Annex 5

Radio Extension Program

Annex 5 Radio Extension Program

To disseminate useful rice farming techniques to wide range of farmers, extension programs have been produced jointly by JICA Project Team (JPT) members and MAFFS-K, and broadcasted through a community radio (Radio Kolenten F.M.92.4 Kambia) every month from June to December, 2008.

In each broadcast, topics for the program have been carefully selected through the discussions between Japanese experts and Sierra Leonean counterparts as well as feedback from the model farmers on the previous broadcast. A moderator and commentators were then selected among the staff of MAFFS-K. A draft manuscript was prepared for discussion among the concerned persons. After a series of discussion, a final draft was prepared for recording.

After the broadcast, FEWs assigned to the pilot projects site asked the model farmers about their impression on the radio program and get their feedback.

The common local language of Krio was used for broadcast in principle. However, it was realized after getting their feedback that many farmers wanted the broadcast spoken in their local languages including Temne, Susu and Limba. In the last three programs, summary of the program was translated into those three languages and broadcasted.

Main topic of each program is presented in Table 5.1, together with the names of moderator and commentators.

Table 5.1 Main Topics of the Radio Extension Program Broadcasted

No.	Date	Main topic	Moderators and Commentators
1	27/06	About JICA/MAFFS Agricultural Development Project in Kambia; Importance of timely farming in relation to life cycle of rice plant	Mr. T. Kimijima
2	25/07	Key points on main rice field preparation and transplanting for swamp rice	Mr. Fomba K. James (moderator), Mr. E.E. Bangura, Dr. J. Yamaguchi (commentators), Hassan Turay, Aminata (Model farmers in Robat), Fodey Dumbuya, Mariatu Kamara (Model farmers in Robennah)
3	29/08	Recommended farming practices between nursery and early growth stage of transplanted rice plant.	Mr. Fomba K. James (moderator), Mr. A.B.S. Kabba, Mr. Salamu Saidu, Mr. T. Kimijima (commentator)
4	26/09	Management of the transplanted rice at vegetative growth stage	Mr. Fomba K. James (moderator), Mr. E.E.Bangura, Mr. Idriss Fofana, Mr. T. Kimijima (commentator)
5	07/11	Management of rice plant at middle growth stage to harvest	Mr. Fomba K. James (moderator), Mr. D. M. Kamara, Mr. J. M. Pessima, Mr. B. A. Kanu (commentator)
6	05/12	Management of harvest and	Mr. Fomba K. James (moderator), Mr. R. J.

		post-harvest techniques in rice cultivation	F Gbla, Mr. Muminie Bangura, Mr. E. E. Bangura (commentator)
7	24/12	Vegetable cultivation	Mr. Fomba K. James (moderator), Mr. Idriss Fofana, Mr. F. B. Sei, Mr. E.E. Bangura (commentator)

Manuscript of the six programs: second to seventh programs were presented in the appendix of this annex.

Radio Extension Program (for July 2008)

Topic: Key points on main rice field preparation and transplanting for swamp rice
Target: Swamp farmers
Broadcasted on 25/07/2008

Abbreviations:

(HT) Hassan Turay (Robat)
(Am) Aminata (Robat)
(FD) Foday Dumbuya (Robenna)
(MK) Mariatu Kamara (Robenna)

(EB) E.E. Bangura
(FJ) Fomba K. James
(M) Moderator (Radio)
(Dr) J. Yamaguchi

Part I. Introduction (M)

Review of last radio interview broadcasted on 27/6/08. The last topics: 'Life cycle of rice plant in relation to the importance of timely farming'

1) JICA/MAFFS – Kambia seek to;
   (a) Establish agricultural technical support systems for farmers ,
   (b) Formulate an agricultural technical package for rice model farmers and
   (c) Provide technical support guidelines.

a) As part of the project, pilot projects have been carried out with model farmers in 7 villages each from the 7 chiefdoms in Kambia District.

b) MAFFS staffs are working together with JICA experts to achieve the project objectives, and technology transfer is expected through daily collaborative work.

2) Life cycle of rice plant consists of two growth stages: vegetative and reproductive.
   - Vegetative stage- germination to panicle initiation (This period varies according to the varieties)
   - Reproductive stage-These are sub-divided into two;
     (a) Panicle initiation to flowering (This period is almost one months; in all varieties).
     (b) Flowering to maturing, commonly called ripening stage (it takes about one month.)

3) Important message;

a) Farmers should strictly follow the cropping calendar being prepared. Good farming practices during vegetative growth stage of rice plant promote good yield

b) Cropping calendar is prepared by setting first the date that the farmer intends to transplant.

c) Recommended transplanting time, in general, is at the seedlings age of 2- 3 weeks (four leaves stage).

Part II. Today's Topics

A. Questions for the model farmers

Interview sites: (1) Robat (mangrove swamp).
(2) Robenna (Inland valley swamp)

Introduction: In last year's pilot project, MAFFS/JICA recommended the following practices in the cultivation of rice; (M)

(a) Shallow transplanting of seedlings.
(b) 2 to 3 seedlings per hill when transplanting.
(c) Preparation of farming calendar.
(d) Nursery period is 3 weeks.
(e) 1 bushel seeds to be nursed for a 3 bushel farm.
(f) Transplant seedlings during low tide.
(g) Proper puddling and leveling of the main field before transplanting.

Questions (M)

Q1. What are the above practices were difficult to be followed by your group?
Q2. Which practices were easy for your group to adopt?
Q3. Which of the above practices greatly contributed to your good harvest?
Q4. What failures do you encountered in the last year's pilot trials?
Q5. What message do you have for other farmers?

Answers (responses) to the questions at the two sites were;

1. At Robat (Associated mangrove):

Ans.Q1 (HT): a) Preparation of farming calendar.
b) Transplanting 2 to 3 seedlings per hill.
Ans.Q2 (Am): a) Uprooting seedlings in the nursery.
b) Digging the main field.
Ans.Q3 (HT): a) Digging/ploughing the main field before nursing seeds.
b) Transplanting 2 to 3 seedling per hill.
Ans.Q4 (Am): a) The main field was not all transplanted with 2 to 3 seedlings per hill.
b) Late transplanting of seedlings.
Ans.Q5 (HT): a) Farmers should start main field preparation before nursing seeds.
b) Shallow transplanting is to be done.
c) Transplanting young seedlings.
Ans.Q5 (Am): a) Women should involve in farming.
b) Farmers should follow JICA/MAFFS practices for better harvest. One-bushel seeds were able to give us 95 bushels at harvest.

2. At Robennah (Inland valley swamp**):**

Ans.Q1 (FD): Transplanting 2 to 3 seedlings per hill.
Ans.Q2 (MK): Uprooting young seedlings for transplanting.
Ans.Q3 (FD): a) Transplanting 2 to 3 seedlings per hill.
b) Timely transplanting of seedlings.
Ans.Q4 (MK): Mixed varieties failed in timely harvest.
Ans.Q5 (FD): Farmers should visit the farm almost always after transplanting to replace Missing hills, and also, weed and control rodent pests.

Ans.Q5 (MK): a) Transplant 2 to 3 seedlings per hill.
b) Transplant young seedlings

B. Questions for Agric. Officers

Q1.What do you recommend for farmers to make a farming calendar for main field preparation and transplanting? (M)

Ans (FJ);
(1) Brushing and heaping in the IVS and digging in mangrove swamp should be done before nursing,
(2) Nursing period is 3 weeks. For farmers in mangrove swamp, determine your transplanting date when your farm is salt free and low tide, too.
(3) In IVS, transplanting can be done immediately after puddling and leveling. In mangrove swamps, wait for one week before transplanting after puddling to allow salts free.

Q2.What technical advice will you recommend to farmers for digging? (M)

Ans (EB): Farmers should dig and turn upside down each portion of the land surface at 10-cm depth.

Q3. What technical advice will you recommend to farmers for puddling and leveling? (M)

Ans (FJ): Puddling should be done at least 1 week after digging and when the soil is sufficiently wet. This allows the grass to rot.

Q4. Why do you recommend for farmers to transplant 3-week-old rice seedlings? (M)

Ans (EB): This facilitates quick and vigorous tillering, a large number of panicles, and eventually high grain yield.

Q5. What do you recommend to farmers for transplanting seedlings into the main field? (M)
Q5-1. Uprooting seedlings in the nursery? (M)

Ans (FJ): (a) uproot on the day of transplanting.

(b) avoid hitting strongly the uprooted seedling stem against foot, leg or hand, because growing point will be damaged.

Q5-2. Time to transplant in the main field? (M)

Ans (FJ): (a) when the tide is low to allow shallow planting and salt free in mangrove swamps.
(b) Before the rain floods swamps in IVS.

Q5-3. Number of seedlings per hill? (M)

Ans (EB): 2 to 3 seedlings per hill.

Q5-4. Depth of planting? (M)

Ans (EB): Transplant as shallow as possible: 1 inch.

Q5-5. Spacing in between hills? (M)

Ans (EB): 20 cm × 30 cm, or distance between the tip of thumb and index finger when the hand is widely opened.

Q5-5.Why the model farmers got very good harvest last season? (M)

Ans (FJ): a) proper digging was carried.
b) transplanting was done on time.
c) weeding of grasses was done on time.

Q5-6. What were the problems MAFFS/JICA encountered with model farmers last season? (M)

Ans (EB): a) transplanting of seedlings was not very timely in many pilot project sites.
b) there was late weeding of grasses.
c) harvesting was not done on time as many panicles drop.

C. Conclusive remarks: Message to farmers (M)

Dr.: a) Farmers should take rice cultivation as a business.
b) Proper crop management should be followed.
c) Farmers should prepare a cropping calendar, noting the land size, the man labor available and the fieldwork to be done.
d) Farmers should transplant 3 weeks old seedlings to the main field.

Radio Extension Program (for August 2008)

Topic: Recommended farming and management practices between nursery and early growth stage of transplanted rice plant.

Target: Transplanting rice farmers.
Broadcasted on 29/08/2008
Date of recording: 25/08/08
Recording site: MAFFS office – Kambia.
Date of broadcast: 29/08/08

Abbreviations:
(M) Mr. Fomba K. James (Moderator)
(K) Mr. A.B.S. Kabba. (Commentator)
(S) Mr. Salamu Saidu. (Commentator)
Mr. Takashi KIMIJIMA (JICA expert)
(IVS) Inland Valley Swamp.
(Tp's) Tripence pan (seed rice measure)

Part1. Introduction.(M)

Review of the last topic: Key points on main rice field preparation and transplanting in swamps.

1. Farmers should know that farming is a business and they should adopt practices which are profitable.
2. Farmers are to prepare a farming calendar for main field preparation activities to suit the transplanting date suggested, also considering the available labour. Recommendations were ;
   a) Brushing and digging in IVS and digging in mangrove swamp should be done before nursing seed rice.
   b) Puddling and leveling should be done 1 or 2 days before the transplanting date in IVS, while turning over and levelling in mangrove swamp should be done 1 week before the transplanting date.
   c) Nursery period is 3 weeks in IVS and 4 weeks in mangrove swamps. Uproot on the day of transplanting or a day before.
3. Transplanting should be done when water level is low in IVS and in mangrove swamps when tide is low and the water is salt free. Remember the following points when transplanting; a) plant 2 or 3 seedlings per hill, and b) shallow planting at 1 inch deep.

Part II Today's topic. (M)

A) Questions for Agriculture officers (M)

(1) Activities in the rice nursery.

Q1. What is the recommended duration of seedlings in the nursery? (K)

Ans: Recommended period is 3 weeks in IVS and 4 weeks in mangrove swamp.

Q2. Do you involve children in uprooting the seedlings? (S)

Ans: Children are part of family labour. Proper guide should be given to them since uprooting is a delicate farming activity.

Q3. What techniques do you recommend in uprooting the seedlings? (K)

Ans: In both wet and dry nurseries,

a) Handle a few seedlings in between your palm using the thumb and the index finger.

The handling should be done at the base of the seedling stem.

b) Pull gently the seedlings, if it is

i) wet land nursery, detached the soil around the root by shaking the base of the uprooted seedlings in a pool of water.

ii) dry land nursery, shaking in free air can detach the soil. This help to keep the seedlings strong and healthy in transplanting.

Q4. How do you take care of the uprooted seedlings? (S)

Ans: Do not keep the uprooted seedlings under the sun. It is strongly recommended to uproot the seedlings on the day of transplanting or a day before. The uprooted seedlings will lose water quickly and become weak.

(2)Transplanting into the main field

Q5. What is the best condition of the field for transplanting? (K)

Ans: The field should be sufficiently wet , dug ,turn over and leveled. Transplant when water level is low in IVS or tide is low in mangrove swamps. Deep water will encourage deeper planting of rice seedlings by the farmer when transplanting. Leveling help in even water depth.

Q6. What do you recommend when transplanting with regards to ;

a) Transplanting depth of the seedlings? (K)

Ans: The first mark after your thumb nail is a convenient indicator for planting depth. Tiller formation in rice plant starts at the base of the rice stem, meaning that, the rice plant is force

to produce elongated structures to enable the base of the plant to reach the surface of the soil if planted too deep. Deep planting reduces the tillering capacity of the plant.

b) Number of seedlings per hill? (S)

Ans: 2 or 3 seedlings per hill. This save the seedlings e.g. at Rosinor pilot trial farm, 8 Tp's seed rice nursery was able to transplant a farm which was used to be nursed 3 bushels.

c) Spacing between the hills? (K)

Ans: About the distance of your thumb and the last finger (20 cm. to 30 cm.). This reduces competition for light, nutrients, and air. Weeding is easier and promote tillering .

(3) After transplanting operations.

Q7. What do you recommend immediately after transplanting seedlings to farmers in ;

a. Inland valley swamp? (K)
b. Mangrove swamp? (S)

Ans:

a) Visit the transplanted field during the first few days to check for the empty spaces, weak seedlings which may not grow after transplanting in both inland valley swamp and mangrove swamp.

Measures to be taken: Replace the seedlings.

b) In IVS, Periodic visits for sudden attacks by rodent pests such as cutting grass, rats, etc.

c) In mangrove swamps, check for brushed weeds by other farmers which may be carried by high tide to your farm. i.e. ('kireh kireh' and 'finteleh').

Measure to be taken:

It is good to barricade with fence at the borders especially, for farms close to the canals and distributaries which is usually the entry points of tide water.

B) Questions for model farmers. (M)

Recording sites: Macoth

The following are farming activities you are supposed to know and carried in the rice nursery when preparing to transplant the main swamp;

a) Prepare your field well.
b) Uproot young seedlings at 3 weeks for IVS and at 4 weeks for mangrove swamps. Uproot a few seedlings with thumb and its index finger holding the base of seedling stem.
c) Use experience farmers to uproot seedlings with care.
d) Do not waste time to transplant after uprooting seedlings.

e) Transplanting at low water level in the field.
f) Transplant 2 or 3 seedlings per hill.
g) Transplant at an inch depth.
h) Space the hill at the distance between your thumb and the last finger. (20cm to 25cm)
i) Visit the transplanted rice field in the first few days.

From the above recommendations, respond to the questions below;

Q1. What farming activities do you carried in preparing your main field?
Q2. If your main field is (a) IVS, (b) mangrove swamp, How old the seedlings in the nursery before up rooting?
Q3. i) When do you transplant the uprooted seedlings?
ii) If delayed, why?
Q4. What was the water level in the main field when transplanting?
Q5. Give an estimate of
i) the number of seedlings per hill planted ?
ii) the depth at which you transplanted ?
iii) the spacing between the hills ?
Q6. How often do you visit your newly transplanted field?
Q7. i) What problem(s) do you encountered in the field?
ii) What measures do you take?

Part III. Conclusion

Message to farmers:

a) Proper main field preparation should be done before transplanting. i.e. digging, turning, puddling and leveling. This makes it easier for shallow transplanting and assure the healthy growth of seedling in the subsequent stage.
b) Seedlings in the nursery should not exceed 3 weeks for IVS and 4 weeks for mangrove swamps. Young seedlings when transplanted have good potential to produce more tillers.
c) Uprooted seedlings should be transplanted immediately into the main field. This reduces loss of water in uprooted rice plant.
d) Transplanted rice should be monitored, especially during the first few days after transplanting. This helps to identify spaces to be refilled seedlings.

Note: Local names

English	Themne	Susu
1) Tiller	N'thuk	
2) Panicle	N'gbass	Tonk-so
3) Paspalum spp.	Kireh Kireh	

Radio Extension Program (for September 2008)

Topic: Management of the transplanted rice at vegetative growth phase
Target: Transplanting rice farmers
Date of recording: 24/09/08
Date of broadcast: 26/09/08

Mr. Fomba K. James (Program moderator)
Mr. Idriss Fofana (Commentator)
Mr. E. E. Bangura (Commentator)
Mr. Takashi KIMIJIMA (JICA expert)

Early varieties of rice in upland are in the stage of flowering. The fellow upland farmers, did you prepare already for the protection measures against pests like birds and cutting grass?

Hello, the fellow rice farmers. This is a radio programme produced by Agricultural Development Project in Kambia which has been implemented jointly by Japan International Cooperation Agency, JICA, Japan and Ministry of Agriculture, Forestry and Food Security (MAFFS), Sierra Leone.

This radio programme started in June this year, and lasts until December this year, as a part of the project. Through the broadcast, we are trying to disseminate new farming techniques to improve rice yield, which we have found useful through the implementation of our project.

Part A. Review of last broadcast (28/08/08):

Recommended Farming and management practices between nursery and early growth stage of transplanted rice plant (M)

In the last month, August-broadcast, we recommended several farming practices from land preparation to transplanting. They are;

1. Prepare main field properly by digging, turning, puddling and leveling of the soil. This work should be finished before the time of transplanting.
2. Uproot the seedlings with care. Do not uproot many seedlings at once as it destroys leaves and roots. If children are mobilized for this work, guide them to uproot properly.
3. Transplant the seedlings as soon as possible after uprooting. Keep in mind that two to three seedlings are enough for one spot at one inch depth.
4. Farmers should visit the transplanted rice field during the first few days after transplanting to check for missing seedlings which must be replanted or refilled.

Note:

It is very important for farmers to caution that newly uprooted seedlings should be placed in bowl containing water such that, the roots of the uprooted seedlings can rest in the water, this prevents the seedlings from water loss and wilting, as well as, brushed grasses being brought by flood water should be remove.

Part B. Topic for the broadcast in September (26/09/08)

I. Introduction on today's broadcast. (M)

Management of transplanted rice plant at vegetative growth phase.

After transplanting, rice plants start growing by establishing roots followed by producing leaves and tillers. This growth stage is called vegetative growth stage.

Vegetative growth stage is very important to obtain better yield. Because, it is the time of tillering, which determines the number of panicles.

Therefore, farmers should take best care of rice plant to promote better growth at this period. There are several ways of promoting growth of rice plant, particularly increasing tiller number this period. They are: (1) weeding, (2) water management, (3) fertilizer application, and (4) prevention of pests.

Today, we will try to explain to you how to take care of rice plants to assure their healthy growth in the vegetative growth stage.

II. Development: (Questions for Agriculture Officers)

Q1. What do you mean by tillers and how they are important? **(M)**

Ans: **(**Mr. Idriss Fofana)

About 2 to 4 days after transplanting, new roots starts developing from the base of the stem into the soil, as the rice plant start growing. Then, new shoots develop from the base of the stem. These new shoots are called tillers. Generally, local farmers refer to it as the splitting of the rice plant i.e.

"Ka-gbai- ka- pla" in Themne, "Malay Boi" in Susu, and "Asagii" in Limba.

Each tiller has the potential to have a panicle. The more tillers are produced, the more panicles we can get. Most rice plant is able to produce 20 tillers per single plant if it is grown under the favorable conditions.

Q2.What are the factors that affect tillering? **(M)**

Ans: **(**Mr. E. E. Bangura)

-Tillering is affected by various factors such as:

1) Late transplanting: Old seedlings take long time to recover from the transplanting shock, conducive to the delay in tillering
2) Planting depth: Too deep planting hinders tillering as well as delayed root establishment. This is why we recommend shallow planting.
3) Water level: Deep water suppresses tillering.
4) Spacing between hills and number of seedlings per hill: Too close plant spacing limits tillering. So is the number of seedlings per hill. Too many seedlings will produce fewer tillers per seedling.

5) Nutrition: If soils contain more nutrients for plants to absorb, the plants have more tillers.

III. Cultural management in the vegetative phase. (M)

The vegetative growth stage is the critical phase for obtaining better yield. It is therefore, recommended for farmers to manage rice field properly.Proper management includes: water control, weeding, fertilizer application and pest control.

Q1.What trouble do weeds cause and how farmers should control them at vegetative phase? **(M)**

Ans: **(**Mr. Idriss Fofana **)**

Yield reduction of rice because weeds compete with rice plants for sun light, nutrients and water, as well as, act as alternative host for pests and diseases, all of which reduce good growth.

Weeds must therefore, be controlled when they are still small before become competitive. Weeding is mostly done by hand pulling or the use of small West African hoe.

Q2.How can farmers manage water in transplanted rice field? **(M)**

Ans: **(**Mr. E. E. Bangura)

Each development stage has its specific water needs and when deviated will lead to reduced yield.

Little water is required during the vegetative stage i.e. keep the soil sufficiently wet.

Construct bunds or levees around the transplanted rice field to adequately control water.

In mangrove swamps, water is difficult to control since it is tidal movement. Therefore, farmers are strongly advised to determine an appropriate transplanting date reference to tidal calendar and climatic conditions to avoid flood and deep inundation

Q3.How can farmers improve the soil fertility for better yield? **(M)**

Ans: **(**Mr. Idriss Fofana **)**

-There are two materials to enrich the soil: (i) organic materials, and (ii) fertilizer.

(a) We can find organic materials everywhere. In cultivation, farmers could enrich soils by brushing the grasses in the main field and ploughing it into the soil, or construct heap in the brushed area. The grasses can rot down well in swamp.

In mangrove swamps, the most common weed (kiri-kiri) can be dug and turn as early in March/April when salt water persists in the farm.

(b) Inorganic fertilizers, although is more effective than organic fertilizer to plant growth if properly applied, it is too expensive for most farmers to buy it. However, those wishing to use it can follow the following guides about dosage and time of application. Inorganic fertilizer are recommended to apply in two (2) different rice growth stage. in the vegetative

phase i.e. (i) The day or when puddling before transplanting (basal application), and (ii) At 50% panicle initiation (top dress).

Farmers may employ the service of extension workers in the environment to determine the quantity required for your farm and time of application.

Q4. What pests that attack rice plant at this period of growth and how to control them? **(M)**

Ans: **(**Mr. E. E. Bangura)

The most injurious pests that can be identified at this growth stage are crabs and rodents which chisel the developing rice tillers to ground level.

The most effective cultural method to control rodents is to barricade with a fence around the farm immediately after transplanting. Brushing to keep the surrounding clean is also effective. In mangrove swamps, crabs can best be control when farmers transplant during their incubation period at a time when their activities are dormant.

Part C. Conclusion (KIMIJIMA)

- Today, we emphasized the importance of the vegetative growth stage in obtaining better yield of rice. After transplanting, rice plants start growing by producing not only leaves, but also tillers. Tillers are extremely important to get yield, because each tiller could have one tiller. The more tillers you have, the more panicles you get. Normally one single rice plant could have some 20 tillers under favorable growing conditions.

  Therefore, farmers should do the best to promote good growth at this period.

- To have more tillers, we recommend (i) weeding, (ii) water management especially drainage, and (iii) fertilizer application. However, the fertilizer application is not easy for most farmers due to its very high price. So for the time being, I recommend you to concentrate your efforts on weeding and water management.

- Weeding is the common practice of farmers all over the world. The more you weed, the more harvest you could get.

- Drain water from the rice field as much as possible. Drainage is a must to promote the plant growth.

- Lastly, do not forget about pest control. Unless you make efforts to avoid pest damage, all of your efforts so far made will in vain.

Radio extension program (for October, 2008)

Topic: Management of rice plant at middle growth stage to harvest
Target: Lowland rice farmers cultivating in Kambia District
Date of recording: 30/10/08
Date of broadcast: 31/10/08

(M) Program moderator: Mr. James K. Fomba
(D) Respondent: Mr. D. M. Kamara
(P) Respondent: Mr. J. M. Pessima
(DDA) Mr. B. A. Kanu

(M)

Hello fellow farmers! Welcome to the MAFFS-JICA radio extension program.
This radio program is produce by the Agricultural Development Project in Kambia which has been implemented jointly by Japan International Cooperation Agency- JICA and Ministry of Agriculture, Forestry and Food Security-MAFFS, Sierra Leone.
This broadcast has been disseminating low cost farming techniques which we have found useful through the implementation of our project, to improve the crop yield.

PART A. Introduction (M)

Review of last broadcast: **Management of rice plant at early growth stage (vegetative stage)**

- In the last broadcast, we emphasized the importance of the vegetative growth stage in obtaining better yield of rice. After transplanting, rice plants start growing by producing tillers. Tillers are extremely important to get higher yield, because each tiller could have one panicle. The more tillers you have, the more panicles you get.
- To have more tillers, we recommended (i) weeding to eliminate competitors of rice, (ii) water management especially drainage to give air to soils and roots, and (iii) fertilizer application. As the fertilizer is not easy to obtain due to its very high price and low availability, concentrate your efforts on weeding and water management.
- Weeding is the common practice of farmers all over the world. The more you weed, the more harvest you could get.
- Drain water from the rice field as much as possible. Drainage is a must to promote the plant growth.
- Lastly, do not forget about pest control. Unless you make efforts to avoid pest damage, all of your efforts so far made will in vain.

- **PART B (M)**

I. Introduction to today's broadcast

After sometime of vegetative growth (producing leaves and tillers), a very small panicle will be formed inside the plant. This process is called panicle initiation stage. Although this process is invisible and unidentified, but it is an important turning point for the rice plants to go into reproductive stage (forming panicles to produce grains).

Remember, your rice plant in the farm is at the stage of becoming pregnant (note, **pregnant** used in this text is a description used for educating local farmers to what appears as swelling in the base of tiller, in real term (panicle initiation and booting) of the rice plant) and some will soon be ripened for harvest. You should prepare to input control strategies against the enemies of rice such as weeds, pests that may lessen the grain yield.

Management of rice plant at middle and late growth stage

Today, we will talk about the control measures to be adopted during middle and late growth stage of rice (reproductive stage). This starts at the beginning of early pregnancy and ends in the late growth stage. Therefore, farmers are expected to put in place measures such as weed control (if found), pest control and avoid late harvest. The reproductive stage is expected to last for about 2 (two) months in all rice varieties.

The early or young pregnancy referred is in actual fact panicle initiation, which starts as a small cone shape at the bottom of tiller which later swells at full booting stage like a pregnant stomach of a woman.

II. Development (Questions for Agricultural Officers)

Q1.What do we referred to as middle growth stage of rice? **(M)**

Ans: (D)

The middle growth stages referred starts at panicle initiation, panicle development (booting) and ends at full heading.

-It takes about 1(one) month in both short and long duration varieties.

-Early pregnancy in rice (Panicle initiation) is when panicle develops and grows into a white feathery cone, creating a bulge at the base of the leaf sheath near the bottom of the tiller. This young pregnancy is difficult to identify besides splitting the base of tiller but some common farmers assumed to recognize this stage by observing the following indicators;

a) There is a sudden change in the color and vigor of the rice plant.
b) The new young leaves are broader in size than the old leaves near the stem of the rice plant.
c) The rice stem becomes stiff and can easily break when step on it.

-The panicle grows and extends upward inside the flag leaf sheath, and spike lets develop. At the end of this stage, the panicle causes the flag leaf sheath to swell, this is referred to as **booting**. Some common farmers can identify this stage by observing the bottom of the rice plant, which now appears round (young pregnant). Besides, it gives out flavor (This flavor is believed to attracts cutting grass and birds from distance)

-The panicle grows upwards until it reaches its final height before appearing from the flag leaf (the top leaf just below the panicle), this stage referred to as **heading.**

Q2. What do we mean by late growth stage in rice plant? **(M)**

Ans:(P)

The late growth stage referred in this broadcast, starts at flowering and continues at milking, dough stages then ends at ripening stage. At maximum heading, the panicle emerge from the leaf sheath which ends with pollination and fertilization in the open air, this is referred to as **flowering**. The grains formed in the spike lets contain a white liquid that can be squeezed out with fingers. This stage is referred to as **milking stage**. At this stage, panicles are green and the flag leaf leaves are green and erect. The milky portion of the grain turns into a soft and then a hard dough, this is referred to as **dough stage**. The grain turns yellow and the whole field appears yellowish.

Q3.What problems affect the growth of rice at the middle and late stages? **(M)**

Ans: (D)

The following below can affect the development of rice;

1) Weeds:
   - Weeds compete with the rice plant for nutrient.
   - The more vigorous the weed growth, the greater the competition for light, space and nutrient
   - Many weeds are alternative host for pests and diseases.

2) Pests
   - Pests such as insects, birds, rodents and diseases attack rice seriously at these stages of rice growth.
   - They reduce the grain yield greatly at theses growth period of rice plant.

3) Late harvesting.
   -Wind causes the ripened rice plant to dry, shatter and fall down, this reduces grain yield.

Q4.What cultural control measures you will advice farmers to against these problems? **(M)**

Ans: (P)

1) Weeding:
- Weeding is mostly done by hand pulling or the use of the small West African hoe.
- Proper weeding should be done thoroughly before panicle initiation since walking in the rice field at this growth stage is injurious to plants.
- Rouging can also be done when weeds flower, but this can be done when the farmer intends to get pure seeds.

2) Pest control:

1) Insects e.g.

Some common insect pests found in the pilot farms are;

a) Rice grasshopper:

They occur mainly in swampy grassy areas. The nymphs feed on the leaves. The adults may feed at the bases of maturing ear-heads causing them to dry up. Keeping the rice field by brushing can effectively control them.

b) Stem borers:

Larva bore holes in the rice stem to feed on the succulent parts.

Early sowing, narrow spacing of plants and keeping the farm weed free can control them.

2) Rodents:

Rodent pests also cause serious problems e.g.

a) Cutting grass:

This have been found to attack the rice plant from vegetative stage on to maturing stage. They cut the rice stem as well as destroying the tillers.

Brushing the farm and the surrounding bush is a good measure to control them. Fencing around the farm with traps can also help.

b) Rats:

Rats similarly eat and destroy the rice. Keeping the farm clean by brushing is a good control measure.

3) Birds:

Many species of birds attack the rice plant from milking stage to ripening stage. Some suck the sap in the young grain and others feed directly on the matured grains. Those already known are weaver birds, bush fowl, guinea fowl etc. Control is mostly by scaring from flowering stage to harvest time.

4) Mammalian pest e.g.

a) Monkeys:

Monkeys have been found to destroy rice at milking stage mostly in the uplands. Control is by scaring.

5) Diseases:

Some common diseases of rice are;

a) Brown spots:

This is the most common diseases found to reduce grain yield in farms .The spots are found to reduce useful leaf area for adequate photosynthesis to take place. Keeping the farm clean can control the disease.

b) Rice blast.

It attacks all stages of rice growth. Symptoms range from grayish green, water soak on leaves to panicle sheaths turning dark brown and affected plant becomes stunted.

Farmers can best control most of the pests by keeping the farm environment clean.

PART C (Conclusion)

Message for farmers: **(DDA)**

Middle and late growth stages of rice plant are also very important in cultivation. The effort made by the farmers in earlier growth to get good harvest is easily frustrated at these stages, if the farmers fail to apply the right measures in controlling the troubles caused by the following:

1 .Weeds
2. Pests
5. Late harvest.

The following have been very useful cultural control measures to prevent weeds, pests at the farms of farmers:

1. Proper land preparation.
2. Use older seedlings.
3. Early planting
4. Scaring, fencing, and timely harvesting all are good control measures to assume good yield. Rouging can also be done when farmers are looking for quality seeds.

Radio extension program (for November 2008)

Topic: Management of harvest and post-harvest techniques in rice cultivation
Target: Lowland rice farmers
Date of recording: 03 December, 2008
Date of broadcast: 05 December, 2008

Abbreviations:
(M) Mr. James K Fomba – Program moderator
(G) Mr. R J F Gbla
(MB) Mr. Muminie Bangura
(EE) Mr. E E Bangura

(M)

Hello fellow farmers! How are the things going around you? Most of your rice has entered into the late growth stage (maturing stage). Have you decided the harvesting date of your rice? How do you handle rice after harvest until you consume or store them? Have you ever had any problem of losses after harvest? Today, we are going to talk about how to treat rice properly at and after harvest so that loss can be minimized.

This radio program is produced by the Agricultural development project in Kambia, which has been implemented jointly by Japan International Agency (JICA) and Ministry of Agriculture, Forestry and Food Security (MAFFS) in Sierra Leone.

By the way, we have to apology you for the sudden change in the date of previous broadcast in October. This was caused by a technical problem on the side of management of Radio Kolenten.

Part: A (Introduction) (M)

Review of last broadcast: **Management of rice plant growth at middle to harvest.**

In the last broadcast, we explained recommended farming practices during reproductive stage from early pregnancy (panicle initiation) to ripening.

In our explanation, there were several incorrect information. Taking this opportunity, let me correct them with apology.

Weeding: In the last broadcast, we recommended weeding in the middle to late growth stage. This information was wrong. This practice should have been finished before early pregnancy.

Relationship between diseases and weeding: We explained that weeding could contribute to the control of diseases, but it is not always true.

Part B

Now let's get going into today's subject. Harvest of rice is followed by drying, threshing, par-boiling, drying and milling, and storage. At each process, certain loss may occur. Today, we will

take among others important processes how to reduce losses during harvest and in post-harvest. They are: time of harvest, selection and preparation of threshing site, drying and storage, and parboiling.

Development (Questions for Agric officers)

(Losses in harvesting and handling harvested rice)

Q1. All the farmers know when to harvest rice. But why you should harvest rice at that time? And what should you do to minimize losses at harvest?

Ans:

If harvest earlier, we have more immature grains, which bring about the yield reduction. On the contrary, when you miss the proper time and harvest late, you lose a part of your harvest by shattering, lodging and pests.

(Reference)

(i) Shattering –Grains drop from panicle as branches get died and fragile. Most of the dropped grains could not be collected.

(ii) Lodging – Stem or straw becomes weak due to senescence and break to fall on to the ground. If swamp is wet, this facilitates soaking of grains and germination.

(iii) Pests – Rodents and birds continue feed on rice if left on the field for long time, and causing great losses.

To minimize loss at harvest, you should:

(i) Harvest rice at correct time

(ii) Harvest at earlier time of a day when dew remains to reduce shattering during harvesting. Rice plants lose more water under the sun, which promote shattering.

(iii) Sharpen your knife or sickle on a whetstone before harvest. Blunt instrument causes the grains to drop as you force to cut.

Q2. Harvested rice are tied into sheaves, and gathered in one place for drying and threshing. What is the best place for threshing?

Ans:

- Threshing can best be done on a smooth, flat and un-gravel floor. This will reduce mixing of impurities with the threshed rice.
- It is ideal for the threshing place to be within the farm or close to the farm to reduce losses during haulage.

Swamp farmers can cheaply prepare a threshing floor by brushing a convenient size which can then be paved with soil from termite hill mixed with cow dung. The cow dung help to keep the termite hill soil firm and intact when dry, this prevent the splitting of the threshing surface into grieves. Tarpaulin or cemented drying floor is also good useful (if available).

Q3. After threshing, rice should be winnowed and dried for further processing or storage. What is the best ways to dry and store paddy rice to minimize losses?

Ans:

It is a common practice by most farmers in Kambia District to bag the husk rice immediately after threshing and winnowing and take them to the store without noticing moisture conditions of rice. This practice is not recommendable. Rice should be properly dried before storage for: (1) long term storage with viability, and (2) hoarding to gain better market price.

Drying rice for storage can be done naturally under the sun on a hard un-graveled floor (e.g. termite mound soil mixed with cow dung, tarpaulin sheet or concrete drying floor) for one to two days with occasional turn over. Local farmers certify the dryness by biting the grain, to give soft cracking sound or press a few grains against a hard surface, which should produce unbroken clean grains.

The storage place should have proper ventilation and dry condition. Place the dried rice grains in jute bags (Bags are to be placed on top of wooden stacks or stone for free movement of air beneath and around). Local baskets, wooden boxes and cylindrical mat can also be used.

Q4.Among the reasons for parboiling rice, we look into the reduction of grain breakage during milling (or ensure higher milling recovery rate). What is (are) the important process(es) in parboiling to minimize milling loss?

Ans:

The most important stages to which farmers should pay attention for obtaining high quality parboil rice for higher milling recovery, are:

a) Timing of cease steaming – Farmers should stop steam at the point when the steamed rice just starts to split the husk. Remove the steamed husk rice and spread on the floor for drying.

b) Drying before milling – Dry the steamed rice well. This will reduce the grain breakage during milling. Rice should also be cool at the time of milling.

Part C: (Summary)

Message for farmers:

Today, we talked about the several important processes at harvest and post-harvest handling to minimize losses. You should harvest rice at right time to avoid unnecessary loss by shattering, lodging and pests attack. Harvested rice are tied, collected and dried, followed by threshing, winnowing, drying, par-boiling, drying and milling, and storage. Although certain loss may occur in each process, among others important processes to reduce losses in post-harvest handling include: selection and preparation of threshing site, drying and storage, and parboiling.

1. Selection of sites for drying and threshing

- Ideally, threshing should be done on a smooth, flat and un-gravel floor. This will reduce mixing of impurities with the threshed rice. So, find or prepare the place that satisfies such environment.
- It is also ideal for the threshing place to be within or close to the farm where rice is harvested to reduce losses during haulage.

2. Drying and storage after threshing

After threshing and winnowing, rice should be properly dried for storage. Proper drying of rice ensures viability of rice for long storage both as seed rice for next season and as commodity for marketing.

Drying rice for storage can be done naturally under the sun on a hard, flat, smooth un-graveled floor (e.g. termite mound soil mixed with cow dung, use of tarpaulin sheet or concrete drying floor) for one to two sunny days with occasional turn over.

The storage place should have proper ventilation and dry condition. Place the dried rice grains in jute bags (Bags are to be placed on top of wooden stacks or stone for free movement of air beneath and around). Local baskets, wooden boxes and cylindrical mat can also be used.

3. Parboiling

The most important stages to which farmers should pay attention for obtaining high quality parboil rice for higher milling recovery, are:

a) Timing of cease steaming – farmers should stop steam at the point when the steamed rice just starts to split the husk. Remove the steamed husk rice and spread on the floor for drying.

b) Drying before milling – Dry the steamed rice well. This will reduce the grain breakage during milling. Rice should also be cool at the time of milling.

Radio extension program (for December 2008)

Topic: Vegetable cultivation
Target: Vegetable growers, especially women's groups who cultivate vegetables in a small scale in the dry season
Date of recording: 23 Dec. 2008
Date of broadcast: 24 Dec. 2008

Abbreviations:
(M) Mr. James K Fomba – Program moderator
(ID) Mr. Idriss Fofana
(FB) Mr. F B Sei
(JB) Mr. J B Kamara
(JPT) Mr. Junnosuke Harada

(M)

Hello fellow farmers! Belated Merry Christmas! I think many of you have already been enjoying newly harvested rice. And some of you have started dry season cropping of vegetables. Today, we will talk about vegetable production. This program is developed by the Agricultural development project in Kambia which has been implemented jointly by Japan International Cooperation Agency (JICA) and Ministry of Agriculture, Forestry and Food Security (MAFFS) in Sierra Leone.

Part: A (Introduction) (M)

Review of last broadcast: Management of harvest and post-harvest in rice
Harvested rice are tied, collected and dried, followed by threshing, winnowing, drying, par-boiling, drying and milling, and storage. Although certain loss may occur in each process, among others important processes to reduce losses after harvest include: selection and preparation of threshing site, drying and storage, and parboiling.

Part B

Now let's get going into today's subject, vegetable cultivation. Vegetables are usually consumed in relatively small quantities as a side dish or relish of staple food. Vegetables generally contain various nutrients such as protein, minerals, vitamins, and fiber, all of which are indispensable for our health. Therefore, we should take more vegetables by increasing production. Today, we will explain important or new techniques in cultivating vegetables in the dry season.

Development (Questions for Agric officers)

(Vegetable growing area)

Q1. Where is the suitable place for vegetable cultivation?

Ans:

Farmers should select the place: 1) where water does not stagnate and well drained, 2) where land is level, and 3) where there is water source nearby for irrigation (watering)

As you know, vegetables are generally cultivated in the IVS after rice. IVS normally has all the three conditions.

(Vegetable nursery practices)

Q2. What are the advantages of raising vegetable seedlings in the nursery?

Ans:

The first advantage of raising seedlings in the nursery is easy management. When plants are small, it is not easy to manage them in the field avoiding weeds, pest and diseases.

Another big advantage is to grow plants earlier before main land preparation is ready. It contributes not only to the efficient use of land but also to early planting and early harvesting. You may be able to sell the products at higher price.

You can also select healthy seedlings from the nursery when transplant to the main field. If you find damaged plants in the main field after transplanting, you can replace it with one remaining in the nursery.

But not all vegetables are to be nursed, those vegetables which have small seeds such as pepper, eggplant, onion, krain-krain, etc. are among vegetables better to raise seedlings in the nursery.

Q3. What are the main points a farmer should pay attention in raising seedlings?

Ans:

(1) Nursery site selection

Nursery site should be fully exposed to sunlight, not in shade.

Avoid the area where other vegetables were grown until recently or where lots of weeds are grown. Such areas are likely to induce pest and diseases. Find clean and unused area nearby your house.

(2) Nursery preparation

Nursery is prepared according to the following

(a) Take measurement of the area for nursery. If you want to sow 1 teaspoonful of seeds, prepare 1 m^2 of nursery.
(b) Remove stones and weeds from the proposed nursery site.

(c) Use only well decomposed organic materials and ash to mix with nursery soils. Do not use raw or incompletely decomposed organic materials. When mix organic materials with soils, dig the soil at least 4 inches in depth.
If you are lucky enough to afford to buy fertilizer, buy compound fertilizer. Broadcast 200g (three tomato tins) per square meter and mix with soil.

(d) Heap up soils about 4 inches high to make nursery bed, and level the surface. Excavate ditch around the bed for drainage.

(e) Make straight sowing ditches at half inches depth on the surface of bed at intervals of about 8 inches. Drill the seeds uniformly in the ditches. Cover the seeds by filling ditches with soil around.

(f) Shade thinly with palm leaves or dry grass on the bed to prevent soil surface from drying.

(g) Water sufficiently to keep surface soil wet until germination (about 5 to 6 days).

(h) Remove the shading materials immediately when you confirm germination.

(i) Take good care of the seedlings by watering, thinning, insect control, etc.

(3) Preparation for transplanting

(a) Hardening: About 3 days before transplanting, decrease watering to harden the seedlings for adaptation.

(b) Cutting soils at inter-row space with knife to induce new root growth a few days before transplanting.

(c) Uprooting: Uprooting of the seedlings must carefully be done. Sufficient amount of water should be given to the seedlings one hour before transplanting so that roots of uprooted seedlings are with soil blocks.

(Main field practices)

Q4. What are important in transplanting?

Ans:

The seedlings of eggplant or pepper get ready for transplanting at 25 days to 35 days after sowing or when they have 4 to 5 developed leaves.

Field preparation including digging, making mound and planting holes must be completed before transplanting. Procedure of transplanting is as follows.

(a) Make planting holes about 5 to 10cm in depth.

(b) Apply a handful of well decomposed organic materials in the hole and mix well with the soils.

(c) Transplant the uprooted seedlings in the hole, cover the soils and give water.

Transplanting should be done at late in the afternoon to avoid strong sunlight and high temperature.

Q5. Please explain about pinching?

Ans:

Pinching is a technique of limiting the number of stems by pruning to increase productivity. It is applicable especially to eggplant. The first flower appears between 8th and 10th nodes (leaves) on the main stem, and normally lateral shoots growing below the first flower are to be vigorous. Procedure in pinching is just as follows.

(a) Pinch off all the lateral shoots except two shoots that emerged just below the first flower on the main stem.
(b) Train 3 stems including the main stem and the two remaining shoots so that they could receive enough sunlight.
(c) Allow all the lateral shoots growing from the trained 3 stems to grow for fruit set
(d) Pinch off old leaves for ventilation and exposure at appropriate time when leaves start to get overlapped each other
(e) Do not pinch the first flower. The first flower has a function to regulate the plant growth. Make sure to set a fruit on the first flower.

Q6. Could you explain how to use neem for pest control?

Ans:

Neem is a medicinal tree crop being utilized as medicine or insect repellent all over the world. In Kambia, they can be seen along the road in front of the Government Hospital. They started flowering, and we can see their fruits in March.

We usually use the extract from the seeds for insect control.

(a) Prepare three butter cups (some 150 g) of dried neem seeds and remove seed pulp and husk.
(b) Grind the remaining part (kernel) into powder. (Neem powder)
(c) Add two large mineral water bottles (3 liters) of lukewarm water into the paste and mix them (neem extract).
(d) Keep it more than 24hours avoiding sunlight
(e) Filtrate neem extract with fine gauze.
(f) Add 3-7g of mashed soap as spreading agent into filtered neem extract.
(g) Spray the neem extract to the vegetables at 4:00 p.m. to 6:00 p.m.
(h) Spray once a week

For details, consult MAFFS Kambia Office or the field extension workers nearby.

Part C: (Summary)

Message for farmers:

Today, we talked about several issues on vegetable cultivation for obtaining better yield. They are: raising seedling in the nursery, transplanting, pinching or pruning, and use of neem.

1. Nursery preparation and sowing

Nursery should ideally be located not too far from home and available water source nearby.

Nursery management should be done paying special attention to the following:

- Use well decomposed organic materials and ash only to mix thoroughly with soils. Do not use raw or incompletely decomposed organic materials.
- Secure the seeds from reliable sources.
- Drill the seed uniformly at intervals of about 8 inches on nursery for easy management. Do not drill too densely.
- Water gently and sufficiently to keep surface soil wet until germination. (about 5 to 6 days). Shade the bed to prevent soil surface from drying.
- Remove the shading materials immediately after you confirm germination.
- Take good care of the seedlings by watering, thinning, insect control, etc.
- Towards the transplanting, do the following

  (a) Decrease watering about 3 days before transplanting for adaptation
  (b) Cut soils at inter-row space with knife a few days before transplanting to stimulate new root development.
  (c) Uproot the seedlings very carefully. Give sufficient amount of water to the seedlings 1 hour before transplanting so that seedlings could be uprooted with soil blocks.

2. Transplanting

Field preparation including digging, mound making and planting holes making must be completed before transplanting.

(a) Make planting holes about 5 to 10cm in depth.
(b) Apply a handful of well decomposed organic materials in the hole.
(c) Transplant the uprooted seedlings in the hole, cover the soils and give water.

Transplant seedlings at late in the afternoon to avoid strong sunlight and high temperature.

3. Pinching or pruning

Pruning is a technique of improving plant form by restricting the number of stems and removing lower leaves to increase productivity. It is applicable especially to eggplant.

(a) Pinch off all the lateral shoots except two shoots that emerged just below the first flower on the

main stem.

(b) Train 3 stems including the main stem and the two remaining shoots so that they could receive enough sunlight.

(c) Pinch off old leaves for ventilation and exposure at appropriate time when leaves start to get overlapped each other

4. Use of Neem

Neem extracts can be a good repellent to avoid many insects. We usually use the extract from the seeds for insect control.

(a) Prepare three butter cups (some 150 g) of dried neem seeds and remove seed pulp and husk.

(b) Grind the remaining part (kernel) into powder. (Neem powder)

(c) Add two large mineral water bottles (3 liters) of lukewarm water into the powder and mix them (neem extract).

(d) Keep it more than 24hours avoiding sunlight

(e) Filtrate neem extract with fine gauze.

(f) Add 3-7g of mashed soap as spreading agent into filtered neem extract.

(g) Spray the neem extract to the vegetables at 4:00 p.m. to 6:00 p.m.

(h) Spray once a week.

Annex 6
Minutes of Meetings

6.1 Minutes of Meeting on the Inception

MINUTES OF MEETINGS
ON
THE INCEPTION
OF
THE AGRICULTURAL DEVELOPMENT PROJECT
IN
KAMBIA
IN
THE REPUBLIC OF SIERRA LEONE

AGREED UPON BETWEEN

MINISTRY OF AGRICULTURE AND FOOD SECURITY

AND

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
PROJECT TEAM

Freetown, March 16, 2006

Signed by:

Dr. Tetsuo Mizobe
Team Leader
JICA Project Team

for Hon. Sama S. Monde, Ph.D.
Minister
Ministry of Agriculture and Food Security
The Republic of Sierra Leone

Witnessed by:

Mr. Nobuhiro Setoguchi
Project Formulation Advisor
JICA Sierra Leone Field Office

Mrs. Kona Koroma
Development Secretary
Ministry of Development and Economic Planning
The Republic of Sierra Leone

Minutes of Meetings on the Inception of the Agricultural Development Project in Kambia in the Republic of Sierra Leone

Upon inception of the technical cooperation program under the title of the "Agricultural Development Project in Kambia", herein referred to as the Project, the team of the Japanese experts, herein referred to as the JICA Project Team, and the representatives of the Ministry of Agriculture and Food Security (MAFS) had a series of meetings with the presence of the Ministry of Development and Economic Planning (MODEP) on the 8th and 16th March, 2006. The lists of participants are as per attached. The main subjects of the discussions and agreements are as follows.

1. MAFS and the JICA Project Team reconfirmed the overall scope of the Project as agreed in the Record of Discussions concluded on the 18th of November, 2005.

2. Based on the Inception Report prepared in Japan, the JICA Project Team presented the proposed approach, procedure and methods of the Project implementation as well as other basic matters related to the Project.

3. MAFS and the JICA Project Team agreed on the objectives, organizational arrangements, methodologies, contents, outcomes expected, and the schedule of the Project implementation.

4. Of the comments and suggestions offered by the Sierra Leonean side in the course of the discussions, the following are acknowledged as points to be emphasized in the Project.

   4.1 The goal of the Project is not so much new agricultural development in Kambia district as reestablishment of agricultural activities in Kambia district to the level of the pre-civil war era.

   4.2 The Project should promote improvement by transfer of cultivation techniques as well as pursuit of profit making by market-oriented agriculture in particular through:
   (1) Reestablishment of small-scale mechanization to compensate for the destroyed agricultural machinery and the depletion of labor force during the civil war
   (2) Provision of inputs such as seeds and fertilizer
   (3) Improvement of post harvest processing and handling to reduce losses
   (4) Establishment of distribution and marketing strategy

   4.3 The Project should be coordinated with the ongoing projects and programs including

Farmers' Field School by FAO, Agricultural Business Unit by UNDP, etc.

4.4 For efficient extension, communication support services (e.g., radio) should be fully utilized.

4.5 The model farmers for the pilot projects should be selected from not only ABUs but also other existing, particularly longstanding, farmers' groups and organizations.

5. In response to the aforementioned comments and suggestions offered by the Sierra Leonean side (above 4), the JICA Project Team and JICA agreed to have them reflected in the final version of the Inception Report.

6. The Project Steering Committee (PSC) as delineated in the Record of Discussions concluded on the 18th of November, 2005 shall be convened at the earliest time for the following purposes:
   - To review the overall progress of the Project and the technological transfer as well as the annual Plan of Operation
   - To review and exchange views on major issues arising from and in connection with the Project

7. End of the minutes.

Lists of Participants in Discussion on Inception Report in Freetown on 8 and 16 March, 2006

Wednesday, 8 March

(Morning Session: 10:00)

Sierra Leonean Side:

Name	Position	Organization
Mr. Francis Ngebe	Deputy Minister I	MAFS
Mr. John Karim-Sesay	Deputy Minister II	MAFS
Mr. Patrick Hanmer	Director General	MAFS
Mr. Dennis Kamara	Assistant Director General	MAFS

Japanese Side:

Name	Position	Organization
Dr. Tetsuo Mizobe	Team leader/agric. devt./distribution & marketing	JICA Project Team
Mr. Takashi Kimijima	Deputy team leader/extension/farmers organizing	JICA Project Team
Mr. Tomohiko Suganuma	Administrative coordination	JICA Project Team
Ms. Akiko Tatsuta	Project Formulation Advisor	JICA Ghana Office

(Afternoon Session I: 14:00)

Sierra Leonean Side:

Name	Position	Organization
Mr. Patrick Hanmer	Director General	MAFS
Mr. Abdul Sanusu	Chief Accountant	MAFS
Mr. F. K. Tarawabe	Department Section	MAFS
Mr. H. R. Mansaray	Deputy Permanent Secretary	MAFS
Mr. A. I. Sheriff	Director	PEMSD
Mr. Musa Foday	Deputy Director	PEMSD
Mr. Foray M. Kargbo	Director of Crops	MAFS
Mr. S. S. Kassibo	NGO Coordinator	
Dr. A. C. Lahai	Assistant FAO Representative	FAO
Mr. Aruna L. Sesay	Project officer	EC
Mr. Dauda A. Kamara	Project officer	EC
Mr. G. A. B. Williams	Principal Inspector of Produce	MAFS
Mr. S. M. Kamara	Principal Animal Production Officer	MAFS
Ms. Venetia MaCarthy	Executive Officer	MAFS

Name	Position	Organization
Mr. A. P. Ngegba	Tree Crops Officer	MAFS
Mr. P. B. Fofana	HIV/AIDS Officer	MAFS
Mr. A. G. Kamara	Information Unit	MAFS
Mr. A. J. Thorlie	Planning Office	MAFS
Mr. Sayo Tarawallie	NERICA Rice Project	MAFS
Mr. M. O. T. Nasian	Stores Office	MAFS
Mr. Patrick J. Abu	Coordinator, NERICA Rice Project	MAFS
Mr. Jenathan Kallon	Decentralization Unit	MAFS

Japanese Side:

Name	Position	Organization
Dr. Tetsuo Mizobe	Team leader/agric. devt./distribution & marketing	JICA Project Team
Mr. Takashi Kimijima	Deputy team leader/extension/farmers organizing	JICA Project Team
Mr. Tomohiko Suganuma	Administrative coordination	JICA Project Team
Ms. Akiko Tatsuta	Project Formulation Advisor	JICA Ghana Office

(Afternoon Session II: 15:30)

Sierra Leonean Side:

Name	Position	Organization
Dr. Sama Monde	Minister	MAFS
Mr. Mohammed Nallo	Permanent Secretary	MAFS
Mr. Francis Ngebe	Deputy Minister I	MAFS
Mr. John Karim-Sesay	Deputy Minister II	MAFS
Mr. Patrick Hanmer	Director General	MAFS
Mr. Dennis Kamara	Assistant Director General	MAFS

Japanese Side:

Name	Position	Organization
Dr. Tetsuo Mizobe	Team leader/agric. devt./distribution & marketing	JICA Project Team
Mr. Takashi Kimijima	Deputy team leader/extension/farmers organizing	JICA Project Team
Mr. Tomohiko Suganuma	Administrative coordination	JICA Project Team
Ms. Akiko Tatsuta	Project Formulation Advisor	JICA Ghana Office
Mr. Akio Odake	Development Planning Advisor	JICA Sierra Leone Field Office

Thursday, 16 March

(09:00)

Sierra Leonean Side:

Name	Position	Organization
Mr. Francis Ngebe	Deputy Minister I	MAFS
Mr. Patrick Hanmer	Director General	MAFS
Mr. B. J. Bangura	District Director	MAFS Kambia Office
Mr. Philip Conteh	District Agriculture Officer	MAFS
Mrs. Kona Koroma	Development Secretary	MODEP

Japanese Side:

Name	Position	Organization
Dr. Tetsuo Mizobe	Team leader/agric. devt./distribution & marketing	JICA Project Team
Mr. Takashi Kimijima	Deputy team leader/extension/farmers organizing	JICA Project Team
Mr. Tomohiko Suganuma	Administrative coordination	JICA Project Team
Mr. Akio Odake	Development Planning Advisor	JICA Sierra Leone Field Office
Mr. Nobuhiro Setoguchi	Project Formulation Advisor	JICA Sierra Leone Field Office

MINUTES OF THE STEERING COMMITTEE MEETING HELD AT THE MINISTRY OF AGRICULTURE AND FOOD SECURITY CONFERENCE HALL ON 5TH OCTOBER 2006 AT ABOUT 1400 HOURS.

Present at the meeting were:

No	NAME	ORGANIZATION	TELEPHONE
1.	Brima M. Kamara	MAFS – AICU	030-238258
2.	Sheikh I .G. Kanu	ABU Chairman, Kambia	076991853
3.	Hiroshi Murakami	JICA	(232) 24-4330146
4.	Denis M. Kamara	MAFS	076897110
5.	Takashi KIMIJIMA	JICA Project team (Deputy Team Leader)	076980149
6.	Megumi Kaneda	JICA	076 809200
7.	Murray Lamin	NAFSL (National Association of farmers of SIERRA LEONE)	076 645311
8.	Andrew R.C. Conteh	-ii-	076 681905
9.	Joe P. Amara	FAO/FFS	076 637652
10.	Joseph Cummings- Lewis	JICA	076 610932
11.	D.R. Taylor	Rice Research Station	076630010
12.	Braima S. Mansaray	MAFS	076 635782
13.	A.O.Kamara	MAFS	076 845092
14.	M.K.Lebbie	MODEP	076 516845
15.	E.K. Alieu	MAFS	076 601512
16	M.A.Nallo	MAFS	033504919, 076 610433 & 077 772277

Chairman's opening remarks

The Chairman of the first JICA steering committee meeting (Dr Sama S.Monde) who is also minister of Agriculture and Food Security said that the objective of the meeting was to bring committee members and other stake holders together to discuss issues concerning progress, challenges and the way forward in the project implementation process. He lauded the JICA team for their patience and steadfast in carrying out the baseline survey and some trials amid several constraints which include financial and logistical support on the part of the Government of Sierra Leone.

An overview of the Agricultural Development project in Kambia

Delivering the overview of the project, the District Director Kambia (B.S.Mansaray) informed the meeting that relics of the civil war in the entire country aggravated poverty as a result of reduced food production and food supply while the national economy was devastated. Because of this, promotion of food security through strengthening the Agriculture sector was established as the three pillars of poverty reduction strategy in the Sierra Leone Poverty Reduction strategy Paper (SL-PRSP). He further went on to say that the Government of Sierra Leone and that of Japan held series of discussions and sought a way to launch an Agricultural Development Project in Kambia District in 2005 after signing the record of discussion with the following project output:

- To establish technical support system for farmers in the Kambia District.
- To establish an agricultural technical package to improve productivity among model farmers
- To develop agricultural technical support guidelines

Expected roles of stakeholders

The project is jointly implemented by MAFS-Kambia, Rokupr Rice Research Station (RRSR) and the JICA project team. For the fulfillment of the project objective, MAFS Kambia is expected to transfer agricultural production techniques down to farmers at grassroots level by developing extension manuals addressing farmers' needs, while RRSR is expected to provide MAFS-Kambia with readily available basic research results which can be adapted to farmers and make adaptive research through trials. JICA project team, consisting of six Japanese experts serve as adviser, facilitator, as well as supporter by providing counterpart agencies/personnel with technical know-how, equipment to a limited extent and training opportunities. The JICA project team also coordinate with other stake holders such as donor agencies including FAO, UNDP, EU etc currently active in Kambia District.

Project Area

Mr. Mansaray informed the meeting that the project encompasses the entire Kambia district in the Northern Province including seven chiefdoms of Mambolo, Samu, Gbinle Dixon, Magbema, Masungbala, Tonko Limba and Bramaia. It was proposed that the pilot project be implemented at Makoth in the Mambolo, Robat in Mabgema and Madina in Tonko Limba. Sixty model farmers in total are to be selected and designated for the pilot project .

Counterpart Agencies

These include team of Japanese experts appointed by JICA, MAFS Kambia District office and Rice Research Station at Rokupr (RRS-R).

Presentation of progress Report

Presenting the progress report No 1, the Deputy Team Leader of JICA Mr. KIMIJIMA emphasized the following:-

Understaffing

According to the Agricultural sector Review published in 2003, one field extension worker is supposed to cover 500 to 800 farm households within his supervisory unit. In Kambia district the number of farm households total to some 35,000 based on the latest census. Therefore, at least 44 FEWS would be necessary for the entire district. However, currently there are 24 duty stations in the entire Kambia District meaning that, there are 24 FEWS in the District.

Lack of skills of FEWs

The skills of FEWs are inadequate which hampers effective extension. Although most FEWs have long experience as extension agents, they have not been able to update their skills and knowledge in agriculture due to lack of training facilities and opportunities.

Low incentives for extension

FEWs are supposed to make periodic visits to the farmers within their coverage area. However, lack of transportation, inadequate salary that sometimes even delay and no field allowance have seriously reduced their motivation to work.

Rice Research Station, Rokupr (RRS-R)

With regards to Rice Research Station, the presenter said this institution is constrained by the lack of various resources in achieving its goals, Since the end of the civil conflict in 2002, the scientists of RRS.R have been unable to return to Rokupr owing to the lack of offices, laboratories and accommodation that were vandalized during the war. Also the institution lacks vehicle to execute its work effectively as there is only one vehicle that is operational , which must be shared among the six programmes, therefore, effective supervision of field trials is impossible for the scientists. This posses a serious bottleneck for technology dissemination.

Commenting on baseline survey exercise the JICA deputy team leader commended the performance of the extension field workers at the farm management and the rural socio economic surveys . The result of that survey he went on would be used to analyze factors impedimental to agricultural

development and would also be used to sort out developmental issues and establish criteria for the evaluation of the project.

Discussions

The following points were discussed :

- Institutional arrangements such as ABUs, FFS,Research, NAFSL have been put in place and what is needed is capacity building to enhance production and performance.

- Research by RRS, IAR and SMP have put out technical packages that are adopted by farmers. The time spent on developing new innovation should be rescheduled for production using research results from RRSR, IAR and SMP.

- Technical support systems may include:

I. New technologies adopted by research
II. Transfer methodologies developed by extension services
III. Input to facilitate the transfer of new technologies
IV. Training of service providers and farmers .

In the absent of other matters for discussion, the Chairman adjourned the meeting at exactly 16:15 pm Sine die.

B.S. Mansaray
Secretary.

MINUTES OF THE SECOND STEERING COMMITTEE MEETING HELD AT THE MINISTRY OF AGRICULTURE AND FOOD SECURITY CONFERENCE HALL ON THE 21ST MAY 2007.

1.01 PRESENT AT THE MEETING

NO.	NAME	ORGANI-ZATION	TELEPHONE NO.
1.	Brima M. Koroma	MAFS	030 – 238258 077 – 880761
2.	Chief Jusuf S. Sankoh	NAFSL	033 – 681831 076 – 681831
3.	Andrew R.C. Conteh	NAFSL	076 – 681903
4.	Foray M. Kargbo	MAFS	076 – 994044
5.	Tetsuo MIZOBE	JICA	076 – 980208
6.	Takashi KIMIJIMA	JICA	076 – 980149
7.	Katsuya KUGE	JICA	076 – 541293
8.	Joseph Cummings Lewis	JICA	076 – 601932
9.	E.R. Rhodes	NARCC	076 – 611747
10.	Aloysius C. Lahai	FAO	076 – 638403
11.	Mohamed Lamin Sesay	MAFS	033 – 494237
12.	E.K. Alieu	MAFS	076 – 601512
13.	Dr. Sama S. Monde	MAFS	076 – 633824
14.	Denis M. Kamara	MAFS	076 – 892110
15.	Abu B. Carew	MAFS	076 – 610494
16.	Braima S. Mansaray	MAFS	076 - 635782

2.01 CHAIRMAN'S OPENING REMARKS:

After a brief moment of silent individual prayers, the chairman of the committee, Dr. Sama S. Monde declared the meeting open. He expressed hope that the task force, comprising membership from NAFSL, FAO / FFS and RRS and was charged with the responsibility to fine tune the project document would no doubt come up with tangible recommendations. He said the steering committee meetings would be rescheduled so that they could be more regular and assured JICA of government interest to ensure that the project is successful by encouraging them to go into large scale production.

3.01 LAST MEETING'S MINUTES:

These minutes were read through individually and a motion of acceptance was passed by Chief Jusuf S. Sankoh seconded by Foray M. Kargbo.

3.02 MATTERS ARISING FROM MINUTES:

It was learnt that the problem of understaffing has still not been addressed and therefore the need for more field extension staff to be deployed to Kambia.

However, the District Director informed the meeting that there has been improvement in the area of training while the availability of incentive to field staff has also improved.

Regarding the situation at Rokupr Rice Research Station, it was reported that conditions have still not improved and for this reason the chairman made it clear that this has created a set back and would require a lot of money to undertake repairs on basic amenities including offices, laboratories, accommodation and transportation facilities. The chairman earnestly requested JICA to rehabilitate RRS and this should be done on a medium term involving a team of scientist that can step in like a project to help run the station for 3 or 4 years in order to bring it back to a decent standard before handing it over to the nationals.

In replying on behalf of JICA, Dr. Kuge assured the meeting that after the project in Kambia would have been successfully implemented, there would be a possibility for KR2 project to be extended to Sierra Leone where RRS would be given priority.

The chairman requested Professor Rhodes to turn in, through his staff members, a concept paper on the rehabilitation of RRS including the upgrading of management capacity.

Dr. Mizobe informed the meeting that the baseline survey report might be out in October this year and electricity has been installed in the offices at Kambia meaning JICA Project Team with its office presently set at JICA Kambia Guest House, can move over to join their MAFS counterparts for a smooth and harmonized working relationship.

On counterpart funding, the chairman said, long bureaucratic procedures in the release of funds have affected success in project implementation. He also made it clear that monitoring and evaluation exercises shall be done by the PEMSD in the Ministry of Agriculture and Food Security.

4.01 PRESENTATIONS:

Presentations with regards to progress on the project were made by Dr. Mizobe, Messrs Mansaray and Kimijima as outlined below:

4.02 MAJOR ACTIVITIES UP TO MARCH, 2007.

(1) Preparation and submission of Inception Report

(2) Execution of baseline survey.

(3) Implementation of a pre – pilot project.

(4) Execution of agricultural machinery and marketing survey.

(5) Soil and plant analysis.

(6) Preparation of agricultural technical package

(7) Preparation of pilot project (selection of target villages and model farmers)

(8) Preparation of progress report NO. 1 and NO. 2.

4.03 BASIC POLICY FOR ESTABLISHMENT OF DRAFT AGRICULTURAL TECHNICAL PACKAGE (TP).

The purpose of the package is to improve productivity of rice as staple food and the condition of the technical package includes:

1. Self supportive
- can be easily accepted and adopted by farmers
- require low input
2. The Technical Package is environmentally adaptive.
3. Can establish target yield.
4. It can be implemented in five Agro – Ecological zones.

4.04 APPROACH TO IMPLEMENTATION OF PILOT PROJECT (PP)

TARGET AGRO – ECOLOGICAL AND VILLAGES FOR PILOT PROJECT

NO.	CHIEFDOM	TARGET AGRO-ECOLOGY	TARGET VILLAGES
1.	Mambolo	Mangrove	Macoth
2.	Samu	Mangrove	Rosinor
3.	GBinleh Dixon	Upland and IVS	Kunthai
4.	Magbema	Riverain	Robat
5.	Masungbala	Upland and IVS	Robenna
6.	Tonko Limba	Boliland	Kalington
7.	Bramaia	IVS	Sabuya

3

4.05 PROCEDURE FOR FORMULATING THE TECHNICAL PACKAGE AND APPROACH TO THE PILOT PROJECT

1. Collaborative work between JICA Team and MAFS Kambia.
2. Selection of pilot villages for pilot project (one village per chiefdom, cover five agro – ecological types, cooperative farmers, accessibility, etc.)
3. Selection of model farmers (villagers' Initiative, 10 model farmers per site, group formation)
4. Signing of memorandum of understanding (commitment of three parties)

4.06 CONTENT OF THE DRAFT TECHNICAL PACKAGE

1. Seed selection (use of pure and viable seeds)
2. Land preparation (provide good environment for sowing or transplanting)
3. Nursery establishment (grow healthy seedlings).
4. Crop management (facilitate healthy seedlings)
5. Harvest and post – harvest handling (minimise losses in terms of quantity and quality).
6. Timely application of fertilizer.

4.07 PILOT PROJECT

The purpose of the pilot project is to validate the effectiveness of draft TP by a way of comparing farming practice in the draft TP with farmers' normal practices. The Treatment involves proposed farming practices without fertilizer (PFP +F).

Monitoring and evaluation exercises were being carried out on crop growth, farming activities, farm inputs, yield and yield component, productivity and profitability.

5.01 MAJOR PROJECT ACTIVITIES TO BE UNDERTAKEN FOR MAY 2007 TO MARCH 2008.

1. Steering Committee
2. Implementation and monitoring of pilot project (PP)
3. Analysis of baseline survey results
4. Promotion of vegetable production through support of women's groups.
5. Joint Coordination Committee (JCC)
6. Midterm project evaluation
7. Submission of progress report 3 and 4.

After all these presentations, the Chairman commended the efforts of the presenters and went on to say that the ROKS varieties are too old. He advised that it would be more beneficial to concentrate on other varieties both for the upland and the Inland Valley Swamps, at the same time recommended NERICA as a suitable replacement. He

directed that training programmes for stakeholders should commence from June onwards. The contents and basic policy of TP and pilot project have been approved by the steering committee.

6.01 CLOSING REMARKS

In Mr. Kuge's closing remarks, he said the Kambia agricultural project had already completed one year and during this period, some problems delayed the progress of the project and at the same time the team work between the Sierra Leonean side and Japanese side is being enhanced to overcome these problems. He appreciated the efforts of both MAFS personnel and JICA Project Team members.

Mr. kuge went on to say, this year (2007) is important for the project but, the remaining time for the project is limited therefore, more efforts and collaboration is required to ensure success in the implementation of the project. Regarding JICA's assistance including local cost, Mr. Kuge said JICA's assistance is very unique because it hardly assists in the area of local cost including allowance for counterpart.
However, JICA lays emphasis on expansion and sustainability after the project. Normally the project period is three years of five years and under this situation, the initial cost should be minimised for the expansion of the project. Also, the running cost including local cost should be minimised for the sustainability of the project, because the Government of Sierra Leone would have to allocate such costs after the project and knowing the budgetary situation of the country, JICA minimises the local cost in order not to spoil the spirit of the people. He ended by saying, JICA believes the financial independence of this country in the future.

Mr. E.K. Alieu assured the meeting that with time, arrangement would be made for JICA experts to visit torma bum to acquaint themselves with a typical reverain ecology.
Dr. Mizobe announced the arrival into the country of the following experts from Japan:

1. Dr. Yamaguchi
2. Mr. Harada and
3. Ms. Mishima

In his closing remarks, the chairman appreciated all the interventions made and said, it has been a good meeting. He finally informed the meeting that when the entire JICA experts would have arrived in Sierra Leone they would be formally introduced to His Excellency the president.
The meeting was adjourned sine die.

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B. S. Mansaray,

Secretary.

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6.4 Minutes of the Third Steering Committee Meeting

MINUTES
OF
THE THIRD STEERING COMMITTEE MEETING
ON
THE PROGRESS REPORT 4
OF
THE AGRICULTURAL DEVELOPMENT PROJECT IN KAMBIA
IN THE REPUBLIC OF SIERRA LEONE

AGREED UPON BETWEEN
MINISTRY OF AGRICULTURE, FORESTRY AND FOOD SECURITY
AND
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) PROJECT TEAM

FREETOWN, MARCH, 2008

Signed by:

_____	_____
Mr. Takashi KIMIJIMA Deputy Team Leader JICA Project Team	Hon. Joseph Sam SESAY, Dr. Minister Ministry of Agriculture, Forestry and Food Security, Freetown

Witnessed by:

_____
Mr. Kunihiro YAMAUCHI
Resident Representative
JICA Ghana Office

Minutes of Third Steering Committee Meeting on the Progress Report 4 of The Agricultural Development Project in Kambia in the Republic of Sierra Leone

Upon the submission of the Progress Report 4 of the Technical Cooperation Program under the title of "Agricultural Development Project in Kambia", herein referred to as the Project, a meeting was convened on 28 February, 2008, between a Japanese Project expert, herein referred to as the Japanese Project Team, and the representatives of the Ministry of Agriculture, Forestry and Food Security (MAFFS). The list of participants is attached to the minutes. The meeting proceeded according to the agenda as shown in appendix 1. The main subjects of the discussions and agreements are as follows.

1. The contents of minutes of Second Steering Committee Meeting (appendix 2) held in May, 2007 was reconfirmed. The support for the rehabilitation of Rice Research Station at Rokupr (RRS-R) was requested to JICA, which had been found difficult due to its limited budget.

2. The JICA Project Team and its Sierra Leonean Counterpart presented, using PowerPoint and handouts (appendix 3), the contents of the Progress Report 4, which contained the Project activities undertaken between November 2007 and February 2008 and also the plan for the next phase.

3. In its presentation, it was proposed and agreed that the Project Design Matrix (appendix 4) which had been prepared in the Record of Discussion of the Project should be revised, due to the change in the schedule and activities in the course of the Project.

4. Following comments and suggestions were raised in the course of discussion on the contents of the Progress Report 4.
   - 4.1 RRS-R should more be involved in the Project, while efforts should be made for its staff to go back to Rokupr and resume normal operation.
   - 4.2 Market survey data should be shared broadly.
   - 4.3 Pure seeds should be secured for the pilot project in the next season.
   - 4.4 Vegetable development should consider the comparative advantage of the crop and marketing aspect.

5. It was committed that Project implementation be facilitated by strengthening the monitoring function of PEMSD and securing counterpart fund.

6. It was proposed and agreed to increase the frequency of the Steering Committee Meeting from once a year to at least twice a year for close communication.

7. It was expected that the Project be extended. It was hoped further that future Project should conform to the vision for agricultural development recently issued by the Minister, vision of which pursues not only production but also value added through the improvement of market and promotion of agro-processing.

8. It was pointed out that establishment of food security was still the urgent issue in Sierra Leone because the shortage of nutrition is one of the main causes of diseases and death, and that farmers in Kambia were not able to take sufficient food, the situation of which was aggravated in August and September.

9. It was suggested that further improvement of the agricultural technical package and its dissemination would be important in the next step. It was thought that the collaboration with RRS-R be important for the improvement, and that the direct technical extension to farmers using radio programme as well as capacity development of extension workers of MAFFS Kambia office through training be the possible strategies for the dissemination.

10. It was explained that the Government of Sierra Leone put the highest priority on power as an engine for the economic development, and that side by side food security was also put highest priority in PRSP II (2008-2010) which would be completed within 2008.

11. End of the minutes.

List of Participants in Discussion on Progress Report 4
in Freetown on 28th February, 2008

Sierra Leonean Side

Name	Institution	Contact address
Joseph Sam. Sesay	MAFFS	076-610260
Alie Mansaray	MAFFS	076-603484
E. K. Alieu	MAFFS	076-601512
Brima S. Mansaray	MAFFS	076-635782
Brima M. Koroma	MAFFS	030-238254, 077-886761
Edward R. Rhodes	NARCC	076-611747
Mohamed K. Lebbie	MOFED	076-516845
Aloysius C. Lahai	FAO	076-635403
Foday S. Kanu	ASREP/RCPRP	076-738542

Japanese Side

Name	Position	Contact address
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Nagayo Sawa	University of Tokyo	

6.5 Minutes of the Forth Steering Committee Meeting

MINUTES OF THE FOURTH STEERING COMMITTEE MEETING ON THE PROGRESS REPORT 5 OF THE AGRICULTURAL DEVELOPMENT PROJECT IN KAMBIA IN THE REPUBLIC OF SIERRA LEONE

On the occasion of the submission of the Progress Report 5 on the Agricultural Development Project in Kambia (hereinafter referred to as "the Project"), a Steering Committee Meeting was convened on 3rd October 2008. The list of participants is attached to the minutes. The meeting proceeded according to the agenda as shown in Appendix 1. The main points of the discussions and agreements were as follows:

1. The contents of the Minutes of Third Steering Committee Meeting (Appendix 2) held in February, 2008 were reconfirmed and adopted.

2. The Deputy Leader of the JICA Project Team presented, using a PowerPoint and handouts (Appendix 3), the contents of the Progress Report 5 which contained the Project activities undertaken from March through September 2008 and also the plan of activities from October 2008 to March 2009.

3. The following comments and suggestions were raised:

   3.1 Involvement of research, such as the Rokupr Agricultural Research Centre (RARC) in particular and SLARI in general should be strengthened in developing the technical package to avoid duplication and keep sustainability.

   3.2 The Steering Committee Meeting should be held quarterly for better communication with the MAFFS Headquarters. The next meeting is to be held after the final evaluation.

   3.3 Experiences from the Project should be shared with the other projects such as the ones being implemented by the Vietnamese and the Chinese under the coordination of RARC before the Project terminates.

   3.4 The project should be integrated to incorporate the agricultural value chain of input supply, production, value addition (agro-processing) and marketing, including exportation.

   3.5 Ministry monitoring functions should be strengthened for the effective

implementation of the Project.

3.6 Extension service delivery should be more emphasized to have tangible impact to farmers and narrowing the gap between scientific research and actual farmers' practice in the next phase of the Project.

4. It was announced and confirmed that a project evaluation team would be sent by JICA in November 2008 and that the evaluation would be conducted jointly by the Government of Sierra Leone and JICA, according to the Record of Discussion of the Project.

5. It was urged that the Proposal for next project be submitted to JICA through the diplomatic channel by the Government of Sierra Leone by 17th October, 2008. A meeting would be held to discuss the contents of the next Project.

6. The Minister (Chairman) expressed concern about the present nature of the JICA support and requested that the new project moves to the support of large-scale agricultural input supply, production, value addition (agro-processing) and marketing. Thus, the new project should not only be large-scaled but also integrated along the agricultural value chain.

7. Concerns were raised about the management of the project and the team was requested to discuss the issues with the Ministry.

8. End of the minutes.

List of Participants

Sierra Leonean Side

Name	Organization	Position	E-mail	Tel
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Japanese Side

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Mitsuhiro Kato	JICA Ghana	Project Formulation Adviser	Kato.Mitsuhiro@jica.go.jp	

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MINUTES OF THE FOURTH STEERING COMMITTEE MEETING ON THE DRAFT AGRICULTURAL TECHNICAL PACKAGES OF THE AGRICULTURAL DEVELOPMENT PROJECT IN KAMBIA IN THE REPUBLIC OF SIERRA LEONE

On the occasion of the submission of the draft Agricultural Technical Support Guidelines on the Agricultural Development Project in Kambia (hereinafter referred to as "the Project"), a Steering Committee Meeting was convened on 12th January, 2009. The list of participants is attached to the minutes. The meeting proceeded according to the agenda as shown in appendix 1. The main points of the discussions and agreements are as follows.

1. The contents of the minutes of Fourth Steering Committee Meeting (appendix 2) held in October, 2008 was reconfirmed and adopted.

2. It was pointed out that there remained issue to be discussed between MAFFS and JICA on the implementation and management of the Project, which had been raised during the terminal evaluation. It was urged that this issue be solved through dialogue at the earliest time.

3. Leader of the JICA Project Team presented, using a PowerPoint, the organization of the Agricultural Technical Support Guidelines, which consisted of four parts: Main Report, Agricultural Technical Packages (hereinafter referred to as "TP"), Agricultural Technical Manuals, and Annexes. Subsequently, the deputy leader explained the contents of TP, ideas of a dissemination plan of TP, and recommendation.

4. Following comments and suggestions were raised.

   4.1 Cost-benefit analysis should include sensitivity analysis because of variables such as rice price, cost of fertilizer, etc.

   4.2 Better farm management practices should be disseminated to farmers at grass roots level to improve productivity as well as make fertilizer application effective.

   4.3 More farmers' group should be involved in the dissemination of TP to benefit the farmers in the whole Kambia district under the support of extension workers.

   4.4 In disseminating TP, collaboration with Farmers Field School should be an option,

and linking with Agricultural Business Centres (ABCs) should be considered to involve farmers groups.

4.5 For effective dissemination of TP, check list should be used in various occasions such as radio program, training, etc., so that farmers and extension workers could learn appropriate practices.

4.6 Capacity of field extension workers should be developed further. Existing extension workers should be mobilized in implementing the dissemination plan, instead of recruiting other resources outside MAFFS. For the next project training module for extension workers should be prepared.

4.7 Dissemination plan should be implemented in close collaboration with MAFFS, not district council, in consideration of its inadequate capacity.

4.8 Involvement of the local government in the dissemination of TP is unavoidable in the decentralization process. Technical support to the district council should be made.

4.9 Standardization of measuring unit of rice should urgently be done.

4.10 As for seed multiplication, a German assistance will start at Kobia. The seed production function will be privatized, and it is hoped that seed quality is improved.

5. It was requested that the comments on the draft Agricultural Technical Support Guideline be submitted to the JICA Project Team in written paper by the end of January, 2009.

6. It was announced that MAFFS's handover request for equipments used in the Project was accepted by JICA and that JICA would soon respond to it.

7. It was explained that the JICA's next phase project, based on the request from Sierra Leone, has been under discussion among JICA, the Ministry of Foreign Affairs and other line ministries.

8. End of the minutes.

Draft

List of Participants

Sierra Leonean Side

Name	Organization	Position	E-mail	Tel
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Japanese Side

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Mitsuhiro Kato	JICA Ghana	Project Formulation Adviser	Kato.Mitsuhiro@jica.go.jp	