# JOINT TERMINAL EVALUATION REPORT
# ON
# THE PROJECT ON DEVELOPMENT
# OF
# PARTICIPATORY MULTIPLICATION AND DISTRIBUTION SYSTEM FOR QUALITY RICE SEED
# IN
# THE REPUBLIC OF THE UNION OF MYANMAR

**Nay Pyi Taw, 18th February, 2016**

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# Table of Contents





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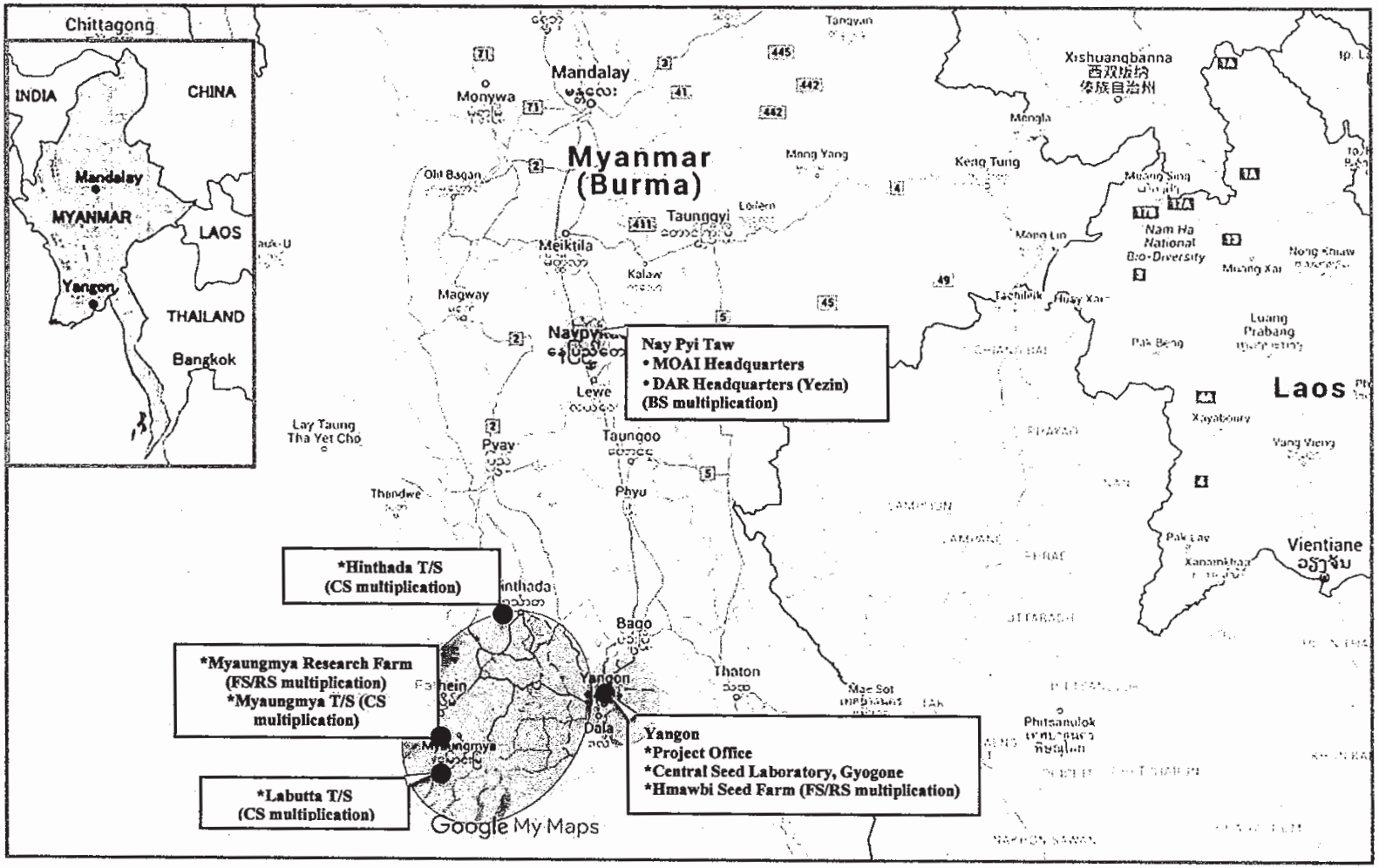
**ANNEXES:**

## Abbreviations

| | |
|---|---|
| BS | Breeder Seed |
| CF | Contact Farmers |
| CP | Myanmar Counterpart Personnel |
| CS | Certified Seed |
| DAP | Department of Agricultural Planning |
| DAR | Department of Agricultural Research |
| DOA | Department of Agriculture |
| FAO | Food and Agriculture Organization of the United Nations |
| FS | Foundation Seed |
| IRRI | International Rice Research Institute |
| JA | Japan Agricultural Cooperatives |
| JCC | Joint Coordination Committee |
| JICA | Japan International Cooperation Agency |
| KOICA | Korean International Cooperation Agency |
| MAPCO | Myanmar Agribusiness Public Cooperation |
| MAS | Myanmar Agricultural Service |
| M/M | Minutes of Meeting |
| MRRC | Myanmar Rice Research Center |
| MOAI | Ministry of Agriculture and Irrigation |
| MOC | Ministry of Commerce |
| NIAS | The National Institute of Agrobiological Sciences |
| PDM | Project Design Matrix |
| PIC | Project Implementation Committee |
| PLA | Participatory Learning and Action |
| PO | Plan of Operation |
| R/D | Record of Discussion |
| RS | Registered Seed |
| SAI | State Agriculture Institute |
| T/S | Township |
| VFRC | Vegetable and Fruit Research Center |
| YAU | Yezin Agricultural University |

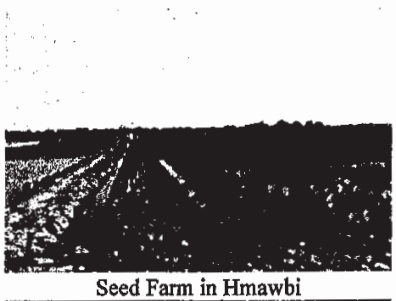
## Project Site (Source: Google Map and www.azurenet-my.com)



## Photos

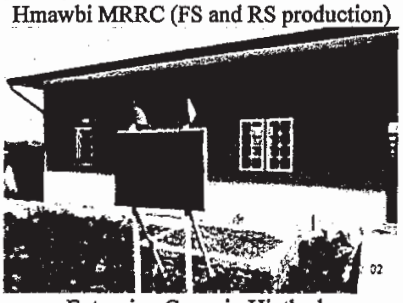
Project Office in Yangon

Hmawbi MRRC (FS and RS production)



Seed Farm in Hmawbi

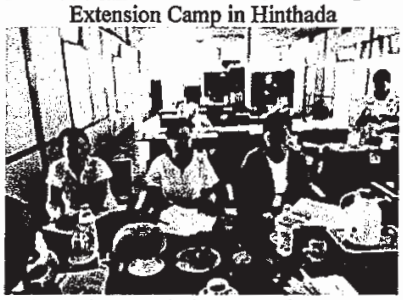
Experimental Cultivation in Hmawbi



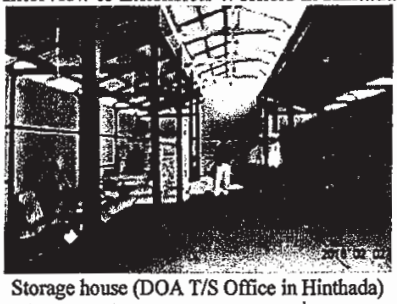
Extension Camp in Hinthada

Interview to Extension Workers in Hintada

DOA T/S Office in Hinthada

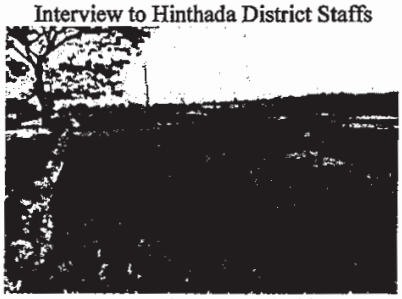


Interview to Hinthada District Staffs



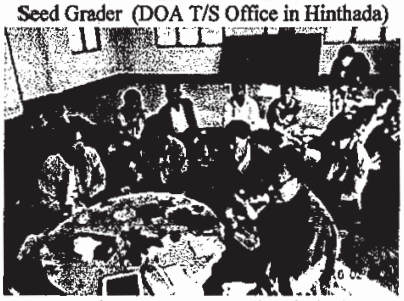
Storage house (DOA T/S Office in Hinthada)

Seed Grader (DOA T/S Office in Hinthada)



DOA Seed Farm (Hinthada)

Interview to Seed Farm staffs



Interview to CS growers in Hinthada

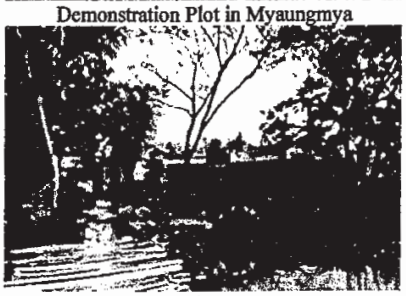
Interview to rice millers in Hinthada

Interview to T/S staffs in Myaungmya

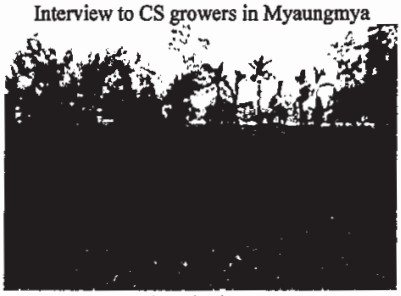
Demonstration Plot in Myaungmya

Interview to CS growers in Myaungmya

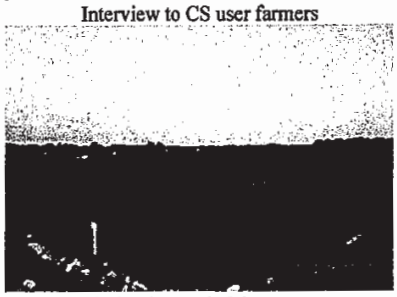
Interview to CS user farmers



Demonstration plot in Myaungmya

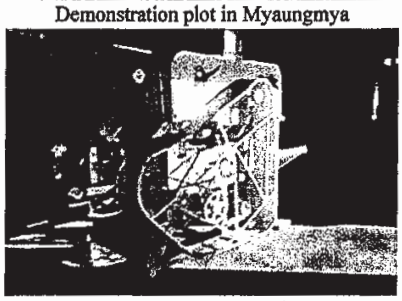


Demonstration plot in Myaungmya



DAR Seed Farm in Myaungmya

Tractor in DAR Seed Farm

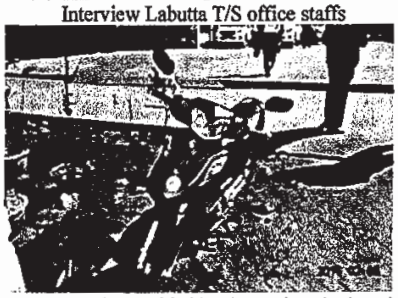


Seed Grader in DAR Seed Farm

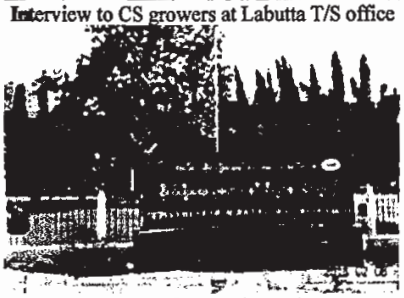
Interview Labutta T/S office staffs

Interview to CS growers at Labutta T/S office

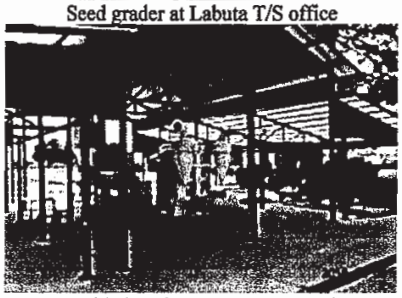
Seed grader at Labuta T/S office



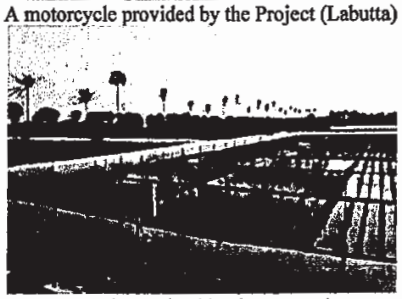
A motorcycle provided by the Project (Labutta)



DAR headqurters in Yezin

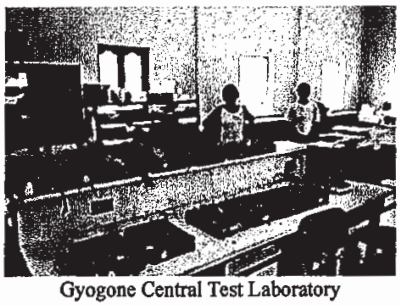


Provided equipment at DAR,Yezin

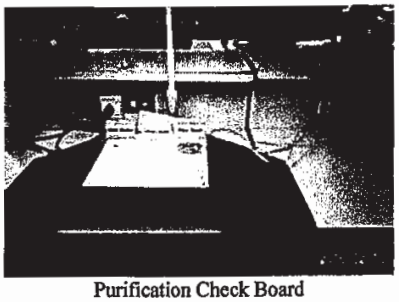


Experimental cultivation at Yezin

Interview to Gyogone Central Test Laboratory staffs



Gyogone Central Test Laboratory



Purification Check Board

## 1. Outline of the Terminal Evaluation

### 1.1. Objectives

The objectives of the Terminal Evaluation are as follows:

(1) To identify, review and verify the Project achievement and outcomes produced, input and activities as planned, along with PDM (Project Design Matrix: version 4.0) and PO (Plan of Operation) approved by the Joint Coordination Committee in August 2015.

(2) To evaluate comprehensively the Project in accordance with 5 evaluation criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability) by both the Myanmar and the Japanese sides.

(3) To identify the issues to be solved for the successful implementation of the Project for the remaining term, to discuss the future direction of the Project with relevant actors and stakeholders, and to make adjustments to revise PDM as necessary.

(4) To prepare Minutes of Meeting (M/M), including the Joint Terminal Evaluation Report, based on the results of the Review as agreed with the Myanmar side.

### 1.2. Schedule

The Evaluation was undertaken from 1st to 19th February, 2016. The schedule is as attached as ANNEX 1.

### 1.3. Members

The Review was conducted by the Joint Terminal Evaluation Team (hereinafter referred to as the "Team") comprising of the following Japanese and Myanmar members.

**Japanese side**

| | |
|---|---|
| Ms. Tomoko TAIRA (Leader) | Director, Team1, Agricultural and Rural Development Group1, Rural Development Department, JICA |
| Dr. Akira KIMIDOHZONO (Farming System) | Visiting Senior Advisor (Agricultural and Rural Development), JICA |
| Mr. Hiroaki IMAI (Planning and Management) | Assistant Director, Team1, Agricultural and Rural Development Group1, Rural Development Department, JICA |
| Dr. Hideaki HIGASHINO (Evaluation Analysis) | Senior Consultant, RECS International Inc. |

**Myanmar Side**

| | |
|---|---|
| U Naing Kyi Win (Leader) | Deputy Director General, Department of Agriculture (DOA), MOAI |
| U Myo Zaw (Member) | Deputy Regional Officer, DOA Ayeyawady Region, MOAI |
| Daw Nilar Aung (Member) | Assistant Director, Planning Division, MOAI |
| Dr. Aye Min (Member) | Staff Officer, Seed Division, DOA, MOAI |
| Dr. Ye Tun Tun (Member) | Senior Research Assistant, Department of Agricultural Research, MOAI |

### 1.4. Method

#### 1.4.1. Evaluation Design

The Evaluation was designed based on PDM (version 4.0) (ANNEX 2), PO (ANNEX 3) and presented as the Evaluation Grid (ANNEX 4).

#### 1.4.2. Data Collection Method

The Team collected information through the literature survey, questionnaire survey and interview to the Project stakeholders (relevant Myanmar officials, the Project staffs, farmers, Japanese Experts, etc.), as well as site visits.

### 1.4.3. Evaluation Analysis

#### (1) Accomplishments of the Project

Accomplishments of the Project; Input, Output and Project Purpose, were verified based on the description and indicators of PDM (version 4.0).

#### (2) Implementation Process

Implementation process of the Project was examined based on PDM and PO to see if activities had been implemented without delay, to see if the Project had been managed properly, and to identify obstacles and/or facilitating factors that had affected the implementation process.

#### (3) Evaluation based on five evaluation criteria

Based on the results of data analysis, the Project was evaluated according to the five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability). The definition of the criteria is as follows:

***Relevance***

*A criterion for considering the validity and necessity of a project regarding whether the expected effects of a project (or project purpose and overall goal) meet with the needs of target beneficiaries; whether a project intervention is appropriate as a solution for problems concerned; whether the contents of a project is consistent with policies; whether project strategies and approaches are relevant, and whether a project is justified to be implemented with public funds of ODA*

***Effectiveness***

*A criterion for considering whether the implementation of a project has benefited (or will benefit) the intended beneficiaries or the target society*

***Efficiency***

*A criterion for considering how economic resource/inputs are converted to results. The main focus is on the relationship between project cost and effects*

***Impact***

*A criterion for considering the effects of the project with an eye on the longer-term effects including direct or indirect, positive or negative, intended or unintended*

***Sustainability***

*A criterion for considering whether produced effects continue after the termination of the assistance*

## 2. Outline of the Project
### 2.1. Background

Agriculture sector in Myanmar contributes 23% of GDP, 20% of the export earning, and employs 61.2% of the labor force (Myanmar Agriculture in Brief (2014)). Among the various agricultural products in Myanmar, rice is cultivated more than half of the total farmland and supplies the major part of the calories consumed by Myanmar population as the staple food.

For improving and stabilizing the rice production, various measures are necessary; development of agricultural infrastructure, supply of quality seeds, appropriate application of fertilizers, etc. From the standpoint of efficiency and timeline, supply of quality seeds is considered favorable as it is executed at reasonable cost, easy to adopt for small-scale farmers, and generates positive effects rapidly.

From the late 1970s, the Government of Myanmar (GoM) has implemented projects for quality seed supply with assistance of international donors; Seed Development Project Phase I and II, financed by by World Bank and UNDP (1977-1993), Quality Seed Production Project by FAO (1984-1987), and Maize and Oil Seed Production Project by USAID (1982-1987), etc.

However, utilization of quality seeds has not been expanded as expected due to shortage of skillful staffs in MOAI, loss of seed growers' motivation because of same seed and paddy prices, improper selection of target rice varieties without full consideration of local population's tastes to indigenous varieties or their adaptability to prevailing rain-fed cultivation method, low technical level of local seed growers, and vulnerability of the seed storage and distribution system that cannot supply the farmers with necessary amount of quality seeds at the required timing.

In order to address these issues, JICA has been implementing "Project on Development of Participatory Multiplication and Distribution System for Quality Rice Seed (the Project)" since August 2011 targeting Ayeyawady region, together with Department of Agricultural Research (DAR) and Department of Agriculture (DOA) of the Ministry of Agriculture and Irrigation (MOAI) as counterpart agencies for the designated cooperation period of five years.

In February 2016, six months prior to the completion of the cooperation period of the Project, JICA dispatched Terminal Evaluation Team, headed by Ms. Tomoko TAIRA to conduct the Terminal Evaluation jointly with the Myanmar members and provide recommendations on the actions to be taken during the remaining cooperation period to secure the sustainability of the Project, as well as drawing lessons useful for technical cooperation schemes in general.

### 2.2. Summary of the Project

The grand design of the Project is as shown in the PDM (version 4.0) prepared in August 2015. Its summary is as follows:

| | |
|---|---|
| **Overall Goal**: | Quality seed of rice is widely used by farmers in Myanmar. |
| **Project Purpose:** | Participatory multiplication and distribution system for quality seed of rice is established in Ayeyawady delta area. |
| **Output:** | 1. Capacity for production of BS in DAR is improved. |
| | 2. Capacity for production of FS and RS is improved and quality control system is strengthened in DOA Seed Division |
| | 3. Capacity of instruction in DOA Extension Division is improved for CS production by seed growers. |
| **Activities** | 0 Conduct baseline survey to identify the needs of market and farmers. |
| | 1.1 Review and improve the productive technology for BS.<br>1.2 Produce BS including indigenous varieties in DAR.<br>Improve research facilities in DAR Rice Division. |
| | 2.1 Review and improve the productive technology for BS.<br>2.2 Produce BS including indigenous varieties in DAR. |

| | |
|---|---|
| | 2.3 Improve research facilities in DAR Rice Division. |
| | 2.4 Review the system of seed production and distribution through DOA to farmers.<br>2.5 Improve facilities of DOA Seed Farms.<br>2.6 Produce FS and RS including indigenous varieties in DOA Seed Farms.<br>2.7 Review the Field inspection system of DOA.<br>2.8 Conduct OJT on Field inspection for Seed Division Staff.<br>Improve facilities of Seed Laboratory Center in Yangon. |
| | 3-1. Conduct training on seed production and technology dissemination for extension workers in the Project site.<br>3-2. Target T/S office formulates a CS production plan with consideration of farmers' needs.<br>3-3. Extension workers transfer technique on CS production to seed growers.<br>3-4. Extension workers conduct awareness building on benefits of CS for paddy farmers.<br>3-5. Collect information on CS and CS market information, and share it with concerned stakeholders in the Project site.<br>3-6. Improve facilities related to CS production in the Project site. |

**2.3. Cooperation Period**

5 years (from 9th August, 2011 to 8th August, 2016)

**2.4. Implementing Agency**

Department of Agricultural Research (DAR) and Department of Agriculture (DOA) of the Ministry of Agriculture and Irrigation (MOAI)

**2.5. Target Area**

Ayeyawady Delta Region

**2.6. Target Groups**

DAR and DOA staff, Seed Farm's staff (Hinthada, Myaungmya and Hmawbi), and farmers living in Hinthada, Myaungmya & Labutta Townships

## 3. Achievements and Implementation Processes
### 3.1. Achievements
#### 3.1.1. Input
**The Japanese side**
**(1) Japanese Experts**

From 9th August, 2011 (official commencement of the Project)[1], until the end of January, 2016, four long-term experts (146 person-months) and nine short-term experts (22 trips, 23.3 person-months) have been assigned. Details are as shown in ANNEX 5.

**(2) Overseas Trainings of Myanmar CPs**

Training in Japan was conducted for smooth operation of the Project. Five officials were sent to Japan for a training from 27th August to 5th September, 2012. They visited JICA Tsukuba, JA Toyama, NIAS, etc.

| Name | Position at the time of Training (Current Position/Status) |
|---|---|
| Dr. Thein Lwin | Director General, DAR (retired in 2014) |
| U Naing Kyi Win, | Director, Extension Division, DOA (Deputy Director General, DOA) |
| Daw Hla Min | Assistant Director, Seed Division, DOA (Deputy Director, Extension Division, DOA (in charge of Shwe Taung Hybrid Seed Farm) |
| Daw Khin San Tint | Staff Officer, Seed Division, DOA (Staff Officer, Seed in charge, DOA Yangon) |
| U Htein Lin Tun | Assistant Research Officer, Myaungmya Central Research Farm, DAR (same as before) |

**(3) Procured Equipment**

Equipment in value of about JPY66.40 million (approximately MMK 721.1 million with the exchange rate; JPY1.00 = MMK 10.86)) has been procured by the Japanese side for the Project up to date. Main items of the equipment are; seed graders, test mills, tractors, vehicles, seed counters, etc. (ANNEX 6)

| Location (Organization) | Price of Equipment (JPY) |
|---|---|
| DAR Yezin | 11,976,949 |
| YAU Yezin | 3,337,307 |
| DAR Myaungmya | 6,943,348 |
| MRRC Hmawbi | 10,449,874 |
| Seed Farm Hinthada | 4,201,075 |
| Seed Division, Gyogone | 6,274,354 |
| DOA Hinthada | 2,628,322 |
| DOA Labutta | 2,619,370 |
| DOA Myaungmya | 3,004,138 |
| Project Office | 14,967,836 |
| Total | 66,402,574 |

**(4) Improvement of Facilities**

The Japanese side bore the cost for improvement (renovation or construction) of the following facilities:

| Location (Organization) | Cost for Improvement (JPY) | Main items of Improved Facilities |
|---|---|---|
| DAR Yezin | 5,859,273 | Slate work and cold storage |
| DAR Myaungmya | 1,865,741 | Threshing floor and seed storage |
| MRRC Hmawbi | 816,200 | Threshing floor |
| Seed Farm Hinthada | 908,801 | Threshing floor |
| DOA Hinthada | 11,440,486 | Extension camp, workshop, threshing floor, seed storage |

[1] Due to delay of working visa issuance, arrival of Japanese experts was delayed. One of the three Japanese long-term experts was dispatched to Myanmar in March 2011. However, the Project officially started in August 2011.

| | | |
|---|---|---|
| DOA Labutta | 9,956,165 | Workshop, threshing floor, seed storage |
| DOA Myaungmya | 11,705,645 | Extension camp, threshing floor, seed storage |
| Project Office | 995,019 | Car garage |
| Total | 43,547,329 | |

The cost amounted to 43.55 million ((approximately equivalent to MMK472.9 million with the exchange rate; JPY1.00 = MMK 10.86)).

**The Myanmar Side**

**(1) Counterparts (CPs)**

Up to the end of January 2016, a total of 30 CPs have been assigned. Currently 20 CPs are assigned. List of Myanmar CPs are as shown in ANNEX 7.

**(2) Local Cost Sharing from the Myanmar Side**

The Myanmar side has born local cost, such as salary of CPs, utilities, domestic telephone charge, etc.

**(3) Facility and Equipment**

The Myanmar side arranged the Project office and working space for short-term experts in Yangon.

### 3.1.2. Progress of Main Activities

Summary of achievements of the main activities are described as below:

**0: Conduct baseline survey to identify the needs of market and farmers.**

- A baseline survey was conducted in December 2011 with assistance of Extension Department of DOA.
- Demand and supply of seed and farmers' needs were identified through interview of 600 farmers in 3T/Ss (200 per T/S).

| T/S | Status as of December 2011 |
|---|---|
| Labutta | Main source of income: rice cultivation in monsoon season. Summer season rice cultivation is difficult due to shortage of water and salinity. Pawsanyin with salinity and drought tolerant traits is widely cultivated. Home grown seeds were used by most of the surveyed farmers. Few famers sold seeds. |
| Myaungmya | Main source of income: Summer season rice cultivation. Hnankar in monsoon season and Theedatyin in summer season are widely cultivated. Home grown seeds were used by most of the surveyed farmers. Few famers sold seeds. |
| Hinthada | Main source of income: rice cultivation in monsoon season and summer season upland crop such as legumes. Shrwartun is widely cultivated. Home grown seeds were used by most of the surveyed farmers. Few famers sold seeds. |

**1-1: Review and improve the productive technology for BS.**

- BS and FS production process was reviewed in terms of quality control, and pure line selection method in BS production was introduced.
- A cold storage was introduced in March 2014 for better BS production system of DAR as a result of CP training in Japan.

**1-2: Produce BS including indigenous varieties in DAR.**

- Genetic purity of four out of nine varieties was improved by introducing pure line selection method in 2012.
- Four varieties of pure BS were produced in DAR-Yezin for FS production in 2014 monsoon period.
- Eight varieties of out of nine pure BS varieties were produced in DAR-Yezin for FS production in 2015 monsoon period.
- In addition, eight varieties using the techniques transferred by the Project are being produced in Yezin. (ANNEX 8)

**1-3: Improve research facilities in DAR Rice Division.**

- Laboratory and field facilities in DAR (Yezin and Myaungmya), such as slate work, cold storage, were improved as planned.

**2-1: Review the system of seed production and distribution through DOA to farmers.**

- The system of seed production and distribution through DOA to farmers during the previous five years (2005-2010) was reviewed and the results were compiled as a report.
- As a result, it was found out that quality control of seed production and seed distribution were inappropriate at some of the BS, FS, RS and CS production processes such as pedigree maintenance, roguing off-type plants, field inspection and so on.



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| • Accordingly, technical instruction has been provided by the Japanese experts for strict quality control and observance of the seed flow. |
| **2-2: Improve facilities of DOA Seed Farms.** |
| • Facilities of DOA Seed Farms (MRRC Hmawbi, Seed Farm Hithanda), such as threshing floors, seed storages, etc. were improved (renovated or constructed). |
| **2-3: Produce FS and RS including indigenous varieties in DOA Seed Farms.** |
| • DOA Seed Farms in the Project site produce four to six varieties of FS and RS, including indigenous varieties applying the technology transferred under the Project (pure line selection method) and improved field inspection procedures.<br>• Details on FS and RS production are shown in ANNEX 9. (17 varieties in all the Seed Farms in Myanmar) |
| **2-4: Review the field inspection system of DOA.** |
| • Originally, field inspection was rarely conducted in certified seed production.<br>• Field inspection method of Myanmar was conducted, checking the conditions of 1,000 panicles sampled in five spots arbitrarily selected from the paddy field ranging from one to five acres. However, the procedure is time consuming and the inspector focused only on the samples, and off-type plants were sometimes overlooked.<br>• In order to improve the situation, the Project Team suggested to conduct filed inspection by overviewing the entire paddy field to find out the off-type plants. After off-type plants are checked by overviewing, the original sampling method is conducted depending on the time allowed. |
| **2-5: Conduct OJT on field inspection for Seed Division Staff.** |
| • OJT on field inspection has been conducted every year targeting extension workers of DOA offices of the three T/Ss.<br>• The Project conducts field inspection of all the CS farms of 150 farmers. In addition, laboratory tests of all the seeds that passed the field inspection are executed by which effectiveness of quality control is confirmed. |
| **2-6: Improve facilities of Seed Laboratory Center in Yangon.** |
| • Laboratory equipment was provided to the Seed Laboratory Center in Yangon. As a result, efficiency of seed testing was improved. |
| **3-1: Conduct training on seed production and technology dissemination for extension workers in the Project site.** |
| • Trainings on CS production have been conducted 14 times so far (4 times in 2012, five times in 2013 and five times in 2014), in accordance with the monsoon season rice cultivation period, for all the extension workers of DOA offices in three T/Ss.<br>• The instructors of the trainings were selected from related organizations of DOA (headquarters, Ayeyarwady DOA district office), DAR (Yezin and Myaungmya), etc.) |
| **3-2: Target T/S office formulates a CS production plan with consideration of farmers' needs.** |
| • Target T/S offices formulate and implement the CS production plans on their own responsibility taking into consideration the farmers' needs and report the results in PIC Meetings. |
| **3-3: Extension workers transfer technique on CS production to seed growers.** |
| • Extension workers conducted trainings to transfer techniques on CS production to 150 seed growers (50 farmers from three T/S). Interested farmers other than the 150 seed growers also participated in the trainings, and all the participants amounted to 1,546. |
| **3-4: Extension workers conduct awareness building on benefits of CS for paddy farmers.** |
| • Field days, stakeholders' meetings and milling demonstration were held from 2014, involving concerned stakeholders such as rice millers, middlemen, etc. together with the heads of DOA offices and extension workers in the three target T/Ss to share information on CS and CS marketing.<br>• Materials for awareness raising were prepared and distributed to stakeholders in the field days and the meetings.<br>• Demonstration farms of CS were arranged and utilized on the occasions such as the field days. |
| **3-5: Collect information on CS and CS market information, and share it with concerned stakeholders in the Project site.** |
| • Information on CS and CS market (demand for varieties, quality evaluation by rice millers, etc.) was collected through stakeholders' meetings from 2014.<br>• Field days and meetings were held three times involving concerned stakeholders such as rice millers, middlemen, etc. together with the heads of DOA offices and extension workers in the three target T/Ss to share information on CS marketing. |
| **3-6: Improve facilities related to CS production in the Project site.** |
| • Facilities related to CS production in three T/Ss (DOA Hinthada, Myaungmya, and Labutta) were improved as planned.<br>• Main facilities improved were threshing floor, extension camps, workshops, seed storages, etc. |

### 3.1.3. Achievements of Output

Summary of achievements of Output are described as below:

| **Output 1: Capacity for production of BS in DAR is improved.** | |
|---|---|
| Indicator1-1.<br>Guideline of quality control technology for BS multiplication is prepared. | • Indicator 1-1 is almost achieved.<br>• Manuals titled "BS, FS and RS Multiplication Method" is under preparation will be finalized in March 2016. |
| Indicator1-2.<br>More than 9 varieties of BS which meet demand of the farmers are satisfied with the seed standards. | • Indicator 1-2 is almost achieved.<br>• Traits of nine varieties were examined in terms of culm and panicle lengths, and Coefficient of Variation (CV) was examined through test cropping conducted seven to eight times in Yezin.<br>• As a result, it was verified that CVs of the eight out of nine varieties are smaller than |

| | |
|---|---|
| | five, which is the "rule of thumb" to judge genetic purity (variety fixation).<br>• Test cropping has been ongoing in DAR Yezin on the remaining one variety; Ayermin. |
| Indicator1-3.<br>DAR researchers master BS multiplication and quality control methods. | • Indicator 1-3 is almost achieved.<br>• DAR researchers have mastered the basics of technology for multiplication of nine varieties of BS.<br>• They apply the techniques (pure line selection method) to eight varieties that are produced under DAR other than the said nine varieties.<br>• Quality control (daily field inspection) methods such as rouging by overviewing the rice field were also transferred to DAR staffs. However the number of staffs taking charge of experimental field in DAR Yezin is only three at the moment, which is considered questionable to maintain the sustainability of the Project. |
| **Output 2: Capacity for production of FS and RS is improved and quality control system is strengthened in DOA Seed Division** | |
| Indicator 2-1.<br>More than 9 varieties of FS and RS which meet demand of the farmers are satisfied with the seed standard. | • Indicator 2-1 has been achieved to some extent.<br>• Data on Sinthukha, Theedatyin, Ayeyarmin, and Pawsanyin was collected for monsoon seasons in 2014 and 2015 for analysis.<br>• As genetic purity of nine BS varieties has been improved, it is considered that genetic purity is maintained in the multiplication process of FS and RS. |
| Indicator 2-2.<br>Capacity of staff from DOA Seed Div. as trainer for field inspection training is increased. | • Indicator 2-2 has been achieved.<br>• 2013-2014 Capacity of staffs from DOA Seed Division has improved through participating in the Project activities: they take charge of field inspection trainings as instructors on the nationwide basis and contribute to fostering junior staffs. |
| Indicator 2-3.<br>Number of RS and CS of rice sample for laboratory inspection in Seed Division in Yangon increase 2 times or more than that of 2011. | • Indicator 2-3 has been achieved.<br>• Number of RS and CS of rice sample was 233 in total as of 2011.<br>• It increased to 654 in 2015, more than double the number of 2011. |
| Indicator 2-4.<br>Field inspection and lab test are implemented for 150 seed farms in the Project site. | • Indicator 2-4 has been already achieved.<br>• Since 2012, field inspection and laboratory tests have been implemented for 150 seed farmers in the Project site. |
| **Output 3: Capacity of instruction in DOA Extension Division is improved for CS production by seed growers.** | |
| Indicator3-1. Evaluation/satisfactory rate of seed growers toward extension services is improved. | • Indicator 3-1 has been achieved.<br>• According to the results of the questionnaire survey<* to seed growers conducted in November 2015, seed growers highly evaluated the extension services: Average evaluation grade for instruction: 4.6 and for extension service: 4.0.<br><*: five grade evaluation with five as the highest grade/103 respondents |
| Indicator 3-2.<br>Farmers' knowledge on CS and CS market information increase more than situation indicated in the 1st baseline survey. | • Indicator 3-2 has been achieved.<br>• In the 1st baseline survey conducted in December 2011, 12 to 22 % of farmers answered that they knew the characteristics of CS.<br>• Meanwhile, in the 2nd baseline survey conducted from February to March 2015, the rating by farmers who know about the characteristics of CS improved to 26 to 49%.<br>• As for marketing information, as it was difficult to compare the results of the 1st and the 2nd baseline surveys, an additional questionnaire survey was conducted targeting seed growers in November 2015. <* |

| Questions | Average Grade |
|---|---|
| The number of people you (CS grower) sold CS | 4.1 |
| CS volume (amount) you (CS grower) sold | 4.3 |
| CS Price | 3.9 |
| Marketing, number and/or variety of information about seed marketing | 3.8 |
| Easiness of selling or finding seed market | 3.9 |

• The results show that farmers' knowledge on CS market information has improved through the implementation of the Project activities (Activity 3-4 and 3-5)

<*: five grade evaluation (3; no change, 5; significant improvement)/103 respondents

• The Project Team conducted comparison study on CS and non-CS paddies<** in the three T/S (100 farmers in each) in 2015, and the information will be used to increase stakeholders (not only farmers but also rice millers, and middlemen, etc.)

| Location | Yield of CS Paddy | Yield of non-CS Paddy |
|---|---|---|
| Hinthada (Sinthka) | 74.4 (basket/acre) | 71.6 (basket/acre) |
| Myaungmya (Sinthaka) | 95.9 (basket/acre) | 84.2 (basket/acre) |
| Labutta (Pawsanyin ) | 54.7 (basket/acre) | 48.8 (basket/acre) |

• In addition, the results of quality test of CS paddy in three T/S and other similar

| | |
|---|---|
| | varieties in Nay Pyi Taw Area, are shown in the tables in the next page.<br><**:CS means paddy produced by CS user farmers, and "non-CS" means paddy produced by non-CS farmers. |

**Comparison among CS Paddy and others in Hinthada and similar variety in and around Nay Pyi Taw area**

| Township or Area | Variety | Sample Type | | Moisture (%) | Red Rice | | Brown Rice | | White Rice | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ratio of sample contains red rice (%) | Ratio of red rice found in one sample (%) | Head ratio (%) | Broken ratio (%) | Head ratio (%) | Broken ratio (%) |
| Hinthada | Sinthukha | CS Paddy (*n*=38) | Max | 17.2 | 55.3 | 0.456 | 81.733 | 6.320 | 64.130 | 20.326 |
| | | | Min | 10.8 | | 0.000 | 65.733 | 0.107 | 35.310 | 1.220 |
| | | | Average | 13.8 | | 0.056 | 73.130 | 1.651 | 54.395 | 6.237 |
| Nay Pyi Taw | Manawthukha | Total (*n*=34) | Max | 17.8 | 84.2 | 37.67 | - | - | - | 38.36 |
| | | | Min | 8.9 | | 0.47 | - | - | - | 10.14 |
| | | | Average | 12.7 | | 4.87 | - | - | - | 19.01 |

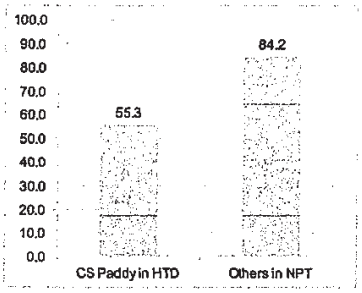



**Figure 1: Ratio of Sample contains Red Rice**

CS Paddy is 34% less than others

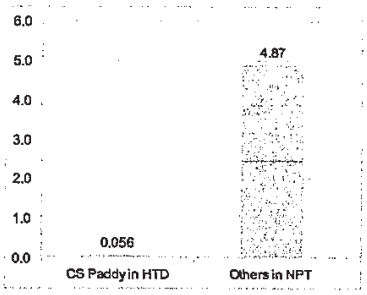



**Figure 2: Ratio of Red Rice in a sample (375g)**

CS Paddy is nearly 87 times less than others

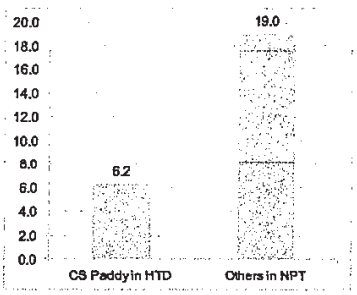



**Figure 3: Broken rice ratio (milled rice)**

CS Paddy is 3 times less than others

**Comparison among CS Paddy and others in Myaungmya and similar variety in and around Nay Pyi Taw area**

| Township or Area | Variety | Sample Type | | Moisture (%) | Red Rice | | Brown Rice | | White Rice | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ratio of sample contains red rice (%) | Ratio of red rice found in one sample (%) | Head ratio (%) | Broken ratio (%) | Head ratio (%) | Broken ratio (%) |
| Myaungmya | Sinthukha | CS Paddy (*n*=18) | Max | 15.1 | 50.0 | 0.066 | 76.7 | 9.2 | 67.0 | 13.7 |
| | | | Min | 11.9 | | 0.000 | 66.5 | 1.4 | 51.9 | 2.8 |
| | | | Average | 13.7 | | 0.014 | 71.8 | 4.3 | 59.3 | 7.1 |
| Nay Pyi Taw | Manawthukha | Total (*n*=34) | Max | 17.8 | 84.2 | 37.67 | - | - | - | 38.4 |
| | | | Min | 8.9 | | 0.47 | - | - | - | 10.1 |
| | | | Average | 12.7 | | 4.87 | - | - | - | 19.0 |

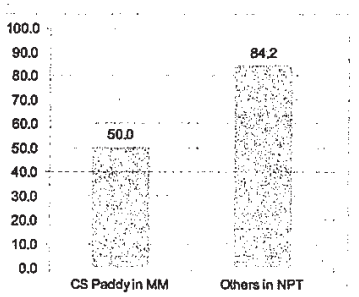



**Figure 1: Ratio of Sample contains Red Rice**

CS Paddy is 40% less than others

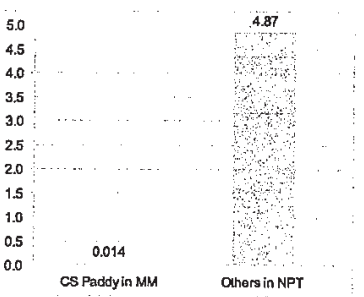



**Figure 2: Ratio of Red Rice in a sample (375g)**

CS Paddy is 348 times less than others

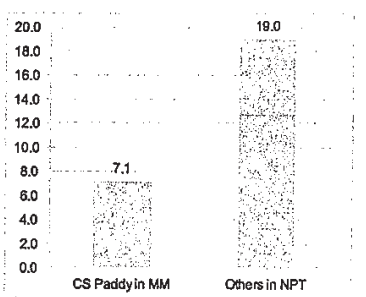



**Figure 3: Broken rice ratio (milled rice)**

CS Paddy is nearly 3 times less than others

**Comparison among CS Paddy and others in Laputta and similar variety in and around Nay Pyi Taw area**

| Township or Area | Variety | Sample Type | | Moisture (%) | Red Rice | | Brown Rice | | White Rice | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ratio of sample contains red rice (%) | Ratio of red rice found in one sample (%) | Head ratio (%) | Broken ratio (%) | Head ratio (%) | Broken ratio (%) |
| Laputta | Pawsanyin | CS Paddy ($n$=10) | Max | 14.2 | 70.0 | 0.164 | 75.067 | 4.568 | 61.908 | 22.204 |
| | | | Min | 11.0 | | 0.000 | 72.400 | 1.240 | 39.828 | 5.152 |
| | | | Average | 12.4 | | 0.046 | 73.947 | 2.579 | 55.230 | 11.422 |
| Nay Pyi Taw | Aye Yarmin | Total ($n$=10) | Max | 17.8 | 100.0 | 1.14 | - | - | - | 7.43 |
| | | | Min | 8.9 | | 0.99 | - | - | - | 7.43 |
| | | | Average | 12.7 | | 1.09 | - | - | - | 7.43 |

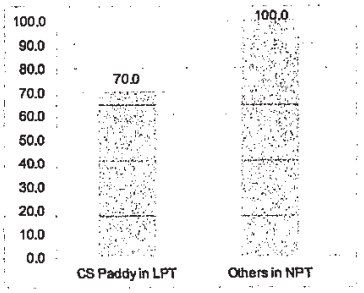



**Figure 1: Ratio of Sample contains Red Rice**

CS Paddy is 30% less than others

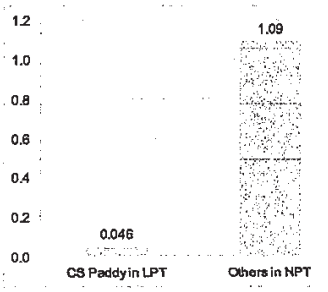



**Figure 2: Ratio of Red Rice in a sample (375g)**

CS Paddy is nearly 24 times less than others

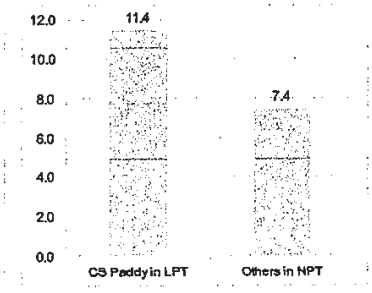



**Figure 3: Broken rice ratio (milled rice)**

Sample number of broken ratio in NPT is only three and may not be eligible for comparison.

### 3.1.4. Achievement of the Project Purpose

Project Purpose:"***Participatory multiplication and distribution system for quality seed of rice is established in Ayeyawady delta area.***" has been almost achieved at the time of Terminal Evaluation.

| Indicator | Achievements |
|---|---|
| Indicator 1. More than 150 farmers continue to multiply CS every year in the Project site. | • Indicator 1 has been achieved.<br>• For monsoon rice cropping from 2012 through 2015, all the 150 farmers continued to multiply CS in the Project site. (Indicator 1 does not apply to summer cropping) |
| Indicator 2. Passing rate of CS inspection become more than 50 % in the Project site. | • Indicator 2 has been almost achieved.<br>• The pass rate of CS inspection since 2012 is as follows:<br>Season / Pass Rate<br>2012 Monsoon Cropping: 43%<br>2012/13 Summer Cropping: 22%<br>2013 Monsoon Cropping: 53%<br>2013/14 Summer Cropping: 60%<br>2014 Monsoon Cropping: 73%<br>2014/15 Summer Cropping: 60%<br>2015 Monsoon Cropping: To be compiled.<br>• Examining the inspection results in detail, it was found out that quality of CS in general (rate of red rice, has been improving although more improvement is necessary for rouging to reduce red grain. |
| Indicator 3. More than 70% of CS, which is excluded for own-use of the seed growers, produced in the Project site will be sold by 150 seed growers. | • It is still uncertain that Indicator 3 has been achieved or not at the time of Terminal Evaluation.<br>• Apart from the portion for own-use, 150 seed growers sold more than 70% of CS in the monsoon season in 2014.<br>Season / Average Rate Sold<br>2012 Monsoon Cropping: 57%<br>2013 Monsoon Cropping: 29%<br>2014 Monsoon Cropping: 79%<br>2015 Monsoon Cropping: To be compiled.<br>• The ratio of CS sold over CS produced by farmers in 2012 and 2013 monsoon cropping seasons were lower than 50%.<br>• As described above (Indicator 2), it was found out that pass rate of CS is lower in the cropping seasons in 2013 than in other seasons, and consequently, famers were not able to sell produced rice as CS as expected. |

| | |
|---|---|
| | • Taking into consideration the above fact, it is considered necessary to judge whether Indicator 3 has been achieved or not by obtaining and verifying the result for 2015 and 2016 monsoon cropping. |

### 3.2. Implementation Process

#### 3.2.1. Implementation Set-up

The Project encompasses diversified activities including production of BS, FS, RS and CS, and promotion of CS utilization and marketing. As such, the implementation set-up involves three divisions of MOAI; Department of Agriculture, Department of Agricultural Research and Department of Agricultural Planning.

The activities are implemented in three locations depending on the designated duties of the implementing organizations as follows:

| Location | Organizations Involved |
|---|---|
| (1) Nay Pyi Taw Area | • Seed and Extension Divisions, DOA<br>• Rice Division, Headquarters, DAR (BS multiplication) |
| (2) Yangon Area | • Central Seed Laboratory, Gyogone, DOA<br>• MRRC (Hmawbi Seed Farm), DOA (FS and RS multiplication)<br>• Project Office (Gyogone, Seed Division, DOA) |
| (3) Ayeyawady Delta Region | • Myaungmya Seed Farm, DAR (FS and RS multiplication)<br>• Hinthada Seed Farm, DOA (FS and RS multiplication)<br>• Township Offices in Hinthada, Myaungmya and Labutta, DOA (CS multiplication) |

The current implementation set-up of the Project is as shown in the next page.

#### 3.2.2. Meetings

The following meetings have been held up to the end of January 2016 for smooth operation through monitoring of the Project.

**(1) Joint Coordination Committee (JCC) Meeting**

So far, JCC meeting has been held five times as follows:

| Meeting | Date | Venue | Participants | Remarks |
|---|---|---|---|---|
| 1st JCC Meeting | Aug. 9, 2011 | Nay Pyi Taw | 31 | Kick off meeting. |
| 2nd JCC Meeting | Jun. 28, 2012. | Nay Pyi Taw | 30 | PDM (version 2) was approved. |
| 3rd JCC Meeting | Jul.4, 2013 | Nay Pyi Taw | 25 | |
| 4th JCC Meeting | Feb.27, 2014 | Nay Pyi Taw | 30 | PDM (version 3) was approved. Activities related to CS extension/awareness/marketing were added to the PDM.<br>The result of Mid-term Evaluation was presented. |
| 5th JCC Meeting | Jun. 4, 2015 | DAR-Yezin | 25 | Discussion on PDM (version 4). |
| (6th JCC Meeting) | (Feb.18, 2016 ) | (Nay Pyi Taw) | — | (Results of Terminal Evaluation will be presented.) |

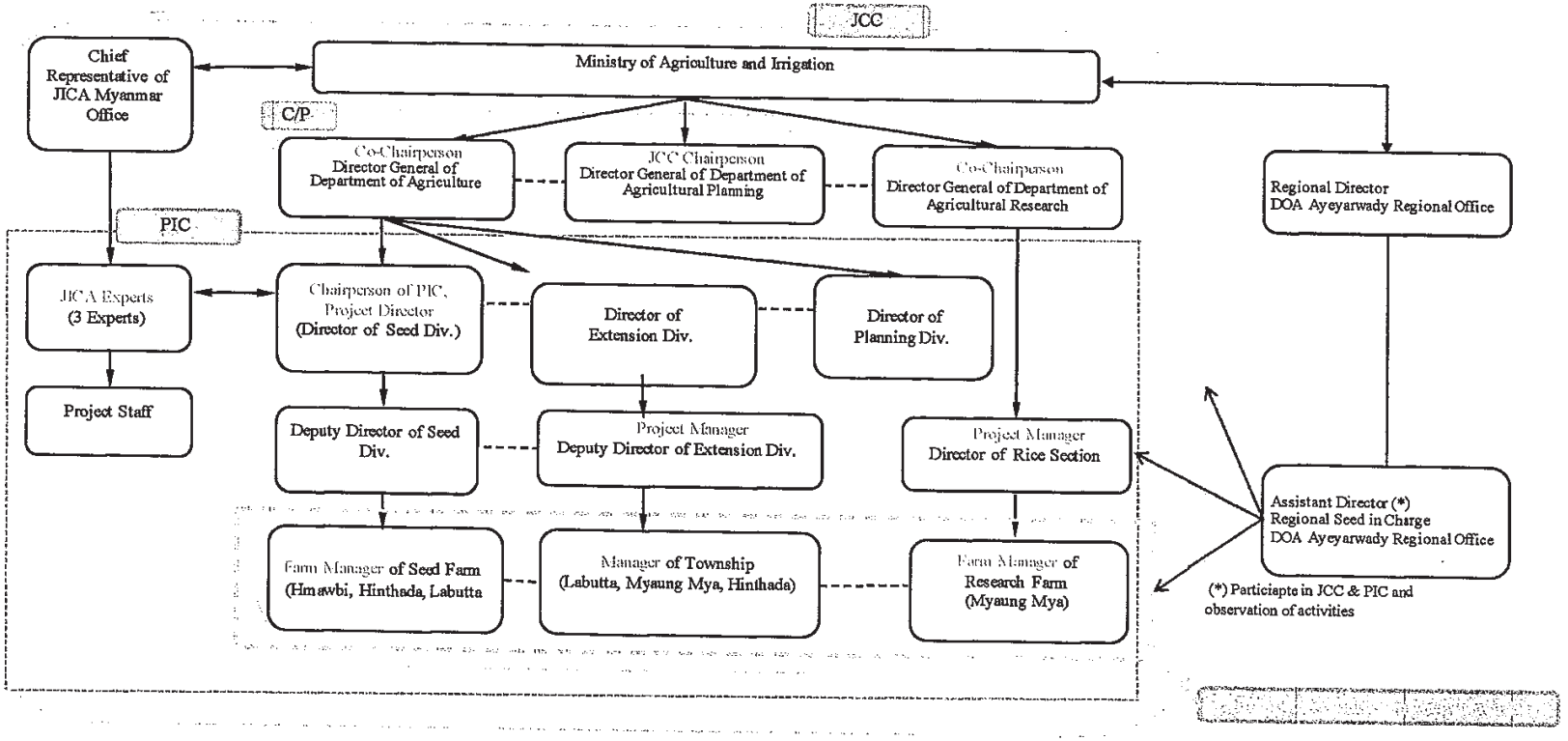
**(2) Project Implementation Committee (PIC) Meeting**

Up until now, PIC meeting has been held 17 times, approximately on a quarterly basis, to monitor the progress of the Project by receiving and sharing information from CPs working at the sites.

Discussion was made on the indicators of Overall Goal in PIC Meeting in June and August 2015. Quantitative indicators of Overall Goal based on the discussion were officially approved by JCC chairman in December 2015 and PDM (version 4) was approved.

## Implementation Set-up of the Project

*Project Organization in 2014 onward*




JCC: Joint Coordinating Committee
PIC: Project Implementation Committee
C/P: Counterpart

### (3) Other Meetings

In addition to the JCC and PIC Meetings, Inception Meeting (August 8, 2011), Project Review Meeting (September 12, 2013) and Mid-term Review Meeting (February 25, 2014) were held.

### 3.2.3. Public Relation Activities

The Japanese side disseminated information of the Project through the JICA website. On the other hand, the Myanmar side promoted the use of CS through mass media such as radio, TV, and newspaper. In October 2015, "rouging ceremony" was executed by the initiative of Labutta T/S office.

### 3.2.4. Workshop and Seminars

Various workshops and seminars were held by the Project Team as follows:

| Title | Times of Implementation | No. of Participants |
|---|---|---|
| Extension Staff Training 2012 | 4 | 237 |
| Extension Staff Training 2013 | 5 | 284 |
| Extension Staff Training 2014 | 5 | 393 |
| Farmers Training 2015 | 7 | 1,546 |
| Technical Workshops/Seminars | 46 | 1,713 |
| PLA and RRA Training | 7 | 223 |
| Post Harvest and Machinery Training | 8 | 134 |
| Total | 82 | 4,530 |

The details are shown in ANNEX 10.

### 3.2.4. Response to the Recommendations in the Mid-term Review

Recommendations made at the Mid-term Review were responded properly in general. Details are as shown in ANNEX 11.

### 3.2.5. Contributing and Inhibiting Factors

**Contributing Factor**

- Increasing needs for CS by farmers in the Project site due to liberalization of rice export in 2012
- Poverty Reduction Fund, allocated in 2013/2014 and 2014/2015 fiscal years, was used for purchasing CS produced in three T/Ss, to maintain the incentives of CS growers in the T/Ss.
- Good collaboration among the Project Team and the local governments (regional, district and T/S) in the target areas
- Due to abolition of compulsory rice cropping by the Government in 2003, farmers had more scope and incentive to choose rice varieties to cultivate. Some of the farmers chose to cultivate high quality varieties and resistant variety for irrigation water shortage and its salinity.
- JICA Project could focus on improvement of technical aspect of quality seed multiplication as foundation of seed production process was established under the Seed Development Project Phase I and II that were implemented by World Bank and UNDP from 1977 until 1993.

**Inhibiting Factor**

- Market mechanism that does not reflect the quality of the rice on the price at the moment
- At the transition period from the previous to the current administration in 2011, the pace of visa application/issuance procedures by the Government temporarily slowed down, and affected the assignment schedule of the Japanese Experts.
- Production of FS and RS in seed farms (Hmawbi, Hinthada, and Myaungmya) scaled down in 2013, and data collection to verify the genetic purity of target varieties became difficult.

## 4. Results of the Mid-term Review
### 4.1. Results of the Review based on the Five Criteria[2]
#### 4.1.1. Relevance

The Relevance of the Project is **High** due to the following reasons:

**(1) Consistency with the Myanmar Government Policy**

- Ministry of Agriculture and Irrigation (MoAI) put emphasis on production and utilization of high yield and good quality seeds to fulfill its duty for the development of the crop subsector thereby achieving the planned targets of the National Economic and Social Development Plan 2011/12-2015/16.
- In the First Five-year Plan (2011-2016), MoAI set the goals related to rice production; unit yield of 4.28 ton/ha and annual production of 33 million tons, respectively, through multiplication and distribution of good quality seeds.

**(4) Needs of local Communities**

- In Ayeyawady region, the largest rice producing area of Myanmar, there are strong needs of local population to improve the livelihood through increasing production and improving quality of rice.
- In addition, the Project has relevance with the needs of the local communities, from the standpoint of restoration of the Ayeyawady delta region devastated by Cyclone Nargis in 2008.

**(5) Japanese Aid Policy/Strategy**

- Three priority areas stated in Basic Policy of Japan's Assistance to Myanmar (March 2015) are as follows:

| |
|---|
| -Improvement of people's livelihood (including assistance for ethnic minorities and poverty groups as well as agricultural and rural development), |
| -Capacity building and development of system to sustain economy and society (including assistance for promotion of democratization), and |
| -Development of infrastructure and related systems necessary for the sustainable economic development. |

- The Project is consistent with the Japanese Aid Policy from the standpoint of assistance to poverty group and agricultural and rural development.

**(6) Technical Advantage of Japan**

Japan has technical advantages of rice breeding, seed multiplication, etc., compared with other developed countries based on the following reasons:

- In Japan, rice seeds have been widely produced by both the public and private sectors since Meiji Era, which is more than 100 years ago.
- Nowadays, rice seeds are produced and bred by the central and local governments in close communication with each other, taking into consideration the local conditions. These governments bear the responsibility from multiplication, quality control to the sales of the quality seeds.
- As a result, sufficient know-hows and experiences have been accumulated in terms of rice breeding, seed multiplication and sales, etc.

[2] A grading system of five levels (High, Relatively High, Moderate, Relatively Low, and Low) is used for the Evaluation.

### 4.1.2. Effectiveness

**Effectiveness** of the Project is **Relatively High** due to the following reasons:

The Joint Terminal Evaluation Team confirmed through literature survey, interview to stakeholders, and site visits, that the Project Purpose has been reasonably achieved in general.

- Technical transfer to the Myanmar CPs (relevant DOA, DAR staffs at national, district and township levels) has been successfully executed as a whole, and capacity of them has been strengthened in terms of quality seed production (BS, FS, and RS).
- Extension workers at three townships have also improved the capacity to disseminate knowledge and skills on CS production to farmers in the areas they take charge.
- Participation of CS farmers (150 farmers) has been maintained for the past four and half years for monsoon cropping, which indicates the famers' continuous interest in the CS production.

However, it is difficult to conclude it has been fully achieved based on the following reasons:

- Pass rate of CS inspection has been more than 50% since 2013 monsoon cropping. Nevertheless, there is still slight concern about the possible downturn, taking into account the number of cropping seasons during the Project period. It is necessary to confirm the result of 2015 and 2016 monsoon cropping.

| Season | Pass Rate |
|---|---|
| 2012 Monsoon Cropping | 43% |
| 2012/13 Summer Cropping | 22% |
| 2013 Monsoon Cropping | 53% |
| 2013/14 Summer Cropping | 60% |
| 2014 Monsoon Cropping | 73% |
| 2014/15 Summer Cropping | 60% |
| 2015 Monsoon Cropping | (To be compiled) |

- Similarly, as regards the ratio of sales portion over entire CS produced by CS farmers (expected to be more than 70%), confirmation based on data of 2015 monsoon season is preferred to judge the consistency of the performance.

| Season | Average Rate Sold |
|---|---|
| 2012 Monsoon Cropping | 57% |
| 2013 Monsoon Cropping | 29% |
| 2014 Monsoon Cropping | 79% |
| 2015 Monsoon Cropping | (To be compiled) |

In addition, as for Output performances, there are some activities that need more time for further verification:

- Test on genetic purity of Ayermin (BS) has been under process in DAR Yezin (Output 1).
- At the time of Terminal Evaluation, data on genetic purity of FS and RS is not sufficient (Output 2). It is necessary to collect data to verify genetic purity of FS and RS in terms of representative varieties currently produced in DOA and DAR Seed Farms in the Project site, although it is considered that genetic purity of FS and RS has been improved through improved genetic purity of BS.

### 4.1.3. Efficiency

**Efficiency** of the Project is considered **Relatively High** based on the following reasons:

As a whole, input by both the Japanese and Myanmar sides were appropriate. Almost of all the provided equipment by the Japanese side has been fully utilized to implement the Project activities and contributed to the achievements of Output. However, at the transition period from the previous to the current administration

in 2011, the pace of visa application/issuance procedures by the Government temporarily slowed down, and affected the assignment schedule of the Japanese Experts.

### 4.1.4. Impacts

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

***Overall Goal: Quality seed of rice is widely used by farmers in Myanmar (in the favorable area for rice cultivation in Ayeyawady region)***

Achievement of the Overall Goal will be greatly dependent on the decision of the Myanmar government to allocate budget and human resources to the seed multiplication activities, as the technical transfer in terms of seed multiplication was reasonably, if not completely, achieved under the Project.

The following indicators of the Overall Goal shown in PDM were set up through discussion with stakeholders in Ayeyawady region, based on the current availability of human resources, technical level they acquired and budget to be appropriated in Ayeyawady region from the Myanmar side. Discussion on Action Plan has been held three times since December 2014 (Indicator 4).

| *Indicators* |
|---|
| *Indicator 1: Number of CS producing farmers increases from 150 to 663.* |
| *Indicator 2: Acreage of CS producing farms increases up to 2,601.5 acres.* |
| *Indicator 3: Field inspection is conducted for 40% of CS producing farms and all seeds that have passed field inspection are sent to laboratory test.* |
| *Indicator 4: Action Plan on expansion of quality seed rice is formulated.* |

The Joint Terminal Evaluation Team considered that sufficient technologies to achieve the Overall Goal have been transferred to the Myanmar CPs. Therefore, when Myanmar Government decides to maintain the current level of budget and staffs in the organizations related to the Project activities, the Overall Goal is expected to be achieved to a certain extent in three years after the completion of the Project. Meanwhile, quality control of CS production will become progressively crucial in the future as CS producing farmers will increase against the budget and human resources available.

#### (2) Other Impacts

The following positive impacts were observed:

#### (2)-1 Technical Impact:

Various technical impacts were observed as follows:

- MOAI has a plan to establish nationwide mini-seed laboratories to conduct laboratory test to issue the seed certificate. As the first step, mini-seed laboratories were inaugurated in Bago District and Karen state recently. (The Ayeyawady regional government, in line with the national policy, has been requesting budget for fiscal year 2016/2017 to establish a mini-seed laboratory in the region.) The staffs of these mini-laboratories enhanced their capacities to conduct seed test before they were assigned through one-year training at Central Seed Laboratory in Gyogone, where the Project has been assisting through instructions and provision of equipment.
- Efficiency of CS laboratory test at the Central Seed Laboratory in Gyogone has improved as impurity reduced in samples from the Project site owing to seed graders provided by the Project.
- Field inspection for quality control of seed was reactivated through the Project activities. The conventional field inspection method by DOA was reviewed by the Project and overviewing method was introduced to put more focus on rouging. The new method improved the efficiency and effectiveness of field inspection.
- Genetic purity of FS and RS is considered to have been improved even outside the Ayeyawady delta

region due to nationwide distribution of BS with high genetic purity.

**(2)-2 Social and Economic Impact**

According to the interview to farmers in three T/Ss, yield of rice increased 10 to 15 baskets (200 to 300 kg) per acre by using CS produced by the Project. The increase of yield led to the increase of income of the user farmers, although the quality of produced rice has not been reflected on the selling price at the moment as mentioned.

Due to marketing activities of the Project (activities 3.4), quality of rice has come to be reflected on the selling price in the Project site.

**(2)-3 Institutional Impact**

The Project involved both DAR and DOA as the seed flow starts from Breeder's Seed and Foundation Seed at DAR and leads to Registered Seed production at DOA seed farm and CS production extended by DOA township extension staff.

In the past, the field information on the varieties demanded by farmers did not reach DAR level so that DAR faced difficulties to select varieties and set target volume of BS and FS production. During the project, the coordination between DAR and DOA was strengthened and now both of them are more capable than before to produce the seed demanded by farmers. Also the communication between DAR research field and DOA seed farm at regional and district level is also facilitated through the seed multiplication process.

Through continuing and extending the Project activities nationwide in the future, there will arise specific occasion that DOA and DAR communicate each other and such communication will even strengthen the tie between the two departments and may lead to further coordination in different subjects which will benefit farmers.

**4.1.5. Sustainability**

Sustainability of the Project is considered **Moderate** at the time of the Terminal Evaluation based on the following reasons:

**(1) Policy Aspect**

It is supposed that new Myanmar administration will not drastically change the national strategy in the immediate future for enhancing production and promoting exportation of rice to earn foreign currency.

Therefore, it is reasonable to assume that sustainability of the Project in terms of policy will be secured to a certain extent, if not to a great extent, as high quality seeds is prerequisite to accomplish the strategy. In the interviews to officials of Ayeyawady region conducted by the Evaluation Team, intention to support the Project activities was expressed.

**(2) Technical Aspect**

Technical transfer to the Myanmar CPs (DOA and DAR staffs at central and township levels) has been successfully executed as a whole, and their capacity to produce quality seeds has been strengthened.

Meanwhile, Ayeyawady region is faced with shortage of extension workers. For example, Labutta township has only 16 extension workers to cover about 366.5 thousand acres (22.9 thousand acres per one extension worker). It is considered difficult to to sustain qualified extension activities after the Project terminates, without increasing extension workers or involving CS growers to substitute the function of extension workers.

In addition, technology transfer to CS growers has been not been fully verified at the moment. It is necessary to

examine CS grower's performance of one more cropping season to secure the sustainability of the Project.

**(3) Financial Aspect**

MoAI has been appropriating the budget to multiply seeds. However, from the standpoint of multiplying seed of high quality in the favorable area for rice cultivation in Ayeyawady, it is considered necessary to accordingly increase the budget based on an appropriate dissemination plan in accordance with Overall Goal of the Project. At the moment, it is still uncertain that necessary amount of budget will be secured in the long term.

Summary of Evaluation by Five Evaluation Criteria

| Evaluation Criteria | Evaluation | Reasons/Remarks |
|---|---|---|
| Relevance | High | (+) Relevance with Myanmar policies<br>(+) Relevance with the needs of local communities to reduce poverty through seed multiplication and increase of rice yield<br>(+) Relevance with Japan's aid strategy |
| Effectiveness | Relatively High | (+) Project Purpose has been reasonably achieved.<br>(+) To DOA and DAR level, seed multiplication technologies have been transferred.<br>(-) Necessity to review the results of 2015 and 2016 monsoon crops to judge whether the seed multiplication technology has been completely transferred to CS farmers. |
| Efficiency | Relatively High | (+) Input by both the Japanese and Myanmar sides were reasonable.<br>(-) Temporary slow down of visa application/issuance procedure in the transition period from the previous to the current Myanmar administration in 2011. |
| Impacts | Positive Impacts are observed. | * Overall Goal is expected to be achieved to a certain extent as long as the current level of budget and human resources are maintained.<br>* Various positive impacts are observed, and no negative impacts observed so far. |
| Sustainability | Moderate | (+) High relevance with Myanmar policies<br>(-) Necessity to review the result of 2015 and 2016 monsoon crops to judge whether the seed multiplication technology has been completely transferred to CS farmers and continue technical transfer to CS growers another cropping season (2016 monsoon season)<br>(-) Concern about budget arrangement by the Myanmar side to continue the Project activities in the long term. |

## 4.2. Conclusion

The Joint Evaluation Team conducted the Terminal Evaluation of the Project based on five evaluation criteria, through literature survey, interview to stakeholders (Myanmar CPs, Japanese experts, and farmers, etc.), a series of discussions with Myanmar governmental officials, and site visit to the target three townships.

The Project was evaluated as highly relevant with Myanmar development policy and Japan's aid policy and strategy, at the time of Terminal Evaluation. As for Impact, various positive impacts, including the plan of mini-seed laboratory establishment in local areas taking JICA Project as a model, were observed.

Effectiveness of the Project was evaluated relatively high. Technical transfer to the Myanmar CPs has been successfully executed as a whole to the DOA and DAR staffs at central and local levels. In addition, CS farmers (150 farmers) as well as CS user farmers participated actively in the Project activities during the past four and half years. However, due to unstable achievements of indicators related to pass rate of CS inspection, and the rate of CS sales by CS grower over total CS productions, it is difficult to conclude Project Purpose has been fully achieved. These achievements need further verification with 2015and 2016 monsoon cropping data.

Efficiency of the Project was also evaluated relatively high. As a whole, input by both the Japanese and Myanmar sides were appropriate. Most of the provided equipment by the Japanese side has been fully utilized to implement the Project activities and contributed to the achievements of Output. However, at the transition period from the previous to the current administration in 2011, the pace of visa application/issuance procedure by the Government temporarily slowed down, and affected the assignment schedule of the Japanese Experts.

Meanwhile, sustainability of the Project was evaluated moderate as there remains slight concern about budget and human resources arrangement by the Myanmar side to continue the Project activities after the cooperation period, satisfying the quality of seeds in accordance with the requirement of the JICA Project. In addition,

taking into account the unstable achievements of indicators related to pass rate of CS inspection, and the ratio of CS sales by CS grower over total CS productions as was stated above, it is preferred to keep technical transfer to CS growers and monitoring the performance of CS growers at least one more cropping season.

Based on these analyses, the Evaluation Team concluded it is necessary to extend the Project seven months until March 2017, in order that the Project Purpose will be fully achieved and sustainability of the Project will be ensured. In line with this, the Team made recommendations to secure the achievements and sustainability of the Project in the extended cooperation period, as described in the subsequent chapters.

## 5. Recommendation and Lessons Learned

### 5.1. Recommendations

The Evaluation Team found that the Project has made a lot of progress so far in line with the PDM. However, there are three issues (1. distribution gap, 2. expansion in Ayeyawady region, and 3. nationwide expansion) that the Evaluation Team needs to recommend to the **Project Team (the Myanmar CP and Japanese Experts)** and all related stakeholders in the government of Myanmar in order to make the Project achievement irrevocable and make the achievement sustainably expand to all part of the nation. Thus, the Evaluation Team recommends to extend the Project period 7 months until 8 March, 2017 in order to fully operate in the monsoon season of 2016 and compile the result and data collected through the activities.

In addition, the indicator of the Overall goal "4. Action Plan on expansion of quality seed rice is formulated." should be moved to the indicator of Project Purpose as indicator "4. Action Plan on expansion of quality seed rice is formulated" should be completed before the indicator 1 to 3 of the Overall Goal are achieved. (Proposed modified PDM is as shown in ANNEX 12)

#### 5.1.1. Resolve the Problem of Distribution Gap

The first issue is "distribution gap". Seed growers sometimes sell seed as grain because they need cash at the time of harvest while the price of seeds is still low because harvest time is far before the time of sowing in the next season. As this is a very difficult and complex issue involving not only MOAI and farmers but also private entities such as rice millers, brokers, rice retail sellers etc., there is no clear answer how to solve the problem.

Although the Project has been trying to fill the distribution gap in addition to improve production technique and awareness of CS among farmers and other stakeholders, there is a room for further improvement in terms of developing distribution system through filling distribution gap.

**(1) Discuss a Solution for the Distribution Gap among Stakeholders and Reach a Consensus for Specific Actions**

The evaluation team recommends **the Project Team** to continue discussion how to fill the distribution gap both from technical (ex. growing summer variety's seed in monsoon season) and financial (ex. as shown in 5-1-3) aspects and make a consensus for specific actions. The solution should become an institutional action involving Ayeyawady regional DOA through being enclosed in the Action Plan.

**(2) Continue the Activities and Find a way to Involve Rice Millers to Purchase Paddy Grown from CS**

The Project is now conducting activities to encourage rice millers to purchase paddy grown from CS at reasonable price which reflect paddy quality by showing the benefit of paddy grown from CS for rice milling through milling demonstration and advocating the quantitative data. This activity has been expanded on a full scale just in 2015/2016 season so that rice miller will be interested in purchasing CS for distribution among affiliated paddy growers.

The evaluation team recommends **the Project Team** to continue the activities (PDM activities 3-4 and 3-5) at the time of harvesting summer rice (around June-July 2016) and monsoon rice (around December 2016-January 2017).

**(3) Seek a Way to Introduce and Sustainably Manage a Revolving Fund to Purchase CS at the Time of Harvesting such as the Fund made in 3 Townships**

Three Townships in the Project Site have allocated "poverty reduction fund" for the activity to purchase CS at the time of harvesting and sell them at the time of sowing. Although the sustainability of the fund has not been proofed yet, such fund is potentially a solution of the problem of distribution gap.

So the Evaluation Team recommends **the Ayeyawady regional DOA and Myanmar C/P in 3 townships** to monitor the effectiveness and sustainability/transparency of the established fund and be prepared for the future opportunity to allocate any emerging budget in the future, or seek the possibility of every financial scheme such as NGO's microfinance, Ministry of Cooperative's microfinance, etc. Organizing farmers group as an entity to manage such fund may need to be considered.

### 5.1.2 Quality Control for Expansion of CS Production to 26 T/Ss in Ayeyawady Region

Now the Ayeyawady regional DOA is preparing the Action Plan ("five year plan") upon the concept of quality seed production to expand the project model to all townships in Ayeyawady region in close collaboration with the Project Team, and increase farmers and CS production step by step in order to attain the overall goal of the Project described in the latest PDM (version 4).

However, there is a concern that the quality of CS may deteriorate if the capacity development of extension workers in non-project target townships and technical transfer to farmers may not be completed at given time and township officers are under the sense of obligation to accomplish the goal only seeking for quantity. Specifically, there is a conflict of interest on field inspector when the inspector has to accomplish the given quota of CS production. Also, laboratory test is vulnerable for manipulation at field which is out of control of laboratory staff. In order to avoid such cases, the evaluation team recommends the following things.

#### (1) Elaborate the Action Plan for Expansion of CS Production to 26 Townships in Ayeyawady

Although Ayeyawady regional DOA is trying their best to attain budget for extension, budgetary allocation for the regional 5-year-plan is not promised. Based on the actual budget, the expansion plan should be adjusted in realistic matter. Otherwise, the effort to increase CS production in Ayeyawady region may end in unproductive devote of energy.

So the evaluation team recommends **the Project Team and Ayeyawady regional DOA** to elaborate the action plan through learning by doing in FY2016/2017 based on the actual budget allocated and real capacity/number of extension workers. The evaluation team deems the "5 years regional plan" is a strategy which needs to have supplementary action plan to be formulated by the end of the Project with specific tactics how to achieve the Overall Goal of the Project.

#### (2) Give Technical Advice to Control Quality of CS while Expanding the Activities to 26 TS

Seed grower's production technique is the foundation of CS production, however, the extension staff and seed growers in other townships may need some more experience than just leaning through reading technical materials. So the evaluation team recommends **the Project Team** to give technical advice to other district's SMS (subject matter specialist), township's extension staffs and seed growers through various occasions.

Especially, the evaluation team recommends strengthen horizontal technical transfer (district SMS to district SMS, TS officer to TS officer and farmer to farmer) by the activities such as making field trip to other district/township, organizing farmer's inter township field visit, etc.

#### (3) Continue the Activities to Involve Rice Millers to Acknowledge CS Quality

CS market was not existent before the Project, however, the market is now emerging owing to the Project Team's effort as well as social and economic change. As mentioned in the recommendation 5-1-2, the Project has started the activities to involve rice millers to acknowledge CS quality such as organizing field day at rice mill and demonstrate milling with the paddy grown from CS. The evaluation team recommends **the Ayeyawady regional DOA** to expand these activities in non-project target townships in 2016/2017 with technical advices by the Project Team in order to make the emergence of CS market more complete.

Beyond the Project activities, Myanmar stakeholders may need to consider such new ideas as giving advice to improve package of milled rice to "improve the value of the rice" made of CS. Also, the PR activities will show not only conceptual idea but also real data of the difference between CS and others.

### 5.1.3 Analyze the Outcome of the Project for Nationwide Expansion

The project sets a target to disseminate the Project achievement among Ayeyawady region within the timeline of Overall Goal (3 years after the project completion). It is realistic and challenging enough, however, it is also necessary to aim for nationwide expansion of the project achievement. The Evaluation Team recommends three points for the nationwide expansion.

#### (1) Monitor and Sustain Genetic Purity through BS, FS and RS Stage

Sustaining genetic purity of BS, FS, and RS is an important task as it affects whole nation's productivity. In order to sustain the genetic purity, the evaluation team recommends **the Project Team** to monitor the genetic

purity of not only BS but also FS and RS within the Project period.

Also, **Ayeyawady regional DOA and DOA NPT HQs and DAR HQs Yezin** should make best effort to allocate budget for BS, FS and RS production in accordance with the technical necessity (ex. labor budget for sufficient times of logging for seed production) and monitor the genetic quality of BS, FS and RS. The evaluation team recommends to add an indicator to the overall goal of the Project in conjunction with this issue.

In order to maintain the genetic purity of BS, line method introduced by the Project should be continued by DAR Rice Division. Also, BS of one variety should be produced only in one place in order to keep the genetic purity. If there were multiple places to produce BS, these places should produce mutually exclusive varieties.

**(2) Conduct End-line Survey**

The evaluation team recommends **the Project Team** to conduct end-line survey to organize the information on how much intervention leads to how much benefit, and how to do it.

**(3) Disseminate the Project Activities**

As the DOA NPT HQs and DAR HQs Yezin has nationwide training mechanism through CARTC, the Evaluation Team recommends **DOA NPT HQs and DAR HQs Yezin** to disseminate the Project activities by incorporating the technical package and end line survey data into CARTC training program.

Although the recommendations above mentioned require all stakeholder's involvement, just for clarifying the responsibility who should initiate the tasks, the major responsible person list is shown below.

| Recommendations | The Project Team | Ayeyawady regional DOA | DOA NPT HQs and DAR HQs Yezin |
|---|---|---|---|
| 5-1-1 (1) | ✓ | ✓ | |
| 5-1-1 (2) | ✓ | | |
| 5-1-1 (3) | ✓ | ✓ | |
| 5-1-2 (1) | ✓ | ✓ | |
| 5-1-2 (2) | ✓ | | |
| 5-1-2 (3) | | ✓ | |
| 5-1-3 (1) | ✓ | ✓ | ✓ |
| 5-1-3 (2) | ✓ | | |
| 5-1-3 (3) | | | ✓ |

## 5.2. Lessons learned

### 5.2.1 Farmer's benefit

As the Evaluation Team reconfirmed through the field observation and interview, both the seed grower and CS buyer (ordinary farmer) enjoyed the benefit of the Project. The lesson learned here is the importance to ensure the incentive of farmers when introducing new technologies and make the benefit easy to understand through collecting quantitative data.

By examining the interview and data collected during the terminal evaluation, it is supposed that the about 1,000 farmers would enjoy the benefit of the yield increase effect of CS. 8,216 baskets of CS produced in the Project has theoretically equivalent amount required for grain production by 1,000 small scale farmers[i].

Also, the seed grower can benefit from growing certified seed as the CS is appreciated by seed buyer and get clearly different price from ordinary grain. According to the rough estimation, CS grower can gain about 48,000 Kyat / acre (net income after deducting additional cost) by growing CS instead of ordinary grain.

The estimation of farmer's benefit is attached as ANNEX 13.

### 5.2.2 Stakeholder Identification and Involvement

In the original Project design, several key stakeholders were omitted from the Project counterpart such as township office in a township covered by DOA seed farm on assumption that DOA seed farm extends CS production technique by themselves. In actual, seed farm did not have extension function so it was necessary to involve township office for extending CS production technique to farmers.

During the Project, the Myanmar and Japanese sides adjusted and included such stakeholders into the Project. However, it took additional coordination effort. For smooth implementation of the future project, it is necessary to carefully examine who should be involved in the project at the time of project planning.

### 5.2.3. Awareness of Seed Quality Control

The project originally tried to set a quantitative target of CS dissemination, however, the definition of "CS" was not commonly shared at each level of seed flow and there was a concern that unqualified seed would be produced by stakeholders to achieve the target amount. So the Project focused their resource on materializing seed flow from BS to CS in selected townships only and tried to raise awareness of stakeholders in each level of seed flow.

This operational adjustment succeeded and the Project could materialize the streamline of quality seed from BS to CS which fulfills the standard of both field inspection and laboratory test. As the CS production requires proper awareness of all stakeholders in every level of seed flow, it is very important to raise awareness of definition of CS at each level of stakeholders.

The Lesson here is that when we design a project to change the mindset and disseminate the concept in various stakeholders, we need to allocate enough time and resources for the dissemination of the concept.

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[i] (8,216 / 7.3 acre (average farm land size of small scale farmer owning 5-10 acre) = 1, 125, 1 basket of seed is enough for 1 acre for transplanting)

**ANNEX 1**

**Schedule of the Terminal Evaluation on Project on the Development of Participatory Multiplication and Distribution System for Quality Rice Seed**

| Day | Date | | Evaluation Team (Japanese Side) | | | | Seed Production Expert | Evaluation Team (Myanmar Side) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Ms. Tomoko Taira<br>平 知子 | Mr. Hiroaki Imai<br>今井 裕明 | Dr. Hideaki Higashino<br>東野 英昭 | Dr. Akira Kamidohzono<br>上堂薗 明 | Dr. Ryoichi Ikeda<br>池田 良一 | From NPT | From Pathein |
| | Jan 31 | Sun | | | Tokyo to Yangon (NH813) | | | | |
| 1 | Feb 1 | Mon | | | 09:00 Meeting with JICA office<br>11:00 Visit to Project Office and Meeting with Project Expert<br>13:00 Move to Hmawbi<br>14:00 - 16:00 Meeting with Hmawbi seed farm manager<br>16:00 - 17:30 Back to Yangon | | | | |
| 2 | Feb 2 | Tue | | | 08:00 Move to Hinthada<br>13:30 Meeting with T/S office manager & District seed officer<br>15:00 Meeting with DOA seed farm manager | | | | |
| 3 | Feb 3 | Wed | | | 08:00 Meeting with seed growers & ordinary farmers who uses CS<br>9:30 Seed supply mini-survey (hearing to seed suppliers to farmers, including middleman and millers)<br>11:00 - 15:00 Move to Myaungmya<br>15:00 Meeting with T/S office manager & District seed officer<br>16:30 Meeting with DAR seed farm manager | Narita to Yangon (NH813) | | | |
| 4 | Feb 4 | Thu | | | 08:00 Meeting with seed growers & ordinary farmers who uses CS<br>09:30 Seed supply mini-survey (hearing to seed suppliers to farmers, including middleman and millers)<br>11:00 - 12:00 Field visit<br>13:00 - 14:30 Move to Labutta<br>14:30 - 16:00 meeting with T/S office manager & District seed officer | Move Yangon to Labutta<br>Join Mr. Higashino from 14:30 | | | |
| 5 | Feb 5 | Fri | | | 08:00 Meeting with seed growers & ordinary farmers who uses CS<br>09:30 Seed supply mini-survey (hearing to seed suppliers to farmers, including middleman and millers)<br>11:00 - 16:00 Move to Yangon | (Same as Dr. Higashino) | | | |
| 6 | Feb 6 | Sat | | | Documentation | Documentation | | | |
| 7 | Feb 7 | Sun | Narita to Yangon (NH813) | | Documentation | Documentation | | | |
| 8 | Feb 8 | Mon | 09:00 meeting with JICA<br>14:00 meeting with the Project staff (experts and C/P)<br>evening fly to NPT | | Morning, fly to NPT<br>Meeting with: DOA Seed division, Extension division, and DAR Rice division | (Same as team leader) | | | |
| 9 | Feb 9 | Tue | 09:00 courtesy call to DAR (DG) and observation of DAR seed farm and facilities<br>**13:30 1st Joint Evaluation Meeting**<br>16:00 move to Yangon | | | | | **13:30 1st Joint Evaluation Meeting in NPT/YZN**<br>PM: Move to Yangon | |
| 10 | Feb 10 | Wed | 09:30 Visit to Seed Laboratory of DOA<br>10:45 move to Myaungmya<br>17:00 Observe extension camp, public storage and seed grader, rice miller in Myaungmya | | Documentation | (Same as team leader) | | (Same as Japanese Side) | |
| 11 | Feb 11 | Thu | 08:00 Field visit to seed farm of target farmers in Taungalal Village Tract and meeting with extension officers<br>11:30 Meeting with DAR Myaungmya and observe seed farm and facilities<br>14:00 2nd Joint Evaluation Meeting | | AM Move from Yangon to Myaungmya<br>PM Join the 2nd Joint Evaluation Meeting | (Same as team leader) | | (Same as Japanese Side) | |
| 12 | Feb 12 | Fri | **08:30-12:00 3nd Joint Evaluation Meeting**<br>13:00-17:00 move to Yangon | | | | | (Same as Japanese Side) | |
| 13 | Feb 13 | Sat | Yangon to Lashio | Documentation | | | | Documentation | |
| 14 | Feb 14 | Sun | Site Visit - OSHAN | Documentation | | | Narita to Yangon (TG305) | Documentation | |
| 15 | Feb 15 | Mon | Lashio to Yangon<br>Yangon to NPT | morning fly to NPT<br>**14:00-15:00 4nd Joint Evaluation Meeting** | | | Interview to Japanese experts and C/P in Hmawbi | 14:00-15:00 4nd Joint Evaluation Meeting | |
| 16 | Feb 16 | Tue | AM Documentation<br>PM Site observation and interview to DAR stakeholders | | | | AM Yangon to NPT<br>PM Same as the evaluation team | Documentation | |
| 17 | Feb 17 | Wed | AM Documentation<br>**1500-1700 5th Joint Evaluation Meeting** | | | | Same as the evaluation team | **1500-1700 5th Joint Evaluation Meeting** | |
| 18 | Feb 18 | Thu | **09:00 JCC**<br>Move to the airport and fly back to Yangon | | | | Same as the evaluation team | **09:00 JCC** | |
| 19 | Feb 19 | Fri | Report to EoJ<br>Report to JICA Myanmar Office<br>Evening, leave Yangon to Tokyo (NH814) | | | | Same as the evaluation team | | |
| | Feb 20 | Sat | Arrival at Tokyo | | | | Same as the evaluation team | | |

ANNEX2: PROJECT DESIGN MATRIX (PDM) (Revised on 4th August, 2015) (Version 4)

Project Title; Project on Development of Participatory Multiplication and Distribution System for Quality Rice Seed Duration; 5 years from 9th August, 2011

Project Area; Ayeyawady Delta Region

Target Group; DAR and DOA staff, Seed Farm's staff (Hinthada, Myaung Mya and Hmawbi), and Farmers living in Hinthada, Myaungmya & Labutta T/S

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|---|---|---|---|
| **Overall Goal**<br>Quality seed of rice is widely used by farmers in Myanmar. | In the favorable area for rice cultivation in Ayeyawady region;<br>1. Number of CS producing farmers(*) increase from 150 to 663.<br>2. Acreage of CS producing farms(*) increase up to 2,601.5 acre.<br>3. Field inspection is conducted for 40% of CS producing farms and all seeds that have passed field inspection are sent to laboratory test.<br>4. Action Plan on expansion of quality seed rice is formulated. | 1. & 2. Interview to T/S office (sample)<br>3. Results of field inspection and Lab test (sample)<br>4. Action Plan | 1. Strategy for production of rice seed is improved.<br>2. Seed market in Ayeyawady delta exists. |
| **Project Purpose**<br>Participatory multiplication and distribution system for quality seed of rice is established in Ayeyawady delta area. | 1. More than 150 farmers continue to multiply CS every year in the project site.<br>2. Passing rate of CS inspection become more than 50 % in the project site.<br>3. More than 70% of CS, which is excluded for own-use of the seed growers, produced in the Project site will be sold by 150 seed growers. | 1. Progress Survey by the Project<br>2-1. Result of Lab test<br>2-2. Result of Field Inspection<br>3. Project report on CS production | 1. Seed flow in Myanmar does not change significantly.<br>2. CS demand in Ayeyawady region does not decrease.<br>3. Necessary RS is produced. |
| **Outputs**<br>1. Capacity for production of BS in DAR is improved. | 1.1 Guideline of quality control technology for BS multiplication is prepared.<br>1.2 More than 9 varieties of BS which meet demand of the farmers are satisfied with the seed standards.<br>1.3 DAR researchers master BS multiplication and quality control methods. | 1-1. Guideline on BS production of DAR.<br>1-2. BS production record of DAR farm<br>1-3-1. Project progress report<br>1-3-2. BS production record of DAR | No significant natural hazards occur that will impact rice cultivation in project target area. (e.g. drought, floods, diseases and pests) |
| 2. Capacity for production of FS and RS is improved and quality control system is strengthened in DOA Seed Division | 2.1 More than 9 varieties of FS and RS which meet demand of the farmers are satisfied with the seed standard.<br>2.2 Capacity of staff from DOA Seed Div. as trainer for field inspection training is increased.<br>2.3 Number of RS and CS of rice sample for laboratory inspection in Seed Division in Yangon increase 2 times or more than that of 2011.<br>2.4 Field inspection and lab test are implemented for 150 seed farms in the Project site. | 2-1-1.Production plan of seed farms<br>2-1-2.Result of field and laboratory seed inspection (survey / reports)<br>2-2-1. Training record<br>2-2-2 Interview to staff at DOA Seed Division<br>2-3. Result of Lab test<br>2-4-1. Result of Field inspection<br>2-4-1. Result of lab test | |

| | | | |
|---|---|---|---|
| 3. Capacity of instruction in DOA Extension Division is improved for CS production by seed growers. | 3.1 Evaluation/satisfactory rate of seed growers toward extension services is improved.<br>3.2 Farmers' knowledge on CS and CS market information increase more than situation indicated in the 1st baseline survey. | 3-1. Result of questionnaire for seed growers (sample)<br>3-2. Result of 2nd baseline survey for seed growers and paddy farmers on CS and CS market | |
| **Activities** | **Input** | | |
| 0 Conduct baseline survey to identify the needs of market and farmers.<br>1.1 Review and improve the productive technology for BS.<br>1.2 Produce BS including indigenous varieties in DAR.<br>1.3 Improve research facilities in DAR Rice Division.<br><br>2.1 Review the system of seed production and distribution through DOA to farmers.<br>2.2 Improve facilities of DOA Seed Farms.<br>2.3 Produce FS and RS including indigenous varieties in DOA Seed Farms.<br>2.4 Review the Field inspection system of DOA.<br>2.5 Conduct OJT on Field inspection for Seed Division Staff.<br>2.6 Improve facilities of Seed Laboratory Center in Yangon.<br><br>3-1. Conduct training on seed production and technology dissemination for extension workers in the Project site.<br>3-2. Target T/S office formulates a CS production plan with consideration of farmers' needs.<br>3-3. Extension workers transfer technique on CS production to seed growers.<br>3-4. Extension workers conduct awareness building on benefits of CS for paddy farmers.<br>3-5. Collect information on CS and CS market information, and share it with concerned stakeholders in the Project site.<br>3-6. Improve facilities related to CS production in the Project site. | **Myanmar Side**<br>1. Assign sufficient number of counterparts<br>- Project Director<br>- Project Managers<br>- Other technical and managerial staff<br><br>2. Land, Office space and Facilities<br><br>3. Local cost (project running expenses) | **Japanese Side**<br>1. Dispatch long term experts<br>- Chief Advisor<br>- Coordinator/ Agricultural Extension<br>- Rice Seed Multiplication<br><br>Dispatch short term experts<br><br>2. Provision of equipment (such as equipment for laboratory and farm machineries etc.)<br><br>3. Provision counterparts training in Japan and in third countries | 1. Rice seed production policy of MOAI is not changed.<br><br>2. Appropriate C/P personnel are assigned in the project.<br><br>**Preconditions** |

BS: Breeder Seed FS: Foundation Seed RS: Registered Seed CS: Certified Seed
DAR: Department of Agricultural Research, DOA: Department of Agriculture,
*CS producing farmers/farms are those adopt "CS quality control measures" with technical guidance of DOA extension workers which have been practiced in the project.

## ANNEX 3-1: Annual Plan of Operation for the Project on Development of Participatory Multiplication and Distribution System for Quality Rice Seed in 2014

| Activity | 2014 | | | | | | | | | 2015 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
| **Activity 1 : Capacity for production of BS in DAR is improved.** | | | | | | | | | | | | |
| 1-1 Review and improved the BS multiplication technology | | | | | | | | | | | | |
| 1-2 Produce BS including indigenous variety in DAR | Summer Rice | | | Monsoon Rice | | | | | | Summer Rice | | |
| 1-3 Conduct capacity building for DAR researchers | | | | | | | Quality Control | Breeding | | | | |
| **Activity 2: Capacity for production of FS and RS is improved and quality control system is strengthened inDOA Seed Division** | | | | | | | | | | | | |
| 2-1 Review the system of seed production and distribution through DOA to farmers | | | | | | | | | | | | |
| 2-2 Produce FS and RS including indigenous variety in Seed Farm | | | | Monsoon Rice | | | | | | Summer Rice | | |
| 2-3 Review the Field Inspection system of DOA | | | | | | | | | | | | |
| 2-4 Conduct OJT on Field Inspection for Seed Division Staff | | | | | | | | Monsoon Rice | | | | Summer Rice |
| **Activity 3 : Capacity for instruction in DOA Extension Division is improved for CS production by seed growers.** | | | | | | | | | | | | |
| 3-1 Conduct training on seed production and technology dissemination for extension workers in the Project site. | | 1st (27-28 May) | 2nd 18-19 | 3rd (16-17 July) | | 4rd (10-11 SEP) | 5th (7-8 Oct.) | | 6th (2-3 DEC) | Including other T/S in Ayeyawaddy | | |
| 3-2 Target T/S office formulates CS production plan with consideration of farmers' need. | | | | | | | | | | | | |
| 3-3 Extension workers transfer technique on CS production to seed growers. | | | | | | | | | | | | |
| 3-4 Extension workers conduct awarness building on benefits of CS for paddy farmers. | | | | | | | | | | | | |
| 3-5 Collect information on CS and CS market information and share it with concerned stakeholders in the Project. | | | | | | | | 11th NOV Field day | | | | |
| 3-6 Improve the facilities in the project sites. | Construction of seed storage in Labutta T/S, reparing/renovation of seed strage at Myeungmya, Hinthada , Concreet floor at 3 T/Ss | | | | | | | | | | | |
| **Activity 4 : Procedures for input from JICA** | | | | | | | | | | | | |
| 4-1 Dispatching short term experts | | | | | | Rice Breeding | | | | | | |
| | | | | | | | Quality Control | | | | | |
| | | | | | | | Seed Multiplication & Extensi | | | | | |
| 4-2 Counterpart training in Japan | | | | | | | | | | | Hybrid Rice Cultivation) | |
| 4-3 Procurement of machineries / equipment /facilities | | | | | | | | | | | | |
| **Activity 5 : Project management and monitoring & evaluation** | | | | | | | | | | | | |
| 5-1 Joint Coordination Committee (JCC) | | | | | | | | | | | | |
| 5-2 Project Implementation Committee (PIC) | | | | | | | | | | | | |

## ANNEX 3-2: Annual Plan of Operation for the Project on Development of Participatory Multiplication and Distribution System for Quality Rice Seed in 2015

| Activity | 2015 | | | | | | | | | 2016 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
| **Activity 1 : Capacity for production of BS in DAR is improved.** | | | | | | | | | | | | |
| 1-1 Review and improved the BS multiplication technology | | | | | | | | | | | | |
| 1-2 Produce BS including indigenous variety in DAR | Summer Rice | | | | | Monsoon Rice | | | | | Summer Rice | |
| 1-3 Conduct capacity building for DAR researchers | | | | | | | Quality Control | Breeding | | | | |
| **Activity 2: Capacity for production of FS and RS is improved and quality control system is strengthened inDOA Seed Division** | | | | | | | | | | | | |
| 2-1 Review the system of seed production and distribution through DOA to farmers | | | | | | | | | | | | |
| 2-2 Produce FS and RS including indigenous variety in Seed Farm | | | | Monsoon Rice | | | | | | Summer Rice | | |
| 2-3 Review the Field Inspection system of DOA | | | | | | | | | | | | |
| 2-4 Conduct OJT on Field Inspection for Seed Division Staff | | | | | | | | Monsoon Rice | | | | |
| **Activity 3 : Capacity for instruction in DOA Extension Division is improved for CS production by seed growers.** | | | | | | | | | | | | |
| 3-1 Conduct training on seed production and technology dissemination for extension workers in the Project site. | | | Seminar for 26 T/S in Ayeyawaddy | | | F.I. Training | F.I. Training | Seminar for 3T/S | | | Seminar for 26 T/S in Ayeyawaddy | |
| 3-2 Target T/S office formulates CS production plan with consideration of farmers' need. | | | | | | | | | | | | |
| 3-3 Extension workers transfer technique on CS production to seed growers. | | 1st Training | 2nd Trainin | 3rd Trainin | 4th Trainin | 5th Trainin | 6th Trainin | | | | | |
| 3-4 Extension workers conduct awarness building on benefits of CS for paddy farmers. | | | | | | | | | | | | |
| 3-5 Collect information on CS and CS market information and share it with concerned stakeholders in the Project. | | | | | | Field day | Field day | | | | | |
| 3-6 Improve the facilities in the project sites. | | | | | | | | | | | | |
| **Activity 4 : Procedures for input from JICA** | | | | | | | | | | | | |
| 4-1 Dispatching short term experts | | | | | | Rice Breeding | | | | | | |
| | | | | Quality Control | | | | | | | | |
| | | | | | Seed Multiplication & Extensi | | | | | | | |
| 4-2 Counterpart training in Japan | | | | | | | | | | | Japan Rice Cultivation | |
| 4-3 Procurement of machineries / equipment /facilities | | | | | | | | | | | | |
| **Activity 5 : Project management and monitoring & evaluation** | | | | | | | | | | | | |
| 5-1 Joint Coordination Committee (JCC) | | | | | | | | | | | | |
| 5-2 Project Implementation Committee (PIC) | | | | | | | | | | | | |

## ANNEX 3-3 : Annual Plan of Operation for the Project on Development of Participatory Multiplication and Distribution System for Quality Rice Seed in 2015-16

| Activity | 2015 | | | | | | | | | 2016 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | April | May | Jun | Jul | Aug |
| **Activity 1 : Capacity for production of BS in DAR is improved.** | | | | | | | | | | | | | | | | | |
| 1-1 Review and improved the BS multiplication technology | | | | | | | | | | | | | | | | | |
| 1-2 Produce BS including indigenous variety in DAR | Summer Rice | | | Monsoon Rice | | | | | | Summer Rice | | | | | Monsoon Rice | | |
| 1-3 Conduct capacity building for DAR researchers | | | | | | | Breeding | | | | | | | | | | |
| **Activity 2: Capacity for production of FS and RS is improved and quality control system is strengthened inDOA Seed Division** | | | | | | | | | | | | | | | | | |
| 2-1 Review the system of seed production and distribution through DOA to farmers | | | | | | | | | | | | | | | | | |
| 2-2 Produce FS and RS including indigenous variety in Seed Farm | Summer Rice | | | Monsoon Rice | | | | | | Summer Rice | | | | | Monsoon Rice | | |
| 2-3 Review the Field Inspection system of DOA | | | | | | | | | | | | | | | | | |
| 2-4 Conduct OJT on Field Inspection for Seed Division Staff | | | | | | | Monsoon Rice | | | | | | | | | | |
| **Activity 3 : Capacity for instruction in DOA Extension Division is improved for CS production by seed growers.** | | | | | | | | | | | | | | | | | |
| 3-1 Conduct training on seed production and technology dissemination for extension workers in the Project site. | Seminar for 26 T/S in | | | | | F.I. Training | F.I. Training | | | F.I. Training | | | Seminar for 26 T/S in | | | | |
| 3-2 Target T/S office formulates CS production plan with consideration of farmers' need. | | | | | | | | | | | | | | | | | |
| 3-3 Extension workers transfer technique on CS production to seed growers. | 1st | | 2nd | 3rd | 4th | 5th | 6th | | | | | | | | | | |
| 3-4 Extension workers conduct awarness building on benefits of CS for paddy farmers. | | | | | | | | | | | | | | | | | |
| 3-5 Collect information on CS and CS market information and share it with concerned stakeholders in the Project. | | | | | | Field Tour | Field Tour | F/D | | | | | | | | | |
| 3-6 Improve the facilities in the project sites. | | | | | | | | | | | | | | | | | |
| **Activity 4 : Procedures for input from JICA** | | | | | | | | | | | | | | | | | |
| 4-1 Dispatching short term experts | | | | | Rice Breeding | | | | | | | | | | | | |
| | | | | Quality Control | | | | | | | | | | | | | |
| | | | | Seed Multiplication & Extension | | | | | | | | | | | | | |
| 4-2 Counterpart training in Japan | | | | | | | | | | | | | | | | | |
| 4-3 Procurement of machineries / equipment/facilities | | | | | | | | | | | | | | | | | |
| **Activity 5 : Project management and monitoring & evaluation** | | | | | | | | | | | | | | | | | |
| 5-1 Joint Coordination Committee (JCC) | | | | | | | | | | | | | | | | | |
| 5-2 Project Implementation Committee (PIC) | | | | | | | | | | | | | | | | | |
| 5-3 Project Evaluation | | | | | | | | | Final Evaluation | | | | | | | | |

## ANNEX4: Evaluation Grid (1) Achievement of the Project

| Items to be verified | Evaluation Questions | | Basis of Judgment | Data to be collected | Data Source | Data Collection Method |
|---|---|---|---|---|---|---|
| | Major Questions | Sub-Questions | | | | |
| Progress of the Project Activities and Implementation Process | Have the Project been progressed as scheduled? | * Was there delay in the activities? What was the reason?<br>* Was there modification of PDM and PO ? | Comparison of the current progress with the PDM and PO. | -Plan of operation and actual progress of activities<br>-Information of modification of activities, etc. | - Project Report/documents<br>- Myanmar Stakeholders (MOAI (DOA/DAR, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview<br>- Questionnaire Survey |
| | Were there any problems related to the Project Management? | * Has the Project been monitored appropriately? | Is the monitoring method appropriate? | Information related to monitoring. | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview<br>- Questionnaire Survey |
| | | * Did the decision making mechanism of the Project work properly? | Whether there is a problem or not? If any, how the Project handled with the problem? | Confirm the decision-making mechanism including JCC. | | |
| | | * Was information sufficiently shared among stakeholders? | Verify the status of information sharing. | Method of information sharing (regular meeting, distribution of reports, communication among stakeholders, etc.) | | |
| | The degree of understanding and commitment of the Project by the implementing agencies | * Does implementing agencies understand the objective, significance of the Project implementation and its approaches? | | Degree of understanding | - Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview |
| | | * Do CPs participate in the Project activities with their own initiatives? | | Degree of participation/commitment | | |
| | Recognition of the Project objective by the target group and beneficiaries | * Do target group/beneficiaries recognize the Project activities? | Do target group/beneficiaries recognize the Project activities? | Degree of recognition/understanding (Promotion activities confirmed, too) | - Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts<br>- Local communities in the pilot sites | - Literature Survey<br>- Interview<br>- Site Inspection |
| | | * Do target group/beneficiaries participate in the Project activities with their own initiatives ? | Do target group/beneficiaries participate in the Project activities with their own initiatives? | Degree of participation | | |

## ANNEX 4: Evaluation Grid (2) Relevance

| Relevance | Evaluation Questions | | Basis of Judgment | Data to be collected | Data Source | Data Collection Method |
|---|---|---|---|---|---|---|
| | Major Questions | Sub-Questions | | | | |
| Was implementation of the Project relevant? | Does the Project have relevance with the Myanmar's development policy? | * Are the Project Purpose, Overall Goal in accordance with Myanmar's development policy (specifically in the transport sector)? | Verify the relevance of the Overall Goal, and the Project Purpose with the Myanmar policies. | - Policy, strategy, etc. on agriculture (quality seed) development, etc. of Myanmar | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Questionnaire Survey |
| | Was the selection of the target group appropriate? | * Was the Project relevant with the needs of the target groups? | Verify the relevance of the Overall Goa, and the Project Purpose with the needs of the target group. | - Myanmar Stakeholders' view<br>- local communities in the pilot project sites | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview<br>- Questionnaire Survey |
| | | * Did the target groups have appropriate scale? | Verify the current status of the target group. | - List of CPs<br>- Information on pilot sites | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview<br>- Questionnaire Survey |
| | Was the Project relevant with the aid policy of the Japanese government? | * Did the Project handle with the prioritized subjects of the Japanese aid policy? | Verify the relevance of the Overall Goa, and the Project Purpose with the Japan's policy. | - Japanese ODA policy toward Myanmar. | - Japanese ODA policy toward Myanmar, etc. | - Literature Survey |
| | | * Did the Project conform to the JICA's country-wise aid policy? | Verify the relevance of the Overall Goa, and the Project Purpose with the JICA's policy | - JICA's country-wise aid policy | - JICA's country-wise aid policy | - Literature Survey |
| | Relevance as a means | * Was the Project relevant as a means to generates positive effects in the field rice cultivation development ? | Confirm the current status of aid schemes of other donors to check with overlapping. | - Aid policy and status of other donor agencies<br>-Stakeholders' view/comments | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview |
| | | * Was the Project appropriate from the standpoint of equity? | Whether the equity was maintained or not in the implementation of the Project | - Stakeholders' view/comments | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Local communities in the pilot sites<br>- Japanese Experts | - Interview<br>- Site inspection |

## ANNEX 4: Evaluation Grid (3) Effectiveness

| Effectiveness | Evaluation Questions | | Basis of Judgment | Data to be collected | Data Source | Data Collection Method |
|---|---|---|---|---|---|---|
| | Major Questions | Sub-Questions | | | | |
| Verify the achievement of the Project Purpose. | To which extent has the Project Purpose been achieved? | Has "Participatory multiplication and distribution system for quality seed of rice" been established in Ayeyawady Delta Region? | Evaluate based on comparison of PDM indicator and the current achievement of the Project.<br>1) More than 150 farmers continue to multiply CS every year in the project site.<br>2) Passing rate of CS inspection become more than 50 % in the project site.<br>3) More than 70% of CS, which is excluded for own-use of the seed growers, produced in the Project site will be sold by 150 seed growers. | - Information and data related to the indicators | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview<br>- Site inspection |
| | | * Was there any factors that promoted or inhibited the achievement of the Project Purpose? | Monitoring results a for the important assumptions of PDM, etc. | - Monitoring results<br>- Stakeholders' view | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview<br>- Site inspection |
| | | * Has Output been achieved sufficiently? | Comparison of Output achievement with indicators | - Data related to Output indicators (details are in the PDM) | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview<br>- Site inspection |

## ANNEX 4: Evaluation Grid (4) Efficiency

| Efficiency | Evaluation Questions | | Basis of Judgment | Data to be collected | Data Source | Data Collection Method |
|---|---|---|---|---|---|---|
| | Major Questions | Sub-Questions | | | | |
| Verify the achievements of Outputs and Inputs | To which extent have the Outputs been achieved? | 1.Has "capacity for production of BS in DAR" been improved?<br>2.Has "capacity for production of FS and RS is improved and quality control system" been strengthened in DOA Seed Division?<br>3.Has "capacity of instruction in DOA Extension Division for CS production by seed growers" been improved? | Evaluate based on comparison of PDM indicator and the current achievement of the Project. | - Data related to Output indicators | - Project Report/documents<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview |
| | Input by the Japanese Side<br>1) Experts | * Were the Japanese Experts allocated properly (the number, field of expertise, timing, etc.) | Verify the input achievement and the plan. | - Assignment of the Japanese Experts (duration, number, timing)<br>- Comments by the Myanmar CPs, etc. | - Project Report/Inputs Record<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview |
| | 2) Equipment | * Was the equipment provided properly (specification, amount, timing, etc.)? | Verify the provision of equipment compared to the original plan and the status of usage and maintenance, etc. | - List of Provided Equipment (period of provision, specification, conditions, maintenance status, etc.) | - ditto - | - Literature Survey<br>- Interview<br>- Site Inspection |
| | 3) Training in Japan | * Were the trainings properly conducted (the number of trainees, field of training, timing, etc.)? | Verify the achievement of the training and the plan. | - Record of training, comments by ex-trainees, etc.<br>-Japanese Experts' vies. | - ditto - | - Literature Survey<br>- Interview |
| | Input by the MYANMAR Side<br>1) Allocation of Myanmar CPs | * The number of CPs and capability. | Verify the CPs allocation and the plan. | - Allocation of CPs (timing, number, spatiality, commitment, etc.) | - ditto - | - Literature Survey<br>- Interview |
| | 2) Operation Cost (Budget management) | * Was operation cost provided without delay and with proper amount? | Verify the provision of budget and the plan. | - Budget plan, and status of execution, etc.) | - ditto - | - Literature Survey<br>- Interview |
| | Promoting and inhibiting factors | * Were there any Promoting and inhibiting factors? | Monitoring results a for the important assumptions of PDM, etc. | - Monitoring results<br>- Comments by the stakeholders | - ditto - | - Literature Survey<br>- Interview<br>- Site Inspection |

## ANNEX 4: Evaluation Grid (5) Impacts

| Impacts | Evaluation Questions | | Basis of Judgment | Data to be collected | Data Source | Data Collection Method |
|---|---|---|---|---|---|---|
| | Major Questions | Sub-Questions | | | | |
| Verifying the impacts caused by the Project implementation | Will the Overall Goal be achieved 3 years after the Project termination? | Whether "Quality seed of rice is widely used by farmers in Myanmar." will be sustainably maintained 3 years after the Project termination.? | Evaluate the prospect of Overall Goal achievements based on comparison of PDM indicators and the current progress of the Project.<br>Indicator:<br>1) Number of CS producing farmers increase from 150 to 663.<br>2) Acreage of CS producing farms increase up to 2,601.5 acre.<br>3) Field inspection is conducted for 40% of CS producing farms and all seeds that have passed field inspection are sent to laboratory test.<br>4) Action Plan on expansion of quality seed rice is formulated. | - Information and data related to the Project achievement (Project Purpose achievements, transfer of technologies to the CPs, and ownership of the implementing agencies, etc.). | - Project Report<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Literature Survey<br>- Interview<br>- Discussion with stakeholders<br>- Site Inspection |
| | Verifying impacts from cross-cutting view points. | * Were there any impacts other than the Overall Goal? (Policy, Institutional, Environment, Social, Cultural, etc.) | | - Myanmar Stakeholders' view<br>- Japanese Experts' View | - Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts | - Interview<br>- Discussion with stakeholders<br>- Site Inspection |

## ANNEX 4: Evaluation Grid (6) Sustainability

| Sustainability | Evaluation Questions | | Basis of Judgment | Data to be collected | Data Source | Data Collection Method |
|---|---|---|---|---|---|---|
| | Major Questions | Sub-Questions | | | | |
| Whether the achievement of the Project would be sustained and/or expanded after the completion of the Project. | Are there any promoting and inhibiting factors to generation and continuation of the positive effects generated through implementation of the Project? | Policy<br>* Will the support by the Myanmar government be continued? | Confirm the policy of the Myanmar Government related to the Project | - Myanmar Governmental Officials' view<br>-Japanese Experts' View<br>-Current status of Law and Regulations, etc. | - Project Report<br>- Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>-Japanese Experts | -Literature Survey<br>-Interview<br>- Questionnaire Survey<br>- Discussion with stakeholders |
| | | Institutional<br>* Do the implementing agencies have sufficient capacity to continuously conduct the Project activities?<br>* Is the staff appropriately allocated for implementing the activities? | Confirm the allocation of staff of DOA/DAR/Target Township, etc., improvement of CP capacities, etc. | - Myanmar Stakeholders' view<br>- Japanese Experts' View | - ditto - | - Interview<br>- Questionnaire Survey<br>- Discussion with stakeholders |
| | | Financial<br>* Will the budget be secured to conduct the activities related to produce quality seeds, etc. in the future? | Confirm the prospect of budget arrangement for continuing the Project activities | - Budget plan of DOA /DAR /Target Township, etc. | - ditto - | -Interview<br>- Questionnaire Survey<br>- Discussion with stakeholders |
| | | Technical<br>* Has the technology transfer been made sufficiently? ( DOA/DAR/Target Township )<br>* Will maintenance of equipment (purchase of spare-parts, regular maintenance inspection, etc.) be conducted properly? | Check with the status of technology transfer to stakeholders and implementing set-up for maintenance of the equipment, etc. | - Capacity development assessment data<br>- Japanese Experts' View | - Myanmar Stakeholders (DOA/DAR/Target Township, etc.) | -Interview<br>- Questionnaire Survey<br>- Discussion with stakeholders<br>- checking with the maintenance of the equipment |
| | | Ownership<br>* Do the Myanmar stakeholders (implementing agencies, related organizations, local communities, etc.) have sufficient ownership of the Project activities?<br>* Is there a plan for activities after the cooperation period? | Confirm the stakeholders' ownership | - Myanmar Stakeholders' view<br>- Japanese Experts' View<br>- Villagers' view | - Myanmar Stakeholders (DOA/DAR/Target Township, etc.)<br>- Japanese Experts<br>- Local communities in the pilot site | -Interview<br>- Questionnaire Survey<br>- Site Inspection |

**ANNEX5 : Assignment of Japanese Experts (from August 2011 as of the end of January 2016)**

| EXPERTS | Year / Position / Assignment Field | 2011 | | | | | 2012 | | | | | | | | | | | 2013 | | | | | | | | | | | | 2014 | | | | | | | | | | | | 2015 | | | | | | | | | | | | 2016 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| | | 31 | 30 | 31 | 30 | 31 | 31 | 29 | 31 | 30 | 31 | 30 | 31 | 31 | 30 | 31 | 30 | 31 | 31 | 28 | 31 | 30 | 31 | 30 | 31 | 31 | 30 | 31 | 30 | 31 | 31 | 28 | 31 | 30 | 31 | 30 | 31 | 31 | 30 | 31 | 30 | 31 | 31 | 28 | 31 | 30 | 31 | 30 | 31 | 31 | 30 | 31 | 30 | 31 | 31 | 29 | 31 |
| Long-Term Expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 Mr. FUJII Tomoyuki | Chief Advisor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 Mr.OKADA Hideo | Rice Seed Multiplication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 Mr. USUI Tetsuro | Project Coordinator/Extension | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 Mr. MIKI Toshinori | Project Coordinator/Extension | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Short-Tenn Expert | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 Dr. IKEDA Ryoichi (5 trips) | Rice Breeding/Quality Control of Rice Seeds | 11 | | | | | | 13 | | | | | | | 10 | | | | | | | | | | | | | 13 | | | | | | | | | | | | | | | | 11 | | | | | | | | | | | |
| 2 Dr. IRIE Kenji | Seed Technology | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 Dr. NATSUAKI Keiko (2 trips) | Plant Pathology | 8 | | | | | | | | | | | | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 Mr. ETO Seigo (6 trips) | Seed Production and Extension Activity | | | | | | | 28 | | | | | | | 31 | | | | | 20 | | | | | | | | 28 | | | | | | | | 28 | | | | | | | | | | 22 | | | | | | | | | |
| 5 Mr. KUNIHIRO Yasufumi (3 trips) | Rice Breeding | | | | | | | | | | | | 24 | 31 | 30 | 31 | 30 | 22 | | | | | | | | | | | | | | | | | 10 | 20 | | | | | | | | | | | 28 | 1 | | | | | | | |
| 5 Mr. AKUTSU Takao | Post Harvest | | | | | | | | | | | | | | | 4 | 30 | 8 | | | | | | | | | | 4 | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 Dr. MATSUE Yuji | Rice Breeding | | | | | | | | | | | | | | | | | | | | | | | 28 | 30 | 31 | 29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 Dr. TSUCHIYA Kenichi | Plant Pathology | | | | | | | | | | | | | | | | | | | | | | | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 Dr. TAKAHASHI Akio | Seed Marketing | | | | | | | | | | | | | | | | | | | | | | | | | | | 25 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**ANNEX6 List of Procured Equipment**

Note: ●=Equipment with A4; ◎=Construction with A4; ○=Construction without A4

**(1) Equipment for DAR Yezin**

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocure-ment type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | ● | DAR/YZN | DAZ-1 | Mar-12 | Silo | - | Myanmar | 1 | 25,000 | | 25,000 | | 2,012,058 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Aung Myanmar |
| 2 | ● | DAR/YZN | DAZ-2 | Feb-12 | Paddy Dryer (M) | - | Myanmar | 1 | 3,300 | | 3,300 | | 252,806 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | U Tin Oo |
| 3 | ● | DAR/YZN | DAZ-3 | 8-Apr-12 | Grading Machine (M) | Delux | Agrosaw | 1 | 13,000 | | 13,000 | | 1,072,444 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Moe Htaung |
| 4 | ● | DAR/YZN | DAZ-4 | 8-Apr-12 | Grading Machine (S) | Classic | Agrosaw | 1 | 12,000 | | 12,000 | | 989,948 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Moe Htaung |
| 5 | ● | DAR/YZN | DAZ-5 | 18-Jan-12 | Rice Thresher | - | Aung (Myanmar) | 1 | 2,000 | | 2,000 | | 155,813 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Moe Htaung |
| 6 | ● | DAR/YZN | DAZ-6 | 23-Feb-12 | Air compressor | - | China | 1 | 312 | | 312 | | 23,900 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Ayeyar Kyaw |
| 7 | | DAR/YZN | DAZ-7 | 25-Feb-12 | Rotary Tiller | RP80, RT 140 | Kubota | 1 | 4,200 | | 4,200 | | 321,753 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Ayeyar Kyaw |
| 8 | ● | DAR/YZN | DAZ-8 | 5-Mar-12 | Vacuum cleaner | CV-950 | Hitachi | 1 | 225 | | 225 | | 18,109 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Moe Htaung |
| 9 | ● | DAR/YZN | DAZ-9 | Mar-12 | Electronic balance (S) | BL 320 H | Shimadzu | 1 | 450 | | 450 | | 36,217 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 10 | ● | DAR/YZN | DAZ-10 | Apr-12 | Electronic balance (M) | BL 2200 H | Shimadzu | 1 | 480 | | 480 | | 39,598 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 11 | ● | DAR/YZN | DAZ-11-1 | 8-Apr-12 | Platform spring balance | - | Avery | 1 | 190 | | 190 | | 15,674 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Moe Htaung |
| | ● | DAR/YZN | DAZ-11-2 | 8-Apr-12 | Platform spring balance | - | Avery | 1 | 190 | | 190 | | 15,674 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Moe Htaung |
| 12 | ● | DAR/YZN | DAZ-12-1 | 8-Mar-12 | Incubator | IN-601 | Gemmy | 1 | 3,450 | | 3,450 | | 277,664 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | MASCOT |
| | ● | DAR/YZN | DAZ-12-2 | 8-Mar-12 | Incubator | IN-601 | Gemmy | 1 | 3,450 | | 3,450 | | 277,664 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | MASCOT |
| 13 | ● | DAR/YZN | DAZ-13 | Apr-12 | Petri Dishes (90mm x 15mm) | 1042/10 | Assistant | 250 | 1.40 | | 350 | | 28,873 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | - | AMTT |
| 14 | ● | DAR/YZN | DAZ-14 | 6-Apr-12 | Filter paper for germiaation (90 mm) | WH-1003-090 | Whatman | 100 | 30 | | 3,000 | | 247,487 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | - | AMTT |
| 15 | ● | DAR/YZN | DAZ-15-1 | 2-Jan-12 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,931 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| | ● | DAR/YZN | DAZ-15-2 | 2-Jan-12 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,931 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| | ● | DAR/YZN | DAZ-15-3 | 2-Jan-12 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,931 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| | ● | DAR/YZN | DAZ-15-4 | 2-Jan-12 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,931 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 16 | ● | DAR/YZN | DAZ-16 | Mar-12 | Seed Counter | 801-10C | Seedburo | 1 | 11,200 | | 11,200 | | 901,402 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 17 | ● | DAR/YZN | DAZ-17 | 28-Mar-12 | Mill Testing | TM 05 C | Satake | 1 | 14,000 | | 14,000 | | 1,126,752 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | Summit Goal |
| 18 | ● | DAR/YZN | DAZ-18-1 | 6-Apr-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 147,667 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | Summit Goal |
| | ● | DAR/YZN | DAZ-18-2 | 6-Apr-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 147,667 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | Summit Goal |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ● | DAR/YZN | DAZ-18-3 | 6-Apr-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 147,667 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | Summit Goal |
| 19 | ● | DAR/YZN | DAZ-19 | 6-Apr-12 | Purity workboard | 135A | Seedburo | 1 | 780 | | 780 | | 64,347 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 20 | ● | DAR/YZN | DAZ-20 | 6-Apr-12 | Forceps Curved blunt point | 13.345.20 | Timesco | 20 | 16 | | 320 | | 26,399 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 21 | ● | DAR/YZN | DAZ-21 | 6-Apr-12 | Forceps Straight blunt point | 13.005.20 | Timesco | 20 | 8 | | 160 | | 13,199 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 22 | ● | DAR/YZN | DAZ-22 | 6-Apr-12 | Forceps Straight fine point | 13.210.10 | Timesco | 20 | 11 | | 220 | | 18,149 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 23 | ● | DAR/YZN | DAZ-23 | 29-Mar-12 | Laboratory Aspirator | 63-220-50VS | Seedburo | 1 | 5,040 | | 5,040 | | 405,631 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | Summit Goal |
| 24 | ● | DAR/YZN | DAZ-24 | 5-Mar-12 | Desktop Computer | Compaq 6200 | HP | 1 | 855 | | 855 | | 68,812 | DAR, Yezin | Daw Tin Tin Myint | Local | Office | Very good | Access Spectrum |
| 25 | ● | DAR/YZN | DAZ-25 | 5-Mar-12 | Printer | LPB600 | Canon | 1 | 95 | | 95 | | 7,646 | DAR, Yezin | Daw Tin Tin Myint | Local | Office | Very good | Access Spectrum |
| 26 | ● | DAR/YZN | DAZ-26 | 5-Mar-12 | UPS | 800 VA | Neuro Power Black | 1 | 57 | | 57 | | 4,587 | DAR, Yezin | Daw Tin Tin Myint | Local | Office | Very good | Access Spectrum |
| 27 | ● | DAR/YZN | DAZ-27 | 28-Mar-12 | Dehumidifier | DH-8192 C | Kawasima | 1 | 2,555 | | 2,555 | | 205,632 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | Yandayar Trading |
| 28 | ● | DAR/YZN | DAZ-28 | 26-Feb-12 | Air conditioner | SAP-K12AG | Sanyo | 1 | 582 | | 582 | | 44,582 | DAR, Yezin | Daw Tin Tin Myint | Local | Office | Very good | OK Myanmar |
| 29 | ● | DAR/YZN | DAZ-29-1 | 28-Mar-12 | Dehumidifier | DH-8192 C | Kawasima | 1 | 2,555 | | 2,555 | | 205,632 | Seed Bank | Daw Tin Tin Myint | Local | Laboratory | Very good | Yandayar Trading |
| | ● | DAR/YZN | DAZ-29-2 | 28-Mar-12 | Dehumidifier | DH-8192 C | Kawasima | 1 | 2,555 | | 2,555 | | 205,632 | Seed Bank | Daw Tin Tin Myint | Local | Laboratory | Very good | Yandayar Trading |
| 30 | ◎ | DAR/YZN | DAZ-30 | 29-Mar-13 | Slate roof work floor | | | 1 | 27,664 | | 27,664 | | 2,540,532 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Cairo |
| 31 | ● | DAR/YZN | DAZ-31 | | Tractor | Siam KUBOTA | L-4708 | 1 | 25,350 | | 25,350 | | 2,085,739 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Hpan Tee Shin |
| 32 | ● | DAR/YZN | DAZ-32 | 25-Feb-13 | Power tiller with trailer (Trawler-G) | 22 HP with W[illegible]044 trailer | | 1 | 2,547 | | 2,547 | | 231,888 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Win Shwe War |
| 33 | ● | DAR/YZN | DAZ-33-1 | 11-Apr-13 | Electronic balance | ELB 12 KH | Shimadzu | 1 | 300 | | 300 | | 28,256 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| | ● | DAR/YZN | DAZ-33-2 | 11-Apr-13 | Electronic balance | ELB 12 KH | Shimadzu | 1 | 300 | | 300 | | 28,256 | DAR, Yezin | Daw Tin Tin Myint | Local | Laboratory | Very good | AMTT |
| 34 | ◎ | DAR/YZN | DAZ-34 | 20-Mar-14 | Cold storage | - | - | 1 | 32,473 | | 32,473 | | 3,318,741 | DAR, Yezin | Daw Tin Tin Myint | Local | Agricultural | Very good | Lin Myint Mo |
| | | | | | Total cost for DAR Yezin | | | | | | 207,547 | 0 | 17,836,222 | | | | | | |

(2) Equipment for YAU Yezin

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocurement type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | ● | YAU/YZN | YY-1 | Mar-12 | Silo | - | Myanmar | 1 | 25,000 | | 25,000 | | 2,012,058 | YAU Yezin | Dr. Myo Kywe | Local | Agricultural | Very good | Aung Myanmar |
| 2 | ● | YAU/YZN | YY-2 | Feb-12 | Paddy Dryer (M) | - | Myanmar | 1 | 3,300 | | 3,300 | | 252,806 | YAU Yezin | Dr. Myo Kywe | Local | Agricultural | Very good | U Tin Oo |
| 3 | ● | YAU/YZN | YY-3 | 8-Apr-12 | Grading Machine (M) | Delux | Agrosaw | 1 | 13,000 | | 13,000 | | 1,072,444 | YAU Yezin | Dr. Myo Kywe | Local | Agricultural | Very good | Moe Htaung |
| | | | | | Total cost for YAU Yezin | | | | | | 41,300 | 0 | 3,337,307 | | | | | | |

(3) Eqipment for DAR Myaungmya

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocurement type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | ● | DAR/MM | DAM-1 | 5-Feb-12 | Paddy Dryer (L) | - | Myanmar | 1 | 6,200 | | 6,200 | | 474,931 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | U Tin Oo |
| 2 | ● | DAR/MM | DAM-2 | 8-Apr-12 | Grading Machine (M) | Delux | Agrosaw | 1 | 13,000 | | 13,000 | | 1,072,444 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| 3 | ● | DAR/MM | DAM-3 | 9-Mar-12 | Power Tiller | NC 131 | Kubota | 1 | 3,750 | | 3,750 | | 301,809 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| 4 | ● | DAR/MM | DAM-4 | 14-Jan-12 | Rice Thresher | - | Aung Myanmar | 1 | 2,000 | | 2,000 | | 155,813 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| 5 | ● | DAR/MM | DAM-5-1 | 8-Mar-12 | Backpack sprayer | - | Red Angle | 1 | 25 | | 25 | | 2,012 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| | ● | DAR/MM | DAM-5-2 | 8-Mar-12 | Backpack sprayer | - | Red Angle | 1 | 25 | | 25 | | 2,012 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| 6 | ● | DAR/MM | DAM-6-1 | 8-Mar-12 | Grass cutter | CG 328 | China | 1 | 225 | | 225 | | 18,109 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| | ● | DAR/MM | DAM-6-2 | 8-Mar-12 | Grass cutter | CG 328 | China | 1 | 225 | | 225 | | 18,109 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| 7 | ● | DAR/MM | DAM-7 | 23-Feb-12 | Air compressor | - | China | 1 | 312 | | 312 | | 23,900 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Ayeyar Kyaw |
| 8 | ● | DAR/MM | DAM-8 | 8-Mar-12 | Vacuum cleaner | CV-950 | Hitachi | 1 | 225 | | 225 | | 18,109 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| 9 | ● | DAR/MM | DAM-9 | 22-Feb-12 | Water pump and engine | NC-100 JD-195 | Jiang Done | 1 | 750 | | 750 | | 57,451 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Ayeyar Kyaw |
| 10 | ● | DAR/MM | DAM-10 | Apr-12 | Electronic balance (S) | BL 2200 H | Shimadzu | 1 | 450 | | 450 | | 37,123 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | Very good | AMTT |
| 11 | ● | DAR/MM | DAM-11 | 8-Apr-12 | Platform spring balance | - | Avery | 1 | 190 | | 190 | | 15,674 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Moe Htaung |
| 12 | ● | DAR/MM | DAM-12 | 22-Mar-12 | Laboratory Refrigerator | LLR-303 SR | LabTech | 1 | 3,639 | | 3,639 | | 292,875 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | Very good | AMTT |
| 13 | ● | DAR/MM | DAM-13 | Apr-12 | Petri Dishes (90mm x 15mm) | 1042/10 | Assistant | 50 | 1.40 | | 70 | | 5,775 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | - | AMTT |
| 14 | ● | DAR/MM | DAM-14 | Apr-12 | Filter paper for germination (90 mm) | WH-1003-090 | Whatman | 50 | 30 | | 1,500 | | 123,744 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | - | AMTT |
| 15 | ● | DAR/MM | DAM-15 | 23-Dec-11 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,942 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | Very good | AMTT |
| 16 | ● | DAR/MM | DAM-16 | Mar-12 | PH/EC Meter | D-54 | Horiba | 1 | 1,300 | | 1,300 | | 104,627 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | Very good | AMTT |
| 17 | ● | DAR/MM | DAM-17 | 28-Mar-12 | Testing Winnower | PS | Satake | 1 | 14,700 | | 14,700 | | 1,183,090 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | Very good | Summit Goal |
| 18 | ● | DAR/MM | DAM-18 | Apr-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 147,867 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | Very good | Summit Goal |
| 19 | ● | DAR/MM | DAM-19 | Apr-12 | Purity workboard | 135A | Seedburo | 1 | 780 | | 780 | | 64,347 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | Very good | AMTT |
| 20 | ● | DAR/MM | DAM-20 | Apr-12 | Forceps Straight blunt point | 13.005.20 | Timesco | 5 | 8 | | 40 | | 3,300 | DAR, Myaung Mya | U Htein Lin Tun | Local | Laboratory | Very good | AMTT |
| 21 | ● | DAR/MM | DAM-21 | 16-Feb-12 | Desk top computer | Compaq 6200 | HP | 1 | 855 | | 855 | | 65,495 | DAR, Myaung Mya | U Htein Lin Tun | Local | Office | Very good | Access Spectrum |
| 22 | ● | DAR/MM | DAM-22 | 16-Feb-12 | Printer | LPB800 | Canon | 1 | 95 | | 95 | | 7,277 | DAR, Myaung Mya | U Htein Lin Tun | Local | Office | Very good | Access Spectrum |
| 23 | ● | DAR/MM | DAM-23 | 16-Feb-12 | UPS | 800 VA | Neuro Power Black | 1 | 57 | | 57 | | 4,366 | DAR, Myaung Mya | U Htein Lin Tun | Local | Office | Very good | Access Spectrum |
| 24 | ● | DAR/MM | DAM-24 | Mar-12 | Voltage regulator 10 KVA | ST10000-DR | Yandayar | 1 | 500 | | 500 | | 40,241 | DAR, Myaung Mya | U Htein Lin Tun | Local | Office | Very good | Yandayar |
| 25 | ● | DAR/MM | DAM-25 | Mar-12 | Voltage regulator 15 KVA | ST15000-DR | Yandayar | 1 | 750 | | 750 | | 60,362 | DAR, Myaung Mya | U Htein Lin Tun | Local | Office | Very good | Yandayar |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | ● | DAR/MM | DAM-26 | | Tractor | Siam KUBOTA | L-4708 | 1 | 25,350 | | 25,350 | | 2,085,739 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Hpan Tee Shin |
| 27 | ● | DAR/MM | DAM-27 | 25-Feb-13 | Power tiller with trailer (Trawler-G) | 22 HP with W6x1.8x44 trailer | | 1 | 2,547 | | 2,547 | | 231,888 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Win Shwe War |
| 28 | ● | DAR/MM | DAM-28 | 23 Jan, 13 | Slide Projector | VPL EX 145 | Sony | 1 | 765 | | 765 | | 65,648 | DAR, Myaung Mya | U Htein Lin Tun | Local | Office | Very good | TMW |
| 29 | | DAR/MM | DAM-29 | 23 Jan, 13 | Color Printer | Pixma ix-6560 | Canon | 1 | 320 | | 320 | | 27,461 | DAR, Myaung Mya | U Htein Lin Tun | Local | Office | Very good | KMD |
| 30 | | DAR/MM | DAM-30 | 26-June-14 | Inter cultivator | | Myanmar | 3 | | 11,000 | | 33,000 | 3,528 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | A1 |
| 31 | ● | DAR/MM | DAM-31 | 19-Mar-15 | Winnower | | China | 1 | 490 | | 490 | | 58,323 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Ayeyar Kyaw |
| 32 | ○ | DAR/MM | DAM-32 | 6-Mar-15 | Threshing floor | | Myanmar | 1 | | 7,116,300 | | 7,116,300 | 834,742 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Lwin Construction |
| 33 | ○ | DAR/MM | DAM-33 | Nov-15 | Seed storage renovation | | Myanmar | 1 | | 10,780,000 | | 10,780,000 | 1,030,999 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | Lwin Construction |
| 34 | | DAR/MM | DAM-34 | 18-Nov-15 | Grain Moisture Meter | Riceter F-512 | KETT | 1 | 1,250 | | 1,250 | | 151,160 | DAR, Myaung Mya | U Htein Lin Tun | Local | Agricultural | Very good | MAST |
| Total cost for DAR Myaungmya | | | | | | | | | | | 84,418 | 17,929,300 | 8,809,089 | | | | | | |

(4) Equipment for MRRC Hmawbi

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocurement type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | ● | MRRC/HMB | DOMR-1 | 8-Apr-12 | Grading Machine (M) | Delux | Agrosaw | 1 | 13,000 | | 13,000 | | 1,072,444 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| 2 | ● | MRRC/HMB | DOMR-2 | 23-Feb-12 | Power Tiller | NC 131 | Kubota | 1 | 3,750 | | 3,750 | | 287,257 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| 3 | | MRRC/HMB | DOMR-3 | 23-Feb-12 | Rotry Tiller | RP80, RT 140 | Kubota | 1 | 4,200 | | 4,200 | | 321,728 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Ayeyar Kyaw |
| 4 | ● | MRRC/HMB | DOMR-4 | Jan-12 | Rice Thresher | - | Aung Myanmar | 1 | 2,000 | | 2,000 | | 155,813 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| 5 | ● | MRRC/HMB | DOMR-5-1 | 14-Mar-12 | Backpack sprayer | - | Red Angle | 1 | 25 | | 25 | | 2,012 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| | ● | MRRC/HMB | DOMR-5-2 | 14-Mar-12 | Backpack sprayer | - | Red Angle | 1 | 25 | | 25 | | 2,012 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| | ● | MRRC/HMB | DOMR-5-3 | 14-Mar-12 | Backpack sprayer | - | Red Angle | 1 | 25 | | 25 | | 2,012 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| 6 | ● | MRRC/HMB | DOMR-6-1 | 14-Mar-12 | Grass cutter | CG 328 | China | 1 | 225 | | 225 | | 18,109 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| | ● | MRRC/HMB | DOMR-6-2 | 14-Mar-12 | Grass cutter | CG 328 | China | 1 | 225 | | 225 | | 18,109 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| 7 | ● | MRRC/HMB | DOMR-7 | 22-Feb-12 | Air compressor | - | China | 1 | 312 | | 312 | | 23,900 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Ayeyar Kyaw |
| 8 | ● | MRRC/HMB | DOMR-8 | 14-Mar-12 | Vacuum cleaner | CV-950 | Hitachi | 1 | 225 | | 225 | | 18,109 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| 9 | ● | MRRC/HMB | DOMR-9 | Apr-12 | Electronic balance (S) | BL 2200 H | Shimadzu | 1 | 450 | | 450 | | 37,123 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| 10 | ● | MRRC/HMB | DOMR-10 | 8-Apr-12 | Platform spring balance | - | Avery | 1 | 190 | | 190 | | 15,674 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Moe Htaung |
| 11 | ● | MRRC/HMB | DOMR-11 | 29-Feb-12 | Hot Air Oven | YCONO1 | Gemmy | 1 | 1,070 | | 1,070 | | 81,964 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | MASCOT |
| 12 | ● | MRRC/HMB | DOMR-12 | 14-Mar-12 | Laboratory Refrigerator | LLR-303 SR | LabTech | 1 | 3,639 | | 3,639 | | 292,875 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | ● | MRRC/HMB | DOMR-13 | Apr-12 | Petri Dishes (90mm x 15mm) | 1042/10 | Assistant | 50 | 1.40 | | 70 | | 5,775 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | - | AMTT |
| 14 | ● | MRRC/HMB | DOMR-14 | Apr-12 | Filter paper for germination (90 mm) | WH-1003-090 | Whatman | 50 | 30 | | 1,500 | | 123,744 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | - | AMTT |
| 15 | ● | MRRC/HMB | DOMR-15 | Mar-12 | Seed Counter | 801-10C | Seedburo | 1 | 11,200 | | 11,200 | | 901,402 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| 16 | ● | MRRC/HMB | DOMR-16-1 | 13-Jan-12 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,931 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| | ● | MRRC/HMB | DOMR-16-2 | 13-Jan-12 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,931 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| 17 | ● | MRRC/HMB | DOMR-17 | 13-Jan-12 | Chlorophyll Meter | SPAD 502 | Konica Minolta | 1 | 4,300 | | 4,300 | | 334,997 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| 18 | ● | MRRC/HMB | DOMR-18 | 14-Mar-12 | PH/EC Meter | D-54 | Horiba | 1 | 1,300 | | 1,300 | | 104,627 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| 19 | ● | MRRC/HMB | DOMR-19 | 14-Mar-12 | Leaf Area Meter | AM300 | Lab Quip (UK) | 1 | 10,950 | | 10,950 | | 881,281 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMD |
| 20 | ● | MRRC/HMB | DOMR-20 | 28-Mar-12 | Testing Winnower | PS | Satake | 1 | 14,700 | | 14,700 | | 1,183,090 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| 21 | ● | MRRC/HMB | DOMR-21-1 | Mar-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 144,063 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| | ● | MRRC/HMB | DOMR-21-2 | Mar-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 144,063 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | AMTT |
| 22 | ● | MRRC/HMB | DOMR-22 | 28-Feb-12 | Desk top computer | Compaq 6200 | HP | 1 | 855 | | 855 | | 65,495 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Access Spectrum |
| 23 | ● | MRRC/HMB | DOMR-23 | 28-Feb-12 | Printer | LPB600 | Canon | 1 | 95 | | 95 | | 7,277 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Access Spectrum |
| 24 | ● | MRRC/HMB | DOMR-24 | 28-Feb-12 | UPS | 800 VA | Neuro Power Black | 1 | 57 | | 57 | | 4,366 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Access Spectrum |
| 25 | ● | MRRC/HMB | DOMR-25-1 | Feb-12 | Air conditioner | SAP-K12AG | Sanyo | 1 | 582 | | 582 | | 44,582 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | OK Myanmar |
| | ● | MRRC/HMB | DOMR-25-2 | Feb-12 | Air conditioner | SAP-K12AG | Sanyo | 1 | 582 | | 582 | | 44,582 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | OK Myanmar |
| | | MRRC/HMB | DOMR-25-3 | 8-Mar-12 | Air conditioner | PC18MKH | Panasonic | 1 | | 654,500 | | 654,500 | 64,475 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Pyay Sone Win Naing |
| | | MRRC/HMB | DOMR-25-4 | 8-Mar-12 | Air conditioner | PC18MKH | Panasonic | 1 | | 654,500 | | 654,500 | 64,475 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Pyay Sone Win Naing |
| | | MRRC/HMB | DOMR-25-5 | 8-Mar-12 | Air conditioner | PC18MKH | Panasonic | 1 | | 654,500 | | 654,500 | 64,475 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Pyay Sone Win Naing |
| | | MRRC/HMB | DOMR-25-6 | 8-Mar-12 | Air conditioner | PC18MKH | Panasonic | 1 | | 654,500 | | 654,500 | 64,475 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Pyay Sone Win Naing |
| | | MRRC/HMB | DOMR-25-7 | 8-Mar-12 | Air conditioner | PC18MKH | Panasonic | 1 | | 654,500 | | 654,500 | 64,475 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Pyay Sone Win Naing |
| 26 | ● | MRRC/HMB | DOMR-26 | | Tractor | Siam KUBOTA | L-4708 | 1 | 25,350 | | 25,350 | | 2,085,739 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Hpan Tee Shin |
| 27 | ● | MRRC/HMB | DOMR-27 | 18-Jan-13 | Copier | iR-2525 | Canon | 1 | 2,680 | | 2,680 | | 229,983 | MRRC, Hmawbi | U Aye Chit | Local | Office | Very good | Canon |
| 28 | | MRRC/HMB | DOMR-28 | 28-Jun-14 | Inter cultivator | - | Myanmar | 2 | | 11,000 | | 22,000 | 2,352 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | A1 |
| 29 | O | MRRC/HMB | DOMR-29 | 27-Feb-15 | Threshing floor | - | Myanmar | 1 | | 7,000,000 | | 7,000,000 | 816,200 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Soe Construction |
| 30 | ● | MRRC/HMB | DOMR-30 | 13-Mar-15 | Rice Winnowers | - | China | 1 | 490 | | 490 | | 58,323 | MRRC, Hmawbi | U Aye Chit | Local | Agriculture | Very good | Ayeyar Kyaw |
| 31 | ● | MRRC/HMB | DOMR-31 | 13-Mar-15 | Testing Husker | THU 35B | Satake | 1 | 9,950 | | 9,950 | | 1,184,319 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | MAST |
| 32 | ● | MRRC/HMB | DOMR-32 | 13-Mar-15 | Rubber roller of testing husker | THU 35B | Satake | 2 | 165 | | 330 | | 39,279 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | MAST |
| 33 | | MRRC/HMB | DOMR-33 | Nov-15 | Grain Moisture Meter | Riceter F-512 | KETT | 1 | 1,250 | | 1,250 | | 151,160 | MRRC, Hmawbi | U Aye Chit | Local | Laboratory | Very good | MAST |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total cost for MRRC Hmawbi** | | | | | | | | | | **119,668** | **10,294,500** | **11,266,074** | | | | | | |

**(5) Equipment for Seed Farm, Hinthada**

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocure ment type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | ● | SF/HTD | DOHF-1 | 8-Apr-12 | Grading Machine (M) | Delux | Agrosaw | 1 | 13,000 | | 13,000 | | 1,072,444 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| 2 | ● | SF/HTD | DOHF-2 | 9-Mar-12 | Power Tiller | NC 131 | Kubota | 1 | 3,750 | | 3,750 | | 301,809 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| 3 | ● | SF/HTD | DOHF-3 | 18-Jan-12 | Rice Thresher | - | Aung Myanmar | 1 | 2,000 | | 2,000 | | 155,813 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| 4 | ● | SF/HTD | DOHF-4-1 | 15-Mar-12 | Backpack sprayer | - | Red Angle | 1 | 25 | | 25 | | 2,012 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| | ● | SF/HTD | DOHF-4-2 | 15-Mar-12 | Backpack sprayer | - | Red Angle | 1 | 25 | | 25 | | 2,012 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| 5 | ● | SF/HTD | DOHF-5-1 | 15-Mar-12 | Grass cutter | CG 328 | China | 1 | 225 | | 225 | | 18,109 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| | ● | SF/HTD | DOHF-5-2 | 15-Mar-12 | Grass cutter | CG 328 | China | 1 | 225 | | 225 | | 18,109 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| 6 | ● | SF/HTD | DOHF-6 | 23-Feb-12 | Air compressor | - | China | 1 | 312 | | 312 | | 23,900 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Ayeyar Kyaw |
| 7 | ● | SF/HTD | DOHF-7 | 15-Mar-12 | Vacuum cleaner | CV-950 | Hitachi | 1 | 225 | | 225 | | 18,109 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| 8 | ● | SF/HTD | DOHF-8 | Apr-12 | Electronic balance (M) | BL 2200 H | Shimadzu | 1 | 450 | | 450 | | 37,123 | Seed Farm, Hinthada | Naw Ni Ni Hlaing | Local | Agriculture | Very good | AMTT |
| 9 | ● | SF/HTD | DOHF-9 | 8-Apr-12 | Platform spring balance | - | Avery | 1 | 190 | | 190 | | 15,674 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Moe Htaung |
| 10 | ● | SF/HTD | DOHF-10 | 5-Jan-12 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,931 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | AMTT |
| 11 | ● | SF/HTD | DOHF-11 | 15-Mar-12 | PH/EC Meter | D-54 | Horiba | 1 | 1,300 | | 1,300 | | 104,627 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | AMTT |
| 12 | ● | SF/HTD | DOHF-12 | 15-Mar-12 | Desk top computer | Compaq 6200 | HP | 1 | 855 | | 855 | | 68,812 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Office | Very good | Access Spectrum |
| 13 | ● | SF/HTD | DOHF-13 | 15-Mar-12 | Printer | LPB600 | Canon | 1 | 95 | | 95 | | 7,646 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Office | Very good | Access Spectrum |
| 14 | ● | SF/HTD | DOHF-14 | 15-Mar-12 | UPS | 800 VA | Neuro Power Black | 1 | 57 | | 57 | | 4,587 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Office | Very good | Access Spectrum |
| 15 | ● | SF/HTD | DOHF-15 | | Tractor | Siam KUBOTA | L-4708 | 1 | 25,350 | | 25,350 | | 2,085,739 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Hpan Tee Shin |
| 16 | | SF/HTD | DOHF-16 | 16-Jan-13 | Fax Machine | L-170 | Canon | 1 | 380 | | 380 | | 32,610 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Office | Very good | Canon |
| 17 | | SF/HTD | DOHF-17 | 26-Jun-14 | Inter cultivator | - | Myanmar | 3 | | 11,000 | | 33,000 | 3,528 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | A1 |
| 18 | ● | SF/HTD | DOHF-18 | 10-Mar-15 | Rice Winnower | - | China | 1 | 490 | | 490 | | 58,323 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Ayeyar Kyaw |
| 19 | ○ | SF/HTD | DOHF-19 | 1-Jun-15 | Threshing floor | - | Myanmar | 1 | | 7,895,750 | | 7,895,750 | 908,801 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | Nay Win Naung |
| 20 | | SF/HTD | DOHF-20 | 17-Nov-15 | Grain Moisture Meter | Riceter F-512 | KETT | 1 | 1,250 | | 1,250 | | 151,160 | Seed Farm, Hinthada | Daw Ni Ni Hlaing | Local | Agriculture | Very good | MAST |
| **Total cost for Seed Farm, Hinthada** | | | | | | | | | | | **50,447** | **7,928,750** | **5,109,875** | | | | | | |

(6) Equipment for Seed Division, Gyogone

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocure ment type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | ● | SD/GYO | DOSG-1 | 3-Apr-12 | Electronic balance (S) | BL 320 H | Shimadzu | 1 | 450 | | 450 | | 37,123 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 2 | ● | SD/GYO | DOSG-2-1 | 3-Apr-12 | Electronic balance (M) | BL 2200 H | Shimadzu | 1 | 480 | | 480 | | 39,598 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-2-2 | 3-Apr-12 | Electronic balance (M) | BL 2200 H | Shimadzu | 1 | 480 | | 480 | | 39,598 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 3 | ● | SD/GYO | DOSG-3 | 1-Mar-12 | Incubator | IN-601 | Gemmy | 1 | 1,725 | | 1,725 | | 138,832 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | MASCOT |
| 4 | ● | SD/GYO | DOSG-4 | 13-Mar-12 | Laboratory Refrigerator | LLR-303 SR | LabTech | 1 | 3,639 | | 3,639 | | 292,875 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 5 | ● | SD/GYO | DOSG-5-1 | 16-Mar-12 | Stereo Microscope | EMZ-5 | Meiji Techno | 1 | 1,450 | | 1,450 | | 116,699 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-5-2 | 16-Mar-12 | Stereo Microscope | EMZ-5 | Meiji Techno | 1 | 1,450 | | 1,450 | | 116,699 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 6 | ● | SD/GYO | DOSG-6 | 03-4-12 | Petri Dishes (90mm x 15mm) | 1042/10 | Assistant | 300 | 1.40 | | 420 | | 34,648 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | - | AMTT |
| 7 | ● | SD/GYO | DOSG-7 | Apr-12 | Petri Dishes (150mm x 20mm) | 1042/15 | Assistant | 100 | 2.35 | | 235 | | 19,386 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | - | AMTT |
| 8 | ● | SD/GYO | DOSG-8 | 3-Apr-12 | Beaker | | | | | | | | | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | | SD/GYO | | | 11930/150 20 x 3 $ = 60 | 11930/150 | Assistant | 20 | 3.00 | | 60 | | 4,950 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | | SD/GYO | | | 11930/250 30 x 3.30 $ = 99 | 11930/250 | Assistant | 30 | 3.30 | | 99 | | 8,167 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | | SD/GYO | | | 11930/400 30 x 4.50 $ = 135 | 11930/400 | Assistant | 30 | 4.50 | | 135 | | 11,137 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | | SD/GYO | | | 11930/600 10 x 5.10 $ = 51 | 11930/600 | Assistant | 10 | 5.10 | | 51 | | 4,207 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 9 | ● | SD/GYO | DOSG-9 | 3-Apr-12 | Filter paper for germination (90 mm) | WH-1003-090 | Whatman | 500 | 30 | | 15,000 | | 1,237,436 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | - | AMTT |
| 10 | ● | SD/GYO | DOSG-10 | Mar-12 | Filter paper for germination (150 mm) | WH-1003-150 | Whatman | 150 | 55 | | 8,250 | | 663,979 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | - | AMTT |
| 11 | ● | SD/GYO | DOSG-11 | 3-Apr-12 | Seed Counter | 801-10C | Seedburo | 1 | 11,200 | | 11,200 | | 923,952 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 12 | ● | SD/GYO | DOSG-12-1 | 26-Dec-11 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,942 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-12-2 | 26-Dec-11 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,942 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-12-3 | 26-Dec-11 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,942 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-12-4 | 26-Dec-11 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,942 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 13 | ● | SD/GYO | DOSG-13-1 | 3-Apr-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 147,667 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-13-2 | 3-Apr-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 147,667 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-13-3 | 3-Apr-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 147,667 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-13-4 | 3-Apr-12 | Grain Shape Tester | RT 20 | Satake | 1 | 1,790 | | 1,790 | | 147,667 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 14 | ● | SD/GYO | DOSG-14-1 | Mar-12 | Purity workboard | 135A | Seedburo | 1 | 780 | | 780 | | 62,776 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ● | SD/GYO | DOSG-14-2 | Mar-12 | Purity workboard | 135A | Seedburo | 1 | 780 | | 780 | | 62,776 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-14-3 | Mar-12 | Purity workboard | 135A | Seedburo | 1 | 780 | | 780 | | 62,776 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-14-4 | Mar-12 | Purity workboard | 135A | Seedburo | 1 | 780 | | 780 | | 62,776 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-14-5 | Mar-12 | Purity workboard | 135A | Seedburo | 1 | 780 | | 780 | | 62,776 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 15 | ● | SD/GYO | DOSG-15 | Mar-12 | Seed Sample Pan | 64P | Seedburo | 1 | 8 | | 8 | | 644 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 16 | ● | SD/GYO | DOSG-16-1 | 6-Apr-12 | Magnifier Lamp + Circline Bulb | MC100C | Seedburo | 1 | 650 | | 650 | | 53,622 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-16-2 | 6-Apr-12 | Magnifier Lamp + Circline Bulb | MC100C | Seedburo | 1 | 650 | | 650 | | 53,622 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-16-3 | 6-Apr-12 | Magnifier Lamp + Circline Bulb | MC100C | Seedburo | 1 | 650 | | 650 | | 53,622 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-16-4 | 6-Apr-12 | Magnifier Lamp + Circline Bulb | MC100C | Seedburo | 1 | 650 | | 650 | | 53,622 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| | ● | SD/GYO | DOSG-16-5 | 6-Apr-12 | Magnifier Lamp + Circline Bulb | MC100C | Seedburo | 1 | 650 | | 650 | | 53,622 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 17 | ● | SD/GYO | DOSG-17 | 3-Apr-12 | Forceps Curved blunt point | 13.345.20 | Timesco | 20 | 16 | | 320 | | 26,399 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 18 | ● | SD/GYO | DOSG-18 | 3-Apr-12 | Forceps Straight fine point | 13.210.10 | Timesco | 20 | 11 | | 220 | | 18,149 | DOA, Gyogone | Daw Me Me Cho | Local | Laboratory | Very good | AMTT |
| 19 | ● | SD/GYO | DOSG-19 | 16-Mar-12 | Desk top computer | Compaq 6200 | HP | 1 | 855 | | 855 | | 68,812 | DOA, Gyogone | Daw Me Me Cho | Local | Office | Very good | Accel International |
| 20 | ● | SD/GYO | DOSG-20 | 16-Mar-12 | Printer | LPB600 | Canon | 1 | 95 | | 95 | | 7,646 | DOA, Gyogone | Daw Me Me Cho | Local | Office | Very good | Accel International |
| 21 | ● | SD/GYO | DOSG-21 | 13-Dec-11 | Copier | iR2525 | Canon | 1 | 5,035 | | 5,035 | | 392,489 | DOA, Gyogone | Daw Me Me Cho | Local | Office | Very good | Accel International |
| 22 | ● | SD/GYO | DOSG-22 | 16-Mar-12 | UPS | 800 VA | Neuro Power Black | 1 | 57 | | 57 | | 4,587 | DOA, Gyogone | Daw Me Me Cho | Local | Office | Very good | Accel International |
| 23 | ● | SD/GYO | DOSG-23-1 | 16-Mar-12 | Voltage regulator 15 KVA | ST15000-DR | Yandayar | 1 | 750 | | 750 | | 60,362 | DOA, Gyogone | Daw Me Me Cho | Local | Office | Very good | Yandayar Trading |
| | ● | SD/GYO | DOSG-23-2 | 16-Mar-12 | Voltage regulator 15 KVA | ST15000-DR | Yandayar | 1 | 750 | | 750 | | 60,362 | DOA, Gyogone | Daw Me Me Cho | Local | Office | Very good | Yandayar Trading |
| 24 | ● | SD/GYO | DOSG-24-1 | 16-Mar-12 | Voltage regulator 10 KVA | ST10000-DR | Yandayar | 1 | 500 | | 500 | | 40,241 | DOA, Gyogone | Daw Me Me Cho | Local | Office | Very good | Yandayar Trading |
| | ● | SD/GYO | DOSG-24-2 | 16-Mar-12 | Voltage regulator 10 KVA | ST10000-DR | Yandayar | 1 | 500 | | 500 | | 40,241 | DOA, Gyogone | Daw Me Me Cho | Local | Office | Very good | Yandayar Trading |
| 25 | ● | SD/GYO | DOSG-25 | 20-Mar-15 | Rubber Roller for testing husker | THU 35 B | Satake | 4 | 165 | | 660 | | 78,558 | DOA, Gyogone | Daw San San Aye | Local | Laboratory | Very good | MAST |
| 26 | | SD/GYO | DOSG-26 | Nov-15 | Grain Moisture Meter | Riceter F-512 | KETT | 1 | 1,250 | | 1,250 | | 151,160 | DOA, Gyogone | Daw San San Aye | Local | Laboratory | Very good | MAST |
| 27 | | SD/GYO | DOSG-27 | To be in Dec 2015 | Sample Divider | TS-S | Satake | 1 | 3,150 | | 3,150 | | 386,987 | DOA, Gyogone | Daw San San Aye | Local | Laboratory | - | AMTT |
| | | | | | Total cost for Seed Division, Gyogone | | | | | | 74,556 | 0 | 6,274,354 | | | | | | |

(7) Equipment for DOA Hinthada

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocurement type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | | TSP/HTD | DOH-1 | 17-Jun-11 | Digital Camera | DSC-TX10 | Sony | 1 | 466 | | 466 | | 37,682 | Project office | U Myo Min Lwin Oo | Local | Office | Very good | Sony |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | ● | TSP/HTD | DOH-2 | 8-Apr-12 | Grading Machine (M) | Delux | Agrosaw | 1 | 13,000 | | 13,000 | | 1,072,444 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Moe Htaung |
| 3 | ● | TSP/HTD | DOH-3 | 28-Nov-11 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,429 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | AMTT |
| 4 | ● | TSP/HTD | DOH-4-1 | Feb-12 | Motorcycle | FL 125FS-I | Suzuki | 1 | 2,220 | | 2,220 | | 170,056 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Office | Very good | SPA |
| | ● | TSP/HTD | DOH-4-2 | Feb-12 | Motorcycle | FL 125FS-I | Suzuki | 1 | 2,220 | | 2,220 | | 170,056 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Office | Very good | SPA |
| 5 | ● | TSP/HTD | DOH-5 | 25-Feb-13 | Power tiller with trailer (Trawler-G) | 22 HP with WSL8d4 trailer | | 1 | 2,547 | | 2,547 | | 231,888 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Win Shwe War |
| 6 | ● | TSP/HTD | DOH-6 | 23-1-13 | Desktop computer | iDeacentre H 520 S | Lenovo | 1 | 1,066 | | 1,066 | | 91,478 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Office | Very good | KMD |
| 7 | ● | TSP/HTD | DOH-7 | 23-1-13 | UPS | 650 VA | Power Tree | 1 | 44 | | 44 | | 3,776 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Office | Very good | KMD |
| 8 | ● | TSP/HTD | DOH-8 | 23-1-13 | Printer | LBP-2900 | Canon | 1 | 136 | | 136 | | 11,671 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Office | Very good | KMD |
| 9 | ● | TSP/HTD | DOH-9 | 23-1-13 | Slide projector | VPL-EX 145 | Sony | 1 | 765 | | 765 | | 65,648 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Office | Very good | Sony |
| 10 | ● | TSP/HTD | DOH-10 | 18-Feb-13 | Rice Tresher | JD 190 N | Ayeyarkyaw | 1 | 2,170 | | 2,170 | | 197,564 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Ayeyarkyaw |
| 11 | ● | TSP/HTD | DOH-11 | 29-1-13 | Generator | 4600EX | Elemax | 1 | 1,768 | | 1,768 | | 151,720 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Camp | Very good | Ayeyarkyaw |
| 12 | | TSP/HTD | DOH-12 | 16-1-13 | Fax machine | L-170 | Canon | 1 | 380 | | 380 | | 32,610 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Office | Very good | Canon |
| 13 | ● | TSP/HTD | DOH-13-1 | 2-May-13 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | AMTT |
| | ● | TSP/HTD | DOH-13-2 | 2-May-13 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | AMTT |
| | ● | TSP/HTD | DOH-13-3 | 2-May-13 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | AMTT |
| | ● | TSP/HTD | DOH-13-4 | 2-May-13 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | AMTT |
| | ● | TSP/HTD | DOH-13-5 | 2-May-13 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | AMTT |
| | ● | TSP/HTD | DOH-13-6 | 2-May-13 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | AMTT |
| | ● | TSP/HTD | DOH-13-7 | 2-May-13 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | AMTT |
| 14 | ◎ | TSP/HTD | DOH-14 | 23-5-14 | Extension Camp Building | - | Myanmar | 1 | 52,000 | | 52,000 | | 5,334,108 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Extension | Very good | MW |
| 15 | ◎ | TSP/HTD | DOH-15 | 23-5-14 | Workshop Building | - | Myanmar | 1 | 43,000 | | 43,000 | | 4,410,897 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | MW |
| 16 | | TSP/HTD | DOH-16 | 26-7-14 | Inter cultivator | - | Myanmar | 4 | | 11,000 | | 44,000 | 4,589 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | A1 |
| 17 | | TSP/HTD | DOH-17 | Dec-14 | Packing machine | CU-8 SN | Citizen | 1 | | 90,000 | | 90,000 | 10,449 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Family, 095413580 |
| 18 | | TSP/HTD | DOH-18 | Jan-15 | Air compressor | - | China | 1 | 550 | | 550 | | 66,261 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Ayeyarkyaw |
| 19 | | TSP/HTD | DOH-19 | 23-1-15 | Vaccume Cleaner | CV 950 Y | Hitachi | 1 | 225 | | 225 | | 27,107 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Moe Htaung |
| 20 | ● | TSP/HTD | DOH-20 | 10-3-15 | Rice Winnowers | - | China | 1 | 490 | | 490 | | 58,323 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Ayeyarkyaw |
| 21 | ○ | TSP/HTD | DOH-21 | 01-6-15 | Threshing floor | - | Myanmar | 1 | | 7,895,750 | | 7,895,750 | 908,801 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Nay Win Naung |
| 22 | ○ | TSP/HTD | DOH-22 | July-15 | Seed storage renovation | | Myanmar | 1 | | 7,100,000 | | 7,100,000 | 786,680 | DOA, Hinthada | U Myo Min Lwin Oo | Local | Agriculture | Very good | Nay Win Naung |
| **Total cost for DOA Hinthada** | | | | | | | | | | | 125,401 | 15,129,750 | 14,068,807 | | | | | | |

(8) Equipment for DOA Labutta

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocurement type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | | TSP/LPT | DOL-1 | 17-Jun-11 | Digital Camera | DSC-TX10 | Sony | 1 | 466 | | 466 | | 37,682 | Project office | U Kyaw Kyaw Hlaing | Local | Office | Very good | Sony |
| 2 | ● | TSP/LPT | DOL-2 | 8-Apr-12 | Grading Machine (M) | Delux | Agrosaw | 1 | 13,000 | | 13,000 | | 1,072,444 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Moe Htaung |
| 3 | ● | TSP/LPT | DOL-3 | 16-Jan-12 | Rice Thresher | - | Aung Myanmar | 1 | 2,000 | | 2,000 | | 155,813 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Moe Htaung |
| 4 | ● | TSP/LPT | DOL-4 | 12-Mar-12 | Backpack sprayer | - | Red Angle | 1 | 25 | | 25 | | 2,012 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Moe Htaung |
| 5 | ● | TSP/LPT | DOL-5 | 8-Apr-12 | Platform spring balance | - | Avery | 1 | 190 | | 190 | | 15,674 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Moe Htaung |
| 6 | ● | TSP/LPT | DOL-6 | 18-Dec-11 | Grain Moisture Meter | GMK303 RS | G-Won | 1 | 243 | | 243 | | 18,942 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | AMTT |
| 7 | ● | TSP/LPT | DOL-7-1 | Mar-12 | Salt Meter | C-121 | Horiba | 1 | 400 | | 400 | | 32,193 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | AMTT |
| | ● | TSP/LPT | DOL-7-2 | Mar-12 | Salt Meter | C-121 | Horiba | 1 | 400 | | 400 | | 32,193 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | AMTT |
| | ● | TSP/LPT | DOL-7-3 | Mar-12 | Salt Meter | C-121 | Horiba | 1 | 400 | | 400 | | 32,193 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | AMTT |
| | ● | TSP/LPT | DOL-7-4 | Mar-12 | Salt Meter | C-121 | Horiba | 1 | 400 | | 400 | | 32,193 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | AMTT |
| 8 | ● | TSP/LPT | DOL-8 | Mar-12 | PH/EC Meter | D-54 | Horiba | 1 | 1,300 | | 1,300 | | 104,627 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | AMTT |
| 9 | ● | TSP/LPT | DOL-9-1 | Feb-12 | Motorcycle | FL 125FS-I | Suzuki | 1 | 2,220 | | 2,220 | | 170,056 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | SPA |
| | ● | TSP/LPT | DOL-9-2 | Feb-12 | Motorcycle | FL 125FS-I | Suzuki | 1 | 2,220 | | 2,220 | | 170,056 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | SPA |
| 10 | ● | TSP/LPT | DOL-10 | 25-Feb-13 | Power tiller with trailer (Trawler-G) | 22 HP with WBL8244 trailer | | 1 | 2,547 | | 2,547 | | 231,888 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Win Shwe War |
| 11 | ● | TSP/LPT | DOL-11 | 23-1-13 | Desktop computer | iDeacentre H 520 S | Lenovo | 1 | 1,066 | | 1,066 | | 91,478 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | KMD |
| 12 | ● | TSP/LPT | DOL-12 | 23-1-13 | UPS | 650 VA | Power Tree | 1 | 44 | | 44 | | 3,776 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | KMD |
| 13 | ● | TSP/LPT | DOL-13 | 23-1-13 | Printer | LBP-2900 | Canon | 1 | 136 | | 136 | | 11,671 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | KMD |
| 14 | ● | TSP/LPT | DOL-14 | 23-1-13 | Slide projector | VPL-EX 145 | Sony | 1 | 765 | | 765 | | 65,648 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | Sony |
| 15 | | TSP/LPT | DOL-15 | 16-1-13 | Fax machine | L-170 | Canon | 1 | 380 | | 380 | | 32,610 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | Canon |
| 16 | ● | TSP/LPT | DOL-16-1 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | AMTT |
| | ● | TSP/LPT | DOL-16-2 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | AMTT |
| | ● | TSP/LPT | DOL-16-3 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | AMTT |
| | ● | TSP/LPT | DOL-16-4 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | AMTT |
| | ● | TSP/LPT | DOL-16-5 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | AMTT |
| | ● | TSP/LPT | DOL-16-6 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Office | Very good | AMTT |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | ◎ | TSP/LPT | DOL-17 | Sept-13 | Workshop Building | | Myanmar | 1 | 45,000 | | 45,000 | | 4,411,823 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | MW |
| 18 | | TSP/LPT | DOL-18 | 26-Jun-14 | Inter cultivator | | Myanmar | 4 | | 11,000 | | 44,000 | 4,704 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | A1 |
| 19 | | TSP/LPT | DOL-19 | Dec-14 | Packing machine | CU-8 SN | Citizen | 1 | | 90,000 | | 90,000 | 10,449 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Family 095413580 |
| 20 | | TSP/LPT | DOL-20 | 23-Jan-15 | Vaccume cleaner | CV 950 Y | Hitachi | 1 | 225 | | 225 | | 27,107 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Moe Htaung |
| 21 | | TSP/LPT | DOL-21 | Jan-15 | Air compressor | - | China | 1 | 550 | | 550 | | 66,261 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Ayeyar Kyaw |
| 22 | ● | TSP/LPT | DOL-22 | 18-Mar-15 | Rice Winnower | - | China | 1 | 490 | | 490 | | 58,323 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Ayeyar Kyaw |
| 23 | ○ | TSP/LPT | DOL-23 | 16-3-15 | Threshing floor | - | Myanmar | 1 | | 7,110,100 | | 7,110,100 | 834,015 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | K.S.M Construction |
| 24 | ◎ | TSP/LPT | DOL-24 | 12-6-15 | Seed storage | - | Myanmar | 1 | 38,000 | | 38,000 | | 4,710,328 | DOA, Labutta | U Kyaw Kyaw Hlaing | Local | Agricultural | Very good | Ayeyar Hein |
| Total cost for DOA Labutta | | | | | | | | | | | 113,811 | 7,244,100 | 12,575,535 | | | | | | |

(9) Equipment for DOA Myaungmya

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocurement type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | | TSP/MM | DOM-1 | 17-Jun-11 | Digital Camera | DSC-TX10 | Sony | 1 | 466 | | 466 | | 37,682 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | Sony |
| 2 | ● | TSP/MM | DOM-2 | 8-Apr-12 | Grading Machine (M) | GMK303 RS | G-Won | 1 | 13,000 | | 13,000 | | 1,072,444 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Moe Htaung |
| 3 | | TSP/MM | DOM-3 | Nov-11 | Grain Moisture Meter | Delux | Agrosaw | 1 | 243 | | 243 | | 18,429 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | AMTT |
| 4 | ● | TSP/MM | DOM-4-1 | Feb-12 | Motorcycle | FL 125FS-I | Suzuki | 1 | 2,220 | | 2,220 | | 170,056 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | SPA |
| | ● | TSP/MM | DOM-4-2 | Feb-12 | Motorcycle | FL 125FS-I | Suzuki | 1 | 2,220 | | 2,220 | | 170,056 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | SPA |
| 5 | ● | TSP/MM | DOM-5 | 25-Feb-13 | Power tiller with trailer (Trawter-G) | 22 HP with W6x6.5xH4 trailer | | 1 | 2,547 | | 2,547 | | 231,888 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Win Shwe War |
| 6 | ● | TSP/MM | DOM-6 | 23-1-13 | Desktop computer | iDeacentre H 520 S | Lenovo | 1 | 1,066 | | 1,066 | | 91,478 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | KMD |
| 7 | ● | TSP/MM | DOM-7 | 23-1-13 | UPS | 650 VA | Power Tree | 1 | 44 | | 44 | | 3,776 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | KMD |
| 8 | ● | TSP/MM | DOM-8 | 23-1-13 | Printer | LBP-2900 | Canon | 1 | 136 | | 136 | | 11,671 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | KMD |
| 9 | ● | TSP/MM | DOM-9 | 23-1-13 | Slide projector | VPL-EX 145 | Sony | 1 | 765 | | 765 | | 65,648 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | Sony |
| 10 | ● | TSP/MM | DOM-10 | 18-Feb-13 | Rice Tresher | JD 190 N | Ayeyarkyaw | 2 | 2,170 | | 4,340 | | 395,128 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Ayeyar Kyaw |
| 11 | ● | TSP/MM | DOM-11 | 29-1-13 | Generator | 4600EX | Elemax | 1 | 1,768 | | 1,768 | | 151,720 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Camp | Very good | Ayeyar Kyaw |
| 12 | | TSP/MM | DOM-12 | 16-1-13 | Fax machine | L-170 | Canon | 1 | 380 | | 380 | | 32,610 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | Canon |
| 13 | ● | TSP/MM | DOM-13-1 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | AMTT |
| | ● | TSP/MM | DOM-13-2 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | AMTT |
| | ● | TSP/MM | DOM-13-3 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | AMTT |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ● | TSP/MM | DOM-13-4 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | AMTT |
| | ● | TSP/MM | DOM-13-5 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | AMTT |
| | ● | TSP/MM | DOM-13-6 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | AMTT |
| | ● | TSP/MM | DOM-13-7 | 2-May-13 | Gran moisture meter | GMK303 RS | G-Won | 1 | 302 | | 302 | | 29,510 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Office | Very good | AMTT |
| 14 | ◎ | TSP/MM | DOM-14 | Sept-13 | Extension Camp Building | | | 1 | 43,000 | | 43,000 | | 4,215,742 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Extension | Very good | MW |
| 15 | ◎ | TSP/MM | DOM-15 | Sept-13 | Workshop Building | | | 1 | 58,000 | | 58,000 | | 5,686,349 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | MW |
| 16 | | TSP/MM | DOM-16 | 26-6-14 | Inter cultivator | | Myanmar | 4 | | 11,000 | | 44,000 | 4,704 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | A1 |
| 17 | ● | TSP/MM | DOM-17 | 07-11-14 | Thresher | | Myanmar | 1 | | 1,980,000 | | 1,980,000 | 215,820 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Pyay Tharyar 04271252 09422468111 |
| 18 | | TSP/MM | DOM-18 | Dec-14 | Packing machine | CU-8 SN | Citizen | 1 | | 90,000 | | 90,000 | 10,449 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Family 095413580 |
| 19 | | TSP/MM | DOM-19 | 23-Jan-15 | Vaccume cleaner | CV 950 Y | Hitachi | 1 | 225 | | 225 | | 27,107 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Moe Htaung |
| 20 | | TSP/MM | DOM-20 | Jan-15 | Air compressor | | China | 1 | 550 | | 550 | | 66,261 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Ayeyar Kyaw |
| 21 | ● | TSP/MM | DOM-21 | 19-Mar-15 | Rice winnower | | China | 1 | 490 | | 490 | | 58,323 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Ayeyar Kyaw |
| 22 | ○ | TSP/MM | DOM-22 | 06-3-15 | Threshing floor | | Myanmar | 1 | | 5,759,370 | | 5,759,370 | 675,574 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Hla Construction |
| 23 | ○ | TSP/MM | DOM-23 | Jun-15 | Seed Storage Renovation | | Myanmar | 1 | | 9,800,000 | | 9,800,000 | 1,127,980 | DOA, Myaung Mya | U Tin Maung Nyein | Local | Agriculture | Very good | Hla Construction |
| | | | | | Total cost for DOA Myaungmya | | | | | | 133,105 | 17,573,370 | 14,709,782 | | | | | | |

**(10) Project office**

| Sr. | | | No. | Arrival time | Name | Model | Brand Name | Qty | Unit Price | | Total Price | | JPY equivalent | Place to use | Person in charge | Porocurement type | Purpose | Present condition | Company |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | (US$) | (MMK) | (US$) | (MMK) | | | | | | | |
| 1 | | PO/GYO | PO-1 | 25-Mar-11 | Generator | DCA 15 ESX | Denyo | 1 | 13,300 | | 13,300 | | 1,049,269 | Project office | Project team | Local | Office | Very good | Ever Seiko |
| 2 | | PO/GYO | PO-2 | Apr-11 | Printer | PIXMA iX4000 | Canon | 2 | 280 | | 560 | | 46,407 | Project office | Project team | Local | Office | Very good | Accel Int'l Co., Ltd. |
| 3 | | PO/GYO | PO-3 | Apr-11 | Printer | LBP 3050 | Canon | 2 | 130 | | 260 | | 21,546 | Project office | Project team | Local | Office | Very good | Accel Int'l Co., Ltd. |
| 4 | | PO/GYO | PO-4 | Apr-11 | Printer | LBP 6300 dn | Canon | 2 | 390 | | 780 | | 64,639 | Project office | Project team | Local | Office | Very good | Accel Int'l Co., Ltd. |
| 5 | | PO/GYO | PO-5 | Apr-11 | Fax | L140 | Canon | 2 | 392 | | 784 | | 64,970 | Project office | Project team | Local | Office | Very good | Accel Int'l Co., Ltd. |
| 6 | | PO/GYO | PO-6 | Apr-11 | Aircon | SAP 12 AG | Sanyo | 2 | 413 | | 826 | | 68,451 | Project office | Project team | Local | Office | Very good | OK Myanmar |
| 7 | ● | PO/GYO | PO-7 | 18-Jul-11 | Copier | iR-2535 | Canon | 1 | 6,580 | | 6,580 | | 532,914 | Project office | Project team | Local | Office | Very good | Accel Int'l Co., Ltd. |
| 8 | | PO/GYO | PO-8 | 4-May-11 | Safe Box | Safe 701 | LEECO | 1 | | 610,000 | | 610,000 | 60,305 | Project office | Project team | Local | Office | Very good | Thein Shwe War |
| 9 | | PO/GYO | PO-9 | 5-May-11 | Stabilizer | DRI-1500 | LiOA | 1 | | 588,000 | | 588,000 | 58,130 | Project office | Project team | Local | Office | Very good | Maung Maung Tun |
| 10 | | PO/GYO | PO-10 | 14-Jun-11 | Personal Computer | ASM-3920 | Acer | 1 | 906 | | 906 | | 73,262 | Project office | Project team | Local | Office | Very good | Access Spectrum |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | | PO/GYO | PO-11 | 14-Jun-11 | Personal Computer | ASM-3921 | Acer | 1 | 906 | | 906 | | 73,262 | Project office | Project team | Local | Office | Very good | Access Spectrum |
| 12 | | PO/GYO | PO-12 | 14-Jun-11 | Projector | LV-7380 | Canon | 1 | 1,290 | | 1,290 | | 104,314 | Project office | Project team | Local | Office | Very good | Access Spectrum |
| 13 | | PO/GYO | PO-13 | 14-Jun-11 | Projector | LV-7381 | Canon | 1 | 1,290 | | 1,290 | | 104,314 | Project office | Project team | Local | Office | Very good | Access Spectrum |
| 14 | | PO/GYO | PO-14 | 17-Jun-11 | Video Camera | HF M31E Kit | Canon | 1 | 1,300 | | 1,300 | | 105,122 | Project office | Project team | Local | Office | Very good | Accel Int'l Co., Ltd. |
| 15 | | PO/GYO | PO-15 | 17-Jun-11 | Video Camera | HF M31E Kit | Canon | 1 | 1,300 | | 1,300 | | 105,122 | Project office | Project team | Local | Office | Very good | Accel Int'l Co., Ltd. |
| 16 | | PO/GYO | PO-16 | 9-Jun-11 | Internet Broadband Wimax | | Wimax | 1 | | 810,000 | | 810,000 | 81,365 | Project office | Project team | Local | Office | Very good | Red Link Co., Ltd. |
| 17 | | PO/GYO | PO-17 | 14-Jun-11 | Laptop Computer | G42 - 465 TU | HP | 2 | 597 | | 1,194 | | 96,551 | Project office | Project team | Local | Office | Very good | Access Spectrum |
| 18 | | PO/GYO | PO-18 | 14-Jun-11 | UPS | Star 1200 VA | Star | 2 | 67 | | 134 | | 10,836 | Project office | Project team | Local | Office | Very good | Access Spectrum |
| 19 | | PO/GYO | PO-19 | 17-Jun-11 | Digital Camera | DSC-TX10 | Sony | 3 | 466 | | 1,398 | | 113,047 | Project office | Project team | Local | Office | Very good | Sony |
| 20 | | PO/GYO | PO-20 | 12-Jul-11 | Online UPS | Pro930CS | Prolink | 1 | 650 | | 650 | | 52,644 | Project office | Project team | Local | Office | Very good | KMD |
| 21 | | PO/GYO | PO-21 | 24-Jul-11 | Aircon | SAP 12 AG | Sanyo | 1 | | 327,000 | | 327,000 | 36,987 | Project office | Project team | Local | Office | Very good | Wai Yan |
| 22 | | PO/GYO | PO-22 | 27-Jul-11 | Microscope | XSZ-N207 | | 2 | | 250,000 | | 500,000 | 56,555 | Project office | Project team | Local | Office | Very good | AMTT |
| 23 | | PO/GYO | PO-23 | 20-Oct-11 | Scanner | LiDE 110 | Canon | 1 | | 44,500 | | 44,500 | 4,361 | Project office | Project team | Local | Office | Very good | Accel Int'l Co., Ltd. |
| 24 | | PO/GYO | PO-24 | 2-Feb-12 | Laptop Computer | Inspiron, N5110 | Dell | 1 | | 772,000 | | 772,000 | 72,120 | Project office | Project team | Local | Office | Very good | Access Spectrum |
| 25 | | PO/GYO | PO-25 | 29-Feb-12 | Digital Camera | EOS 7D | Canon | 1 | 2,200 | | 2,200 | | 168,524 | Project office | Project team | Local | Office | Very good | Golden Myanmar |
| 26 | | PO/GYO | PO-26 | 23-Mar-12 | Visualizer | VS-1300D | e-PRO | 1 | | 840,000 | | 840,000 | 82,748 | Project office | Project team | Local | Office | Very good | Galaxy Automation |
| 27 | | PO/GYO | PO-27 | 23-Mar-12 | Personal Computer | HP-6200 | HP | 1 | 1,061 | | 1,061 | | 85,402 | Project office | Project team | Local | Office | Very good | Access Spectrum |
| 28 | | PO/GYO | PO-28 | 29-Mar-13 | Generator | EF2600FW | Yamaha | 1 | 810 | | 810 | | 74,387 | Project office | Project team | Local | Office | Very good | Shwe Bagyi |
| 29 | ● | PO/GYO | PO-29 | Dec-13 | Vehicle | Land Cruiser Prado | Toyota | 2 | | | 111,400 | | 11,384,412 | Project office | Project team | Local | Office | Very good | Toyota |
| 30 | | PO/GYO | PO-30 | 1-Feb-14 | Aircon | CS/CU PC12, QKH | Panasonic | 1 | | 448,500 | | 448,500 | 47,496 | Project office | Project team | Local | Office | Very good | Pyay Sone Win Naing |
| 31 | O | PO/GYO | PO-31 | Mar-14 | Car Garage | | | 1 | 9,736 | | 9,736 | | 995,019 | Project office | Project team | Local | Office | Very good | Cairo |
| 32 | | PO/GYO | PO-32 | 29-4-14 | Laptop Computer | Inspiron, 5521 | Dell | 1 | 665 | | 665 | | 68,376 | Project office | Project team | Local | Office | Very good | Access Spectrum |
| Total cost for Project office | | | | | | | | | | 0 | 159,330 | 4,940,000 | 15,962,855 | | | | | | |

ANNEX 7: List of Myanmar Counterpart Personnel (as of February 2016)

| | Counterpart Name | Position / Assignment Field |
|---|---|---|
| 1 | U Htein Lin | Project Director/Director, Seed Division, DOA |
| 2 | Dr. Ye Tint Tun | Project Director/Director, Seed Division, DOA |
| 3 | U Thet Zin Maung | Project Director/Director, Seed Division, DOA |
| 4 | Daw Tin Tin Myint*1 | Project Manager/Deputy Director General, DAR |
| 5 | U Tin Wa | Project Manager/Deputy Director, Extension Division, DOA |
| 6 | Dr. Tin Ohnmar Win | Project Manager/Assistant Director, Extension Division, DOA |
| 7 | U Aye Chit*2 | Project Manager/Assistant Director, Seed Division, DOA |
| 8 | Daw Thidar Win | BS Production/Deputy Director, DAR Yezin/ |
| 9 | Daw Myint Yi | BS Production/Deputy Director, DAR Yezin |
| 10 | Daw Win Sandar Htay | BS Production/Research Assistant-4, DAR Yezin |
| 11 | Daw Su Mon Thant | BS Production/Research Assistant-4, DAR Yezin |
| 12 | U Zaw Moe Aung | BS Production/Research Assistant-3, DAR Yezin |
| 13 | Daw Nyunt Nyunt Tin | RS Production/Farm Manager, DAR Myaungmya Farm |
| 14 | U Htein Lin Tun | RS Production/Farm Manager, MRRC Hmawbi, DOA |
| 15 | Dr. Ye Tint Tun | RS Production/Farm Manager, MRRC Hmawbi, DOA |
| 16 | U Myo Win | RS Production/Farm Manager, MRRC Hmawbi, DOA |
| 17 | U Saw Htaw Paw | RS Production/Farm Manager, Hinthada Farm, DOA |
| 18 | Daw Ni Ni Hlaing | RS Production/Farm Manager, Hinthada Farm, DOA |
| 19 | U Htay Lwin | Extension/Township officer, Hinthada DOA |
| 20 | U Myo Min Lwin Oo | Extension/Township officer, Hinthada DOA |
| 21 | U Kyaw Kyaw Hlaing | Extension/Township officer, Laputta DOA |
| 22 | U Htin Kyaw Oo | Extension/Township officer, Laputta DOA |
| 23 | U Tin Maung Nyein | Extension/Township officer, Myaungmya DOA |
| 24 | Daw Nwet Nwet Win | Seed/Assistant Director, Ayeyarwaddy Region DOA |
| 25 | Daw Khin Yee | Seed/Staff officer, Laputta District DOA |
| 26 | Daw Thidar Aung | Seed/Staff officer, Myaungmya District DOA |
| 27 | Daw Nilar Aung | Seed/Staff officer, Hinthada District DOA |
| 28 | U Soe Moe Win | Extension/Deputy staff officer, VFRTC |
| 29 | Daw San San Aye | Seed/Assistant Director, Central Seed Laboratory |
| 30 | Daw Khin Hnin Thant | Seed /Staff officer, Central Seed Laboratory |

<1: Also in charge of BS production as Deputy Director General, Rice Division, DAR Yezin

<2: Also in charge of RS production as a farm manager of MRRC, Hmawbi, DOA

## ANNEX 8 : BS SEED DISTRIBUTION TO DOA AND DAR SEED FARMS (MONSOON SEASON 2011 to 2015)

| Sr | Name of Variety | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DOA Farm (basket) | DAR Farm (Pyi) | DOA Farm (basket) | DAR Farm (Pyi) | DOA Farm (basket) | DAR Farm (Pyi) | DOA Farm (basket) | DAR Farm (Pyi) | DOA Farm (basket) * | DAR Farm (Pyi) ** |
| 1 | Ayeyarmin | 6.50 | 3.00 | 16.00 | 3.00 | 9.00 | 3.00 | 16.00 | 3.00 | 12.00 | |
| 2 | Pawsan Baygyar | 6.00 | | 6.50 | | 1.50 | | | | 4.00 | |
| 3 | Pawsan Hmawe | | | | | | | | | | |
| 4 | Inma Yebaw | 1.50 | | 1.50 | | | | | | | |
| 5 | Shwebo-1 | 1.00 | | | | | | | | | |
| 6 | Hnangar | 2.50 | | 4.00 | | 3.00 | | 2.00 | | | |
| 7 | Kyawzayya | 10.50 | | 8.50 | | 3.00 | | 3.00 | | 1.50 | |
| 8 | Hmawbi-2 | 3.50 | | 12.50 | | 7.50 | | 8.00 | | 4.50 | |
| 9 | Manawhari | 1.00 | | | | | | | | | |
| 10 | Sinthwelatt | 15.50 | 2.00 | 20.00 | | 7.50 | | 8.50 | | 9.50 | |
| 11 | Sinakari-3 | 7.50 | 2.00 | 4.00 | 2.00 | 1.50 | 2.00 | 4.00 | 2.00 | 2.00 | |
| 12 | Sinthukha | 18.00 | 5.00 | 22.00 | 5.00 | 21.50 | 5.00 | 21.50 | 5.00 | 22.00 | |
| 13 | Shwewartun | 10.00 | | 8.00 | | 1.50 | | 7.50 | | 1.00 | |
| 14 | Manawthukha | 23.00 | | 18.50 | | 6.00 | | 8.00 | | 7.00 | |
| 15 | Sawanar-sub-1 | 1.50 | 1.00 | 0.50 | 1.00 | 1.50 | 1.00 | 1.50 | 1.00 | 1.50 | |
| 16 | Hnanthar Hmawe | 4.50 | | 1.00 | | 3.00 | | | | | |
| 17 | Shwethweyin | 2.00 | 2.00 | 6.00 | 2.00 | 3.00 | 2.00 | 5.50 | 2.00 | 1.00 | |
| 18 | Theehtatyin | | 2.00 | 17.50 | 2.00 | 4.50 | 2.00 | 3.50 | 2.00 | 3.00 | |
| 19 | Shwemanaw | 1.50 | | | | | | | | | |
| 20 | Yadanartoe | 7.50 | | 10.00 | | 8.50 | | 13.00 | | 17.00 | |
| 21 | Yayzin Lonethwe | 1.50 | | 2.00 | | | | | | 1.00 | |
| 22 | Shwepyihtay | 2.50 | | 1.00 | | | | 3.00 | | | |
| 23 | Sinnweyin | 2.00 | | 7.50 | | | | | | | |
| 24 | Shwe Myanmar | 3.00 | 1.00 | 4.50 | 1.00 | | 1.00 | 1.00 | 1.00 | 2.00 | |
| 25 | IR-747 | 1.00 | | | | | | | | | |
| 26 | MR-9 | 1.00 | | 1.50 | | | | | | | |
| 27 | Yar-2 Tun | | | | | | | | | | |
| 28 | Lonethwe Hmawe | | | | | | | | | | |
| 29 | IRAT-191 | 1.50 | | | | | | | | | |
| 30 | Shweyinaye | 5.00 | | 1.00 | | 1.50 | | 1.50 | | | |
| 31 | Salt Tolerant STL | | | 1.50 | | 1.50 | | 1.50 | | | |
| 32 | Pawsan Yin | | | 3.00 | | 3.00 | | 11.50 | | 1.50 | |
| 33 | Thukha Yin | | | 2.00 | | | | | | | |
| 34 | Yet 90 | | | 0.50 | | | | | | | |
| 35 | Shwepyitan | | | | | | | | | 1.50 | |
| | **Total** | **141.00** | **18.00** | **181.00** | **16.00** | **88.50** | **16.00** | **120.50** | **16.00** | **92.00** | |

Note: * DOA demand data, not distributed yet, ** Awaiting demand from DAR seed farms.

## ANNEX 9-1 : FS Production from 2011 to 2015

Hmawbi Seed Farm

| FS | Seed Production (basket) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Variety / Year | 2011 Monsoon | 2011-12 Summer | 2012 Monsoon | 2012-13 Summer | 2013 Monsoon | 2013-14 Summer | 2014 Monsoon | 2014-15 Summer | 2015 Monsoon |
| Sinthukha | 67.00 | | 105.00 | | | | 243.50 | | |
| Manawthukha | 70.00 | | 69.00 | | 265.00 | | | | |
| Sinthwelatt | 35.00 | | 150.00 | | | | | | |
| Theehtatyin | 155.00 | | 116.00 | | 405.00 | | 60.00 | | |
| Kyawzeya | 90.00 | | | | 190.50 | | | | |
| Shwewartun | | | | | | | | | |
| Ayeyarmin | 65.00 | | | | 250.00 | | 121.00 | | |
| Pawsanyin | | | | | | | | | |
| Hnangar | 108.00 | | | | | | | | |
| Pawsanbaykyar | 42.00 | | 140.00 | | | | | | |
| Hmawbi-2 | 30.00 | | 190.00 | | 270.00 | | 121.00 | | |
| Sinakari-3 | 60.00 | | | | | | | | |
| Sawanar Sub-1 | 45.00 | | | | | | | | |
| Shwemyanmar | 70.00 | | | | | | | | |
| Yar-2 Tun | 60.00 | | | | | | | | |
| IR-747 | 50.00 | | | | | | | | |
| Shwethweyin | 58.00 | | | | | | | | |
| Hmawbi-4 | 26.00 | | | | | | | | |
| Hmawbi-5 | 39.00 | | | | | | | | |
| Manawtun | 105.00 | | | | | | | | |
| IRAT-191 | | | 12.00 | | | | | | |
| Shwepyihtay | | | 81.00 | | 67.00 | | | | |
| Shwemanaw | | | 37.00 | | | | | | |
| Yadanartoe | | | 140.00 | | 195.00 | | | | |
| Thukhayin | | | | | 120.00 | | | | |
| MR-9 | | | | | 60.00 | | 50.50 | | |
| Innmaye baw | 75.00 | | | | | | | | |
| Total | 1,250.00 | 0.00 | 1,040.00 | 0.00 | 1,822.50 | 0.00 | 596.00 | 0.00 | 0.00 |

## ANNEX 9-2: RS Production from 2011 to 2015

Hmawbi Seed Farm

| RS / Variety \ Year | Seed Production (basket) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2011 Monsoon | 2011-12 Summer | 2012 Monsoon | 2012-13 Summer | 2013 Monsoon | 2013-14 Summer | 2014 Monsoon | 2014-15 Summer | 2015 Monsoon |
| Sinthukha | 2,700.00 | 250.00 | 2,327.00 | 150.00 | 2,900.00 | 551.00 | 4,222.00 | 572.50 | |
| Manawthukha | 480.00 | 135.00 | 900.00 | | | | | | |
| Sinthwelatt | 660.00 | | 1,300.00 | | 1,800.00 | | 1,218.00 | | |
| Theehtatyin | | 360.00 | 320.00 | 200.00 | | 676.00 | | 553.00 | |
| Kyawzeya | 1,550.00 | | | | | | | | |
| Shwewartun | 540.00 | | | | | | | | |
| Ayeyarmin | 2,030.00 | | 2,763.00 | | 3,100.00 | | 4,034.00 | | |
| Pawsanyin | | | 600.00 | | | | | | |
| Hnangar | | | | | | | | | |
| Pawsanbaykyar | | | | | | | | | |
| Hmawbi-2 | 220.00 | | 670.00 | | 1,180.00 | | 1,232.00 | | |
| Sinakari-3 | | | | | | | | | |
| Sawanar Sub-1 | | | | | | | | | |
| Shwemyanmar | | | | | | | | | |
| Hmawbi-4 | | | | | | | | | |
| Hmawbi-5 | | | | | | | | | |
| Manawtun | 600.00 | | | | | | | | |
| IRAT-191 | | | | | | | | | |
| Shwepyihtay | | | | | | | | | |
| Shwemanaw | | | | | | | | | |
| Yadanartoe | 330.00 | 90.00 | 600.00 | 440.00 | | | | | |
| Thukhayin | | 320.00 | | 45.00 | | | | | |
| MR-9 | | | | | | | | | |
| Innmaye baw | 240.00 | | | | | | | | |
| Hmawbi Sticky Rice | 300.00 | | 340.00 | | | | | | |
| Yezinlonthwe | | 120.00 | | | | | | | |
| Total | 9,650.00 | 1,275.00 | 9,820.00 | 835.00 | 8,980.00 | 1,227.00 | 10,706.00 | 1,125.50 | 0.00 |

## ANNEX 9-3: FS Production from 2011 to 2015 at Hinthada Seed Farm

| FS | Seed Production (basket) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Variety / Year | 2011 Monsoon | 2011-12 Summer | 2012 Monsoon | 2012-13 Summer | 2013 Monsoon | 2013-14 Summer | 2014 Monsoon | 2014-15 Summer | 2015 Monsoon |
| Sinthukha | 54.00 | | 68.00 | | 88.00 | | 45.00 | | |
| Manawthukha | 64.50 | | 67.00 | | 85.00 | | | | |
| Sinthwelatt | | | 40.00 | | | | 85.00 | | |
| Theehtatyin | 28.50 | | | | 66.00 | | | | |
| Kyawzeya | 73.50 | | 70.00 | | | | | | |
| Shwewartun | 61.50 | | 70.00 | | 90.00 | | | | |
| Ayeyarmin | 49.50 | | 46.00 | | | | 42.00 | | |
| Pawsanyin | | | | | | | | | |
| Hnangar | | | | | | | | | |
| Sinnweyin | 40.50 | | | | | | | | |
| Hmawbi-2 | | | | | | | 61.50 | | |
| Total | 372.0 | 0.0 | 361.0 | 0.0 | 329.0 | 0.0 | 233.5 | 0.0 | 0.0 |

## ANNEX 9-4:RS Production from 2011 to 2015 at Hinthada Seed Farm

| RS | Seed Production (basket) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Variety / Year | 2011 Monsoon | 2011-12 Summer | 2012 Monsoon | 2012-13 Summer | 2013 Monsoon | 2013-14 Summer | 2014 Monsoon | 2014-15 Summer | 2015 Monsoon |
| Sinthukha | 768.00 | | 373.00 | | 850.00 | | 1534.50 | | |
| Manawthukha | 136.50 | | | | 80.00 | | | | |
| Sinthwelatt | 169.50 | | 158.00 | | | | | | |
| Theehtatyin | 79.50 | | 130.00 | | | | 277.50 | 75.00 | |
| Kyawzeya | 647.00 | | 378.00 | | | | | | |
| Shwewartun | 274.50 | | 376.00 | | 450.00 | | 333.00 | | |
| Ayeyarmin | 402.00 | | 427.00 | | 1100.00 | | 1240.50 | | |
| Pawsanyin | | | | | | | | | |
| Hnangar | | | | | | | | | |
| Sinnweyin | | | | | | | | | |
| Hmawbi-2 | | | | | | | | | |
| Shwethweyin | | | | | 93.00 | | | | |
| Total | 2,477.0 | 0.0 | 1,842.0 | 0.0 | 2,573.0 | 0.0 | 3,385.5 | 75.0 | 0.0 |

## ANNEX 9-5: FS Production from 2011 to 2015

DAR-Myaungmya Seed Farm

| FS | Seed Production (basket) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Variety / Year | 2011 Monsoon | 2011-12 Summer | 2012 Monsoon | 2012-13 Summer | 2013 Monsoon | 2013-14 Summer | 2014 Monsoon | 2014-15 Summer | 2015 Monsoon |
| Sinthukha | 28.50 | | 22.50 | | 20.25 | | 21.45 | | 15.60 |
| Manawthukha | | | | | | | | | |
| Sinthwelatt | | | | | | | | | |
| Theehtatyin | 25.50 | | 21.00 | | 19.74 | | 7.20 | | 6.40 |
| Kyawzeya | | | | | | | | | |
| Shwewartun | | | | | | | | | |
| Ayeyarmin | | | | | | | | | |
| Pawsanyin | | | 17.50 | | 17.15 | | 5.20 | | 5.20 |
| Hnangar | 13.50 | | 18.50 | | 18.13 | | 17.10 | | 15.20 |
| Pawsanbaykyar | | | | | | | | | |
| Hmawbi-2 | | | | | | | | | |
| Sinakari-3 | | | | | | | | | |
| Sawanar Sub-1 | | | 25.00 | | 24.00 | | 22.23 | | 15.60 |
| Myaungmyamay | | | | | | | 22.80 | | 15.20 |
| Total | 67.50 | 0.00 | 104.50 | 0.00 | 99.27 | 0.00 | 95.98 | 0.00 | 73.20 |

## ANNEX 9-6: RS Production from 2011 to 2015

DAR-Myaungmya Seed Farm

| RS | Seed Production (basket) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Variety / Year | 2011 Monsoon | 2011-12 Summer | 2012 Monsoon | 2012-13 Summer | 2013 Monsoon | 2013-14 Summer | 2014 Monsoon | 2014-15 Summer | 2015 Monsoon |
| Sinthukha | 765.65 | | 523.04 | | 1,183.00 | | 1,734.48 | | 819.00 |
| Manawthukha | | | | | | | | | |
| Sinthwelatt | | | | | | | | | |
| Theehtatyin | 141.19 | 250.00 | 697.17 | 303.60 | 1,141.40 | 391.04 | 483.51 | 436.84 | 858.24 |
| Kyawzeya | | | | | | | | | |
| Shwewartun | | | | | | | | | |
| Ayeyarmin | | | | | | | | | |
| Pawsanyin | | | | | | | | | |
| Hnangar | 382.50 | | 306.00 | | 329.45 | | 169.67 | | 289.00 |
| Myaungmyamay | | | | | | | 139.50 | | |
| Baesmarti | | | | 81.00 | | | | | 126.06 |
| Total | 1,289.34 | 250.00 | 1,526.21 | 384.60 | 2,653.85 | 391.04 | 2,527.16 | 436.84 | 2,092.30 |

## ANNEX 10 : Meetings, Workshops and Trainings of the Project

As of November 30, 2015

| Sr. | Year | Name of Meeting/Workshop/Seminar/Training | Date | Duration | No. of Participants | Target | Venue |
|---|---|---|---|---|---|---|---|
| **(1) Extension Staff Training, 2012** | | | | | | | |
| 1 | FY-2012 | 1st ES training 2012 | 29-5-2012 | 1 day | 54 | 3 T/S DOA staff | Myaungmya |
| 2 | FY-2012 | 2nd ES training 2012 | 14-8-2012 | 1 day | 77 | 3 T/S DOA staff | Myaungmya |
| 3 | FY-2012 | 3rd ES training 2012 | 17-9-2012 | 1 day | 40 | 3 T/S DOA staff | MRRC |
| 4 | FY-2012 | 4th ES training 2012 | 16-10-12 | 1 day | 66 | 3 T/S DOA staff | Myaungmya |
| **(2) Extension Staff training 2013** | | | | | | | |
| 1 | FY-2013 | 1st ES training 2013 | 28/29 -5-2013 | 2 days | 58 | 3 T/S DOA staff | Myaungmya |
| 2 | FY-2013 | 2nd ES training 2013 | 17/18 -7-2013 | 2 days | 58 | 3 T/S DOA staff | Myaungmya |
| 3 | FY-2013 | 3rd ES training 2013 | 22/23 -8-2013 | 2 days | 80 | 3 T/S DOA staff | MRRC/Gyogone |
| 4 | FY-2013 | 4th ES training 2013 | 18-9-2013 | 1 day | 57 | 3 T/S DOA staff | Hinthada |
| 5 | FY-2013 | 5th ES training 2013 | 23-10-2013 | 1 day | 31 | 3 T/S DOA staff | Labutta |
| **(3) Extension Staff training 2014** | | | | | | | |
| 1 | FY-2014 | 1st ES training 2014 | 27/28-5-2014 | 2 days | 70 | 3 T/S DOA staff | Myaungmya Farm |
| 2 | FY-2014 | 2nd ES training 2014 | 18/19-6-2014 | 2 days | 82 | 3 T/S DOA staff | Myaungmya Farm |
| 3 | FY-2014 | 3rd ES training 2014 | 16/17-7-2014 | 2 days | 75 | 3 T/S DOA staff | Myaungmya Farm |
| 4 | FY-2014 | 4th ES training 2014 | 3/4-9-2014 | 2 days | 85 | 3 T/S DOA staff | Myaungmya Farm |
| 5 | FY-2014 | 5th ES training 2014 | 3/4-10-2014 | 2 days | 81 | 3 T/S DOA staff | Myaungmya Farm |
| **(4) Farmers training 2015** | | | | | | | |
| 1 | FY-2015 | 1st ES training 2015 | 9/10-6-2015<br>16/17/18-6-2015 | half day | 263 | Seed grower, CS user, DOA staff | 3 Townships/ 5 places |
| 2 | FY-2015 | 2nd ES training 2015 | 30-6-2015<br>7/8/9-7-2015 | half day | 240 | Seed grower, CS user, DOA staff | 3 Townships/ 5 places |
| 3 | FY-2015 | 3rd ES training 2015 | 20/21/22-7-2015<br>28/29-7-2015 | half day | 233 | Seed grower, CS user, DOA staff | 3 Townships/ 5 places |
| 4 | FY-2015 | 4th ES training 2015 | 1/2-9-2015<br>15/16/17-9-2015 | half day | 197 | Seed grower, CS user, DOA staff | 3 Townships/ 5 places |
| 5 | FY-2015 | 5th ES training 2015 | 22/23-9-2015<br>6/7/8-10-2015 | half day | 200 | Seed grower, CS user, DOA staff | 3 Townships/ 5 places |
| 6 | FY-2015 | 6th ES training 2015 | 21/22-10-20-<br>22/23-10-2015 | half day | 216 | Seed grower, CS user, DOA staff | 3 Townships/ 5 places |
| 7 | FY-2015 | 7th ES training 2015 | 16/17-11<br>18-19-11-2015 | half day | 197 | Seed grower, CS user, DOA staff | 3 Townships/ 5 places |

| Sr. | Year | Name of Meeting/Workshop/Seminar/Training | Date | Duration | No. of Participants | Target | Venue |
|---|---|---|---|---|---|---|---|
| (5) Technical Workshop / Seminar | | | | | | | |
| 1 | FY-2011 | Quality Rice Seed for better future | 19-8-2011 | 3 days | 88 | DOA, DAR | DAR Yezin |
| 2 | FY-2011 | Plant Protection (Dr. Natsuaki, Rice Diseases) | 22-8-2011 | half day | 50 | Farm, YAU | Hmawbi Farm |
| 3 | FY-2011 | Quality control for rice seed (Dr.Ikeda, Mr.Irie) | 25-8-2011 | half day | 30 | Farm, YAU | Hmawbi Farm |
| 4 | FY-2011 | Quality control for rice seed (Mr. Eto) | 28-2-2012 | half day | 30 | Farm staff | Hmawbi Farm |
| 5 | FY-2011 | Quality control for rice seed (Mr.Eto) | Mar-12 | 2 hour | 30 | Laboratory Staff | Seed Laboratory |
| 6 | FY-2011 | Quality control of rice seed multiplication | 6-3-2012 | half day | 55 | DOA, DAR | DAR Yezin |
| 7 | FY-2011 | Quality control of rice seed multiplication | 9-3-2012 | half day | 15 | DOA, DAR | DAR MM |
| 8 | FY-2011 | Quality control of rice seed multiplication | 10-3-2012 | half day | 35 | EW, Farmers | Myaungmya |
| 9 | FY-2011 | Quality control of rice seed multiplication | 12-3-2012 | half day | 30 | EW, Farmers | Labutta |
| 10 | FY-2011 | Quality control (Dr. Ikeda) | 14-3-2012 | 2 hour | 35 | Farm, YAU | Hmawbi Farm |
| 11 | FY-2012 | Quality control (Mr.Okada) | 3-6-2012 | 2 hour | 32 | EW, Farmers | Labutta |
| 12 | FY-2012 | Quality control (Mr.Okada) | 4-6-2012 | 2 hour | 20 | EW, Farmers | Myaungmya |
| 13 | FY-2012 | Quality control (Mr.Okada) | 5-6-2012 | 2 hour | 20 | EW, Farmers | Hinthada |
| 14 | FY-2012 | Plant protection (Dr.Natsuaki,Rice virus) | 8-8-2012 | 2 hour | 45 | Farm, YAU | Hmawbi Farm |
| 15 | FY-2012 | Plant protection (Dr.Natsuaki,Rice virus) | | 2 hour | 15 | PP Staff | Plant Protection |
| 16 | FY-2012 | Quality Rice Seed multiplication | 10-8-2012 | 1 day | 80 | DOA, DAR | DAR Yezin |
| 17 | FY-2012 | Seed Grader & Plan (Mr.Okada) | 19-12-2012 | 2 hour | 25 | EW, Farmers | Myaungmya |
| 18 | FY-2012 | Seed Grader& Plan (Mr.Okada) | 21-12-2012 | 2 hour | 20 | EW, Farmers | Hinthada |
| 19 | FY-2012 | CS Distribution (Mr. Okada) | 9-1-2013 | 2 hour | 25 | EW, Farmers | Myaungmya |
| 20 | FY-2012 | CS Distribution (Mr. Okada) | 10-1-2013 | 2 hour | 20 | EW, Farmers | Hinthada |
| 21 | FY-2012 | Quality control (Mr.Eto) | 16-2-2013 | 2 hour | 30 | EW, Farmers | Labutta |
| 22 | FY-2012 | Quality control (Mr.Eto) | 17-2-2013 | 2 hour | 25 | EW, Farmers | Myaungmya |
| 23 | FY-2012 | Quality control (Mr.Eto) | 27-3-2013 | 1 day | 20 | EW, Farmers | Hinthada |
| 24 | FY-2013 | Seminar of Weedy Rice (Hmawbi Farm) | 31-7-2013 | 2 hour | 30 | Farm staff | Hmawbi Farm |
| 25 | FY-2013 | Seminar of Weedy Rice (DAR-MM) | 9-8-2013 | 2 hour | 10 | Farm staff | DAR-MM |
| 26 | FY-2013 | Seminar of Weedy Rice (Hinthada Farm) | 13-8-2013 | 2 hour | 10 | Farm staff | Hinthada Farm |
| 27 | FY-2013 | Seminar of BS/FS Production | 27-8-2013 | 2 hour | 14 | 3 Seed farms | DAR Yezin |
| 28 | FY-2013 | Plant Protection Workshop | 28-8-2013 | 1 day | 51 | DOA, DAR | DAR Yezin |
| 29 | FY-2013 | Plant Protection Seminar (Dr. Tsuchiya) | 29-8-2013 | 2 hour | 15 | PP Staff | Plant Protection |
| 30 | FY-2014 | Seminar for field Inspection | 22-9-2014 | half day | 9 | Hinthada staff | Hinthada Farm |
| 31 | FY-2014 | Seminar for field Inspection | 26-9-2014 | half day | 30 | Hmawbi staff | Hmawbi Farm |
| 32 | FY-2014 | Seminar of BS/FS Production | 17-10-2014 | half day | 14 | 3 Seed farms | DAR Yezin |
| 33 | FY-2014 | Technical exchange | 27-10-2014 | half day | 10 | 3 Seed farms | Hinthada |

| Sr. | Year | Name of Meeting/Workshop/Seminar/Training | Date | Duration | No. of Participants | Target | Venue |
|---|---|---|---|---|---|---|---|
| 34 | FY-2014 | Field day | 16/21/28-10-2014 | half day | 90 | Rice miller, Farmers | 3 Townships |
| 35 | FY-2014 | Pathein Seminar 1 | 9-12-2014 | half day | 72 | 26 T/S, 6 District, 7Farms | Pathein |
| 36 | FY-2014 | Seminar for Quality Seed | 18-12-2014 | half day | 50 | DOA Staff | CARTC |
| 37 | FY-2015 | Seminar for Quality Seed (seed & grain) | 19/20-3-2015 23/24-3-15 | half day | 150 | Farmers of 3 T/S | 3 T/S |
| 38 | FY-2015 | Pathein Seminar 2 | 27-5-2015 | 1 day | 70 | 26 T/S, 6 District, 7Farms | Pathein |
| 39 | FY-2015 | Seminar for Quality Seed | 17-8-2015 | half day | 40 | IRRI farmers | Hmawbi Farm |
| 40 | FY-2015 | Field day (The 1st) | 25/26-8-2015 3-9-2015 | half day | 30 | Rice miller, Farmers | 3 Townships |
| 41 | FY-2015 | Seminar for Field Inspection | 22-9-2015 | half day | 10 | Hinthada Farm | Hinthada Farm |
| 42 | FY-2015 | Pathein Seminar 3 | 29-9-2015 | 1 day | 67 | 26 T/S, 6 District, 7Farms | DAR-MM |
| 43 | FY-2015 | Seminar for Field Inspection | 2-10-2015 | half day | 30 | Hmawbi farm | Hmawbi staff |
| 44 | FY-2015 | Seminar of BS/FS Production | 19-10-2015 | 1 day | 30 | 3 Seed farms | DAR Yezin |
| 45 | FY-2015 | Seminar for Quality seed | 27-10-2015 | half day | 86 | State & Divisions | DAR-Yezin |
| 46 | FY-2015 | Field day (The 2nd) | 29-10-2015 4-10-2015 | half day | 20 | Rice miller, Farmers | Hinthada Laputta |
| (6) PLA and RRA Trainings | | | | | | | |
| 1 | FY-2012 | PLA and RRA training for Extension Staff | 28-8-2012 | 1 day | 56 | 3 T/S DOA staff | Hinthada |
| 2 | FY-2012 | PLA and RRA training for Extension Staff | 30-8-2012 | 1 day | 42 | 3 T/S DOA staff | Labutta |
| 3 | FY-2012 | PLA and RRA training for Extension Staff | 1-9-2012 | 1 day | 23 | 3 T/S DOA staff | Myaungmya |
| 4 | FY-2013 | PLA and RRA training for Extension Staff | 20/21 -6-2013 | 2 days | 17 | 3 T/S DOA staff | Hinthada |
| 5 | FY-2013 | PLA and RRA training for Extension Staff | 25/26 -6-2013 | 2 days | 14 | 3 T/S DOA staff | Labutta |
| 6 | FY-2013 | PLA and RRA training for Extension Staff | 27/28 -6-2013 | 2 days | 20 | 3 T/S DOA staff | Myaungmya |
| 7 | FY-2013 | PLA and RRA training for Extension Staff | 23-8-2013 | 1 day | 51 | 3 T/S DOA staff | Gyogone |
| (7) Post Harvest Machinery Trainings | | | | | | | |
| 1 | FY-2012 | Post harvest machinery training (Mr. Akutsu) | 23-11-2012 | half day | 11 | DAR, YAU | DAR Yezin |
| 2 | FY-2012 | Post harvest machinery training (Mr. Akutsu) | 27-11-2012 | half day | 16 | DOA, DOA | Myaungmya |
| 3 | FY-2012 | Post harvest machinery training (Mr. Akutsu) | 2012/3/12 | half day | 6 | DOA staff | MRRC |
| 4 | FY-2013 | Harvest and post harvest (Mr. Akutsu) | 31-10-2013 | half day | 15 | DOA staff | Hinthada |
| 5 | FY-2013 | Harvest and post harvest (Mr. Akutsu) | 2013/5/11 | half day | 13 | DOA staff | Labutta |
| 6 | FY-2013 | Harvest and post harvest (Mr. Akutsu) | 2013/7/11 | half day | 27 | DOA staff | Myaungmya |
| 7 | FY-2013 | Harvest and post harvest (Mr. Akutsu) | 2013/11/11 | half day | 27 | DOA staff | MRRC |
| 8 | FY-2013 | Harvest and post harvest (Mr. Akutsu) | 14-11-2013 | half day | 19 | DAR, YAU | DAR Yezin |

## ANNEX 11: Responses to the Recommendations of the Mid-term Review Team

| 1. Recommendations to the Project Team | Current Status in response to the Recommendations |
|---|---|
| (1) Marketing Activities to Function Seed Flow<br><br>Promotional activities for CS marketing has emerged as one of the critical elements to activate present seed flow during the second half of the project period. The Project is suggested to implement detail activities according to Activity 3-4 and 3-5 described in Revised PDM (ver. 3). As seed growers are expected to gain more benefit from these activities, present free distribution of RS and fertilizer in three T/S are recommended to be reviewed in order to determine whether or not to cease in accordance with the results of marketing activities. | Almost achieved.<br>•Demonstration plots of rice cultivation with CS were arranged in three T/S. These plots were made eye-catching with yellow flags. The plot number varies among T/S ranging from 200 to 400. By watching the plots, ordinary farmers can compare the difference of rice cultivation using CS from that using self produced seeds.<br>•In these demonstration plots, field days were held a few times a cropping season, and extension workers explained on the rice cultivation with CS. (Originally, the agenda of field days was virtually nothing more than explanation on the CS production by T/S offices. In order to make the event more effective, the Project Team modified the agenda by involving the visit to demonstration plots attended by extension workers, exchanging views and insights with CS user farmers and rice millers, etc. with experiences and knowledge of CS, so that ordinary farmers would be able to clearly understand the merit of CS utilization.)<br>•Materials were complied together with T/S offices on the benefit of using CS, and were distributed in the field days.<br>•From now on, the Project Team is going to conduct comparative study on the yield of rice cultivation with CS and other seeds including self grown seeds, as well as trial polishing of the rice yielded from CS. These information and events will be used for CS promotion and establishment of CS and quality grain rice market. |
| (2) Report on Issues Emerged after Commencement of the Project<br><br>Since the commencement of the Project in August 2011, the Project has carried several issues which need clarification. The Project is suggested to investigate the cause and details of issues, develop measures to take, and summarize them in a report. Some of the issues and observation are listed below:<br><br>- Red Rice Problem; review multiplication practice of upper seed class.<br>- Selection/Replication of Target Farmers: consider to change based on their performance. | •"Anti-Red Rice Manual" was prepared through discussion with CPs and in association with advice from short-term experts, in November 2015. The Manual was distributed to relevant DOA offices, including T/S offices. Using the Manual, trainings were held targeting seed growers on the countermeasures against red rice problems.<br>•Seminars on red rice problems were held in seed farms. Countermeasures were explained in the trainings organized by DOA, too.<br>•To ensure the sustainability of the Project, free distribution of chemical fertilizer to CS growers and storage of a part of produced CS in T/S warehouses, were halted, after monsoon cropping in 2014.<br>•Since then, selection of seed producing farmers has been executed every crop season, based on their motivation and capacities. |
| (3) Prepare a List of Outcomes<br><br>The Team recommended the Project to prepare a list of outcomes toward expansion of project outputs after project period. Organizing achievements and lesson learned from project activities including above (2) serves as guidelines for the Project to further promote activities. | Appropriately Responded<br><br>•In the 2nd half of the Project, manuals and guidelines have been prepared based on the achievements of the Project activities. Manuals and guidelines officially approved by the Myanmar side were distributed to relevant stakeholders.<br>•The Project Team is planning to compile various materials prepared under the Project, for trainings, awareness raising, exhibitions, etc. into booklets and save the data on the disk. These booklets and disks will be distributed to relevant DOA staffs of T/S offices, etc. in Ayewayady deleta region so that extension workers will be able to use them effectively even after the Project cooperation period.<br>•Outputs by short-term experts are translated into English or Burmese language, as necessary, and are distributed to relevant stakeholders. |

| 2. Recommendations to the Myanmar Side | Current Status in response to the Recommendations |
|---|---|
| (1) Integrate Project Achievement with Seed Policy<br><br>The Myanmar side indicated a prospect that the use of CS would be expanded to 80% in the favorable area for rice cultivation in Ayeyawady region after 3 to 5 years from the Project termination. The Myanmar side also pointed out the necessity of formulation of seed action plan to realize above said prospect. Japanese side respected eagerness expressed by the Myanmar side and suggested to examine steps toward the target within the government and to integrate the project achievements with Seed Policy and seed development strategy at national level. | Not yet responded.<br><br>•Seed Policy was drafted in (when?), but has not been put into effect yet as of February 2016. As a result, it is difficult to formulate consistent seed development strategy and take necessary actions at national level.<br>•It is necessary to finalize and enforce the Policy without delay taking into consideration the current status of seed development of main crops. |
| (2) Budget Allocation for the smooth Operation of the Project<br><br>The Project conducts a series of activities and provided equipment and facilities in the field of extension works and seed multiplication. For the smooth operation of the Project activities, the Team requests the Government of Myanmar to allocate more budgets on time to facilitate technical transfer and capacity development. | Not Fully Responded yet<br><br>• T/S budget for extension activities is limited: even expense for fuel of transportation (motorcycle) has not been sufficiently covered at the moment.<br>•The budget for quality control of BS/FS/RS multiplication in DOA seed farms has been also insufficient.<br>•Meanwhile, the Regional Government of Ayeyawady allocated budget from Poverty Reduction Fund (2014) to townships. The three T/S started to establish revolving fund using the budget to purchase and sell CS. |
| **3. Recommendations to the Japanese Side** | **Current Status in response to the Recommendations** |
| (1) Information Exchange on Seed Policy in Myanmar<br><br>The Japanese side is recommended to exchange information with the Myanmar side about experiences of other JICA projects accumulated in and out of Myanmar as as to integrate project outcomes at policy level, and support the Myanmar side to facilitate formulation of seed action plan for quality seeds. | •For supporting the Myanmar side to formulate seed action plan for quality seeds, regional seminars were conducted three times targeting DOA regional offices and DOA T/S offices in Ayeyawady delta area. |

ANNEX12: Proposed Modified PROJECT DESIGN MATRIX (PDM) (Revised on 18th February, 2016) (Version 5)

Project Title; Project on Development of Participatory Multiplication and Distribution System for Quality Rice Seed
Duration; 5 years from 9th August, 2011
Project Area; Ayeyawady Delta Region
Target Group; DAR and DOA staff, Regional DOA Satff of Ayeyawady Region, Seed Farm's staff (Hinthada, Myaung Mya and Hmawbi), and Farmers living in Hinthada, Myaung Mya & Labutta T/S

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Important Assumptions |
|---|---|---|---|
| **Overall Goal**<br>Quality seed of rice is widely used by farmers in Myanmar. | In the favorable area for rice cultivation in Ayeyawady region;<br>1. Number of CS producing farmers(*) increase from 150 to 663.<br>2. Acreage of CS producing farms(*) increase up to 2,601.5 acre.<br>3. Field inspection is conducted for 40% of CS producing farms and all seeds that have passed field inspection are sent to laboratory test.<br>4. Genetic purity of BS is maintained. | 1. & 2. Interview to T/S office (sample)<br>3. Results of field inspection and Lab test (sample)<br>4. Visual Evaluation, Culm length, Panicle length, and Heading timing | 1. Strategy for production of rice seed is improved.<br>2. Seed market in Ayeyawady delta exists. |
| **Project Purpose**<br>Participatory multiplication and distribution system for quality seed of rice is established in Ayeyawady delta area. | 1. More than 150 farmers continue to multiply CS every year in the project site.<br>2. Passing rate of CS inspection become more than 50 % in the project site.<br>3. More than 70% of CS, which is excluded for own-use of the seed growers, produced in the Project site will be sold by 150 seed growers.<br>4. Action Plan on expansion of quality seed rice is formulated. | 1. Progress Survey by the Project<br>2-1. Result of Lab test<br>2-2. Result of Field Inspection<br>3. Project report on CS production<br>4. Action Plan | 1. Seed flow in Myanmar does not change significantly.<br>2. CS demand in Ayeyawady region does not decrease.<br>3. Necessary RS is produced. |
| **Outputs**<br>1. Capacity for production of BS in DAR is improved. | 1.1 Guideline of quality control technology for BS multiplication is prepared.<br>1.2 More than 9 varieties of BS which meet demand of the farmers are satisfied with the seed standards.<br>1.3 DAR researchers master BS multiplication and quality control methods. | 1-1. Guideline on BS production of DAR.<br>1-2. BS production record of DAR farm<br>1-3-1. Project progress report<br>1-3-2. BS production record of DAR | No significant natural hazards occur that will impact rice cultivation in project target area. (e.g. drought, floods, diseases and pests) |
| 2. Capacity for production of FS and RS is improved and quality control system is strengthened in DOA Seed Division | 2.1 More than 9 varieties of FS and RS which meet demand of the farmers are satisfied with the seed standard.<br>2.2 Capacity of staff from DOA Seed Div. as trainer for field inspection training is increased<br>2.3 Number of RS and CS of rice sample for laboratory inspection in Seed Division in | 2-1-1.Production plan of seed farms<br>2-1-2.Result of field and laboratory seed inspection (survey / reports)<br>2-2-1. Training record<br>2-2-2 Interview to staff at DOA | |

| | | | |
|---|---|---|---|
| | Yangon increase 2 times or more than that of 2011.<br>2.4 Field inspection and lab test are implemented for 150 seed farms in the Project site. | Seed Division<br>2-3. Result of Lab test<br>2-4-1. Result of Field inspection<br>2-4-1. Result of lab test | |
| 3. Capacity of instruction in DOA Extension Division is improved for CS production by seed growers. | 3.1 Evaluation/satisfactory rate of seed growers toward extension services is improved.<br>3.2 Farmers' knowledge on CS and CS market information increase more than situation indicated in the 1st baseline survey. | 3-1. Result of questionnaire for seed growers (sample)<br>3-2. Result of 2nd baseline survey for seed growers and paddy farmers on CS and CS market | |
| **Activities**<br>0 Conduct baseline survey to identify the needs of market and farmers.<br>1.1 Review and improve the productive technology for BS.<br>1.2 Produce BS including indigenous varieties in DAR.<br>1.3 Improve research facilities in DAR Rice Division.<br><br>2.1 Review the system of seed production and distribution through DOA to farmers.<br>2.2 Improve facilities of DOA Seed Farms.<br>2.3 Produce FS and RS including indigenous varieties in DOA Seed Farms<br>2.4 Review the Field inspection system of DOA<br>2.5 Conduct OJT on Field inspection for Seed Division Staff<br>2.6 Improve facilities of Seed Laboratory Center in Yangon<br><br>3-1. Conduct training on seed production and technology dissemination for extension workers in the Project site.<br>3-2. Target T/S office formulates a CS production plan with consideration of farmers' needs.<br>3-3. Extension workers transfer technique on CS production to seed growers.<br>3-4. Extension workers conduct awareness building on benefits of CS for paddy farmers.<br>3-5. Collect information on CS and CS market information, and share it with concerned stakeholders in the Project site.<br>3-6. Improve facilities related to CS production in the Project site. | **Input**<br>**Myanmar Side**<br>1. Assign sufficient number of counterparts<br>- Project Director<br>- Project Managers<br>- Other technical and managerial staff<br><br>2. Land, Office space and Facilities<br><br>3. Local cost (project running expenses) | **Japanese Side**<br>1. Dispatch long term experts<br>- Chief Advisor<br>- Coordinator/ Agricultural Extension<br>- Rice Seed Multiplication<br><br>Dispatch short term experts<br><br>2. Provision of equipment (such as equipment for laboratory and farm machineries etc.)<br><br>3. Provision counterparts training in Japan and in third countries | 1. Rice seed production policy of MOAI is not changed.<br><br>2. Appropriate C/P personnel are assigned in the project.<br><br>**Preconditions** |

DAP: Department of Agricultural Planning, BS: Breeder Seed FS: Foundation Seed RS: Registered Seed CS: Certified Seed
DAR: Department of Agricultural Research, DOA: Department of Agriculture,
*CS producing farmers/farms are those adopt "CS quality control measures" with technical guidance of DOA extension workers which have been practiced in the project.

# ANNEX 13 Farmer's benefit from JICA's Seed Project

| Per acre income | | Base case | Case 1 | Case 2 |
|---|---|---|---|---|
| | | Grain Production from non-CS | CS Production | Grain Production from CS |
| Revenue | | | | |
| (A) Production | baskets | 70 | 65 | 80 |
| (B) Price | kyat | 6000 | 8,000 | 6,300 |
| (C) Revenue (A)×(B) | kyat | 420,000 | 520,000 | 504,000 |
| | | | | |
| Cost | | | | |
| (D) Seed Cost | kyat | 6000 | 8,000 | 8,000 |
| (E) Production Cost | kyat | 150,000 | 200,000 | 150,000 |
| (F) Total Cost | kyat | 156,000 | 208,000 | 158,000 |
| | | | | |
| Income | | | | |
| (G) Net income (C)-(F) | kyat | 264,000 | 312,000 | 346,000 |
| Income increase from Base case | kyat | | 48,000 | 82,000 |
| Income increase from Base case | % | | 18% | 31% |

Note1: Production Cost does not include family labor cost.

Note2: Seed Market is still at emerging stage in Ayeyawady Region, so the price is still low compare to upper Myanmar

Effect: **The project raised farmer's income**
Typical farmers (*) cultivates 7.3 acres of farm land, so the amount of increased income is as follows. 82,000 kyat × 7.3 = 598,600 kyat (*) Most farmers in Ady cultivate 5-10 acres.

Impact : **The project benefited about 1,000 farmers (potentially 3,000 farmers will get benefit as seed replacement is necessary every 3 years)**
8,216 basket (CS Production in 2014)/ 1 basket (*) / 7.3 acre (Mode in Ady Delta) = 1,125 farmers
(*) 1 basket of CS is enough for 1 acre transplanting.

## 16. 面談録

面談録①

| | |
|---|---|
| 面談先 | 日本人専門家 |
| 日時 | 2 月 1 日　11：00- |
| 場所 | Project 事務所(ジョゴン) |
| 先方 | 藤井総括、岡田専門家、三木専門家 |
| 我が方 | U Thet Pyin（通訳）、東野（評価分析） |
| 要旨 | • 現場調査のスケジュール確認<br>• プロジェクト事前資料の内容について確認作業 |

面談録②

| | |
|---|---|
| 面談先 | MRRC (Myanmar Rice Research Center)（Hmawbi 種子圃場） |
| 日時 | 2 月 1 日　13：00- |
| 場所 | MRRC（Myammar Rice Research Center）所長室 |
| 先方 | U Aye Chit （プロジェクト・マネージャー（MRRC 所長）） |
| 我が方 | 藤井総括、岡田専門家、U Thet Pyin（通訳）、東野（評価分析） |
| 要旨 | • MRRC Hmawbi は 1908 年創立。現在職員数 47 名で、JICA プロジェクトには技術系の職員 35 名が何らかの形で参加している（種子生産、品質管理、研修など）。平均年齢は 36 歳程度<br>• 問うセンターで対象としている品種は年度ごとに異なるが、現在は、FS を 6 品種（エヤメイン（Ayerminn）、シントゥカ（Sinthukha）、モビー２（Hmawbi）、シエラトゥン（Shwewarthun）、トゥーケイヤン（Thukhayin））RS を 4 品種（エヤメイン、シントゥカ、モビー２、ポサンイェン(Pawsanyin)）生産している。<br>• MRRC Hmawbi の種子生産量は、農業灌漑省本省の（農業局種子課、普及課、農業研究局）の指示によって決められる。その基となるのは州ごとの農民のニーズ調査。作期ごとにニーズによる種子の種類と生産量が指示される。<br>• 供与機材について：供与資機材は概ね適切に管理され、使用されている。ただし、中には、seed counter(SEEDBURO)のように故障して使用できないものもある。冷蔵庫のようにヤンゴンの代理店で対応可能なものもあるが、電子機器の故障の場合は、対応が難しい由。電圧の変動、停電によるトラブルもある。<br>• 種子圃場は全面積（道路なども含めて）450 エーカー。そのうち 270 エーカーが圃場。種子の増殖は、現在モンスーン作として、シントゥカ (20 エーカー)、ハイブリッド(10 エーカー)、エイヤメイン（15 エーカー）の 3 品種 45 エーカーを作付け中。水源は地下水(ポンプ燃料費大)。また、研究用の試験栽培を 5 エーカー行っている。<br>• 圃場審査は、達観調査に変えて能率が向上した。調査のポイントは葉の色、茎の長さ、分けつ状態など。<br>• プロジェクトの参加によって、イネの栽培法（水管理など）を日本人専門家と一緒に行い、理解が深まった、また、種子生産では、圃場審査の方法を変えたのが大きい。種子生産に携わる人間にとって非常に重要な事項である。<br>• プロジェクトが順調に進んでおり、個人的には何の問題も感じていないが、資機材については、予算に余裕が無いので、日本側に引き続き支援を受けたいと思っている。またプロジェクトの延長を御願いしたい。<br>• 技術移転は十分に行われており、独力で今まで学んだ技術を継続していく自信はある。<br>• これまで数多くの研修を受けてきたが、今後は、農民に研修を行って優良な種子のメリットを伝えていきたい。<br>• CS の価格は最近上昇しつつあり、ある種子生産農家の話では、非 CS 種子の価格が 4000k/bsk に対して、CS 種子は 7500/bsk で販売する予定だとのこと。米の輸出自由化などの政策もあり、質の良い種子の需要が高まっている。フィールドデイや展示圃場の効果もあると考えている。<br>• プロジェクトでは様々な研修教材が作成されたが、それを活用して、NGO（World Vision）や、対象 T/S 以外を対象として研修も行うようになった。IRRI を対象として圃場審査の方法に関する研修も予定している。 |

面談録③

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| 面談先 | Hinthada Township　現地視察 |
| 日時 | 2 月 2 日　13：00− |
| 場所 | Hinthada 普及キャンプ |
| 先方 | Daw Kyi Kyi Htay (assistant staff officer)、 Daw Thien Htay (Deputy Staff Officer) |
| 我が方 | 岡田専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin（通訳）、東野（評価分析） |

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| 要旨 | • Hinthada のモンスーン作は例年 6 月頃であり、2 月は豆類の栽培が主体である。今は普及員としては比較的時間にゆとりがある時期である。<br>• これまでプロジェクトでは、モンスーン作中には、種子生産農家の選択や、研修参加を行ってきた。担当村落（インダウェイ）で 20 名前後を選び、種子を配布したりした。また、苗床作りなどの栽培技術を支援してきた。種子生産農家については、一週間に一回を目処に圃場の状況を見に行く。<br>• 圃場審査は、分けつ期、開花期、と熟期に一回行い、異株の除去を行った。プロジェクトで研修を受けたように（圃場に 10 歩入って、自分の両側 3 列について目視し 6 列 x2＝12 列を検査する）行った。プロジェクトで作成したマニュアルもある。<br>• プロジェクトの研修は、2012 年以来、年間 5 回、6 回参加して、すでに 11 回受講している。JICA のプロジェクトで、この普及キャンプが建設されてからは、今まで教わってきたことを農民に伝える活動を行ってきている。農家は座学やテキストを読むより、実際に圃場でやってみせることを好む。また、農家に学んだことを発表してもらうなどの試みをしている。<br>• 農家の栽培技術は向上していると感じている。昔は CS のことなどほとんど知らなかったが、今では、プロジェクトが栽培している圃場の整然としたイネの生育状況を見て、同じものを行いたいと望む農家が出てきている。<br>• 種子の価格は、2015 年の例では、CS では 1basket あたり 6,500Ky ほどで売れるが、それ以外の種子は 5,000ky 程度であり、3 割ほど高い価格がついている。2010 年までは、CS とそれ以外の飯米という意識が低く、種子の値段は 2,800ky 程度だったので、今は、倍以上となっている。ちなみに豆類は、2010 年に 20,000ky だったが、2015 年には 50,000ky になっているので、これも倍くらいに値上がりしている。<br>• CS については質の面だけでなく収量も増えることが確認出来ており 1 エーカーあたり 90−95basket が取れる。CS 以外の種子では 70basket 位なので、収量が 3 割程度増えることとなる。CS の中の赤米は、CS 基準では 500 グラム中に 5 粒以下とされているが、赤米の発生は減ってきている。<br>• プロジェクトが終了しても CS の生産を続けたい農家は増えると思うとのこと。 |

面談録④

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| 面談先 | DOA　Hinthada District 及び Township 事務所職員 |
| 日時 | 2 月 2 日　14：30- |
| 場所 | DOA Hinthada Township 事務所 |
| 先方 | Daw Nilar Aung (District Seed Officer)/Daw Myint Myint Htar (Deputy Staff Officer) /Daw Aye Aye Yu (District Staff) |
| 我が方 | 岡田専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin（通訳）、東野（評価分析） |
| 要旨 | <u>Daw Nilar Aung</u><br>• プロジェクトが開始して 4 年半だが、自分としては、2 年ほど前から、優良種子生産に対する理解が進んだのではないかと感じている。<br>• 研修が年 5 回程度行われてきており Myanungmya での研修にも参加した。<br>• 優良種子の生産の重要性について、以前は知らなかったが、プロジェクトのおかげで重要性を理解し、技術面についても理解が深まった。<br>• 2015 年以降は、農家に研修を行い知識と技術を伝達している。農家は今までは種子の品質を考えたことは無かったが、プロジェクトの実施で、質の良い種子の生産の具体的な方法を身につけている。<br>• 今までは種子と飯米の価格差が無かったが、今は種子マーケットというものが形成されつつあり、また、District 事務所としても所長をはじめ、種子市場を形成しようと努力している。<br>• JICA の活動を見て、農民の信頼感が増し、今では、収穫前から CS を欲しいという農家も出てきている。バスケットあたり 6,000ky でも買うようになった。CS として認証されるにはラボ検査に合格しなくてはならないが、その手間を嫌っ、直接圃場で行われる売り買いもあるようだ。<br>• 農民は、CS の検査に到る手間を省きたいと思っているが、我々としては、彼らに対して、審査に合格すれば、歩留まりは減っても良い価格で売れ、全体として儲かる、また、検査に合格して種子として得れば、もっと良い値で売れるという説明をしている。<br>• ラボテストに合格した CS は、生産農家の名前を記したタグをつけている。CS を買い取る予算は、貧困削減ファンドを利用している。Hinthada District では、プロジェクトが終了する 2016-2017 の計画として、Model Seed Village で CS 生産をする計画がある。JICA の種子生産農家も参加する予定である。<br><u>Daw Myint Myint Htar</u>：<br>• プロジェクトの研修に参加し、現在は農民にも伝えている。今までの種子生産農家以外にも、種子生産に興味を示す農家に対象を広げて、種子マーケットを形成したいと考えている。<br>• Hinthada を CS 生産地として有名にしたいと思っている。 |

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| | Daw Aye Aye Yu<br>• Hinthada District 下の 6 T/S すべてで CS 生産を行いたいと考えている。すでに Model Seed Village では DOA の計画に従って、肥料が配布され、100 人くらいが種子生産を行っているが、今までは必ずしもうまく行かなかった。これから JICA の導入した方法で、質が良くなっていくと期待している。<br>• Model Seed Village は種子生産のために、単独、或いは複数の村落で 100 エーカーを確保し、種子生産を行う制度。コンタクトファーマーは、種子生産を行う農家の中で、資本を持ち、DOA の方針に従って栽培できる能力を持つ農家を選抜している。<br><br>設備見学：種子貯蔵庫と脱穀場の設置が JICA によって行われた。その他には Seed Grader の供与など。貯蔵庫が清掃されていなかった（大雨の時に家畜用の飼料を一時保管した由。その後の清掃がなされていなかった）ため、清掃の依頼をした。 |

面談録⑤

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| 面談先 | Hinthada 種子圃場視察 |
| 日時 | 2 月 2 日　16：00- |
| 場所 | Hinthada 種子圃場 |
| 先方 | 農場副場長他スタッフ数名 |
| 我が方 | 岡田専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin（通訳）、東野（評価分析） |
| 要旨 | • DOA Seed Farm (Hinthada) 職員数は全 16 名。技術者は 8 名。敷地は 130 エーカーで圃場は 75 エーカー。<br>• 現在は、ティータティン（Theehtatyin）を 2 エーカーと豆類は 50 エーカー作付けしている。モンスーン作は 75 エーカーすべてでイネの作付をけする。エイヤメン、シントゥカ、セントウェラ（Sinthwelatt）の三品種の種子を生産している。2015 年には、FS と RS の合計で 3,000 トンを生産した。<br>• この種子農場は、主に Hinthada の 6 T/S に配布する種子を生産しており、余剰があれば、一般の農民にも売っている。最近は、JICA のプロジェクトを通じて優良種子に対する問い合わせが増えている。<br>• 現在ミャンマーの種子検査で認定書を出せる組織はヤンゴン（ジョゴン）、ネピドー、マンダレーの三カ所。その他、バゴー、カレン州にも検査所ができているが、認定書を出す機関となるのかどうかは不明。エーヤワディのような南部からの米の検査は、すべてジョゴンで行っている。 |

面談録⑥

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| 面談先 | Hinthada Township 農民 |
| 日時 | 2 月 3 日　8：00- |
| 場所 | Hinthada 普及キャンプ |
| 先方 | 種子生産農家、一般農家、精米業者(合計 20 名程度) |
| 我が方 | 岡田専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin（通訳）、東野（評価分析） |
| 要旨 | • DOA スタッフに研修実施の際の費用について確認。農民を対象とした研修を行う場合の費用は、交通費、教材費、食費などで一人 5,000kyat 程度を見込む。<br>農民への聞き取り<br>• 農民は最終的に全 10 名来所。まず最初に来所した 2 名から話を聞いた。<br>• 2 人の年齢は 60 歳。所有する農地は、それぞれ 26、 4 エーカー。栽培しているイネの品種は Sinthuka である。それぞれ、昨年の雨季作では、エーカーあたり、80bsk、95bsk を収穫した。<br>• プロジェクトについて：技術的には、苗床の作り方、移植時記、移植時の条植え（6 列、1 列空け）、除草、異株除去など、学ぶことが多かった。種子の質ということに関しても従来よりずっと理解が進んだ。以前は、食用の米と種子用の米という区別をしていなかった。<br>• また、質の良い種子を使うと、以前は 1 エーカーあたり 2bsk 必要であったのが 1bsk で済み、収量も多いことが分かった。去年は収穫した CS を一人は 6,500 kyat/bsk で販売した。一人は、8,500 kyat/bsk で販売するつもりであり現在種子を貯蔵している（seed bank を作るつもりである）。昨年は 7500 kyat／bsk で 100bsk を販売した。<br>• 種子用の稲と食用の稲を作る際のコストであるが、種子用では 1 エーカーあたり 12 万 kyat かかる。食用の稲は 10 万 kyat くらいかかる。<br>• 昨年マンダレーに見学旅行に行ったが、種子は 9,000kyat/bsk で売れることを知り驚いたとのこと。（後から集まってきた 8 人の農家全員に聞いた）2012 年からプロジェクトに参加しているものは 8 名中 6 人。その他 2 名は 2015 年から参加しているとのこと。<br>• エーカーあたり 90bsk 以上収穫したもの 2/8 名。80−90bsk のもの 6/8 名。種子の販売価格は |

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| | 6500ky/bsk が 7/8 人（1 人は保存して価格が上がるのを待っているとのこと）。<br>• 全員に JICA プロジェクトに対する印象を聞いた。総じて、技術的な研修の効果、技術を習得して栽培に自信が持てたこと、質の良い種子を作ることで、それが高く売れることがわかりやる気が出ていることなどのコメントであった。<br>• また、農業機械のレンタルの際に、他の品種を栽培している農家が使った農業機械（コンバイン）などを使用すると、種子が混ざって、コンタミネーションが起こるので、種子農家専用の農業機械のレンタルがあるといいという意見が聞かれた。<br>• 最初の二年間くらいは種子の生産というものの意味がわからなかったが、実際にどのようなものなのか、JICA の指導した圃場を見て、他の圃場の稲の生育状況と違うことが理解できた。今は、一般農家から CS の引き合いと問い合わせが多くて、自分の場合には生産が追いつかない。<br>9：20−精米業者からの聞き取り。4 名参加。U Hla Myint （業務歴３０年）、U Hla Kyaing（<br>• 20 年）、U Naing Win（20 年）、Daw Mya Mya Win（20 年）。それぞれ、年間の取り扱い量は、10 万-20 万 bsk 位とのこと。<br>• Hinthada T／S には大小、200 位の精米業者がいる。<br>• ミャンマーは過去の政権の供出制度などで縛られ、農民はとにかくノルマの生産量を上げることを目的に稲作を行ってきた歴史がある。そのため、米の質ということには全く目が向いていなかった。<br>• JICA のプロジェクトが実施され、対象地区の農家は、やっと質の重要さに気がついたというところだろう。<br>• 生産されるシントゥカの質が向上していると感じる。ただし、今は、JICA プロジェクトの支援もあり、農民はインセンティブを感じているが、JICA プロジェクトが終了したらどうなるかは、懸念がある。<br>• 今後、活動の継続のためには、マーケットの需要を把握し、それに対応する品種を栽培する体制を整え、また、農民と情報を共有することが必要だと思う。また、ブランド化などの戦略も必要だと考える。<br>• 精米所としても、米の品種の需要については、農民に折に触れて伝えている。農民全員が携帯電話を持っているので、情報のやり取りは比較的容易である。<br>10：10−U Htay Lwin (Hinthada District Officer)への聞き取り。<br>• プロジェクト開始当初は、Hinthada の T/S の officer だったが、2012 年 12 月に District (Myeit)に栄転し、2014 年 3 月から Hinthada District の officer として赴任した。<br>• プロジェクトでは、種子生産農家の選出から、種子の配布、栽培方法の指導、種子マーケット情報の普及などについて参加してきている。<br>• 以前は種子マーケットというものが存在しておらず、農民は種子を農民間の物々交換的なやり取りで調達していた（種子も飯米も価格は一緒）。<br>• しかし、JICA プロジェクトが実施され、種子の販売が収益を生むことが理解され、農民が興味を持ち始めている。Field day の開催も効果があった。<br>• 現在種子マーケットを作ろうとしており、資金を工面し（おそらく内務省による貧困削減ファンド）2014 年に 180 万 kyat で開始し、2015 年には、種子の買取ための資金が 300 万 kyat になった。今年は農民も参加する予定である。 |

面談録⑦

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| 面談先 | DOA Myaungmya　Township　事務所職員 |
| 日時 | 2 月 3 日　14:50- |
| 場所 | Myaungmya　Township　DOA 事務所 |
| 先方 | U Tin Maung Nyein (T/S officer)/Daw Thidar(District Seed Officer)/Daw May Yu Maw(T/S Seed in charge) |
| 我が方 | 岡田専門家、三木専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin（通訳）、上堂薗（営農）、東野（評価分析） |
| 要旨 | U Tin Maung Nyein(T/S officer)への聞き取り （プロジェクト開始時期から関わってきており、経緯をよく把握している。）<br>• プロジェクトでは、ミャウンミャの北のチョンファー村、南部のタングレー村で農民を選んだ。選択には、農家の技術力、普及に適した場所などの条件を考量した。<br>• これまでに 7 回の稲作を行ってきており、農民には CS を 1 エーカーずつ生産してもらってきた。モンスーン作はシントゥカ、夏作はティータイティエンを作付けしている。<br>• プロジェクトが開始された当初から、農業灌漑省、タウンシップのスタッフなどの協力しつつ、農民に技術指導を継続し、農民の種子増殖の技術が向上してきた。技術以外では、やはり、水分計や、貯蔵庫などの機材供与と施設の改修が大きな効果があった。農家への普及にも、バイク、コンピュータ、ハンドトラクターなどの資機材を揃えてもらったことが非常に大きい。<br>• また、展示圃場の設置には、対象村落の村長などの協力も大きかった。農民は種子生産の意味と重要性がわかるようになり、種子生産、圃場審査、ラボ検査などの種子生産フローの全体像を把握しつつある。 |

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| | • 精米所のスタッフも、展示圃場を見ると、栽培技術の違いがはっきり分かると言っている。展示圃場は、タンガレーに 25 箇所、チョンファーに 11 箇所設けている(夏作の場合)。<br>• JICA プロジェクトで実施した研修は、農家に対する指導者、教材、設備が揃っており、農民に指導できる体制が整っているので、今後、活動を続けることで、農民の収入の向上につながっていくのではないかと期待している。<br>Daw Thidar (District Seed Officer)<br>• プロジェクトの初期から参加しており、一連の活動を行ってきた。<br>• 農民の技術が向上し、自信を持つようになってきた。<br>• 例えば、農業関係のセレモニーで、来賓を前に、種子栽培の作業のプロセスについて説明できる農民も出てきている。<br>Daw May Yu Maw (T/S Seed in charge)　2015 年のモンスーンシーズンから現職。<br>• それまではタウンシップの普及員をしていた。<br>• 農民の技術指導、除草、異株除去の徹底などの指導を行ってきた。感触として、これらのことを 10 名中 6 名は、こちらが指導しなくても自主的にやるようになってきている。<br>• 2015 年の雨季には大雨があり、苗床が損傷し、作付けできなかった農民も出た。<br>• 条植えの手順（ロープを使う）をきちんと守らない農民もまだいる。 |

面談録⑧

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| 面談先 | DAR Myaungmya　種子圃場 |
| 日時 | 2 月 3 日　16:00- |
| 場所 | DAR Myaungmya　種子圃場 |
| 先方 | U Htein Lin Tun 所長 |
| 我が方 | 岡田専門家、三木専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin(通訳)、上堂薗(営農)、東野（評価分析） |
| 要旨 | • DAR の種子圃場は全 50 エーカー。現在は、夏作、ティータイエンを栽培している。その他シントゥカ 5 エーカー。<br>（BS という立て札のある圃場が見られたが）BS 生産はイエジンだけで行っており、ここでは、FS/RS 生産の知識向上のために BS の栽培訓練を行っている。<br>• 昨年の FS/RS の生産の実績は、シントゥカ：700bsk、ティータイティエン：750bsk、ミャウンミャメイ（Myaungmyamay）：150bsk、ナンガー（Hnankar）：200bsk の計 1,800bsk。<br>• 例年この程度の生産を行っている。RS の販売価格は 14,000kyat/30kg とのこと。 |

面談録⑨

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| 面談先 | Myaungmya Township　農民 |
| 日時 | 2 月 4 日　8:30- |
| 場所 | Myaungmya Township　普及キャンプ |
| 先方 | 種子生産農家、一般農家、精米業者、仲買人 |
| 我が方 | 岡田専門家、三木専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin(通訳)、上堂薗(営農)、東野（評価分析） |
| 要旨 | CS 生産農家　4 名 (U ZAW MIN/U WIN HLAING/U THET NAING/U HTAY AUNG)<br>シントゥカ栽培 1 名、ティータイティエン栽培 3 名。土地の面積は、8 エーカー2 名。44 エーカー 1 名、26 エーカー1 名。<br>• JICA のプロジェクトの研修で栽培技術を学び、収量が増えた。<br>• 収量は研修を受ける前は 50bsk だったが、今は 80bsk 収穫している。<br>• 研修を受ける前は、8 エーカーの収量が 200bsk だったこともあった。理由は不念米や病害虫、カビなどで、普及員から技術指導を受けていたが、あまり気にしたことが無かった。JICA の研修は、実技があり、理解しやすい。<br>• 自分は 1 エーカーあたり 100bsk 前後収穫している。精選機をかけた後でも 60bsk 程度となる。<br>• 総じて 60bsk 前後から 80bsk 程度の収穫と見られる。<br>• 種子の売価は、シントゥカがだいたい 7,000-8,000ky/bks で売れた。セントゥエラは貯蔵しており、まだ売っていないが、10,000ky/bsk 前後で売れると見込んでいる。貯蔵施設があれば、種子が高値のタイミングで売ることができるが、今は、なかなか難しい。<br>• 生産した種子は、ほぼ 80%から 100%売っており、自家消費用の飯米は購入して調達している。<br>CS 利用農家　3 名　(U AUNG HTOO/U SOE NAING/U ZAW MYOO AUNG)<br>所有面積、それぞれ 3 acre、16 acre、15 acre)<br>栽培品種：シントゥカ、ティータイティエン、シントゥカ、ナンガーなど。この地域は、雨期に圃場の排水が悪く、深水となるので、対応性のあるローカル品種も植えている。<br>• JICA の CS を利用したところ、収量は 60bks/acre から 80bks/acre 程度にまで増加した。<br>• 米の販売価格は 7,500kyat/bsk 程度である。<br>• CS 利用農家は、研修にも参加しており、栽培技術が向上している。将来は、自分も CS の生産 |

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| | を行ってみたい。<br>• 前述したように、この地域は、深水の圃場が多い。ナンガーは深水に強いが、収量が 60bks/acre 程度と少ない。それに対応する高収量品種の開発を行って欲しい（現在 IRRI がそのような品種を開発中と専門家より回答）<br>一般農家 4 名 (U SAW HTOO PHALIER/U SAW HTOO HTAIR/U CHIT LAY WIN/U TIN TUN)<br>それぞれの農地は 4、15、20、20acre。夏作はティータイティエン、モンスーン作はシントゥカ、ナンガー、ポサイエン（Pawsanyin）などを栽培。<br>• 種子は全員が自家採取だが、これからは、多少高くとも CS を使ってみたい。<br>• 生産した米の売価は、ポサイエン:7,500kyat/bsk、ナンガー:6,200kyat/bsk、シントゥカ:6,400kyat/bsk で精米所に持ち込んで販売した。<br>• このあたりの圃場の排水が悪いので、田植えをするにしても、JICA が指導している苗床を作ってから 20−25 日の移植では水深が深くてイネが枯れてしまうだろう。地域に即した技術指導が必要。<br>• CS 生産農家や利用農家が受けている技術研修も受けてみたい。（District Seed Manager の説明：一般農家にも研修を受けられるように、情報は、各村落の村長経由で発信している。月に 2 回、T/S 所長と尊重を交えて、村落関係（土地利用、病害虫対策）を話し合う機会がある。その際に研修計画も議論され、村人に知らせている。）<br><br>精米業者　3 名と米商人 1 名<br>U Khain Win ( ブローカー)　白米取り扱い量：150,000−200,00bag（50kg/bag）業務歴 32 年<br>U Zaw Myo Kyi (精米業) 取り扱い量 70 万 bsk/年　業務歴 30 年。<br>U Mang Aung Win (精米業) 取り扱い量 40 万 bsk/年　業務歴 15 年。<br>U Myiant Than (精米業) 取り扱い量 60 万 bsk/年　業務歴 20 年。<br>• JICA プロジェクトについて知っているか？← 2011 年後半から、チョンファー、ダンガレーで 50 名の農家を対象に JICA が種子生産を支援するための研修をするという話を聞いた。JICA の指導を受けた農家が作る米の質が良く、精米所でも高く売れていると聞いている。<br>• 所有する 300acre の土地の 100acre を使って種子生産を行いたいと思っており、T/S 所長とはすでに話を進めている。<br>• 白米取り扱い業者としても、CS で栽培した米は、質が違うことがわかっている。CS を利用した米の白米の価格は通常の 22,000 −23,500ky/bag に対して、1,500−3,000kyat 高い値段がつく。<br>• ミャウンミャの米を広く見ているが、JICA のプロジェクトの対象村落であるチョンファーやタンガレーの米は、色がきれい、粒がなめらか、食味も香りが高くて良いという特徴が見られる。<br>• また、米粒のサイズがそろっているので、精米を行うときの歩留まりが良い(粒のサイズが不揃いであると、精米のくず米がでやすい)。赤米は、今でも見られるが、JICA の CS を使ったものの赤米の含有率は下がってきている。古い種子を使うと赤米が出やすい傾向にある。<br>• 精米時の歩留まりが、質の良い米（JICA）では 75-80%に対し、それ以外の米では 60%の数字が一般的。<br>• JICA プロジェクトでは、研修を通じて、技術力のある種子生産農家が育っていることが財産。今後、それぞれの農家が栽培を継続していけば、プロジェクトの活動は続いていくと思う。ただし、ミャンマーの農民は資金が無いのが普通。圃場の条件が悪いところでは、優良種子を買って栽培しても失敗する可能性もある。圃場の改良は個人では無理。日本の支援が無いと難しいだろう。<br>• T/S 所長の意見：プロジェクトの成果を広げていくためには、DOA だけでなく、精米所、ブローカーの協力を得て、一緒に種子のマーケットを形成していく必要がある。<br><br>ミャウンミャ T/S の種子生産農家の圃場を見学。よく手入れされている様子だが、異株が幾つか見られたため、同行した岡田専門家が異株の除去を徹底するように指導。 |

面談録⑩

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| 面談先 | DOA Labutta Township 事務所職員 |
| 日時 | 2 月 4 日　14:15- |
| 場所 | Township 事務所 |
| 先方 | U Htin Kyaw Oo (T/S 所長)、Daw Khin Yee（Seed/Staff officer）、U Kyaw Soe Moe (Assitant Staff Officer) にインタビュー。途中から U KYAW KYAW HLAING　(Labutta District Officer)も参加。 |
| 我が方 | 岡田専門家、三木専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin(通訳)、上堂薗(営農)、東野（評価分析） |
| 要旨 | Daw Khin Yee：<br>• CS 生産農家の研修を自分たちも受け、その後は、農家に対して技術を移転してきている。<br>• 3−4 年目になって、農家の種子生産技術が高まり、種子生産の意味を理解するようになっている。また、普及員の努力や展示圃場の効果で、一般農家からの CS の引き合いが増えている。 |

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| | • プロジェクト以前は、種子米と飯米の差が認識されていなかった。<br>• ラブタでは、一つの村落から 50 名の C/S 生産農家を選んだ。その際に種子生産の技術を理解して興味を示し、アクセスの利便性があり、スタッフの指導に従える人ということで選択している。<br>• 2014 年秋のモンスーン作時の売価は、ポサイエン：10,500kyt/bsk、シントゥカ：6,500kyt/bsk、メノトゥカ（Manawthukha）:6,500kyat/bsk であった。この価格は飯米の売価より bsk あたり 2,000kt ほど高い。<br>• 農民の技術レベルは上がってきており、種子の選別、条植えなどの一連の技術を身につけた。しかし、1−2 年目は、種子が買ってもらえず、参加した農民が落胆することもあった。そこで、貧困削減ファンドを利用して、タウンシップが CS を、通常の飯米より 2,000kyat/bsk 高く買い取るなどして、生産農家を支えてきた。農民から買い取った種子は、貯蔵しておいて高値が期待できる 5 月から 6 月に売却し、その売り上げを銀行に貯蓄し、また、次年度以降の買い取りを続ける。今年からは、精米業者からの支援も求める計画である。<br>• 今後の課題としては、DOA は普及員の数が不足しており、ラブタタウンシップ全体の農地 366,496 エーカーを 16 人で担当している。平均して一人あたり 22,000 エーカー（9,000ha）となり、全体を見て回るのは困難である。<br>• この地域の田植えはフォーク状の棒を用いて行うのが伝統的あるが、これを行う人夫を見つけるのが困難。<br>• CS 利用の促進はラジオなどの媒体も利用して行っており farmers' channel などで宣伝している。また、2015 年 10 月には、異株セレモニー（rouging ceremony）がタウンシップにより企画・実施された。農民 200 名ほどが参加した。 |

面談録⑪

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| 面談先 | Labutta Township |
| 日時 | 2 月 5 日　8:15- |
| 場所 | Township 事務所 |
| 先方 | 種子生産農家、一般農家、精米業者、仲買人 |
| 我が方 | 岡田専門家、三木専門家、Daw Khin Hinhant (プロジェクト CP)、Mr. Tin Maung Gyi (元 Seed Division)、U Thet Pyin（通訳）、上堂薗（営農）、東野（評価分析） |
| 要旨 | 8：15−ラプタ T/S で種子生産農家からの聞き取り。全員がプロジェクト開始時から種子生産農家として参加している。<br>• ポサイエンの CS の売価:12000kyat/bsk。シントゥカは今貯蔵しており、まだ販売してないが、同等の価格で売れると見込んでいる。周囲の農家は CS を欲しがっており、通常の飯米の籾よりも高くても買うと思う。<br>• 我々は通常、仲買人に籾を売るが、精米所にも買い取り価格を確認する。その際に、精米所への持ち込みの交通費や労働力を考慮して、どちらに売るか判断するようにしている。CS であることを考慮して買い取って欲しいと思う。<br>• 研修について：JICA の研修には継続して参加した。今までは、栽培の技術をきちんと理解していなかったが、研修を受けて、種子栽培の一連の技術をすべて学ぶことができたので、自信が持てた。異株の除去などは新しい知識だった。生産した CS は 1acre あたり 1.5bsk 程度を目安に残すが、後はすべて売却する。<br>• 他の農家は CS 生産に興味を持っており、道路沿いの圃場の場合には、かなり多くの農民が見に来る。今後、学んだ知識を、他の農民に伝えていく（たとえば研修で）自信はある。<br>• （T/S からの説明）CS の使用奨励はラジオ/TV などの媒体でも行っているほか、農家同士の情報交換が広く行われている。<br>9：00−CS 利用農家からの聞き取り<br>• CS を利用して栽培すると、従来よりも、1 エーカーあたり条植えで 15−20bsk 程度、直播の場合で 10-15bsk 収量が増える。<br>• また、籾のサイズが揃い、登塾度合いも高い。赤米が少ない。<br>• ただし、米の質は、売却する際の価格にはあまり反映されていないのが事実。一バスケットあたり 100−150kyat 上乗せがあるのが一般的（CS を利用したポサイエンの価格は 7,500-8,000kyat/bsk）。<br>• 今は、収量の増加による売り上げ価格の増大がインセンティブとなっている(全員が収量増で収入が増えたと回答)。（このあたりは、ミャウンミャの精米業者や、仲買人が CS 利用の米の質を高く評価していたのとは対照的。ミャウンミャは米の流通の集積地であり、精米業者や仲買人の米の質に対する知識が豊かであることも関係しているだろうとの専門家のコメント。農民は仲買人と精米業者の癒着ありとの認識をしている様子。）JICA には今後は仲買人や、精米業者への米の質と買い取り価格への反映について啓発を御願いしたい。<br>• 稲作での費用の目安は、1 エーカーあたり直播で 10 万 kyat、移植で 15 万 kyat 程度。除草などの人件費（人夫の雇用）による差と見られる。 |

面談録⑫

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| 面談先 | DAR Yezin |
| 日時 | 2 月 8 日　9：30- |
| 場所 | DAR Yezin |
| 先方 | Dr. Tin Ohnmar Win（(現 DAR Asst. Director）：前 DOA Extension Division の Asst. Director で、2015 年 10 月まで Project Manager であった） |
| 我が方 | U Thet Pyin（通訳）、東野（評価分析） |
| 要旨 | 今日は、もう一人の Daw Tin Tin Myint（DAR Deputy Director General）が別の会議で不在。（アポイントメントが 2 月 8 日または 9 日で時間をとって欲しいという内容であった由。そのため、今日は別の会議に出るということになった由。明日の 9 時半に再度訪問することとし、Dr. Tin Ohnmar Win に話を聞いた。<br>• Dr. Win は、プロジェクトの初期から 2015 年 10 月まで、プロジェクトマネージャーとして、主に普及員の研修と、普及員が行う農民対象の研修に関する管理・調整業務を行ってきた。たとえば、タウンシップ所長や村長との連絡、調整など。また、研修の講師のアレンジなども行ってきた。<br>• JICA プロジェクトの研修参加を通じて、エヤワディーの普及員は、種子の生産技術の一連の内容について、正しく学ぶことができて、技術力が向上したと認識している。その結果、Purified seed の生産が可能となった。今、農民リーダーの制度があって、10 人の農民から一人、基準に基づき(性格、所有農地規模（中規模)、他の農民からの信頼など)リーダーを選んでいる。このリーダーを中心に農民に種子生産技術を伝えていく考えを持っている。<br>• 今、JICA プロジェクトの種子生産農家は 150 名で、将来これを 600 名以上に増やすことで、プロジェクトとミャンマー側で同意しているが、実際には、種子を生産している農家は、エヤワディ地区で 1000 名程度はいると理解している（詳細なデータはタウンシップの所長に確認して欲しいが)。<br>• ミャウンミャなどでは、種子の市場が出来上がりつつあるし、一般農家からの種子の需要が増大している。<br>• 普及員の数の増員はあるか？確かに、普及員の数は不足しており、エヤワディ地区では、農家 1300 戸に対して普及員が 1 名という状況である。これを 500 戸まで改善したいと考えているが、農業大学を卒業したものが民間に流れたりして、なかなかリクルートが難しい。2014−2015 年には、ミャンマー全土で 300 人ほど普及員を増員したが、2016-2017 年の増員計画は無い。<br>• ポストハーベストの関連で、年に二回ほどエヤワディに行くが、ミャウンミャに比べて、ラプラタは交通の便が悪いこともあり、種子マーケットの出現が遅れていると思う。2013 年当時だが、夏作の米が、ミャウンミャでは 7000kyat に対し、ラプラタでは 5500kyat であった。<br>• 今後、種子生産活動をどうやって継続していくか？←（エヤワディの地域所長、副所長、DOA 総局長が合意している内容として）現在の契約農家 150 名に TOT を行い、一般農家に対する技術の浮遊を行うのが現実的と考えている。モンスーン作付けの時期に三回、一回に 20−30 名程度規模の研修を行い、種子生産農家を増やしていく。夏作の研修は出来るかどうか不明。<br>• また、小型車を利用した移動種子店（mobile seed shop）が pelethwe の種子販売をプロモートしているが、これも CS 販売（ポサイェン、シントゥカなど）に応用できるのでは無いかと考えている。<br>• また、村落シードセンター(village seed center)を北部地域を中心に展開中である。10−15 名の農家がグループとなり種子を販売するもの。2009 年に 8 カ所（マンダレー、ザガイン、ニエンジャなど）でパイロットベースで開始し、現在 32 カ所まで増えている。<br>• 北部ミャンマーで種子の需要が大きかったので、北部から開始されている。種子生産は MOAI として力を入れている分野であり、これらのスキームは、農業部門の開発戦略（2016-2020）として MOAI から National Planning and Economic Development Department)にドラフトが提出されているが、まだ、公開はされていない。 |

面談録⑬

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| 面談先 | DOA 本部 |
| 日時 | 2 月 9 日　10：00- |
| 場所 | DOA 本部(ネピドー) |
| 先方 | Dr.Tin Htut (Permanent Secretary), MOAI |
| 我が方 | 調査団、専門家 |
| 要旨 | • JICA への協力の謝辞。団長より調査団の紹介と来緬の目的を説明。<br>• Dr. Tin は以前、JICA の研修で一カ月弱日本に滞在。プロジェクト計画策定手法などを学んだ。JICA はミャンマーの特筆すべきパートナーである。現在 MOAI では、IRRI の支援を受けて Rice Breeding Hub を構築しようとしている。遺伝子バンクやインフラ整備、キャパビルなどが含ま |

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| | れる。遺伝子の保存のための努力が必要である。稲作セクター開発プログラムなども策定している。<br>• 政策的な方向性の違いから、アメリカは現在援助の手を止めているが、オーストラリアは援助を再開しようとしている。<br>• プロジェクトの持続性の件だが、我が国の予算は硬直化しており、なかなか裁量がきかない。スケール的にも十分ではない。種子のバリューチェーンを構築する必要がある。現在 LIFT を 14 ドナーの協力を得て行おうとしている？（内容確認）<br>• JCC の日程：18 日の 9:00AM にネピドーで行う予定で確認。 |

面談録丸⑭

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| 面談先 | ミャンマー側評価委員との打ち合わせ（第 1 回評価会議） |
| 日時 | 2 月 9 日　10：30-12：00 |
| 場所 | DOA 本部(ネピドー) |
| 先方 | (1) U Niang Kyi Win (Deputy Director General, DOA),<br>(2) Daw Nilar Aung (Assist. Director, Planning Division, DOA),<br>(3) Dr. Ye Tun Tun (Senior Research Assistant, DAR),<br>(4) U Myo Zaw (Deupty Director, Ayeyawady Region, DOA),<br>(5) Dr. Aye Min (Staff Officer, Seed Division, DOA),<br>(6) Daw Than Than Htay (Deputy Director, Planning Division, DOA),<br>(7) U Aung Myint Thu (Staff Officer, Planning Division, DOA),<br>(8) Daw Lin Le Yi Aung (Deputy Staff Officer, Planning Division, DOA) |
| 我が方 | 調査団、専門家 |
| 要旨 | • 日本側より、プロジェクト評価の方法について概要を説明。<br>• その後、上位目標をどのように達成するかについて、ミャンマー側に問い、12 日までに回答をするように依頼。<br>• （ミャンマー側団長から）JICA プロジェクトの実施はミャンマー側にとって大変良い経験だった。しかし、アウトプットは 100%だとは認識していない。ミャンマー側の農民の知識不足が原因で、専門家の指導を追いかける形で進めてきたのが現実であると認識している。<br>• （ミャンマー側団長から）ミャンマー側としては、DOA の人事や年度予算が決まるのが 4 月なので、今は、計画を具体的に立てるのは難しいとの返答。<br>• （ミャンマー側団長から）モンスーン作のイネの種子の需要が高まるのは 5 月から 6 月（収穫が 10−11 月）であり、収穫後の籾を貯蔵できれば種子は高く売れる。貯蔵を可能とする援助を日本に御願いしたい。現在、 貧困削減ファンドを使って CS の買い取りを行っているのはエヤワディの 26T/S の中の 7T/S(対象地域の 3T/S 含む)。 |

面談録⑮

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| 面談先 | DAR 本部 |
| 日時 | 2 月 9 日　14：00- |
| 場所 | DAR 本部(イエジン) |
| 先方 | Daw Tin Tin Myint (Deupty Director General, DAR) |
| 我が方 | 調査団、専門家 |
| 要旨 | • 1980 年に大学卒業後 1981 年から DAR に勤務した。プロジェクト以前は、集団選抜(mass selection)法を使っていた。1982 年から JICA プロジェクトが始まるまで農民は優良種子を利用することが出来なかった。現在は、JICA プロジェクトで対象とする 9 品種を含めて２７品種の BS を生産している。DNA 分析器は IAEA の支援で導入された。*XA21*(白葉枯れ病抵抗性遺伝子)の発見に用いた。<br>• 赤米の対策マニュアルは 2015 年 11 月に作成されて、関連部署に配布された。現在、DAR の BS 生産は 3 名の現場職員が行っている.一人はシニアで、二人はまだ経験が少ない。<br>• その後、貯蔵施設（cold storage）、ラボ見学、圃場見学。 |

面談録⑯

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| 面談先 | ジョゴン中央種子検査所 |
| 日時 | 2 月 10 日　９：30- |
| 場所 | ジョゴン中央種子検査所 |
| 先方 | DawSan San Aye（Assistant Director、Seed Division, DOA）他 |
| 我が方 | ミャンマー側、日本側調査団、専門家 |
| 要旨 | • 検査ラボ：職員は全 13 名。所長は DawSan San Aye（Assistant Director、Seed Division, DOA）<br>• 年間 750 以上のサンプルを扱う。平均して 1 日あたり 2 サンプルを扱う。検査項目は、水分含有率、純度、発芽率の検査である。イネの種子のサンプルは収穫後 2 週間以内に結果を出さなくてはならないので、仕事の負荷は時期によって変動する。その他圃場審査も実施する。JICA の機材が供与されたので、検査員は機材を分担して使えるようになり、作業の効率が上がって感謝している。以前は送られてくるサンプルの異物が多かったので、それを選別する作業が時 |

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| | 間がかかったが、JICA のターゲットエリアから送られてくるサンプルはグレーダーをかけた後送られてくるので、検査の効率も上がったので助かっている。<br>• 試薬や消耗品は DOA の予算で負担している。また、資機材がハンドオーバーされた後は、当然こちらで維持管理の予算を負担する。検査スペースは不足しているのが正直なところ。<br>• 今後 CS 検査の規模が拡大するとラボの作業量も増えるので、ラボの設置を検討している。現在のマンダレー、ヤンゴン、ネピドーに続いて数を増やしていきたい。ワンストップサービスを提供する。エヤワディの種子ラボの設置について、現在、リージョンの予算を請求している(ミニラボと呼んでいる)。世銀のプロジェクトで供与された資機材を活用する予定だが、中にはアップグレードをしなくてはならないものもある。地域のミニラボのための人材活用が課題となる。国内の種子品質管理の専門家から講義など研修を行っている。カレン州ではすでにミニラボが開設されている。また、バゴーでは明日開設される予定。職員はジョゴンで 1 年間の研修を受けた。ミニラボでの種子検査には、JICA プロジェクトの手法を用いるだけでなく、栽培法についても用いていく。<br>• ラボ設置の計画は本省で行い、予算の申請は州や管区ごとに行う。<br>• CS 生産に関して品質管理やモニタリングの仕組みはあるのか？←検査基準は ISTA のガイドラインに準拠している。ミニラボは種子の認証する機能も持つ組織である。種子生産に関して五カ年計画(2016/2017-2021/22) のドラフトを作成していて、それはお見せできる。オランダの支援を受ける予定である。また、ミニラボの建物については、韓国農業省の支援を受けている由。<br><br>その後、貯蔵施設（cold storage）、ラボ見学、圃場見学。 |

面談録⑰

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| 面談先 | ミャウンミャ Township (第 2 回評価会議) |
| 日時 | 2 月 11 日　14：15- |
| 場所 | ミャウンミャ Township 事務所 |
| 先方 | U Tin Maung Nyein(T/S officer)/Daw Thidar(District Seed Officer)/Daw May Yu Maw(T/S Seed in charge)、普及員他 |
| 我が方 | ミャンマー側・日本側調査団、専門家 |
| 要旨 | • まずミャウンミャの T/S 所長から組織の概要の説明。職員は全員で 29 名。普及員は 14 名で、14 名がプロジェクトに係わっている。エヤワーディの三つの T/S がプロジェクトに参加しており、ミャウンミャは、モンスーンと夏作でこれまでに 8 回作付けしている。JICA 案件に感謝している。機材、研修での支援は大変有効であった。優良種子の生産と配布だが、配布については、行政に加えて精米業者の協力も得られた。普及員は 1 名で 3 名の農民を支援している。(特に効果的な取り組みは？)機材ではシードグレーダーが非常に役に立った。（来年度の優良種子生産ではタウンシップとしてどのような活動をおこなっていくか）農家と協力して来年度も種子生産を継続していく。農家以外にもモデルファームを確立したい。精米所の経営者と協力して米(種子？)の生産を始める予定がある。資本力があるビジネスマンと協力して優良種子生産農家を紹介するなどの機能を果たしていきたい。<br>• Mechanized Farming (圃場整備の意)を進めておりエヤワディでは 200 エーカーにリージョンの予算をつけることとしている。灌漑排水路と農道、圃場均平を行う。民間業者に依頼する。コストは 55 万 kyat/acre である。将来は農民負担となるが、今はモデルとして行政が行う。<br>• DAR の種子ファームで、年度末に売上金を返納しなくてはならないため、種子を販売してしまうと聞いているが、制度の見直しはあるのか。雨期の収穫は 12 月位なので、その後 RS の支払いは 4 月までに支払えば良いこととしている（多少の柔軟性はある）。<br>• たとえばある種子ファームが RS を生産し、それを売却して利益を得た場合、きちんと生産量をコントロールしているかどうか、厳しく管理する予定である。今年は五年予算年度の最終年であり、三月末に払えない場合は、謂わば in kind で、どれくらいの在庫があるかを申請することで、売り払って現金で返さなくても良いようにすべく申請中である。<br>• DOA の中に Rice Division が出来た。最近、Industrial Crop Department と合併し、15 の Division（15 のダイレクターを配する）新 DOA となった。審査に落ちた RS は売ってしまう。CS 利用農家は、資本力のある農家と、また、他の政府機関との連携も模索している。Poverty Reduction Fund と同様のファンドの利用を模索している。Implementation Set-up Table1 と Table2 がある。Table1 はユニオンレベルの業務、Table2 は地域や州などのレベルで記述している。種子農家の体制整備で、種子生産のゾーンが出現してくるのを期待している。農業整備のユニオンレベルは法律整備、BS/RS の生産体制はできあがった。エヤワディ地域農業開発計画（5 年間）が作成されている.種子生産ゾーンは、2015 年までに 26T/S で 100 エーカーずつ設定されている。今後、これを 300 エーカーまで増やしていきたい。今後、種子生産を拡大するための予算については、全体のパイが決まっているので、他の予算との調整で予算を工面する。JICA 以外にも DOA の研修は実施されており、CARTC (Central Agricultural Training Center)で行われている。今 |

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| | 回プロジェクトを延長するにあたって、サプライチェーンの構築を目的として延長するという事を農業大臣に報告したい。新政権でも延長について問題視することはないであろうが（現在のプロジェクトでも、精米業者との連携、農業経営、農家の求める品種の開発などのサプライチェーンに関する技術移転を行っている。これらの内容を提言に盛り込むことで調整。 |

面談録⑱

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| 面談先 | 第３回評価会議 |
| 日時 | 2 月 12 日　8：30- |
| 場所 | DOA ネピドー |
| 先方 | ミャンマー側評価調査団 |
| 我が方 | 日本側調査団、藤井専門家、三木専門家　山崎職員 |
| 要旨 | • 日本側団長より：実績確認の依頼。先方からは結論部分の文言の修正の依頼。本日は提言、教訓部分の議論を行う。<br>(以下ミャンマー側からの意見)<br>• 昨日も DYDG が言ったように、種子を生産しても、待っていられずに売ってしまう農家もある。そこで、アクションプランにはそれを改善するような政策的な部分も含めていきたい。<br>• 主に品質と PPP について話したい。プロジェクトはほぼ最終段階に来ている。成果をとりまとめて、外部に公開する必要がある。このプロジェクトから出たアウトカムを他のタウンシップにも普及して、それを見て、興味を持つことになると思う。種子の品質という場合、圃場での品質とラボでの品質。JICA から技術指導を受けたミャンマー側の CP、その CP から技術指導を受けた人、圃場で種子を作る担当者などを対象に awareness seminar が開ければいいと思う。例えば、今まで習ったことを復習するような形で行う。研修を受けた一同が技術を移転していくのと、農家同士での技術移転がある。ミャウンミャ、ヒンタダ、ラプタの地域内での農民同士の情報交換と、地域を越えた交換の場（field visit）を設ける必要があるのでは無いか。農家同士の情報交換と実地見聞は効果が高いと思う。<br>• PPP については、持続性と関連している。副局長がサプライチェーンについて言及していたが、他の研究機関や組織との関連が少ないと思っていたが、ミャウンミャでは精米業者や仲買人とも情報交換が行われているのは良い。このような交流を今後も行っていくべき。JICA からも参加してきた経済界からの参加人にも話をしてもらえるようにセットしてくれればいいと思う。種子の価格が向上すると思う。精米所経営書、仲買人の理解が向上すると良い。<br>• 民間の業者とどのように情報交換してきたのか、説明する（藤井専門家）。中間レビューの提言で新しい活動が加わっている。報告書の 8-10。市場情報を伝えるための打ち合わせや精米業者などを交えたフィールドデイなどで啓発を行ってきた。CS 利用のメリットをデータを用いて精米業者などに説明してきた。彼らは精米を扱うので、精米に係わるデータを示した。精米業者の反応はポジティブで、より高い関心が持ってもらえたと思う（三木専門家）。<br>• プロジェクトに参加している農家だけでなく、それ以外の地域の農民にも情報の公開を御願いしたい。農民への支援（資金面以外でも）を伝えることで農家の意欲が高まると思う。<br>• （日本側から：マーケットの確立は、優良種子の安定した生産をベースに成し遂げられるもの。そのためにも、1 年間の延長期間のうちに、MOAI は、今後何をなしていくべきか、議論を通じて具体的に決めて行く必要があると思う。普及のための啓発活動の継続と、アクションプランの作成も重要。DYDG のコメントを聞きたい）<br>• Region の副所長から：JICA のプロジェクトは 3 T/S で 50 人ずつやっているが、モンスーンに、一地域に 100 エーカーで種子生産をやろうという計画があった。モンスーンの 2016-2017 モンスーン稲作の計画は、従来のものと異なり、JICA の計画と同じにする。これを 23T/S で実施する。3T/S は 100 人ずつに増やす。RS の生産用の予算を申請している。エヤワディの定例会議(月二回)で、種子生産に関して、所長とスタッフの会議を開く。Region District の SMS が T/S に行って指導することもある。<br>• T/S で 50 人を 25 人ずつ 2 カ所に分けて、実施していこうかと思っている。来年の目標である 1000 エーカーは、予算申請上の名目数と理解して欲しい。不足は他の予算の流用で補完したい。JICA で 150 エーカーは実施しているので、ミャンマー側は 1300 エーカーに対応したい。（SMS とプロジェクトの CP との意見交換はあるのか？）←ある。SMS と T/S の意見交換は、定例会議に際してある。Restimated Budget を使って T/S の農民が他の地区に見学旅行に行くケースがある。モデルファームのデモンストレーションの時に皆で会って情報交換する。年に二回くらい。T/S では、田植え、収穫期で年三回くらいやっている。一つのディストリクトの中になる T/S では頻繁に情報交換がある。CARTC では、全国規模で研修をやっているので、意見交換がなされている。本省の SMS は、稲作の作付時期の前に各ディストリクトを回って指導する。Region と District の SMS が組んで、T/S で指導する。<br>• （上堂薗：サプライチェーンで、付加価値をどうつけていくか？集会、他地域への見学旅行や現場視察、サンプル（精米、加工品）紹介、広報活動など。サプライチェーンとはディス |

| | |
|---|---|
| | トリビューションは同義だろう。種子の価値を上げるためには政策的な対応は難しい。Region, district, T/S の地域ごとに考えていくのが良いだろう。エンドラインサーベイで農家の改善を示すべき。物理的な対応：プラスチックパッケージなどを工夫して見栄えで差をつける。成果 4 を加えて、市場関係をとりまとめる。）プロジェクト主催の研修は三つの T/S の一同に、毎月開催していた。加えて、ディストリクトの種子部のスタッフにも研修を行う。3 月 8 日にもディストリクトにも研修を行う。他の場所からの参加者も参加する研修を開催して欲しい。(持続性確保の点から、ミャンマー側の予算確保の努力を御願いしたい)予算の申請をしたい。(部分的な負担でも良いから、ミャンマー側で検討して欲しい。或いは SMS の開催する研修にプロジェクトの教材を使うなどの工夫を御願いしたい)<br>DYDG のコメント：提言の中身<br>①BS/FS/RS/CS の流れ上、品質管理を進めていきたい。<br>②農家に普及、技術指導を行うときに、規模を拡大し、詳細な研修を開催したい。<br>③プロジェクト目標が達成されるようにアクションプランを策定したい。<br>④種子配布システムの中で、PPP を強調したい。農民、精米業者、仲買人などの参加を進めたい。<br>⑤アクションプランを策定するときに種子の適切な値段を設定したい。高すぎると農民が変えない。低すぎては農民の意欲がなくなる。<br>⑥プロジェクトの成果をモデルとして全国に普及したい。農家は目で見て、理解し、意欲が高まる。実際に学べる機会を作るのが大事。国内で視察旅行のようなものを開催する。<br>⑦延長期間中にエヤワディ地域全体にシードサプライチェーンマネジメントのモデルと位置づけて構築していきたい。<br>• 教訓：プロジェクトの期間中、関係者になるべきものを参加させていくべきだった。ディストリクトマネージャーやタウンシップマネージャーも入っていなかった。<br>• 種子生産技術 A から Z までを 100%守って行くことが必要。栽培の各プロセスで手順を守ることが必要。価格も妥当な水準で売ることが必要。ある地域で普及員の CS 生産、配布技術が低かった。種子生産農家は熱心に取り組んでいたことは評価したい。プロジェクトの専門家から学んだ品質管理を確実に習得するように努力することが必要。ヤンゴンの種子ラボを観察したところ、供与機材の数も多く、ラボの検査対象の種子がまだ少ない。これから検査する対象が増えると良いと思う。このプロジェクトが終了したら、学んだメリットを将来的に PPP モデルとして順調に進めていきたい。（提言は誰に対するものなのか、また、期間を考慮して整理する。教訓の意味づけ） |

# 17. CS 生産状況（モデルタウンシップ）及び BS 検査合否状況及び不合格理由の推移

**その他資料3 捕捉資料-1 : 圃場検査とラボテストの結果　(2012-2015) (Result of Field Inspection & Labo. Test (2012-2015))**

**1 CS の圃場検査とラボテスト結果　3 T/S　2012 モンスーン作**

| Township | 種子生産農家の数 | 圃場検査結果 | | ラボテストの結果 | | |
|---|---|---|---|---|---|---|
| | | 合格 | 不合格 | 合格 | 不合格 | 理由 |
| ラプタ | 13 | 13 | 0 | 7 | 2 | 純度 2, 赤米 1 |
| ミャウンミャ | | | | | | |
| ヒンタダ | | | | | | |
| total | 13 | 13 | 0 | 7 | 2 | 合格率 54% |

**2 CS の圃場検査とラボテスト結果　3 T/S　2012 モンスーン作**

| Township | 種子生産農家の数 | 圃場検査結果 | | ラボテストの結果 | | |
|---|---|---|---|---|---|---|
| | | 合格 | 不合格 | 合格 | 不合格 | 結果についての捕捉情報 |
| ラプタ | 50 | 45 | 5 | 21 | 24 | 赤米 22 (Pawasanyin 16 out of 28, Manawthukha 7 out of 21)<br>発芽 9 |
| ミャウンミャ | 50 | 44 | 6 | 27 | 22 | 他品種種子 16 (Sinthukha 16), 赤米 (Sinthukha)<br>水分量 7 |
| ヒンタダ | 50 | 45 | 5 | 16 | 34 | 赤米10 (Sinthukha 2, Kyawzayar 7, Manawthukha 1)<br>other seed 22, other variety 6 |
| total | 150 | 134 | 16 | 64 | 80 | 合格率 43% |

**3 CS の圃場検査とラボテスト結果　ミャウンミャ T/S 2012-13 夏作**

| Township | 種子生産農家の数 | 圃場検査結果 | | ラボテストの結果 | | |
|---|---|---|---|---|---|---|
| | | 合格 | 不合格 | 合格 | 不合格 | 結果についての捕捉情報 |
| ミャウンミャ | 50 | 50 | 0 | 11 | 39 | 赤米 34,  純度13, 雑草種子 12,  水分量 8 |
| total | 50 | 50 | 0 | 11 | 39 | 合格率 22% |

**4 CS の圃場検査とラボテスト結果 3 T/S 2013 モンスーン作**

| Township | 種子生産農家の数 | 圃場検査結果 | | ラボテストの結果 | | |
|---|---|---|---|---|---|---|
| | | 合格 | 不合格 | 合格 | 不合格 | 結果についての捕捉情報 |
| ラプタ | 50 | 48 | 2 | 33 | 15 | 赤米 11 (222, 30, 40, 12, 16, 6, 14, 8,18, 104, 16)<br>純度 8 (86,96,other seed 13.7,2.2,1.2,1.6,2.4), 雑草種子 1(12) |
| ミャウンミャ | 50 | 45 | 5 | 5 | 40 | 赤米 39 (14, 16, 6, 10, 394, 92, 83, 83, 67,178, 16, 120, 142, 20, 10, 138, 10, 6, 6, 72, 10, 62, 28, 146, 128, 176, 126, 66, 72, 68, 80, 56, 34, 142,262, 8, 152, 137, 134) |
| ヒンタダ | 50 | 46 | 4 | 42 | 4 | 赤米 4 (12, 38, 8,12)<br>純度 1 (other seed 2) |
| total | 150 | 139 | 11 | 80 | 59 | 合格率 53% |

**5 CS の圃場検査とラボテスト結果 Myaungmya T/S 2013-14 夏作**

| Township | 種子生産農家の数 | 圃場検査結果 | | ラボテストの結果 | | |
|---|---|---|---|---|---|---|
| | | 合格 | 不合格 | 合格 | 不合格 | 結果についての捕捉情報 |
| ミャウンミャ | 50 | 43 | 7 | 30 | 13 | 水分量 12,  赤米 2, 他品種種子 1, |
| total | 50 | 43 | 7 | 30 | 13 | 合格率 60% |

**6 CS の圃場検査とラボテスト結果 3 T/S 2014 モンスーン作**

| Township | 種子生産農家の数 | 圃場検査結果 | | ラボテストの結果 | | |
|---|---|---|---|---|---|---|
| | | 合格 | 不合格 | 合格 | 不合格 | 結果についての捕捉情報 |
| ラプタ | 50 | 47 | 3 | 34 | 13 | 他品種種子混入: 1.2, 1.2, 1.5, 1.3, 1.1, 1.3, 1.3<br>赤米: 88, 22, 52, 10, 24, 8, 6, 8 |
| ミャウンミャ | 50 | 50 | 0 | 41 | 5 (rain)<br>4 | 他品種種子: 1.2, 1.1, 1.3<br>雑草種子: 13, 赤米: 10, 68, 10 |
| ヒンタダ | 50 | 49 | 1 | 34 | 15 | 純度: 96.6,  他品種種子混入: 1.2, 1.2, 1.7, 2.0, 1.9, 2.2, 1.1, 2.2, 3.4, 2.4, 1.3, 1.2, 1.4, 発芽on: 71, 赤米: 8, 6 |
| total | 150 | 146 | 4 | 109 | 37 | 合格率 73% |

**7 CS の圃場検査とラボテスト結果　Myaungmya T/S　2014-15 夏作**

| Township | 種子生産農家の数 | 圃場検査結果 | | ラボテストの結果 | | |
|---|---|---|---|---|---|---|
| | | 合格 | 不合格 | 合格 | 不合格 | 結果についての捕捉情報 |
| ミャウンミャ | 50 | 50 | 0 | 30 | 20 | 純度 (other seed) : 1.2, 1.2, 1.3, 1.3, 1.4, 1.4, 1.1<br>赤米: 14, 7, 18, 18, 10, 8, 10, 16, 8, 6, 10, 7,  9,  8, 10, 10, 6<br>雑草種子混入: 6, 6 |
| total | 50 | 50 | 0 | 30 | 20 | 合格率 60% |

Remarks:
*1:  純度 (Minimum 97%) other seed (Maximum 1.0%)
*2:  赤米混入率 (Maximum 5 no./500g):
*3:  雑草種子混入率 (Maximum 10 no./500g):
*4:  水分量 (Maximum 13%)

## その他資料3 捕捉資料-2　2012-2015 モンスーン期の３T/Sにおける種子生産と配布の実績
## （Performance of Rice Production and Distribution of 3 Township. 2012-2015 Monsoon Season）

**2012 Monsoon**

| Township | 圃場検査結果 | | ラボテスト結果 | | 種子生産量 (Basket) | 検査合格種子量 (Basket) | 生産された種子の配布量 (Basket) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 種子としての販売量 | | 飯米としての販売量 | | DOAへの Contribution | 次期作へのストック | 農民の手元残量 |
| | 合格 | 不合格 | 合格 | 不合格 | | | Basket | Price(Ks) | Basket | Price (Ks) | | | |
| Laputta | 45 | 5 | 21 | 24 | 3,349 | 1,481 | 347 | 4,000 | 429 | 3,600 | 84 | 234 | 2,255.00 |
| Myaung Mya | 44 | 6 | 27 | 22 | 3,657 | 2,052 | 876 | 5,000, 5,500 5,800, 6,000 | 726 | 3,700, 4,000 4,100, 4,200 | 216 | 495 | 1,344.00 |
| Hinthada | 45 | 5 | 16 | 34 | 3,658 | 1,164 | 495 | 4,000, 4,500 | 0 | | 128 | 225 | 2,810.00 |
| Total | 134 | 16 | 64 | 80 | 10,664 | 4,697 | 1,718 | | 1,155 | | 428 | 954 | 6,409.00 |

**Indicator 3: 2012 Monsoon: { (1718+428)÷(4697-954)} ✕100=57%**

**2013 Monsoon**

| Township | 圃場検査結果 | | ラボテスト結果 | | 種子生産量 (Basket) | 検査合格種子量 (Basket) | 生産された種子の配布量 (Basket) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 種子としての販売量 | | 飯米としての販売量 | | DOAへの Contribution | 次期作へのストック | 農民の手元残量 |
| | 合格 | 不合格 | 合格 | 不合格 | | | Basket | Price(Ks) | Basket | Price (Ks) | | | |
| Laputta | 48 | 2 | 33 | 15 | 2,969 | 2,052 | 10 | 5,000 | 147 | 4,200 | 122 | 446 | 2,244 |
| Myaung Mya | 45 | 5 | 5 | 40 | 3,347 | 350 | 225 | | 2,772 | 6,000 | 25 | 100 | 225 |
| Hinthada | 46 | 4 | 42 | 4 | 3,752 | 3,167 | 487 | 4,500 | 103 | 3,800 | 336 | 830 | 1,996 |
| Total | 139 | 11 | 80 | 59 | 10,068 | 5,569 | 722 | | 3,022 | | 483 | 1,376 | 4,465 |

**Indicator 3: 2013 Monsoon: {(722+483)÷(5569-1376)} ✕100=29%**

**2014 Monsoon**

| Township | 圃場検査結果 | | ラボテスト結果 | | 種子生産量 (Basket) | 検査合格種子量 (Basket) | 生産された種子の配布量 (Basket) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 種子としての販売量 | | 飯米としての販売量 | | DOAへの Contribution | 次期作へのストック | 農民の手元残量 |
| | 合格 | 不合格 | 合格 | 不合格 | | | Basket | Price(Ks) | Basket | Price (Ks) | | | |
| Laputta | 47 | 3 | 34 | 13 | 2,837 | 2,036 | 845 | 8,000 | 255 | 7,000 | 136 | 362 | 1,239 |
| Myaung Mya | 50 | 0 | 41 | 9 | 4,108 | 3,449 | 1,557 | | 659 | | 328 | 979 | 585 |
| Hinthada | 49 | 1 | 34 | 15 | 3,985 | 2,731 | 1,722 | 5,000 | 1,254 | 4,000 | 272 | 737 | 0 |
| Total | 146 | 4 | 109 | 37 | 10,930 | 8,216 | 4,124 | 5,000 | 2,168 | 4,000 | 736 | 2,078 | 1,824 |

**Indicator 3: 2014 Monsoon: {(4124+736÷(8216-2078)} ✕100=72%**


ジャイカ
JICA