JICA SLFO	
25-Jan	Sat		- Depart Sierra Leone	
26-Jan	Sun		- Depart France	
27-Jan	Mon		Arrive in Japan	

## Annex 2: Project Design Matrix (Version 2)

Project Title: Sustainable Rice Development Project in Sierra Leone

Project Period: 4 years (from October 2010 to September 2014)

Implementing Agency: Ministry of Agriculture, Forestry and Food Security (MAFFS)

Target Area: Mainly Kambia district

Beneficiaries: FBO farmers supported under SCP, RARC and MAFFS Kambia office (MAFFS-K)

Date of revision: July 10, 2012

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b> To increase rice production in Kambia district To apply the Technical Package on Rice Production (TP-R) and extension method<sup>1</sup> all over Sierra Leone</p>	<p>1. Rice production is increased 30 % in Kambia district compared with the rice production in 2014. 2. Extension workers of the district agricultural offices in the country other than Kambia district disseminate revised TP-R using extension method developed under the Project to farmers more than 10,000 persons by the end of 2018</p>	<p>1. Statistical data on rice production 2. Data of the district agricultural offices in the country,</p>	<p>- No significant change in national policy on rice development is made.</p>
<p><b>Project Purpose</b> To establish rice production techniques and its extension method which are applicable throughout Sierra Leone</p>	<p>1. TP-R and extension method are officially endorsed by MAFFS 2. 80 % of MAFFS officials who received training in each district confirm effectiveness of the TP-R and its extension method.</p>	<p>1. Document of endorsement 2. Results of questionnaire survey to officials of MAFFS district agricultural offices</p>	<p>- Necessary budget for extension of the TP-R is secured.</p>
<p><b>Outputs</b> 1. To revise the TP-R, which can realize higher yield and profit, through on-farm verification</p>	<p>1-1. More than 3.0 Mt/ha of yield<sup>iii</sup> is obtained more than 80% of locations of on-farm verification, where revised TP-R is applied, in the cropping seasons by 2013. 1-2. Revised TP-R, that includes method on appropriate dosage of fertilizer and profitability, is developed. 1-3. A manual on TP-R for use of extension workers is produced.</p>	<p>1-1. Project reports 1-2. Document on TP-R 1-3. Manual on TP-R</p>	<p>- Water control environment is ensured. - Fertilizer is secured by FBO farmers</p>
<p>2. To extend TP-R to small-scale farmers through Farmers Based Organizations (FBOs) in Kambia district</p>	<p>2-1. More than 300<sup>iii</sup> FBO farmers receive training on TP-R 2-2. More than 50% of the FBO farmers who received training applies several techniques of the TP-R. 2-3. Extension materials for disseminating revised TP-R are prepared 2-4. A guideline on implementation of Farmer Field School (FFS) on rice cultivation based on the TP-R is developed.</p>	<p>2-1. Project reports 2-2. Sample Survey to farmers 2-3. Extension materials 2-4. Guideline on implementation of FFS</p>	
<p>3. To extend the contents of TP-R and an extension method to officials of MAFFS's district agricultural offices other than MAFFS-Kambia.</p>	<p>3-1. 30 officials acquire knowledge and skills of TP-R and extension method.</p>	<p>3-1. Project reports</p>	

Activities	Inputs	
<p>1-1. To collect information on rice production in other districts than Kambia and conduct field survey, as necessary</p> <p>1-2. To decide direction for revision of the TP-R developed at the previous JICA cooperated project</p> <p>1-3. To make annual plans of TP-R trials (on-farm verification)</p> <p>1-4. To select locations where on-farm verification on TP-R are implemented</p> <p>1-5. To implement pot-experiments of fertilizer application at the Rokupr Agricultural Research Center (RARC) and on-farm verifications at selected farm fields</p> <p>1-6. To monitor and analyze findings of the pot-experiment and on-farm verifications in view of various aspects</p> <p>1-7. To reflect the results of the on-farm verifications and reaction of farmers involved into TP-R</p> <p>2-1. To make annual plans of extension in line with the Farmers Field School (FFS) method</p> <p>2-2. To produce draft guideline on implementation of FFS on rice cultivation based on TP-R and extension materials for FFS</p> <p>2-3. To select FFS test plots in collaboration with the selected FBOs</p> <p>2-4. To prepare training materials for extension workers and farmer facilitators</p> <p>2-5. To train Front Extension Workers (extension workers) and farmer facilitators of the selected FBOs</p> <p>2-6. To implement extension activities based on the FFS test plots</p> <p>2-7. To monitor progress of the extension activities</p> <p>2-8. To wrap up the results of the extension activities and compile them to an improved extension method of TP-R</p> <p>3-1. To make training plan for officials of the district agricultural offices of MAFFS other than Kambia district.</p> <p>3-2. To conduct trainings on TP-R and extension method</p> <p>3-3. Monitor situation of utilization of TP-R and extension method at each district office</p>	<p>&lt; Japanese Side &gt;</p> <ul style="list-style-type: none"> <li>- Experts <ul style="list-style-type: none"> <li>1. Chief adviser</li> <li>2. Rice cultivation technique</li> <li>3. Post-harvest technique</li> <li>4. Extension</li> <li>5. Farmers organization</li> <li>6. Coordination</li> </ul> </li> <li>- Equipment <ul style="list-style-type: none"> <li>1. Vehicles</li> <li>2. Necessary equipment for extension activities</li> <li>3. Other necessary equipment</li> </ul> </li> <li>- Counterpart training in Japan and/or third country</li> <li>- Operational expenses</li> </ul> <p>&lt; Sierra Leonean side &gt;</p> <ul style="list-style-type: none"> <li>- Counterparts</li> <li>- Project office</li> <li>- Facilities for technical verification at RARC</li> <li>- Operational expenses</li> </ul>	<p>- Extension workers who took the trainings remain in the same position.</p>
		<p><b>Pre-condition</b></p> <p>- Security condition in the target areas does not deteriorate.</p>

<sup>i</sup> Extension method means the practical guideline on implementation of FFS and extension materials on rice cultivation

<sup>ii</sup> Applicable places are rice fields in IVS (Inland Valley Swamp) where field water control is possible for effective fertilization.

<sup>iii</sup> FBO farmers which are advised and monitored intensively by Supervisors and Japanese experts in wet season of 2012 and 2013



## Annex 4: Evaluation Grid

### Sustainable Rice Development Project in Sierra Leone: Terminal Evaluation

#### 1. Evaluation Grid

Evaluation criterion	Evaluation Question		Information/ data required	Information source	Data collection method
	Main Question	Sub Question			
Relevance	Is the Project still in line with the priorities in the development plans and program of Sierra Leone?	Is the increase of rice production by small-scale farmers recognized as an important aim within the national development plan of Sierra Leone?	Policy status or importance Opinions of persons concerned	National Sustainable Agriculture Development Plan 2010-2030, and NRDS, MAFFS	Data review and Interview
		Is RSDP aligned with SCP, and is that alignment visible and recognized by Sierra Leonean government?	Policy status or importance Opinions of persons concerned	National Sustainable Agriculture Development Plan 2010-2030, MAFFS	Data review and Interview
	Is the Project priority in the Japan's foreign assistance policy and JICA's country programs?	Does the Project conform to the priority assistance subjects of Japanese Government and JICA?	Priority assistance subjects of Japanese Government and JICA to Sierra Leone	Country Assistance Policy of Japan, JICA's Rolling Plan	Data review
	Has the Project been adequate means to address the development issues in Sierra Leone?	Does the Project appropriately address the issues of rice sectors development?	National policies & programs related to the rice sector development	National policy documents, staff of the MAFFS, MAFFS-K, and PARC.	Data review and interview
		Does the Project properly address the needs and context of implementing agencies?	Plans and program of MAFFS-K, RARC, and FBOs.	Policy documents, staff of MAFFS-K, RARC, and FBOs.	Data review and interview
	Does the Project respond to the needs of the target area and target group?	Is necessity on increase of rice production by small-scale farmers in Sierra Leone high?	Information about the needs of the target area and society	Staff of the MAFFS, MAFFS-K, farmers of targeted FBO in Kambia, etc.	Data review and Interview
		Did the Project respond to the needs of the beneficiaries?	Information about the needs of the target group.	Farmers of the targeted FBOs, Rokupr Agricultural Research Centre (RARC), MAFFS-K, etc.	Interview
		Has the size of the target group been appropriate? (10 -15 rice producing FBOs, RARC and MAFFS-K)	No. of beneficiaries Opinions of persons concerned	Project staff, statistics	Data review and interview
	Has the Project applied appropriate approach?	Was the Project approach accepted by the beneficiaries?	Opinions of persons concerned	Project records and staff, sample beneficiaries	Data review and interview
		Has the Project equitably brought about the benefit?	Project benefits enjoyed by different strata of target groups	Project records and staff, sample beneficiaries	Data review and interview
		Is there any advantage of Japanese technologies?	Technologies transferred through the Project	Project staff, Project records	Data review and interview
	Have there been any changes in the environment of the Project?	Have there been any changes in the social, political and other conditions assumed prior to the commencement of the Project?	Information on the environment of the Project	Project staff, Project records	Data review and interview



Evaluation criterion	Evaluation Question		Information/ data required	Information source	Data collection method
	Main Question	Sub Question			
Effectiveness	Is the prospect of achieving the Project Purpose high?	Is the progress toward achievement of Project Purpose on track?	See 3. Table of Achievement		
		Has the Project purpose been specific enough?	Definition, understanding on the Project purpose among the Project personnel	Project staff, Project records	Interview
		Have there been any synergy effects through cooperation with other donors?	Baseline information, opinion of stakeholders	Project reports and staff, other donors	Data review and interview
		Based on the recommendation from Mid-Term Review, was the development of IVS accelerated?	Baseline information, relevant documentations, observation by stakeholders	Relevant documents, staff of the Project, MAFFS, and MAFFS-K	Data review and interview
		Will there be any potential obstacles that may hinder the achievement of the Project Purpose?	information on the potential risks and obstacles and possible countermeasures	Project personnel, Project records	Interview, discussion with Project staff
	Is the delivery of the Outputs contributing toward the achievement of the Project Purpose?	Did the MAFFS/MAFFS-K staff knowledgeable and skillful in FFS extension method participate in the Project so as to ensure effective implementation of the FFS?	Competence and knowledge of MAFFS/MAFFS-K C/P to the Project, opinion of Project staff	Staff of the Project, MAFFS, and MAFFS-K	Interview
		Was the achievement of the Project Outputs sufficient to achieve the Project Purpose? Was the logical sequence of the Project Outputs leading to the achievement of the Project Purpose valid?	Information on the results of activities that indicate the cause-effect relationship	Project staff, Project records	Data review and interview
	What has been the influence of Important Assumptions which are described in PDM?	Are the Important Assumptions connecting the Project Outputs to the Project Purposes still valid?	Current status and past events related to the important assumptions	Project staff, Project records	Data review and interview
		Did any of the Important Assumptions affect the Project operation?	Current status and past events related to the important assumptions	Project staff, Project records	Data review and interview
	What are the factors that influenced the achievement of the Project operation?	What are the factors that hindered the achievement of Project operation?	Information on any relevant events in the course of Project implementation	Project staff, Project records	Data review and interview
		What are the factors that contributed toward the achievement of the Project operation?	Information on any relevant events in the course of Project implementation	Project staff, Project records	Data review and interview

Evaluation criterion	Evaluation Question		Information/ data required	Information source	Data collection method
	Main Question	Sub Question			
Efficiency	Is the prospect of achieving the Project Outputs high?	Is the progress toward the achievement of Project Outputs on track?	See 3. Table of Achievement		
	Have the inputs been appropriate to produce the outputs?	Have the timing, number, duration, and fields of Japanese experts dispatched been appropriate?	Records on Japanese experts	Project reports and staff	Data review and interview
		Have the timing, duration, contents of C/P training been appropriate?	Records on C/P training	Project reports and staff	Data review and interview
		Have the timing, volume, and specification of provision of equipment been appropriate?	Records on equipment provision, record of usage, opinions of stakeholders	Project reports and staff	Data review and interview
		Have the timing, number, fields and competency of the C/P personnel been appropriate?	List of C/P personnel	Project reports and staff	Data review and interview
		Were the physical facilities sufficient to implement the Project activities?	Information on the facilities	Project records, opinions of experts	Interview, site visits
		Has the scale of Project cost been appropriate for the planned inputs?	Budget and expenditure	Project record and staff, JICA staff	Data review and interview
		Was there sufficient coordination among Sierra Leonean implementing partners so as to ensure successful implementation of the Project?	Opinions of stakeholders.	Project reports and staff	Data review and interview
	Is the accomplishment of the Activities contributing toward the delivery of the Outputs?	Was the successful accomplishment of the Activities sufficient to deliver the Project Outputs? Was the logical sequence of accomplishment of the Project Activities leading to the achievement of Project Outputs valid?	Information on the results of activities that indicate the cause-effect relationship	Project staff, Project records	Data review and interview
	What has been the influence of Important Assumptions which are described in PDM?	Are the Important Assumptions connecting the Project Activities to the Project Outputs still valid?	Current status and past events related to the important assumptions	Project staff, Project records	Data review and interview
		Did any of the Important Assumptions affect the Project operation?	Current status and past events related to the important assumptions	Project staff, Project records	Data review and interview
	Utilization of inputs	Is the equipment provided under the Project being appropriately used?	Situation of utilization of equipment	List of equipment procured, opinions of Japanese experts & C/Ps, Observation at site	Data review, Interview, and site visit
	What are the factors that influenced the efficiency of the Project operation?	Are the engagements of C/Ps in the Project stable?	Compare planned assignment of C/Ps and their present assignment	Various project reports, etc.	Data review
		What are the factors that hindered or contributed to the efficiency of the Project operation?	Opinions of persons concerned	Japanese experts & C/Ps	Interview

Evaluation criterion	Evaluation Question		Information/ data required	Information source	Data collection method
	Main Question	Sub Question			
Impact	Is there expectation of achievement of the Overall Goal by the year 2017 or 2019 (3 to 5 years after the completion of the Project)?	Will rice production likely be increased by 30% in Kambia District compared with the rice production in 2014?	See 3. Table of Achievement		
		Will more than 10,000 farmers outside of Kambia District be disseminated TP-R by the end of 2018?	See 3. Table of Achievement		
		Has any method or mechanism been suggested to achieve the Overall Goal?	Future plan of the government, opinion of the Project staff	Staff of the implementing agencies, Project staff	Data review and interview
		Will the achievement of the overall goal contribute toward bringing positive impacts to the policies of Sierra Leonean government?	Current program, future plan of the government, opinion of the Project staff	Staff of the implementing agencies, Project staff	Data review and interview
		Are there any factors that can hinder or contribute toward the achievement of the Overall Goal?	Information on any relevant events in the course of Project implementation	Project staff, Project records	Data review and interview
	Is the Project Purpose still appropriate to achieve the Overall Goal?	Is the logical sequence of Project Purpose leading to the achievement of Overall Goal still valid?	Information on the results of activities that indicate the cause-effect relationship	Project personnel, Project records	Interview, discussion with Project staff
		Are there any additional important assumptions to be taken into account?	Information on the relevant factors surrounding the Project	Project personnel, Project records	Interview, discussion
	Have there been any other ripple effects?	Has there been any effect beyond the intended target groups?	Information on the sample cases in target area and other areas	Project staff, Project records	Data review and interview
		Has there been any unexpected effect on the policies and programs of implementing agencies?	Information on the relevant policies	Relevant documents, Project staff, Project records, staff of MAFFS-K, RARC, and FBOs	Data review and interview
		Has there been any change in terms of relevant organization, laws, rules and regulations?	Information on the changes and new setup	Project staff, Relevant documents, MAFFS	Data review and interview
		Has there been any unexpected change in technical and/or methodological aspects of the rice production?	Information on the changes that took place	Project staff, Project records, selected beneficiaries	Data review and interview
		Has there been any unexpected effect in terms of gender, human rights, poverty gap, peace and conflicts?	Information on the cases of relevant events	Project staff, Project records, selected beneficiaries	Data review and interview
		Has there been any unexpected effect on environmental concerns in the target areas?	Information on the cases of relevant events	Project staff, Project records, selected beneficiaries	Data review and interview
	What are the impacts brought by the Project?	What are the factors that brought about the above mentioned positive and/or negative effects?	Information on the other interventions and events in the target areas	Project staff, selected beneficiaries, staff of MAFFS, MAFFS-K, RARC, and FBOs	Data review and interview
		If there are negative impacts, what countermeasures are taken?	Information on the other interventions and events in the target areas	Project staff, selected beneficiaries, staff of MAFFS, MAFFS-K, RARC, and FBOs	Data review and interview

## 2. Implementation Process

Evaluation Question		Information/ data required	Information source	Data collection method
Main Question	Sub Question			
Have the activities been implemented as scheduled?	Have the activities been timely implemented?	Actual implementation schedule	Project staff, Project records	Data review and interviews
	Has there been any change in the activities and schedule of implementation from the original PO?	Information on the changes that took place	Project staff, Project records	Data review and interviews
Have there been any problem related to the management of the Project?	Have the Project activities been properly monitored?	Monitoring mechanism, frequency, monitoring results	Project staff, Project records	Data review and interviews
	Has the decision making mechanism of the Project been functional?	Information on the JCC and other decision making mechanisms	Project staff, Project records	Interview
	Has the communication among JICA HQ, JICA SLFO, JICA Ghana Office, implementing agencies and the Project been smooth?	Means and contents of the regular transactions	Project staff, Project records	Interview
	Has the communication among the Japanese experts and C/P been smooth?	Means and contents of the daily and regular transactions among the Project staff	Project staff, Project records	Interview
	Has there been any other problem encountered in the Project implementation?	Information on the cases of relevant events	Project staff, Project records	Interview
	What are special measures taken in terms of the managerial aspects of the Project?	Information on the managerial measures taken by the Project	Project staff, Project records	Interview
Were there any special measures taken to ensure the smooth implementation of the Project?	Have there been any special measures taken in terms of implementation mechanism?	Information on the measures taken by the Project	Project staff, Project records	Document review, interview, discussion
	Have there been any special considerations given in terms of dealing with the target groups?	Information on the measures taken by the Project	Project staff, Project records	Document review, interview, discussion

Evaluation criterion	Evaluation Question		Information/ data required	Information source	Data collection method
	Main Question	Sub Question			
Sustainability	Is it likely that the political and institutional support would continue for the activities currently supported by the Project after its end?	Is the importance of increase of rice production by small-scale farmers in Sierra Leone in national development plan and other related policies likely to continue?	National plans and policies, future plan of the government, opinions of MAFFS and the Project staff	National development plan and other agricultural development policies, staff of MAFFS and the Project	Data review and interview
		Are the importance and positive impacts of the Project recognized by the C/P agencies?	Opinions of C/P	Staff of C/P	Interview
		Is there institutional arrangement in place to ensure support for further dissemination of the Project's outputs?	Opinions and relevant documents of MAFFS, MAFFS-K, and RARC	Staff of the Project and C/P	Data review and interview
		Do the C/P agencies have sufficient sense of ownership of the Project?	Opinions of C/P	Staff of C/P	Interview
		What is the likelihood that the budget will be increased because of the Project Implementation?	Opinions and relevant documents of MAFFS and other relevant agencies	Staff of MAFFS and MAFFS-K	Data review and interview
	Are the implementing agencies capable to continue or further expand relevant activities of the Project?	Do the C/P agencies have sufficient budget or capability to obtain necessary budget to disseminate TP-R after the completion of the Project?	Budget plan of implementing agencies	Staff of MAFFS and MAFFS-K, budget documents	Data review and interview
		Are knowledge and technical levels of extension workers of MAFFS-K and other districts as well as researchers of RARC appropriate?	Levels of competence, confidence, experiences and performance	The Project staff	Interview
		Is continuity of staff participated in the project activities at their works expected?	Future plan of the MAFFS and MAFFS-K, opinions of the Project staff	Staff of MAFFS, MAFFS-K, and the Project	Interview
		Do the MAFFS-K and RARC have the institutional capacity to continue/further disseminate TP-R in Kambia District (Personnel assignment, decision making process, etc.)?	Information on the progress and dissemination plans of the introduced techniques	Project staff and C/P	Data review and interview
	Will the technologies and methodologies introduced by the Project continuously be utilized?	Are the methodologies used in the Project to transfer technologies accepted? (Appropriate level of technology, social or cultural values, etc.)	Contents of the TP-R, demonstrated effectiveness, opinions of C/P and beneficiaries	Project staff, C/P, and selected beneficiaries	Data review and interview
		Do the MAFFS-K and RARC have the technical capacity to continue/further disseminate TP-R in Kambia District?	Information on the progress and dissemination plans of the introduced techniques	Project staff and C/P	Data review and interview
		Is there any mechanism to further disseminate the TP-R to other districts in Sierra Leone?	Information on the progress and dissemination plans of the introduced techniques	Project staff and C/P	Data review and interview
		Will equipment procured under the Project properly be used and maintained after the completion of the Project?	Budget allocation, history of maintenance of equipment	Project records, Project staff	Data review and interview
		Are the FBOs and smallholders capable of continuous application of TP-R rice cultivation technologies by their own?	Activity records and future plans (if any) of the FBOs	Sample beneficiaries, Project personnel	Interview, discussion
	Are there any factors that may affect the sustainability of the Project?	Is there a possibility that the lack of sufficient consideration for women, destitute, and other vulnerable populations would mitigate the sustainability of the Project's effect?	Information on the cases of relevant events	Project staff, Project records, selected beneficiaries	Interview
		Is there a possibility that the lack of sufficient consideration for environment would mitigate the sustainability of the Project's effect?	Information on the cases of relevant events	Project staff, Project records, selected beneficiaries	Interview
		What are major factors that can facilitate or hinder the sustainability of the Project?	Opinions of the Project staff and C/P	Project staff, Project records, selected beneficiaries	Interview

### 3. Table of Achievement

(Achievement of the Overall Goal, the Project Purpose and the Outputs at the time of Terminal Evaluation)

Items		Information/ data required (Indicators)	Information source	Data collection method
Main items	Sub items			
Is the prospect for achieving the Overall Goal high?	To increase rice production in Kambia District	Rice production is increased 30 % in Kambia district compared with the rice production in 2014.	National agricultural statistics	Data review
	To apply the TP-R and extension method all over Sierra Leone	Extension workers of the district agricultural offices in the country other than Kambia district disseminate revised TP-R using extension method developed under the Project to farmers more than 10,000 persons by the end of 2018	Project reports MAFFS staff	Data review and interview
Is the prospect for achieving the Project Purpose high?	To establish rice production techniques and its extension method which are applicable throughout Sierra Leone	TP-R and extension method are officially endorsed by MAFFS	MAFFS staff, relevant documents	Data review
		80 % of MAFFS officials who received training in each district confirm effectiveness of the TP-R and its extension method.	Project records	Data review
Are Outputs delivered as planned?	To revise the TP-R, which can realize higher yield and profit, through on-farm verification	More than 3.0 Mt/ha of yield is obtained more than 80% of locations of on-farm verification, where revised TP-R is applied, in the cropping seasons by 2013.	Project records	Data review
		Revised TP-R, that includes method on appropriate dosage of fertilizer and profitability, is developed.	Project records, contents of TP-R	Data review
		A manual on TP-R for use of extension workers is produced.	Manual on TP-R	Data review
	To extend TP-R to small-scale farmers through Farmers Based Organizations (FBOs) in Kambia district	More than 300 FBO farmers receive training on TP-R	Project records	Data review
		More than 50% of the FBO farmers who received training applies several techniques of the TP-R	Project records	Data review
		Extension materials for disseminating revised TP-R are prepared	Extension materials for TP-R	Data review
		A guideline on implementation of Farmer Field School (FFS) on rice cultivation based on the TP-R is developed	A guideline on FFS	Data review
		To extend the contents of TP-R and an extension method to officials of MAFFS's district agricultural offices other than MAFFS-Kambia.	30 officials acquire knowledge and skills of TP-R and extension method.	Project records, Project staff

## Annex 5: Assignments of Japanese Experts

Year 1 (October, 2010 – March, 2011)

Name	Field	Assignment Duration
Takashi KIMIJIMA (Mr.)	Chief advisor	4 <sup>th</sup> Oct. 2010 – 9 <sup>th</sup> Dec. 2010 6 <sup>th</sup> Jan. 2011 – 16 <sup>th</sup> Jan. 2011 4 <sup>th</sup> Feb. 2011 – 3 <sup>rd</sup> Mar. 2011
Mitsuo NISHIYA (Mr.)	Deputy chief advisor/Extension (cultivation)	6 <sup>th</sup> Jan. 2011 – 13 <sup>th</sup> Feb. 2011
Junichi YAMAGUCHI (Dr.)	Cultivation technology 1	4 <sup>th</sup> Oct. 2010 – 4 <sup>th</sup> Nov. 2010
Yasunori YAMAGISHI (Mr.)	Cultivation technology 2	25 <sup>th</sup> Oct. 2010 – 28 <sup>th</sup> Nov. 2010
Maiko NAKAMURA (Ms.)	Extension (post-harvest)	25 <sup>th</sup> Oct. 2010 – 5 <sup>th</sup> Dec. 2010 23 <sup>rd</sup> Jan. 2011 – 25 <sup>th</sup> Feb. 2011
Yuki NISHIMORI (Mr.)	Farmers organizing	6 <sup>th</sup> Jan. 2011 – 4 <sup>th</sup> Feb. 2011
Mitsuharu TAKEMURA (Mr.)	Coordinator/ Assistant in cultivation technology and extension	4 <sup>th</sup> Oct. 2010 – 26 <sup>th</sup> Nov. 2010 7 <sup>th</sup> Dec. 2010 – 26 <sup>th</sup> Dec. 2010 15 <sup>th</sup> Jan. 2011 – 6 <sup>th</sup> Mar. 2011

Year 2 (April, 2011 – August, 2012)

Name	Field	Assignment Duration
Takashi KIMIJIMA (Mr.)	Chief advisor	28 <sup>th</sup> Apr. 2011 – 4 <sup>th</sup> Jun. 2011 31 <sup>st</sup> Jul. 2011 – 15 <sup>th</sup> Sep. 2011 30 <sup>th</sup> Nov. 2011 – 31 <sup>st</sup> Dec. 2011 16 <sup>th</sup> Jan. 2012 – 23 <sup>rd</sup> Mar. 2012 2 <sup>nd</sup> May 2012 – 12 <sup>th</sup> Jul. 2012
Mitsuo NISHIYA (Mr.)	Deputy chief advisor/Extension (cultivation)	30 <sup>th</sup> May 2011 – 21 <sup>st</sup> Jul. 2011 11 <sup>th</sup> Oct. 2011 – 22 <sup>nd</sup> Nov. 2011 8 <sup>th</sup> Jan. 2012 – 21 <sup>st</sup> Feb. 2012 10 <sup>th</sup> Jun. 2012 – 24 <sup>th</sup> Aug. 2012
Junichi YAMAGUCHI (Dr.)	Rice cultivation technology 1	10 <sup>th</sup> May 2011 – 5 <sup>th</sup> Aug. 2011 30 <sup>th</sup> Nov. 2011 – 14 <sup>th</sup> Feb. 2012 26 <sup>th</sup> Feb. 2012 – 8 <sup>th</sup> May 2012 20 <sup>th</sup> May 2012 – 13 <sup>th</sup> Jul. 2013
Yasunori YAMAGISHI (Mr.)	Rice cultivation technology 2	18 <sup>th</sup> Sep. 2011 – 1 <sup>st</sup> Nov. 2011 5 <sup>th</sup> Feb. 2012 – 13 <sup>th</sup> Mar. 2012 11 <sup>th</sup> Jul. 2012 – 31 <sup>st</sup> Aug. 2012
Hiroei ISHIHARA (Mr.)	Small scale swamp development	11 <sup>th</sup> Mar. 2012 – 24 <sup>th</sup> Apr. 2012
Maiko NAKAMURA (Ms.)	Extension (post-harvest)	2 <sup>nd</sup> May 2011 – 9 <sup>th</sup> Jun. 2011 18 <sup>th</sup> Jul. 2011 – 9 <sup>th</sup> Aug. 2011 1 <sup>st</sup> Nov. 2011 – 27 <sup>th</sup> Dec. 2011 11 <sup>th</sup> Mar. 2012 – 24 <sup>th</sup> Apr. 2012
Yuki NISHIMORI (Mr.)	Farmers organizing	8 <sup>th</sup> Jan. 2012 – 31 <sup>st</sup> Jan. 2012 27 <sup>th</sup> Mar. 2012 – 1 <sup>st</sup> May 2012
Mitsuharu TAKEMURA (Mr.)	Rice cultivation trial/research	28 <sup>th</sup> Apr. 2011 – 18 <sup>th</sup> Jun. 2011 4 <sup>th</sup> Jul. 2011 – 19 <sup>th</sup> Jul. 2011 10 <sup>th</sup> Sep. 2011 – 27 <sup>th</sup> Oct. 2011 15 <sup>th</sup> Nov. 2011 – 27 <sup>th</sup> Dec. 2011 5 <sup>th</sup> Feb. 2012 – 30 <sup>th</sup> Mar. 2012 6 <sup>th</sup> May 2012 – 13 <sup>th</sup> Jul. 2012 5 <sup>th</sup> Aug. 2012 – 31 <sup>st</sup> Aug. 2012
Mariko HAYASHI (Ms.)	Coordinator/ Assistant in rice cultivation technology and extension	12 <sup>th</sup> Jun. 2011 – 30 <sup>th</sup> Jun. 2011 23 <sup>rd</sup> Aug. 2011 – 13 <sup>th</sup> Sep. 2011 22 <sup>nd</sup> Feb. 2012 – 13 <sup>th</sup> Mar. 2012 11 <sup>th</sup> Jul. 2012 – 31 <sup>st</sup> Jul. 2012



## Annex 6: Equipment and Machineries Provided by JICA

Year	Description (items, specification, model, etc)	Q'ty	Amount		Procurement Place	Current Condition	Frequency of Utilization
			(USD)	(SLL)			
2011	<b>MAFFS/MAFFS-K</b>						
	Vehicle (Toyota Land Cruiser)	2	94,290		Freetown, SL	Working	A
	Photocopier (Canon Image runner 2318)	1	2,650		Freetown, SL	Good	A
	Personal Computer with UPS/voltage regulator (Dell OPTILEX 380)	2	3,080		Freetown, SL	Good	B
	Projector (Dell 1201 MP)	1	1,250		Freetown, SL	Good	C
	Printer (HP Deskjet F2180)	1		1,437,000	Freetown, SL	Good	B
	Digital camera with memory card (Olympus FE-4000)	2	600		Freetown, SL	Good	B
	Motorbike with helmet (Honda XL125)	2	7,570		Freetown, SL	Good	A
	Motorbike spare parts	1 set		8,865,250	Freetown, SL	-	C
	GPS (Garmin, e-Trex Legend H)	7	1,690		Tokyo, Japan	Good	C
	Topography maps in Kambia	10		2,000,000	Freetown, SL	-	A
	Technical Package on Rice Cultivation	1,000		67,390,000	Freetown, SL	-	B
	Seed Rice	14,000 kg		39,840,000	Kambia, SL	-	C
	Fertilizer	56,300 kg		212,330,000	Freetown, SL	-	C
	<b>RARC</b>						
Motorbike with helmet (Honda XL125)	1	3,785		Freetown, SL	Good	C	
2012	<b>MAFFS/MAFFS-K</b>						
	Vehicle (Toyoda Hilux)	1	38,167		Freetown, SL	Good	A
	Seed Rice	1,950 kg		8,070,000	Kambia, SL	-	C
	Fertilizer	12,025 kg		49,405,000	Freetown, SL	-	C
	<b>RARC</b>						
	Personal Computer (Compaq Presario V6700)	1		5,175,000	Freetown, SL	Good	B
	Photocopier (Canon IR 2016)	1		10,925,000	Freetown, SL	Good	B
	Printer (HP Laser jet 1505P)	1		2,070,000	Freetown, SL	Good	B
	Construction of overhead electric cable	1		39,080,000	Freetown, SL	Good	A
	Borehole construction	1	18,893		Freetown, SL	Good	A
	Laboratory equipment	1 set	75,181.27		Accra, Ghana	Good	C
Chemical reagent	1 set		48,320,000	Accra, Ghana	Good	C	
Glassware	1 set	31,785		Tokyo, Japan	Good	C	
2013	<b>MAFFS/MAFFS-K</b>						
	Fertilizer	11,400 kg		43,245,000	Freetown, SL	-	C
	<b>TOTAL</b>		<b>278,941.27</b>	<b>538,152,250</b>			

(\*1) Classification of the frequency of utilization

**A:** used frequently (almost daily)

**B:** used well (1-3 times per week)

**C:** used in specific season(s) only

**D:** not so much used (3-11 times per year) (needs reasons)

**E:** not used by specific reason (needs reasons)



Year 3 (October, 2012 – September, 2013)

Name	Field	Assignment Duration
Takashi KIMIJIMA (Mr.)	Chief advisor/ Rice cultivation techniques improvement/ Training of trainers	13 <sup>th</sup> Oct. 2012 – 24 <sup>th</sup> Oct. 2012 9 <sup>th</sup> Dec. 2012 – 15 <sup>th</sup> Jan. 2013 17 <sup>th</sup> Mar. 2013 – 27 <sup>th</sup> May. 2013 13 <sup>th</sup> Aug. 2013 – 2 <sup>nd</sup> Sep. 2013
Mitsuo NISHIYA (Mr.)	Deputy chief advisor/ Extension program development on rice cultivation technique	9 <sup>th</sup> Dec. 2012 – 28 <sup>th</sup> Dec. 2012 16 <sup>th</sup> Jan. 2013 – 8 <sup>th</sup> Feb. 2013 12 <sup>th</sup> Feb. 2013 – 29 <sup>th</sup> Mar. 2013 25 <sup>th</sup> May. 2013 – 12 <sup>th</sup> Aug. 2013
Junichi YAMAGUCHI (Dr.)	Cultivation technology development	19 <sup>th</sup> Dec. 2012 – 22 <sup>nd</sup> Feb. 2013 5 <sup>th</sup> Mar. 2013 – 2 <sup>nd</sup> May. 2013 14 <sup>th</sup> May. 2013 – 4 <sup>th</sup> Jul. 2013
Kanehito SASAI (Mr.)	Guidance on chemical analysis	22 <sup>nd</sup> Jan. 2013 – 25 <sup>th</sup> Apr. 2013
Maiko NAKAMURA (Ms.)	Extension materials development	9 <sup>th</sup> Apr. 2013 – 6 <sup>th</sup> Jun. 2013
Yodai OKUYAMA (Mr.)	Cultivation trials/research	19 <sup>th</sup> Dec. 2012 – 15 <sup>th</sup> Feb. 2013 25 <sup>th</sup> Jun. 2013 – 2 <sup>nd</sup> Sep. 2013
Mitsuharu TAKEMURA (Mr.)	Coordinator/ Assistant in rice cultivation technology and extension	14 <sup>th</sup> Oct. 2012 – 11 <sup>th</sup> Dec. 2012 30 <sup>th</sup> Jan. 2013 – 29 <sup>th</sup> Mar. 2013 4 <sup>th</sup> May. 2013 – 4 <sup>th</sup> Jul. 2013

## Annex 7: Training of the Counterpart Personnel in Japan and the Third Countries

Title of the course	Third Country Training in Malawi on Small Scale Irrigation		
Duration	10 <sup>th</sup> July, 2011 – 17 <sup>th</sup> July, 2011		
Name	Institution	Position (at that time)	Position (Current)
Abdul Rahman Kamara	MAFFS	Head of Sub-Component 2, SCP	Deputy Director (Agric. Engineer)
John A. Lakoh	MAFFS-K	Subject Matter Specialist (SMS) (Land and Water Development)	Subject Matter Specialist (SMS) (Agric. Engineer)
Amara Kargbo	MAFFS-K	Subject Matter Specialist (SMS) (Extension)	Subject Matter Specialist (SMS) (Extension)
Andrew Mambu	MAFFS-K	District Coordinator	District Training Focal Person

Title of the course	Rice Cultivation Techniques for Africa (Egypt)		
Duration	23 <sup>th</sup> April, 2013 – 20 <sup>th</sup> September, 2013		
Name	Institution	Position (at that time)	Position (Current)
Daniel M. Kamara	MAFFS-K	Block Extension Supervisor (BES)	Block Extension Supervisor (BES)

Title of the course	Agricultural Extension Planning and Management		
Duration	10 <sup>th</sup> July, 2013 – 20 <sup>th</sup> September, 2013		
Name	Institution	Position (at that time)	Position (Current)
Bakarr J. Bangura	MAFFS	Deputy director of extension	Deputy director of extension

Title of the course	Planning and Designing of Agricultural Statistics for Food Security Policy Making		
Duration	20 <sup>th</sup> August, 2013 – 22 <sup>nd</sup> October, 2013		
Name	Institution	Position (at that time)	Position (Current)
Umaru M. Sankoh	MAFFS-K	District Agricultural Officer (DAO)	District Agricultural Officer (DAO)

Title of the course	Planning of Agricultural Policy		
Duration	18 <sup>th</sup> August, 2013 – 24 <sup>th</sup> September, 2013		
Name	Institution	Position (at that time)	Position (Current)
Joseph Saidu Bangura	MAFFS	Assistant director of PEMSD	Assistant director of PEMSD

Title of the course	Promotion of African Rice Development through strengthening coordination between CARD and CAADP for Sub-Sahara African Countries		
Duration	20 <sup>th</sup> August, 2013 – 10 <sup>th</sup> September, 2013		
Name	Institution	Position (at that time)	Position (Current)
Denis J. Taylor	RARC	Senior Researcher	Senior Researcher

## Annex 8: List of Sierra Leonean Counterpart Personnel

Institution	Name	Position	Field of Expertise	Assigned period
MAFFS	Francis Sankoh	Director General		Oct. 2010 –
MAFFS	Bakarr J. Bangura	Director of extension Deputy director of extension (in charge of field operation)	Extension	Oct. 2010 – May 2011 Jun. 2011 –
MAFFS	Ben Massaquoi	Director of crops Director of extension	Crop	Oct. 2010 – May 2011 Jun. 2011 –
MAFFS-K	Phebian Fofana	District agric. officer		Oct. 2010 – Apr. 2011
MAFFS-K	Sorie Bangura	District agric. officer	Livestock	May 2011 – Mar. 2013
MAFFS-K	Marc Kargbo	District crop officer		Mar. 2012 –
MAFFS-K	Sayo Tarawalli	District crop officer District ext. officer		Oct. 2010 – Feb. 2012 Feb. 2012 –
MAFFS-K	Umaro Sankoh	District M&E officer District agric. officer		Apr. 2011 – Mar. 2013 Mar. 2013 –
MAFFS-K	Amara Kargbo	District ext. officer Community facilitator		Apr. 2011 – Mar. 2012 Apr. 2012 –
MAFFS-K	Andrew Mambu	District coordinator District training focal person		Oct. 2010 – Feb. 2012 Feb. 2012 –
MAFFS-K	Daniel R.B. Lahai	District coordinator		Oct. 2010 –
MAFFS-K	John B. Kamara	District coordinator		Oct. 2010 –
MAFFS-K	Osman T.A. Fofanah	Community facilitator		Oct. 2010 –
MAFFS-K	Daniel Kapre Serry	Community facilitator/ BES		Oct. 2010 –
MAFFS-K	Umaro Bangura	Community facilitator		Oct. 2010 – Mar. 2012
MAFFS-K	Dauda M. Turay	Community facilitator		Oct. 2010 –
MAFFS-K	Lansana M. Banting	Community facilitator		Oct. 2010 – Mar. 2011
MAFFS-K	Alpha D.M. Kamara	Community facilitator		Oct. 2010 – Mar. 2011
MAFFS-K	Ansumana Kabbia	Community facilitator		Oct. 2010 – Jun. 2013
MAFFS-K	Abdul C. Koroma	Community facilitator		Oct. 2010 – Aug. 2011
MAFFS-K	Daniel M. Kamara	Community facilitator/ BES		Oct. 2010 –
MAFFS-K	Bai K. Mansaray	Community facilitator/ BES		Oct. 2010 –
MAFFS-K	Abu Bakarr Sesay	Community facilitator		Oct. 2010 – Mar. 2011 Apr. 2013 –
MAFFS-K	Frederick B. Sei	Community facilitator		Oct. 2010 –
MAFFS-K	Momoh B. Jah	Community facilitator		Oct. 2010 –
MAFFS-K	Thomas Turay	Community facilitator		Sep. 2011 –
MAFFS-K	Idriss Fofana	Block ext. supervisor		Oct. 2010 –
MAFFS-K	Mohamed Jah	Community facilitator		May 2012 – Aug. 2013
MAFFS-K	Tejan King	Community facilitator		May 2013 –
SLARI	Dr. Alfred Dixon	Director	Soil science	Oct. 2010 – Dec. 2013
RARC	Dr. Idriss Baggie	Officer in charge	Soil science	Oct. 2010 –
RARC	Henry M. S. Kargbo	Research officer II	Outreach	Jan. 2011 –
RARC	Foday Sumah	Research officer II	Soil science	Jan. 2013 –

## Annex 9: Measures Taken to Respond to the Recommendations by the Mid-term Review

Recommendations	Measures taken / scheduled to be taken
<b>1. Recommended actions to be taken by the Project</b>	
<p><b>1.1. Development of TP-R</b></p> <p>While the Project is revising TP-R targeting the yield of 3.0 ton/ha, it is observed certain technical conditions such as component of fertilizer and water control are required to attain the target. Therefore, it is recommended for the Project to clarify those technical conditions and describe them in the TP-R and its manual.</p>	<p>The technical components of the revised TP-R include the water management technologies and fertilizer application, the latter of which are yet to be finalized.</p>
<p><b>1.2. Enhancement of the training of the extension workers</b></p> <p>It is the extension workers who deliver the improved rice farming technology to the farmers through FFS.</p> <p>a) Further enhance the number and quality of the trainings for extension workers</p> <p>b) Conduct training for district officials including training officer and FFS coordinator and extension officer in the districts other than Kambia before the wet season of 2013</p>	<p>MAFFS had planned the recruitment of new staff since 2012, the process for which was delayed due to the internal arrangements of the government administration. MAFFS is currently in the final step of recruitment of new officers including Block Extension Supervisors (BES) with qualification of university graduates. It is anticipated that those new recruits would participate in the training on the revised TP-R scheduled in March/April 2014.</p>
<p><b>1.3. Arrangement of meeting in Freetown</b></p> <p>In order for MAFFS to take actions based on the recommendations, the progress and issues in the Project activities should be shared and discussed at timely manner. Therefore, it is recommended the Project arranges periodical meetings among stakeholders concerned more frequently in Freetown.</p>	<p>To ensure frequent communication between the Project and MAFFS HQ in Freetown, one room was allocated for the project at Youyi Building by MAFFS. The Project employed a local staff for the Project office at Youyi Building, and at least one JICA expert stay in Freetown a few days a week to keep regular contacts with MAFFS counterparts as well as collect information on the trend of agricultural development by attending various meetings among development partners.</p>
<p><b>1.4. Arrangement of field visits</b></p> <p>It is recommended that the Project arranges the field visits in Kambia for MAFFS staff in Freetown in order for them to understand the project activities more.</p>	<p>The Minister of Agriculture and other high ranking officers of MAFFS visited the rice fields of FBOs in the dry season cropping in 2013, which provided the opportunities for them to testify the degree of changes and impacts on the cultivation practices of the farmers.</p>
<b>2. Recommended actions to be taken by the MAFFS</b>	
<p><b>2.1. Sustainable utilization of the TP - R</b></p> <p>a) RARC researchers take the role as the trainer of extension workers during the remaining Project period since RARC is expected to provide the technical backstop of the TP-R after the termination of the Project.</p> <p>b) At least one RARC researcher is assigned for laboratory work such as soil analysis and pot experiment since this activity definitely contributes to the capacity building of researcher in this country.</p>	<p>The counterpart personnel assigned from RARC has involved in the on-farm verification activities, who has been working in close collaboration with extension officers, providing technical guidance to the respective extension officers in the field. RARC assigned one new counterpart personnel in January 2013 who has been trained by a Japanese Expert in the field of soil analysis. A manual on soil chemical analysis was also compiled.</p>

Recommendations	Measures taken / scheduled to be taken
<p><b>2.2. Alignment of extension method (extension guideline and material) to FFS</b></p> <p>a) MAFFS officials who have skill on the FFS participate in the project activities in order for the Project stakeholders to further deepen the knowledge on FFS.</p> <p>b) MAFFS extension division, which has the function to backstop FFS and capacity building of extension workers in Sierra Leone, participate in the process and provide advice on working out extension guideline and materials.</p>	<p>Close discussions were held among the relevant personnel of extension division as well as of MAFFS-K upon which the Project has prepared the draft extension guide and manuals. Also the draft versions of these documents have already been distributed to the relevant personnel in order to obtain comments and feedback, with which the Project will further revise or modify these documents to compile the final drafts.</p>
<p><b>2.3. Expansion of outcome of the Project activities</b></p> <p>Outcomes of the Project including revised TP-R, extension guideline and materials are expected to be shared and utilized all over the Sierra Leone. Following points are recommended to MAFFS to promote the Project outcomes.</p> <p>a) Coordinate and give guidance to districts other than Kambia to apply the project's outcomes.</p> <p>b) Cost sharing of the training for district officials country wide.</p> <p>c) Officially endorse the revised TP-R, extension guideline and materials.</p> <p>d) Distribute the revised TP-R, extension guideline and materials to all districts through official channel.</p> <p>e) Follow up the extension workers in all the districts trained by the Project for sustainability</p>	<p>a) The training for agricultural officers in district other than Kambia is scheduled to be conducted in March/April 2014.</p> <p>b) The venue of the scheduled training above is to be provided by MAFFS.</p> <p>c) The revision of TP-R is still underway, but the technical components except for the fertilizer application have almost finalized and well informed to the decision-making authorities of MAFFS, with concrete data set indicating the impacts on yield performances. The administrative procedures for official endorsement would take place once the Project would submit the final documents on the revised TP-R.</p> <p>d) The process will take place after the Project would submit the final version of TP-R, extension guidelines and materials.</p> <p>e) The follow-up activities are to be conducted after the training scheduled in March/April 2014.</p>
<p><b>(4) Assignment of focal person in Kambia district</b></p> <p>The further communication and coordination between the Project in Kambia and MAFFS are strongly required. Therefore, it is recommended MAFFS to assign one focal person in Kambia district who can take responsibility for these arrangements.</p>	<p>The M&amp;E officer of MAFFS-K then was appointed as the focal person in January 2013, who has been promoted to be the DAO in March 2013. The Project Manager now continues to serve as focal person.</p>
<p><b>(5) Acceleration of IVS development</b></p> <p>It is observed that yield of 3.0 ton/ha can be attained through application of revised TP-R where water can be properly controlled. Therefore it is expected MAFFS to accelerate IVS development under the component 2 of SCP</p>	<p>The IVS development has been in progress with supports from donors. In 2013, a total of 2,637.4 ha. of lowland farms nationwide was developed/rehabilitated with support of the SCP, ASREP and RCPRP, out of which, approximately 140 ha. was in the IVS in Kambia (supported by the SCP and ASREP).</p>
<p><b>3. Modification of PDM</b></p>	<p>The modification of the PDM proposed by the mid-term review team was approved upon in the 4<sup>th</sup> JCC meeting in January 2013.</p>

**MUNITES OF THE EIGHTH JOINT COORDINATING COMMITTEE MEETING**  
**ON**  
**THE MAFFS-JICA SUSTAINABLE RICE DEVELOPMENT PROJECT IN SIERRA LEONE**

The eighth joint coordinating committee (JCC) meeting on the Sustainable Rice Development Project (SRDP) was convened by the Ministry of Agriculture, Forestry and Food Security on the occasion of the submission of the Progress Report 7, on the 12<sup>th</sup> May, 2014, at the ministry's conference hall, Youyi Building, Freetown. The meeting was chaired by Mr. Francis A-R Sankoh, Director General of the Ministry of Agriculture, Forestry and Food Security. The attendants of the meeting are shown on attachment 1. Materials distributed to all the attendants including the agenda of the meeting, action points discussed in the JCC 6, Project Design Matrix (PDM); version 2, and a PowerPoint presentation material, are shown on attachments 2, 3, 4 and 5, respectively.

According to the agenda (Attachment 2), the chairman asked Mr. Takashi Kimijima, JICA Chief Advisor on SRDP, to explain the progress of the project activities.

**Action points from the Progress Report No. 6 (Attachment 3)**

The work progress of the action points identified in the JCC Meeting 6 was explained by the JICA Chief Advisor as follows.

- Statistics on labor input in rice cultivation in Japan was compared with Sierra Leone by SRDP.
- Economy of the use of power tiller for land preparation was examined in comparison with the labor by SRDP.
- A discussion session to be organized by the MAFFS on the issues of rice production such as optimal dose of fertilizer has not been organized yet.
- Issues on cropping calendar for the wet season have been addressed by SRDP, and a recommendation would be made in the final version of technical package.
- Joint terminal evaluation study for the project was executed in January 2014 by three members each from MAFFS and JICA.
- Implementation of the job improvement plans formulated by each of the JICA trainees sent to Japan in the fiscal year 2013 were constrained by the lack of financial support from MAFFS.

**Presentation and discussion of Progress Report 7, labor input on rice cultivation, and economy of power tiller in land preparation (Attachment 5)**

Then the contents of the Progress Report 7, the result of the comparison of labor input on rice cultivation between Japan and Sierra Leone, and the results of the examination on the economy of power tiller in land preparation were explained by Mr. Kimijima using a PowerPoint presentation. Summary of the presentation is presented below.

**(1) Contents of the Progress Report 7**

- Results of the on-farm fertilizer trials in the rainy season 2013 and the dry season 2013/14 might suggest that the fertilizer dose recommended by RARC could be reduced somehow to obtain the target yield of 3 ton/ha in IVS.
- Evolution of the yield of rice cultivated in the field of FBOs supported under SCP showed that the average grain yield did not decrease even with the reduced fertilizer dose under the controlled water condition and the adoption improved farming practices.

- Development of extension methods continued for their finalization, based on the results of the fertilizer trials, results of the monitoring of FBO fields, comments on the draft guideline obtained from the concerned people, etc.
- A four-day training session for the total of over 100 staff of MAFFS District Offices nationwide about the essence of TP-R was conducted by JICA-SRDP.
- The adoption level of TP-R by FBO farmers trained by SRDP was proved to be high through an interview survey to 165 farmers in 14 FBOs.
- The terminal evaluation study on SRDP was executed by a joint evaluation team composed of Sierra Leonean and Japanese members, and the study concluded that the project would attain its objectives without problems or delays.
- The terminal evaluation study mission also recommended that TP-R and extension methods should be finalized including the fertilizer recommendation, that a technical seminar be organized, and that the project completion report be prepared in the remaining project period.

(2) Comparison of labor input between Japan and Sierra Leone

- Labor input on rice cultivation in Japan has decreased over the years after the Second World War, because of the mechanization, introduction of agro-chemicals, etc.
- Mechanization in Japan was inevitable to compensate for the youths' draining off their villages being absorbed by the industry sector in urban areas, and it was promoted jointly by the Government, academics, and private sectors.
- Mechanization eased the land preparation, transplanting, harvesting and threshing in Japan, and the use of agro-chemicals eased the workload of weeding.
- On the other hand, labor input on rice production in Sierra Leone is high, especially in land preparation.

(3) Comparison of economy on land preparation by power tiller and by man power

- Based on various assumptions, a power tiller with 12-HP engine, which is available in Sierra Leone, is more economical than man-power, only when it has economic life span of at least 5 years, with the cultivation area of 10 ha per year.

### **Comments and contributions on the presentations**

The following comments and contributions were raised from the attendants.

- Technical support of the project to the MAFFS Headquarters should include not only the extension division but also the crops division, which deals with the technical aspects of crop production.
- In the cost-benefit analysis on rice cultivation, other factors than fertilizer should be considered.
- Recommendation on the fertilizer dose should be unified by the end of the project, in coordination with RARC.
- The next phase of the project should deal with the entire rice value chain, while expanding its coverage from the Kambia district to the whole nation.

### **Any Other Business**

- It was recommended that the overall goal of the project described in the PDM (Attachment 4) should be confined to the IVS area, as the project deals only with IVS ecology.

### **Conclusion of the Meeting by the Chairman**

The chairman concluded the meeting by the following.

- (1) The contents of the Progress Report 7 were unanimously accepted by the JCC.
- (2) The objectively verifiable indicator 1 for the overall goal of the project in the current PDM would be confined to the IVS ecology, which will be defined by putting a foot note.

**Matrix of the discussion (Action points) at the 8<sup>th</sup> JCC meeting**

<b>Observation</b>	<b>Issues</b>	<b>Decision or recommendation</b>	<b>Responsible person</b>
Crop division of MAFFS deals with technical aspects in crop production.	Crop division has not fully been involved in the project.	To invite crop division to various occasions in the project activities	MAFFS
Cost-benefit analysis on rice production is made focusing on fertilizer use	Other factors will also affect cost-benefit analysis.	To make overall cost-benefit analysis on rice production	MAFFS, SRDP
There is no participation from RARC in the JCC meeting despite of the invitation	Technical issues on rice production especially the fertilizer recommendation cannot be discussed.	To try to agree with RARC on the fertilizer recommendation	MAFFS, SRDP, RARC/SLARI
The present project deals only with production aspects in rice value chain	Post-harvest and marketing aspects have not been dealt with in the project	To consider the entire value chain in rice in the next phase	MAFFS
The objectively verifiable indicator 1-1 for the project output 1 in the current PDM is confined to IVS ecologies.	It is contradictory to the objectively verifiable indicator 1 for the overall goal of the project which targets total rice production increase in Kambia district, not IVS only.	Put a footnote to explain that the objectively verifiable indicator 1 for the overall goal of the project is meant for IVS ecology, not for the all ecologies.	MAFFS



**MAFFS/JICA-SRDP Joint Coordination Committee Meeting 8  
Attendants List**

Date: 12/05/2014

Place: Conference Hall, MAFFS, Youyi Bldg., Freetown

#	Name	Designation	Organization
1	Francis A.R.Sankoh	Chief Agric. Officer	MAFFS
2	Toshihisa Hasegawa	Head, SLFO	JICA
3	Akihira Sano	Staff, SLFO	JICA
4	Alphonson K.Turay	Ag. Director-Agric.Eng.	MAFFS
5	Takashi Kimijima	Chief Advisor	JICA-SRDP
6	Mitsuo Nishiya	Deputy Chied Advisor	JICA-SRDP
7	Jun-ichi Yamaguchi	SRDP member	JICA-SRDP
8	Umaru M.Sankoh	DAO Kambia	MAFFS
9	Mahamed A.Sherif	Deputy Director-PEMSD	MAFFS
10	Abibaf Kamara	Agric. Extension Officer	MAFFS
11	Aurosa T.Sherif	Former DDG	MAFFS
12	B.J.Bangura	Director of extension	MAFFS
13	Umu H.Sheriff	Agric. Extension Officer	MAFFS
14	Dam L.Baue	Ag. Deputy Director	MAFFS
15	Jesse O.John	President	NAFFSL
16	John D. Brima	Park manager-Western area	MAFFS/Forestry
17	Mohamed S.Kabire	BEC. General	NAFFSL
18	Sid M.Kamara	Principal Agric. Officer	MAFFS
19	Alsine Koroma	Statistician-PEMSD	MAFFS

Agenda of the Eighth Joint Coordination Committee Meeting (JCC) for  
the Sustainable Rice Development Project (SRDP) in Sierra Leone

Venue: Conference Hall, MAFFS, Youyi Bldg.

Date: 12 May, 2014

Time: 15:00 – 17:00

**Agenda**

1. Silent prayers
2. Self-introduction
3. Chairman's opening remarks
4. Action points from the Progress Report 6
5. Presentation on Progress Report 7
6. Cost-benefit analysis on rice production (comparison between Sierra Leone and Japan)
7. Cost-benefit analysis on the introduction of power tiller
8. Cropping pattern for double cropping of rice

## Matrix of the discussion (Action points) at the 6<sup>th</sup> JCC meeting

<b>Observation</b>	<b>Issues</b>	<b>Decision or recommendation</b>	<b>Responsible person</b>
The need to re-examine the assumptions used for cost-benefit analysis of rice production.	The results of the analysis showed the negative profit.	To re-examine these assumptions by comparing with other countries including Japan; To examine the profitability of introducing small agro-machinery (power tiller) and herbicide	MAFFS, SRDP
Activities made by the stakeholders in the rice sector have not been coordinated or collaborated.	Information has not been shared or development efforts were not harmonized.	Have a session to discuss about the issues of the rice sector (at the occasion of National Retreat)	MAFFS
Fertilizer application is risky in bringing about profit when used in the rainy season.	How to make fertilizer application effective in the rainy season.	To examine the cropping pattern and varieties so that rainfall will not bring about negative impact on fertilizer application.	MAFFS, SRDP
MAFFS trainees sent to Japan under the JICA programme prepared the Job Improvement Plan (JIPs)	They lack financial support to implement the JIPs	While the MAFFS makes efforts to secure funds, the trainees make their best efforts to implement the JIPs under the constraints.	MAFFS
Joint terminal evaluation study will commence soon on JICA-SRDP activities.	MAFFS need to appoint evaluation team members to undergo the process.	MAFFS to appoint joint evaluation team members to work with the Japanese team.	MAFFS

## Annex 2: Project Design Matrix (Version 2)

Project Title: Sustainable Rice Development Project in Sierra Leone

Project Period: 4 years (from October 2010 to September 2014)

Implementing Agency: Ministry of Agriculture, Forestry and Food Security (MAFFS)

Target Area: Mainly Kambia district

Beneficiaries: FBO farmers supported under SCP, RARC and MAFFS Kambia office (MAFFS-K)

Date of revision: July 10, 2012

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<b>Overall Goal</b> To increase rice production in Kambia district To apply the Technical Package on Rice Production (TP-R) and extension method <sup>1</sup> all over Sierra Leone	1. Rice production is increased 30 % in Kambia district compared with the rice production in 2014. 2. Extension workers of the district agricultural offices in the country other than Kambia district disseminate revised TP-R using extension method developed under the Project to farmers more than 10,000 persons by the end of 2018	1. Statistical data on rice production 2. Data of the district agricultural offices in the country,	- No significant change in national policy on rice development is made.
<b>Project Purpose</b> To establish rice production techniques and its extension method which are applicable throughout Sierra Leone	1. TP-R and extension method are officially endorsed by MAFFS 2. 80 % of MAFFS officials who received training in each district confirm effectiveness of the TP-R and its extension method.	1. Document of endorsement 2. Results of questionnaire survey to officials of MAFFS district agricultural offices	- Necessary budget for extension of the TP-R is secured.
<b>Outputs</b> 1. To revise the TP-R, which can realize higher yield and profit, through on-farm verification	1-1. More than 3.0 Mt/ha of yield <sup>iii</sup> is obtained more than 80% of locations of on-farm verification, where revised TP-R is applied, in the cropping seasons by 2013. 1-2. Revised TP-R, that includes method on appropriate dosage of fertilizer and profitability, is developed. 1-3. A manual on TP-R for use of extension workers is produced.	1-1. Project reports 1-2. Document on TP-R 1-3. Manual on TP-R	- Water control environment is ensured. - Fertilizer is secured by FBO farmers
2. To extend TP-R to small-scale farmers through Farmers Based Organizations (FBOs) in Kambia district	2-1. More than 300 <sup>iii</sup> FBO farmers receive training on TP-R 2-2. More than 50% of the FBO farmers who received training applies several techniques of the TP-R. 2-3. Extension materials for disseminating revised TP-R are prepared 2-4. A guideline on implementation of Farmer Field School (FFS) on rice cultivation based on the TP-R is developed.	2-1. Project reports 2-2. Sample Survey to farmers 2-3. Extension materials 2-4. Guideline on implementation of FFS	
3. To extend the contents of TP-R and an extension method to officials of MAFFS's district agricultural offices other than MAFFS-Kambia.	3-1. 30 officials acquire knowledge and skills of TP-R and extension method.	3-1. Project reports	

2-8-7

Attachment 4 (1/2)

Activities	Inputs	
<p>1-1. To collect information on rice production in other districts than Kambia and conduct field survey, as necessary</p> <p>1-2. To decide direction for revision of the TP-R developed at the previous JICA cooperated project</p> <p>1-3. To make annual plans of TP-R trials (on-farm verification)</p> <p>1-4. To select locations where on-farm verification on TP-R are implemented</p> <p>1-5. To implement pot-experiments of fertilizer application at the Rokupr Agricultural Research Center (RARC) and on-farm verifications at selected farm fields</p> <p>1-6. To monitor and analyze findings of the pot-experiment and on-farm verifications in view of various aspects</p> <p>1-7. To reflect the results of the on-farm verifications and reaction of farmers involved into TP-R</p> <p>2-1. To make annual plans of extension in line with the Farmers Field School (FFS) method</p> <p>2-2. To produce draft guideline on implementation of FFS on rice cultivation based on TP-R and extension materials for FFS</p> <p>2-3. To select FFS test plots in collaboration with the selected FBOs</p> <p>2-4. To prepare training materials for extension workers and farmer facilitators</p> <p>2-5. To train Front Extension Workers (extension workers) and farmer facilitators of the selected FBOs</p> <p>2-6. To implement extension activities based on the FFS test plots</p> <p>2-7. To monitor progress of the extension activities</p> <p>2-8. To wrap up the results of the extension activities and compile them to an improved extension method of TP-R</p> <p>3-1. To make training plan for officials of the district agricultural offices of MAFFS other than Kambia district.</p> <p>3-2. To conduct trainings on TP-R and extension method</p> <p>3-3. Monitor situation of utilization of TP-R and extension method at each district office</p>	<p>&lt; Japanese Side &gt;</p> <p>- Experts</p> <ol style="list-style-type: none"> <li>1. Chief adviser</li> <li>2. Rice cultivation technique</li> <li>3. Post-harvest technique</li> <li>4. Extension</li> <li>5. Farmers organization</li> <li>6. Coordination</li> </ol> <p>- Equipment</p> <ol style="list-style-type: none"> <li>1. Vehicles</li> <li>2. Necessary equipment for extension activities</li> <li>3. Other necessary equipment</li> </ol> <p>- Counterpart training in Japan and/or third country</p> <p>- Operational expenses</p> <p>&lt; Sierra Leonean side &gt;</p> <p>- Counterparts</p> <p>- Project office</p> <p>- Facilities for technical verification at RARC</p> <p>- Operational expenses</p>	<p>- Extension workers who took the trainings remain in the same position.</p>
		<p><b>Pre-condition</b></p> <p>- Security condition in the target areas does not deteriorate.</p>

<sup>i</sup> Extension method means the practical guideline on implementation of FFS and extension materials on rice cultivation

<sup>ii</sup> Applicable places are rice fields in IVS (Inland Valley Swamp) where field water control is possible for effective fertilization.

<sup>iii</sup> FBO farmers which are advised and monitored intensively by Supervisors and Japanese experts in wet season of 2012 and 2013



**MAFFS – JICA  
SUSTAINABLE RICE DEVELOPMENT PROJECT IN  
SIERRA LEONE**

**Eighth Joint Coordinating Committee Meeting**

**May 12, 2014  
at MAFFS conference hall, Youyi Bldg, Freetown**

## Contents of the presentation

1. Progress Report 7
2. Comparison of cost-benefit of rice production between Japan and Sierra Leone
3. Comparative study on land preparation cost between power tiller and manpower

## Progress Report 7

- Project activities and results in the last seven months (Oct. 2013 – Apr. 2014)
  - On-farm fertilizer trials and economy of fertilizer application
  - Rice cultivation by FBOs
  - Preparation of extension guidelines and materials
  - Training sessions on TP-R for staff of district agricultural offices
  - Interview survey on adoption level of recommended farming practices
  - Joint terminal evaluation study
  - Input by JICA
- Proposed project activities in the remaining project period (May – Sep. 2014)

### On-farm fertilizer trials



## On-farm fertilizer trials

### Trials in the rainy season 2013

Treatment (N-P <sub>2</sub> O <sub>5</sub> -K <sub>2</sub> O-S kg/ha)	Grain yield (ton/ha)	
	Masineh	Laya
1) 0-0-0-0	2.7	1.7
2) 60-40-40-0 (RARC recommendation)	4.2	2.8
3) 20-40-40-0	4.1	2.6
4) 20-40-40-10	4.1	3.2
5) 20-100-40-10	4.1	2.9

Variety used is NERICA L19.

### Trials in the dry season 2013/14

Treatment	Grain yield (ton/ha)						SE
	Masiaka	Masineh	Laya	Rotifunk	Tawuya Munu	Average	
1) 0-0-0-0	2.6	1.4	2.1	1.3	1.6	1.8	0.24
2) 60-40-40-0	3.8	3.4	2.7	2.2	2.4	2.9	0.30
3) 20-40-40-0	3.1	3.2	2.7	2.5	2.0	2.7	0.20
4) 20-40-40-10	3.6	2.7	3.5	-	2.2	3.0	0.34
5) 20-100-40-10	3.7	3.5	2.8	-	2.2	3.1	0.33

Variety used: NERICA L19 for Masiaka and Laya, Yeffin for Masineh, and Butter Cup for Rotifunk and Tawuya Munu. SE: Standard error

## On-farm fertilizer trials

- Fertilizer application has brought about yield increment of up to 2.1 ton/ha.
- Effect of nitrogen dose seemed have peaked at around 20 kg N/ha.
- The high dose of P has not necessarily shown the positive result on rice yield.
- Sulfur may have contributed to the yield enhancement in Laya and Masiaka.

## Economic analysis of fertilizer application

- Assumption 1 IVS swamp is properly developed
- Assumption 2 Nutrient (fertilizer) dose : N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O = 40-40-40 kg/ha (267 kg/ha of compound fertilizer 15-15-15)
- Assumption 3 Increment of paddy yield by adopting TP-R: 1.5 ton/ha
- Assumption 4 Fertilizer price: Le 100,000/25 kg-bag
- Assumption 5 Paddy price (Farm-gate): Le 1,200/kg
- Assumption 6 Any additional costs born with the yield increment are considered negligible

Incremental Benefit (Le/ha) = 1,500 x 1,200 = 1,800,000

Cost for fertilizer (Le/ha) = 100,000 / 3.75 x 40 = 1,070,000

Benefit born by fertilizer application (Le/ha) = 1,800,000 - 1,070,000 = 730,000

Benefit - Cost ratio (B/C) = 1,800,000/1,070,000 = 1.68

## Economic analysis of fertilizer application

### Sensitivity analysis

Change in the price of paddy	Gross incremental benefit (Le/ha)	Change in fertilizer cost (Le/ha)				
		-20%	-10%	0	+10%	+20%
-20%	1,440,000	584,000	477,000	370,000	263,000	156,000
-10%	1,620,000	764,000	657,000	550,000	443,000	236,000
0	1,800,000	944,000	837,000	730,000	623,000	416,000
+10%	1,980,000	1,124,000	1,017,000	910,000	803,000	696,000
+20%	2,160,000	1,304,000	1,197,000	1,090,000	983,000	876,000

### Rice cultivation by FBOs



### Rice cultivation by FBOs



### Rice cultivation by FBOs

#### Rainy season cropping

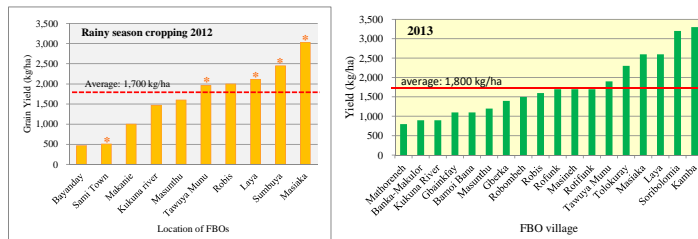


Fig. Comparison of the rice yield in the FBO fields in the rainy season between 2012 and 2013 . shows the FBO field had water control structures.

The average grain yield in the rainy season 2013 was about 1.8 ton/ha, compared to 1.7 ton/ha in the same season 2012. The average yield did not decrease despite the fact that the dose of fertilizer was reduced by 25% from 2012 to 2013. It suggests that the project have brought the farmers' capacity in rice cultivation to higher level.

### Rice cultivation by FBOs

#### Dry season cropping

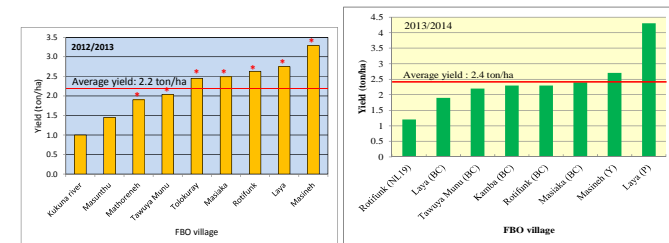


Fig. Comparison of the rice yield in the FBO fields in the dry season between 2012/13 and 2013/14 . the FBO field had water control structures in 2012/13; all FBO fields had water control structures in 2013/14 NL19: NERICA L19; BC: Butter Cup; Y: Yeffin; P: Pa Thorley

The average grain yield in 2013/14 was 2.4 ton/ha, slightly higher than that in 2012/13. The average yield of Butter Cup was maintained almost constant despite the fact that fertilizer dose decreased from 400 kg/ha of compound fertilizer (15-15-15) in 2012/13 to 300 kg/ha of the same in 2013/14.



## Dissemination of TP-R



## Dissemination of TP-R

- The extension guideline is composed of 2 parts; (a) Technical Manual on Rice Production, and (b) Guide to FFS Sessions. The former explains the essence of TP-R for the extension workers to understand and the latter contains 21 technical components to be dealt with at FFS sessions.
- The project provided a four-day training on TP-R for more than 100 officers from MAFFS district offices nationwide in March - April 2014 at Kambia.
- An interview survey to 165 farmers in 14 FBOs was carried out to assess the adoption level of TP-R techniques. High adoption of many farming techniques in TP-R by the farmers as well as yield increase was confirmed through the survey.

## Joint terminal evaluation study

- was executed in January 2014 by a team consisting of Sierra Leonean and Japanese members in order to review the status of the project progress and to make necessary recommendation to be taken during the remaining project implementation period.
- It was confirmed that the project has implemented its activities as per the plan stipulated in the PDM and PO with approved modifications made at the time of the Mid-term Review.
- The team confirmed that the expected output have largely been achieved without any problem or notable delay in the implementation of the project.
- It was also assured that the project would successfully achieve its purpose within the cooperation period.

## Joint terminal evaluation study

- Recommendations for the remaining period
  - Finalization of the TP-R
  - Promotion of the TP-R to the donor communities
- Recommendations for the future (after the completion of the project)
  - Sustainable dissemination of the TP-R
  - Efforts to ensure the implementation of the SCP
  - Improvement of the quality of IVS development
  - Development and/or update of rice cultivation techniques in other ecologies

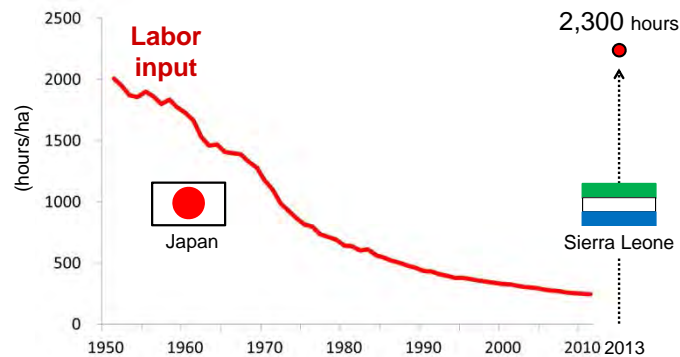
### Input by JICA

- In the last 7 months period, JICA dispatched 6 Japanese experts with a total input of 17.2 man-months.
- The project provided the following input during the same period:
  - fertilizer for FBOs in Kambia District for the dry season cropping,
  - fertilizer for implementing on-farm verification,
  - cost for allowances for the training session to SCP extension workers and FBO farmers,
  - fuel for the generator for the office of MAFFS-K for 2 months,
  - cost for satellite internet connection at MAFFS-K.

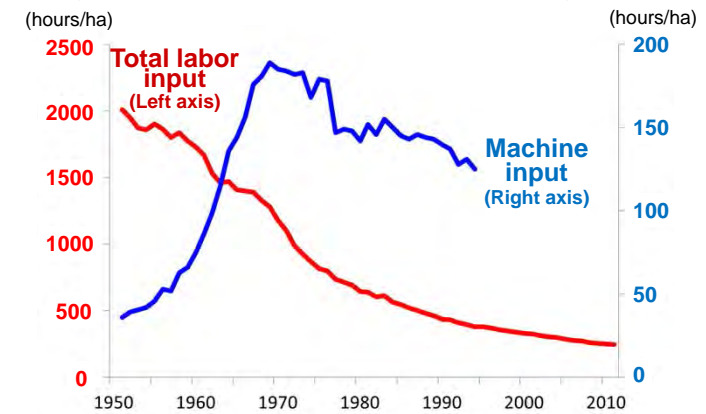
### The proposed activities in the remaining period

- The proposed activities in the remaining project period include:
- (i) Strengthening of ties with MAFFS Headquarters and concerned donor agencies,
  - (ii) Information sharing and making dialogue with other donors,
  - (iii) Finalization of the revision of TP-R,
  - (iv) Technical support to extension staff of MAFFS-K in disseminating TP-R through FFS,
  - (v) Development of extension methods on rice cultivation for SCP,
  - (vi) Holding a seminar to share the results of the project,
  - (vii) Preparation of Draft Final report, and
  - (viii) Holding JCC meeting and MC meetings.

### Labor input for rice cropping has decreased in Japan over the years



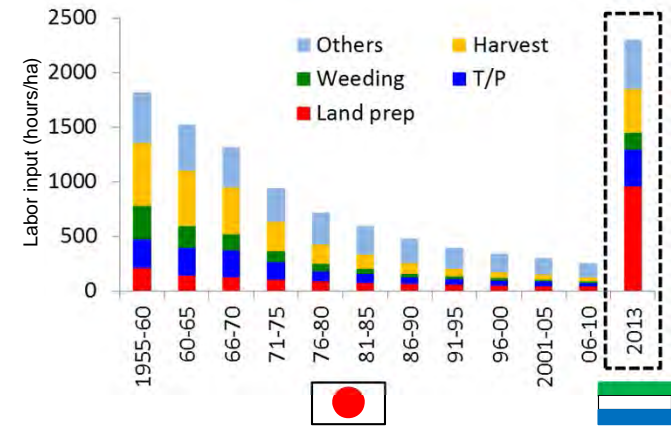
### Mechanization helped to decrease the labor input



### Comparison of labor input on rice cultivation between Japan and Sierra Leone

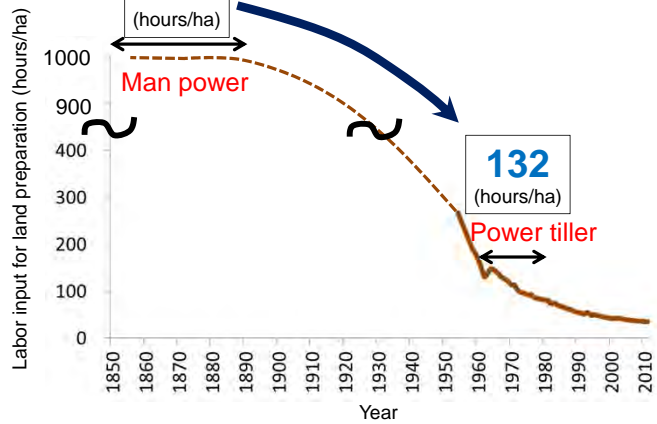
Country	Period (year)	Total labor input (hours/ha)	Ratio of the labor input (%)				
			Land prep	T/P	Weeding	Harvest	Others
Japan	1955-60	1818	11	15	17	32	25
	60-65	1509	9	17	13	34	28
	66-70	1315	10	18	12	32	28
	71-75	941	11	18	10	28	33
	76-80	718	12	13	10	25	41
	81-85	593	12	13	9	22	44
	86-90	481	12	14	7	20	47
	91-95	399	13	14	5	18	47
	96-00	349	13	14	5	17	48
	2001-05	306	13	14	5	16	49
	06-10	264	14	14	5	14	51
Sierra Leone	2013	2298	42	15	7	18	19

### Comparison of labor input on rice cultivation between Japan and Sierra Leone

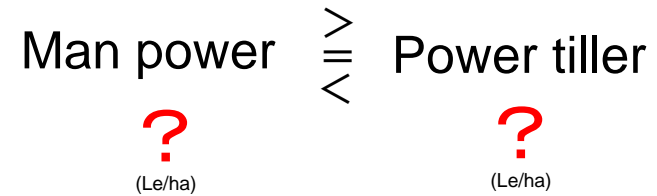


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### In Japan labor input for land preparation has dropped by the Mechanization



### Which is more economical in land preparation Manpower or power tiller?



### Cost of land preparation by manpower

is about 930,000 Le/ha

$$\begin{aligned}
 \text{Cost of digging by manpower (Le/ha)} &= \text{Labor input (man-day/ha)} \times \text{Wage (Le/man-day)} \\
 &= 133 \times 7,000 \\
 &\quad \text{(source : SRDP)} \\
 &\doteq 930,000 \text{ Le/ha}
 \end{aligned}$$

### Cost of digging by power tiller

is determined by lifetime operation area

$$\begin{aligned}
 \text{Cost of digging by power tiller (Le/ha)} &= \frac{25,000,000 \text{ (Le)} + 430,000 \text{ (Le/ha)} \times \text{? (ha)}}{\text{? (ha)}}
 \end{aligned}$$

### Calculation assumptions



Equipment: WINGIN 11SF0269 (12HP)

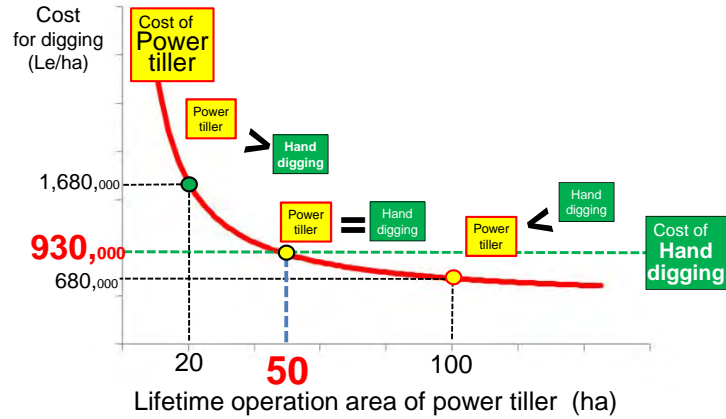
- Purchase cost: Le 25,000,000 /
- Running cost: Le 430,000 /ha
- Digging speed: 0.5 ha/day
- Cultivation area : 10 ha/year

### Calculation assumptions

(Details of running cost)

Description	Unit cost of spare parts (Le/)	Required amount of parts at the change	Frequency of the change (every ** years)	Lifetime cultivation area (ha)	Unit cost of the spare parts (Le/ha)	Workmans hip cost for the change (Le/)	Unit workmans hip cost (Le/ha)	Running cost (Le/ha)
Ring, Piston, Metal, Sylinder head casket	415,000	1	1	10	41,500	60,000	6,000	47,500
Tyre	300,000	2	1	10	60,000	25,000	2,500	62,500
Oil	50,000	1	0.5	5	10,000	45,000	9,000	19,000
Clouch disk	160,000	2	1	10	32,000	30,000	3,000	35,000
Harrow blade	15,000	18	2	20	13,500	75,000	3,750	17,250
Fuel filter, Oil filter	45,000	1	1.5	15	3,000	45,000	3,000	6,000
Fun belt	35,000	3	0.5	5	21,000	45,000	9,000	30,000
Injector pipe	30,000	1	1.0	10	3,000	15,000	1,500	4,500
Tapet	50,000	1	2.0	20	2,500	60,000	3,000	5,500
Nozzle	50,000	1	0.3	3	15,000	50,000	15,000	30,000
Oil pump	250,000	1	1.5	15	16,667	40,000	2,667	19,333
Inject pupm	200,000	1	1.5	15	13,333	50,000	3,333	16,667
Fuel	4,500				101,250			101,250
Operator cost	20,000				40,000			40,000
<b>Total</b>								<b>434,500</b>

To keep a better profit than hand digging,  
**more than 50 ha**  
 of lifetime operation area are needed



### Summary

Lifetime operation area	Cost of digging by power tiller (Le/ha)	Cost of digging by manpower (Le/ha)	Balance
20 (ha) ⇨	(-1,680,000)	(-930,000)	<b>-750,000</b>
50 (ha) ⇨	(-930,000)	(-930,000)	0
100 (ha) ⇨	(-680,000)	(-930,000)	<b>+250,000</b>

**50ha** ÷ 0.5 ha/day  
 (Operation capacity)  
**= 100 days**  
 (20 days/year)  
 At least **5** years  
 must be operated.