

Appendix A-4:

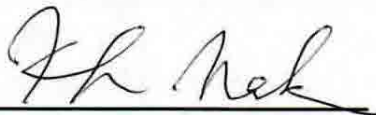
Minutes of JCC Meetings

**MINUTES
OF
THE FIRST JOINT COORDINATING COMMITTEE MEETING
FOR
PROJECT FOR PROFITABLE IRRIGATED AGRICULTURE
IN
WESTERN BAGO REGION (PROFIA)
HELD
ON
2nd AUGUST 2016**

The First Joint Coordinating Committee Meeting between Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation and Japan International Cooperation Agency (JICA) on “Project for Profitable Irrigated Agriculture in Western Bago Region (PROFIA)” was convened for the successful implementation of the above mentioned Project.

As a result of the discussions, both parties reached common understandings relating to the matters in the documents attached hereto.

Nay Pyi Taw, November 11, 2016



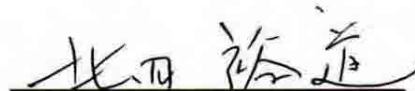
Mr. Keiichiro NAKAZAWA
Chief Representative
Japan International Cooperation
Agency, Myanmar Office



Dr. Ye Tint Tun
Director General
Department of Agriculture,
Ministry of Agriculture, Livestock and
Irrigation



Mr. Kotaro KIKUCHI
Team Leader
PROFIA



Mr. Hiromichi KITADA
Irrigation Policy Advisor
JICA Expert

- Attached Document 1 – Discussion Record
- Attached Document 2 – Action to be Taken
- Attached Document 3 – Participant List
- Attached Document 4 – Project Design Matrix (PDM) Version 1
- Attached Document 5 – Plan of Operation (PO) Version 1

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Discussion Record

The first Joint Coordination Committee (JCC) meeting of The Project for Profitable Irrigated Agriculture in Western Bago Region (PROFIA) was held on 2nd August, 2016 at the Meeting Room Number-1 of Ministry of Agriculture, Livestock and Irrigation (MOALI) HQ in Nay Pyi Taw.

The meeting was opened by the speech of JCC Chairperson, Dr. Ye Tint Tun, Director General (DG) of Department of Agriculture (DOA) of MOALI as follow:

- DG addressed importance of improving agriculture sector of Myanmar since Myanmar is still developing country and trying to develop as an agriculture-based country. DG mentioned that the Government of Myanmar also announced in the economic policy that promotion of agriculture-based industrial sector development is important.
- DG pointed out that there are still many challenges for market opportunities, and in this regard, quality of agricultural product is important so as to compete with other countries. DG further indicated that in addition to quality product, there are many things to be considered for gaining more profit for farmers. The first importance is farmers' interest and second is private sector involvement.
- DG then mentioned that there are challenges relating to seed/variety and climate for sustainable production of quality product. DG remarked that currently the government is initiating the establishment of farmer association especially seed growers association to be able to produce seed by farmers themselves to meet farmers' country-wise demand; but in order to strengthen seed productivity, promotion of Public Private Partnership (PPP) is most important.
- Additionally, DG stressed that PROFIA should be a model of PPP business in Myanmar since the project is the first and foremost private-sector-involved project. Objective of PROFIA is in line with the Ministry's policy; it would fulfill necessities of farmers; and it would be a part of support for country development.

After speech given by DG of DOA, Mr. Nishigata, Senior Representative of JICA Myanmar Office also delivered opening remarks. Senior Representative addressed that PROFIA is a Technical Cooperation Project to follow up Japanese ODA Loan Project for rehabilitation of irrigation systems in West Bago region.

The Senior Representative additionally remarked that close collaboration and detail discussion among stakeholders are essential in order to achieve the project's goal. As conclusion, he expressed his special thanks to all stakeholders especially DOA for kind collaboration to and support for PROFIA.

Mr. Kikuchi, the Team Leader of PROFIA project presented outline of the project, explained the progress of the project activities, and clarified the proposed revision of the Project Design Matrix (PDM). The main points of the presentation are as followed.

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- It is suggested to revise PDM based on current condition. Items to be revised are: 1) name of Ministry, 2) number and title of Japanese Experts, 3) number of seed cleaner (from 3 to 2), 4) activities for output 3.
- Assignment Schedule and Working Schedule are proposed to be revised base on the work plan
- Seed distribution for 2016 monsoon paddy was postponed. The project team needs more time to make sure quality of seeds so as to show impact of using good quality seeds. Seed multiplication activities are ongoing and quality seed distribution for 2017 summer paddy is under arrangement.
- Roles of Extension Division and Seed Division are not clear in Post Harvest Sector
- Establishment of a Grain Quality Control Lab is under arrangement but location of the lab is not fixed yet (in Deputy Regional Officer Office compound of DOA in Pyay is recommended)
- Winter crop cultivation using irrigation water and changing cropping pattern for more profitable ones will be advised to farmer (technical training will be given as necessary)
- Two seed farms in Thegon and Paungde have no irrigation water

Mr. Kitada, JICA advisor for irrigation policy made presentation regarding output (3) of the project, "Guidelines for Participatory Irrigation Management (PIM) in the project site is prepared and applied in the model site" together with schedule/time frame to be implemented.

In reaction to the presentations, DG remarked that reduction of Japanese experts is not a minor case since technical problem can be solved only by relevant experts. DG recommended not to reduce provision of seed cleaner from (3) to (2), and one of DOA extension centers in project area can be a potential location to install one seed cleaner.

DG then proposed that post-harvest and grain quality control lab (the Lab) be established at any potential place for private sector because the government staffs had already got a lot of trainings and they can train stakeholders in private sector. However, without enough material and facilities, it could not be functioned.

The project team and JICA replied and explained as follows:

- The reason why reducing number of experts is: some activities of the project can be covered by other experts. For example, "baseline survey" was done by currently dispatched Japanese experts. If necessary, local expert for respective activity will be assigned.
- Regarding the number of seed cleaners, there are only two DOA seed farms (Paungde and Pwepyae) in the project area. Therefore, two (2) cleaners will be provided to these two DOA seed farms in advance. But, according to guidance of DG, follow up activity will be conducted to confirm whether there is suitable DOA extension center to install additional seed cleaner or not.
- According to JICA rule, it seems difficult to provide the Lab directly to private sector. Since the project is technical cooperation project to strengthen capacity of the Government department and staff as the first step, then, private sector will be trained through the government staff as second step.

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DG pointed out that local expert should be professional and have enough skill on relevant field and subject. DG added that, for example, since project phase-1 is going to be implemented in land consolidation areas, an expert of Land Improvement is important for proper soil management.

The project team and JICA replied that they will take care of what DG's commented and guided. In particular, while proposed expertise are omitted from the list, related Japanese or Local Expert will be dispatched/assigned when necessity arises.

U Myint Lwin, Project Manager (PM) of PROFIA, Deputy Regional Officer of West Bago Region added as follows:

- Installation of the Lab in Pyay DOA compound is better than in Paungde and Pwepyae seed farms since DOA Pyay office has more favorable condition such as electricity, and number of (core) staff. Then, extension activities to private sector in post harvest technology and grain quality control will be done through trained DOA staff, and the Lab will be used as necessary for those activities too.
- For provision of seed for 2017 FY summer paddy, seed production process in Paungde and Pwepyae Seed Farms will be supervised and monitored together with the project team.

U Htaing Htaing, member of JCC, executive committee member of Myanmar Rice Federation (MRF) discussed that close collaboration is necessary between three parties (DOA, Project Team and Private Sector). He then discussed as follows:

- Farmer themselves should consider to produce seed since production of seed by DOA seed farms cannot meet the amount of farmers' demand. But, there are many issues relating to seed production by farmer themselves. Private sector (like rice miller) involvement in seed multiplication—developing a win-win situation between farmers and miller—can formulate a more profitable and sustainable condition.
- MRF with local rice millers of related townships has been organizing farmer meetings in West Bago to formulate a proper business model to gain benefit for farmers and local rice millers. On the other hand, under the guidance of DG, DOA is also organizing Seed Grower Association (SGA) by participation of local farmers, rice millers, traders and brokers in each township. Combination of two programs will be effective since it is a kind of PPP with additional assistance from DOA.
- Since JICA is also becoming a stakeholder of the program, developing PPP throughout the project term will be surely achieved as targeted.

U Htaing Htaing presented about his business under umbrella of MRF including action plan, current activity and further schedule. As conclusion, he expressed his special thank for having great opportunity, conducting activity to develop a better business model together with DOA and JICA.

Daw Khin Mar Oo, Deputy Director of Department of Planning (DOP) pointed out that issues should be discussed at project implementation body, Project Implementation Committee (PIC) in this case, at first since function of JCC is to confirm and approve further implementing plans of the project and making decision for the issues which cannot be solved by project implementation body.

U Myint Oo, Project Director (PD) of PROFIA, Director of Extension Division, discussed that suggestions and collaborations from Agricultural Mechanization Department (AMD) and Irrigation and Water Resources Utilization Department (IWRUD) are very important in order to selecting model sites of the project since project is aiming to implement the activities in irrigated model farmland. He mentioned DOA will assist as much as possible to the project and never delay to work together with stakeholders as it is necessary for project achievement.

Project Director then mentioned he will come to project area to check: selection of model sites of the project, actual condition of the project, issues to be considered and so on. He asked AMD and IWRUD to collaborate and support when he come to project area in West Bago. Additionally, he shared that an action plan will be prepared during his visit to project area by consulting with project implementation body, and the plan will be reported to DG.

As conclusion of the meeting, DG pointed out that original PDM should not be revised a lot and many time since PDM is prepared by thorough discussion between JICA and the Ministry. DG then addressed that since this is the first JCC meeting, it was needed to be certain and discuss detail for changes before changing. DG discussed and commented as follows too:

- Project Implement Committee (PIC) is very important to achieve the goal of the project. An official letter of establishment of PIC should be issued. Regular meeting of PIC should be conducted to rise up and confirm issue and necessities. Then PIC should report JCC in time how and what JCC has to support PIC especially for issues which cannot be handled by PIC.
- Cancellation of seed provision should not happen again. The issue can be avoided by informing project demand (variety and amount of basket) to DOA one season ahead. To produce what project will purchase is responsibility of DOA. If provision of seed is aiming for seed production, it is better to purchase from DOA seed farms but if provision is just for good quality grain production, seed can be purchased from private companies recommended by DOA.
- Type of variety rice miller demand to purchase (popular and market demanding variety) and plan of MRF for promoting seed producing by farmer should be informed to DOA.

Then, DG expressed his special thanks to JICA and the project team for close collaboration with the Ministry especially with DOA and supporting in promoting of Myanmar agriculture sector development.

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Attached Document 2

Action to be Taken

| Sr. | Action to be taken | Person in charge |
|-----|---|---|
| 1. | To issue official letter of forming PIC according to RoD | Project Planning, Department of Agriculture |
| 2. | To submit the progress of activities and faced difficulties to Chairman of JCC on time by holding PIC meeting once a month. | Project Manager, PROFIA Project Team |
| 3. | -To inform seed requirement in advance at least for one season ahead - Production of requested seed | Project Manager, PROFIA Project Team, Director of Seed Division |
| 4. | To inform JCC Chairman and DOA - plan of MRF for promoting seed producing by farmer - which variety of paddy has the most demand rice millers | U Hla Moe or U Htaing Htaing, Executive Member, MRF |
| 5. | Without reducing the (3) numbers of Seed Cleaner for support, currently it can purchase (2) numbers first and the last one shall discuss again for supporting plan. | JCC, PROFIA project Team |
| 6. | - Not to reduce number of expert and to dispatch/assign just if necessary | PROFIA Project Team |
| 7. | To confirm location for Post Harvest and Grain Quality Control Lab and report the condition | Project Director, Project manager |

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PARTICIPANT LIST

Ministry of Agriculture, Livestock and Irrigation

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|------------------|--|
| Dr. Ye Tint Tun | Director General, Department of Agriculture |
| U Myint Oo | Director, Extension Division, Department of Agriculture |
| U Thet Zin Maung | Director, Seed Division, Department of Agriculture |
| U Than Kyein | Director, Project Planning, Management and Evaluation Division, DOA |
| Daw Khin Mar Oo | Deputy Director, Department of Planning |
| U Aung Myo Swe | Deputy Director, West Bago Maintenance Division, IWRUD |
| U Aung Win | Deputy Director, Agricultural Mechanization Department |
| U Myint Lwin | Deputy Regional Officer, West Bago Region, DOA |
| Daw Lin Lin Thi | Deputy Director, Project Planning, Mangt; and Eval; Division, DOA |
| Daw Nilar Aung | Assistant Director, Project Planning, Mangt; and Eval; Division, DOA |
| Daw Su Su Khin | Staff Officer, Project Planning, Mangt; and Eval; Division, DOA |

Private Sector (Member of JCC)

| | |
|------------------|-----------------------------------|
| U Htaing Htaing, | Executive Committee Member of MRF |
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JICA

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|-------------------------|--|
| Mr. Kotaro NISHIGATA | Senior Representative, JICA Myanmar Office |
| Mr. Jun YAMAZAKI | Representative, JICA Myanmar Office |
| Mr. Kenichiro KOBAYASHI | JICA Advisor |
| Mr. Hiromichi KITADA | JICA Long-term Expert, Irrigation Policy |
| U Tun Myint Thein | Program Officer, JICA Myanmar Office |

PROFIA Project Team

| | |
|-----------------------|--|
| Mr. Kotaro KIKUCHI | Team Leader/ Marketing and Distribution |
| Mr. Hideaki HIRUTA | Co-leader/ Marketing and Distribution |
| Mr. Masakazu KANAMOTO | Public Private Partnership |
| Ms. Ritsuko HARA | Training Material/ Coordinator/ Agriculture (2) |
| U Phyto Lin Tun | National Consultant (Public Private Partnership) |
| U Aung Htay Win | Project Assistant |
| U Aung Khaing Myint | Project Assistant |
| U Sai Aung Kyaing | Project Assistant |

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Project Design Matrix

Version 1
Dated August 2, 2016

Project Title: Project for Profitable Irrigated Agriculture in Western Bago Region
 Implementing Agency: Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation
 Target Group: Model farmers, MOALI staff, private sectors and farmers in four irrigation systems in P'vay district and Thayawaddy district (116,738 personnel / 23,384 House hold).
 Period of Project: March 2016 to February 2021

Project Site: 4 irrigation schemes in 6 townships (P'vay, Pauk Khaung, Thae Kone, Paung De, Nattalin, Zee Kone) in Western Bago Region
 Model Site: 20 places (part of AMD demo farms in the 6 townships, non-land consolidated demo farms 2 each in the 6 townships, DOA seed farms (Thae Kone and Paung De))

| | Objectively Verifiable Indicators | Means of Verification | Important Assumption | Achievement | Remarks |
|---|---|--|--|---|---|
| Overall Goal Profitability of agricultural activities in the Project Site is improved | Increase of agricultural profit in the Project Site since 2015 exceeds that of the whole country by more than 10%. | MOALI Statistics | Policy related to crop selection and trading does not change drastically. | Baseline survey has started from May 28, and data analysis is on-going | Indicators is still draft and will be determine through discussion with CP and JICA |
| Project Purpose Profitable irrigated agriculture model with private sector involvement is established | <ul style="list-style-type: none"> At least one of the practices introduced through the Project is adopted in more than 50 % of areas in the 6 AMD demonstration farms Increase of agricultural profit since 2015 among farmers who adopt the practices exceeds that of the control group by more than 10%. | Baseline survey and endline survey of the Project Baseline survey and endline survey of the Project | Water supply is not disturbed due to drought or flood | A long list of rice millers in the project area was developed by the Post Harvest Group of DOA. | Indicators is still draft and will be determine through discussion with CP and JICA |
| Outputs 1. Public-Private-Producers (Farmers) Partnership is strengthened | 1-1 Paddy rice produced from Certified Seed in the Model Site is sold at higher price than paddy rice produced from ordinary seeds. 1-2 At least one variety of multiplication and distribution flow of good quality seeds of non-rice crops is strengthened. | Baseline survey and endline survey of the Project Baseline survey and endline survey of the Project | Policy and regulations for pulses seed production do not adversely affect the project activities | A long list of rice millers in the project area was developed by the Post Harvest Group of DOA. | Indicators is still draft and will be determine through discussion with CP and JICA |
| 2. Profitability of farmers in the Model Site is improved | 2-1 Increase of agricultural profit since 2015 among farmers in the Model Site exceeds that of the control group by more than 20%. | Farm economy record taken in the Project | | Model farmers/ area was identified. Result of baseline survey is under preparation. | |
| 3. Guidelines for Participatory Irrigation Management (PIM) in the Project Site is prepared and applied in the Model Site | 3-1 Guidelines for participatory irrigation management is prepared 3-2 Stakeholders meetings of irrigation sector are sustainably organized 3-3 More than 50 % farmers in the 6 AMD demonstration farms participate in PIM activities | Monitoring sheet Monitoring sheet Baseline survey and endline survey of the Project | | N.A. | |

| Activities | Inputs | Important Assumption |
|--|--|--|
| <p>1-0-1 Conduct a baseline survey and endline survey to collect data on farm profitability of the target group and the control group.</p> <p>1-0-2 Reconfirm the issues of present farming in the Project Site.</p> <p>1-0-3 Review the suitable balance between land productivity and labor productivity to examine the project activities</p> | <p>The Japanese Side</p> <p>(1) Dispatch of Experts /a Team Leader/ Marketing and Distribution Co-leader/ Marketing and Distribution Public Private Partnership Agriculture/ Gender Agricultural Machinery Training Material/ Coordinator/ Agriculture (2) Water Management/ Organization Coordinator/ Agricultural Machinery (2) / GIS Local Consultant (PPP) Local Consultant (B) Local Consultant (C)</p> <p>The Myanmar Side</p> <p>a) Office space in DOA West Bago division b) Office space for irrigation policy advisor in ID in Nay Pyi Taw c) Fuel for field inspectors d) 9 designated staff for the Project assigned by DOA West Bago division throughout the project period (1 in division, 2 in districts, 6 in townships) d) Running cost such as electricity and water</p> | <p>The mechanism to facilitate land consolidation is introduced by the state or the union government of Myanmar.</p> |
| <p><Output1></p> | | |
| <p>1-1. Promote the use of <u>Certify Seed for rice</u></p> | | |
| <p>1-1-1 Review the current seed multiplication practice of DOA (seed farm & T/S extension office) and Model Seed Villages in the project site.</p> <p>1-1-2 Enhance the capacity of DOA seed farm to improve quality of FS and RS.</p> <p>1-1-3 Improve awareness of extension staff and farmers on CS.</p> | | <p>Pre-Conditions</p> <p>10 baskets of Yezin 2, 3 and 5 (Black gram variety) is procured before the dry season cultivation in the 1st year.</p> |
| <p>1-1-4 Encourage rice millers / traders to purchase CS seeds produced by seed growers.</p> <p>1-1-5 Involve rice millers for CS distribution and purchase of paddy produced from CS.</p> <p>1-1-6 Strengthen the network among Public-Private-Producers for rice.</p> | <p>(2) Provision of equipment 3 Seed Cleaners Moisture Meters 6 Motorcycles for field inspectors 2 Vehicles for the Project 1 Adopter for ridge building 2 Pulses thresher / cleaner Harvesting machine for pulses (3) Third country / In country training (4) Local cost shared by Japanese side Project office refurbishment cost Travel allowance for the Project Other running cost</p> | <p>The AMD model land consolidation is completed before the start of the Project without lasting dispute.</p> <p>The AMD model land consolidation site is not destroyed through rainfall, flood or use of machineries.</p> |
| <p>1.2 Promote the use of <u>Good quality seeds for non-rice crops</u></p> | | <p><Issues and countermeasures> Farmer's coordination mechanism may be introduced through the project activities.</p> |
| <p>1-2-1 Introduce good quality seed of non-rice crops to the Project Site.</p> <p>1-2-2 Conduct trainings for DOA staff, farmers and the private companies on seed multiplication technique.</p> <p>1-2-3 Involve traders in the good quality seed distribution and the purchase with premium of crops produced from good quality seeds.</p> <p>1-2-4 Strengthen the Public-Private-Producers network for non-rice crops.</p> | | |

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| <Output2> | | | |
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| <p>2-1 3-season cropping model and 2-season cropping model with improved profitability are demonstrated in the AMD demonstration farms in the 6 townships</p> <p>2-1-1 Identify the suitable crops for 3-season cropping in each township by taking market demand prospect into account.</p> <p>2-1-2 Enhance the capacity of farmers on the 3-season cropping in the AMD demonstration farms.</p> <p>2-1-3 Identify the suitable crops for 2-season cropping in each township by taking market demand prospect into account.</p> <p>2-1-4 Introduce good quality seed of pulses, rice or other important product identified in 2-1-1 and 2-1-3.</p> <p>2-1-5 Enhance the capacity of farmers on appropriate use of agricultural inputs.</p> <p>2-1-6 Enhance the capacity of farmers on on-farm water management techniques for rice production.</p> <p>2-1-7 Enhance the capacity of farmers and AMS staff on appropriate use of combine harvesters.</p> <p>2-1-8 Introduce plot-to-plot water management practices, especially for pulses, including ridge building techniques.</p> <p>2-2 <u>The practice introduced in 2-1 is disseminated in cost effective and sustainable way</u></p> <p>2-2-1 Introduce the farm economy record (accounting book) to model farmers and control group farmers.</p> <p>2-2-2 Analyze the data of 2-2-1 and visualize the effect of the practices introduced in 2-1.</p> <p>2-2-3 Advertise the practice in 2-1 by using the information of 2-2-2 through poster, radio, newspaper advertisement, etc.</p> <p>2-2-4 Create material such as booklet, poster, DVD etc. to disseminate the practice in 2-1 through Farmer Development Center.</p> <p>2-2-5 Disseminate the telephone list of model farmers to contact farmers in each village.</p> <p>2-2-6 Select model farmers in non-consolidated land in the 6 townships and adopt the techniques in 2-1.</p> | | | |

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| <p><Output3></p> <p>3-1. Identify the issues on middle- and long-term use of irrigation facilities in the Project Site through monitoring the Project.</p> <p>3-2. Develop a guideline on PIM (Participatory Irrigation Management) in the Project Site.</p> <p>3-3. Assist PIM activities by Water Users Groups / Water Users Association after establishment.</p> <p>3-4. Assist dissemination of the use of guidelines for land consolidation in the Project Site.</p> <p>3-5. Provide advices to solve the issues of irrigation sector in Myanmar through meeting with stakeholders and observation of various irrigation systems in Myanmar.</p> | | | | |
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Remarks: a/ Experts not mentioned in this PDM version 1 (excluded from PDM version 0) will be dispatched if necessary.

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| Duration / Phasing | Plan | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | | | |
|---|--------|--------|------|----|-----|----|------|----|-----|----|------|----|-----|----|------|----|-----|----|------|----|-----|----|------|----|-----|----|--|
| | Plan | Actual | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV | |
| Monitoring Plan | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monitoring | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Joint Coordinating Committee | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Set-up the Detailed Plan of Operation | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Preparation of Monitoring Sheet | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monitoring Mission from Japan | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Joint Monitoring | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Post Monitoring | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reports/Documents | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Work Plan | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Submission of Monitoring Sheet | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Progress Report | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Completion Report | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Public Relations | Actual | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Commencement of the Project (Newspaper, etc) | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Partial achievement of the Project (Newspaper, etc) | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |
| Achievement of the Project (Newspaper, etc) | Plan | Actual | | | | | | | | | | | | | | | | | | | | | | | | | |

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**MINUTES
OF
THE SECOND JOINT COORDINATING COMMITTEE MEETING
FOR
PROJECT FOR PROFITABLE IRRIGATED AGRICULTURE
IN
WESTERN BAGO REGION (PROFIA)
HELD
ON
22nd JUNE 2017**

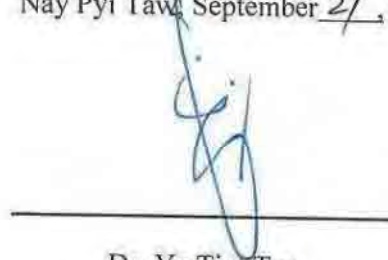
The Second Joint Coordinating Committee Meeting between Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation and Japan International Cooperation Agency (JICA) on "Project for Profitable Irrigated Agriculture in Western Bago Region (PROFIA)" was convened for the successful implementation of the above mentioned Project.

As a result of the discussion, both parties reached a common understanding relating to the matters in the documents attached hereto.

Nay Pyi Taw, September 21, 2017



Mr. Masayuki KARASAWA
Chief Representative
Japan International Cooperation
Agency, Myanmar Office



Dr. Ye Tint Tun
Director General
Department of Agriculture,
Ministry of Agriculture, Livestock and
Irrigation



Mr. Kotaro KIKUCHI
Team Leader
PROFIA



Mr. Hiromichi KITADA
Irrigation Policy Advisor
JICA Expert

Attached Document 1

Discussion Record

The second Joint Coordination Committee (JCC) meeting of the “Project for Profitable Irrigated Agriculture in Western Bago Region (PROFIA)” was held on 22nd June, 2017 at the meeting room of the office number 43, the Ministry of Agriculture, Livestock and Irrigation (MOALI) headquarters in Nay Pyi Taw.

The meeting was opened by the speech of JCC Chairperson, Dr. Ye Tint Tun, Director General (DG) of Department of Agriculture (DOA) of MOALI, as summarized below:

- In agriculture development today, role of private sector is important; thus the project should emphasize how to involve the private sector. To begin with, it is necessary to identify the difficulties in the private sector along with the agricultural value chain.
- The Project Design Matrix (PDM) is important for every stakeholder to participate in the necessary activities of the project. For the PDM to be more effective and useful, the current PDM needs to be revised in this meeting.
- It is no doubt that collaboration among all the stakeholders is necessary, including DOA, Irrigation and Water Utilization Management Department (IWUMD) and Agricultural Mechanization Department (AMD).
- Now that the rehabilitation of irrigation systems is being done, we need to make the best use of the irrigation systems rehabilitated. The project activities, thus, should be the ones that encourage farmers to produce quality agriculture produces under irrigation.
- Two-cropping pattern already has wide spread in the area. Now, it is time to consider the possibility of more profitable and sustainable cropping systems for the future.
- MOALI encourages private sector to bind their business strategy with our strategy, key domains of which are food security, food safety and nutrition improvement. Especially, our department seeks for food security and food safety through the Good Agricultural Practice (GAP). These two aspects should also be emphasized in the project.
- As we already have sesame market in Japan, we can seek for a chance for exportation more. In this regard, production of quality black sesame is required.
- As sugar factories are in the project area, sugarcane can also be cultivated as a potential crop. As much as adaptability is confirmed, we should not prohibit any crop. We need to support farmers to identify the demand from market, for which right information from the private sector needs to be captured and provided.

After speech given by DG of DOA, Mr. Masayuki Karasawa, Chief Representative (CR) of JICA Myanmar Office delivered opening remarks, which includes the following points:

- This project is very unique, covering from upstream to downstream of the agricultural value chain. To enable a close collaboration with private sector, and to secure enough volume of agricultural produces, we need to address whole process of it.



- We also need to give attention to the framework of the project as to establish models on pilot basis and as a showcase so that lessons learned and models established can be disseminated and applied in other part of the country too.
- In addition, close collaboration with private sector and other department should be emphasized, for which it is highly expected for the participants of this meeting to give constructive comments on these issues.

Work Progress (Output 1 and 2)

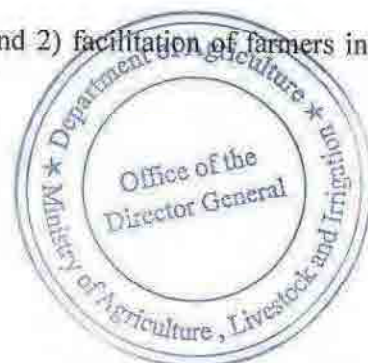
Mr. Myint Lwin, the Project Manager (PM) of the project, Deputy Regional Officer of West Bago Region, made a presentation on the progress of the project activities relating to output 1 "Public-Private-Producers (Farmers) Partnership is strengthened" and output 2 "Profitability of farmers in the Model Site is improved," which had been conducted from the commencement of the project up to date. During the presentation, some question and comments were raised which includes the following:

- Agricultural Machineries: 1) possibility of fabrication of seeder presented; 2) importance of involving private sector in utilization of agricultural machineries; and 3) necessity of coordination with JICA Two-Step-Loan (TSL).
- Black Gram Production Trial in Different Cultivation Method: 1) impact of different cultivation methods not only in terms of production but of profitability.
- Sesame Cultivation: 1) ridging method and its susceptibility against strong wind; 2) importance of economic motivation for farmers; 3) necessity of sustainability after project; 4) difficulty of pre-monsoon sesame for the rain at the harvesting season; 5) reduction of irrigation water through replacing paddy with sesame; and 6) necessity of post-harvest technology.
- Provision of Inputs and Sustainability: 1) necessity of burden sharing by farmers for sustainability.
- Cropping Pattern: 1) necessity of technical support for the change of cropping pattern and introduction of new type of crops.

Work Progress (Output 3)

Thereafter, Ms. Mizuki Iida, team member of PROFIA project, together with Mr. Hiromichi Kitada, Irrigation Policy Advisor who are also in charge of output 3 of the project, presented institutional development activities being carried out for the establishment of Water Users Groups (WUGs), Land Consolidation Groups (LCGs), and Water Users Associations (WUAs), relating to output 3 of the project "Guidelines for Participatory Irrigation Management (PIM) in the Project Site is prepared and applied in the Model Site." Upon the presentation, some attendances made some comments as follows:

- Water Users Group (WUG): 1) coverage area of WUG; and 2) facilitation of farmers in the different villages under one WUG.



- Irrigation Management Guideline: 1) importance of introducing Japan's past experience in this field; 2) necessity of national level guideline; 3) meaningfulness of putting farmers at the center of irrigation facility management; and 4) needs for obtaining lessons from neighboring countries.

Revision of the PDM

Mr. Kotaro Kikuchi, the Team Leader of PROFIA project clarified the revisions of the Project Design Matrix (PDM) version 1, proposed based on the project activities implemented to date. The revisions proposed extend to the definition of project site and model site, the contents of important assumption and means of verification, and the issues on private sector, cropping pattern, soil improvement, Water Users Group (WUG), extension, the structure of PDM, and wording/ spelling.

In the discussion, some of amendments were clarified by the DG especially for better understanding from Myanmar side. Through confirming the changes, then, PDM was further revised. Main topic relating to the further revision is as follows:

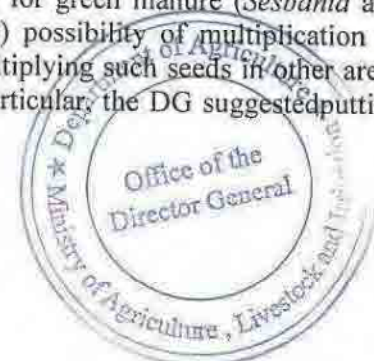
- Important Assumption: Although it was proposed to shift the statement in the important assumption of overall goal "policy related to crop selection and trading does not change drastically" to the Important Assumption for project purpose, same is necessary even for the important assumption of the overall goal especially for sustainability. Thus, it is proposed to have the same assumption both in overall goal and project purpose.

Through the discussion, all the changes were confirmed and officially approved as PDM ver.2 by the attendance of the ICC as per attached in this minutes.

Work Plan 2017

Mr. Kotaro Kikuchi, briefly explained the main concept and direction of the project activities for the cropping year 2017/2018 composed of model establishment activities in the target areas newly designated outside the Land Consolidation Areas(LCAs) in Pyay and Paungde townships and also some other activities, such as soil improvement, and establishment of seed multiplication and distribution system in LCAs of six townships. Major points discussed are as follows:

- Extension Modality: 1) Necessity of having larger areas for demonstration; 2) plan for extension through model establishment and its dissemination.
- Cropping Pattern: 1) necessity of opinion from private sector on new cropping pattern; 2) difficulty of 3 cropping system; 3) advantage of promoting 2 cropping system; and 4) depletion of soil condition by 3 cropping.
- Soil Improvement: 1) identification of suitable variety for green manure (*Sesbania* and *Crotalaria*.); 2) difficulty of obtaining such seeds; 3) possibility of multiplication of seeds by private sector; and 4) recommendation of multiplying such seeds in other areas where agro-ecological condition is more suitable. In particular, the DG suggested putting



priority to *Crotalaria* more than *Sesbania*. *Sesbania* is known to become hard, and, if harrowing cannot be managed at the right timing, it becomes difficult to deal with.

Result of Advisory Mission

Dr. Akira Kamidohzono, the sole member of JICA advisory mission, made presentation on the findings and recommendation from the monitoring conducted in about two weeks in June 2017. In reply to the issues and recommendation presented by Dr. Kamidohzono, then, members of JCC meeting made some comments and exchanged the opinions as follows:

- *Simplification and integration of project activities*: 1) reconsideration of cropping pattern to be promoted (2 cropping); 2) facilitation of WUG-based extension instead of conventional extension modalities; 3) focus of crop to be supported (sesame);
- *Marketing*: 1) assignment of DOA counterpart on marketing aspect; 2) importance of private sector's involvement in marketing aspect; 3) advantage of connecting producers and marketers; 4) importance of fixing type, variety and cropping schedule of crops as groups; 5) possibility of facilitating government to government contract; 6) importance of quality especially for exporting market; and 7) disincentive of producing quality product for bulk market in China.

Upon the recommendation from Dr. Kamidohzono, it was agreed by the DOA to assign counterparts in charge of marketing aspect in the project.

Address by Project Director

Mr. Hla Myint Aung, the Project Director of PROFIA showed appreciation to the participants of the JCC meeting. He mentioned that he had visited the project area and observed the lab established by the project on 17th March, 2017. He thanked JICA for the cooperation in terms of equipment and machineries procured for the project. Project Director emphasized two points among the issues discussed in the meeting: 1) importance of private sector's involvement especially in the seed multiplication and marketing; and 2) necessity to shift the policy from quantity-oriented to quality-oriented.

Closing Remark

Mr. Karasawa, the chief representative of JICA Myanmar office, made a closing remark. He said he was very much impressed by the positive and constructive attitude of the participants this day. It is a project to establish a new model and disseminate such a model in other area—a kind of pioneer project as it also involves private sector.

Stakeholders in the private sector know much better than us, he said. Introduction of new crops or new cropping system might be good but it is necessary to consider who can take more risk. Contract farming is one of the good examples in which private sector can support farmers as a form of win-win relationship. In this regard, he continued, we would like to ask team members to ask opinions from private sector. Then, Mr. Karasawa closed the meeting with his expression of hope for successful implementation of the project activities from now on.



PARTICIPANT LIST

Ministry of Agriculture, Livestock and Irrigation

| | |
|----------------------|--|
| Dr. Ye Tint Tun | Director General, Department of Agriculture |
| U KyawSwe Linn | Deputy Director General, Department of Planning |
| U HlaMyintAung | Project Director, Deputy Director General (Technology), DOA |
| U MyintOo | Director, Extension Division, Department of Agriculture |
| U Thet Zin Maung | Director, Seed Division, Department of Agriculture |
| U Myint Lwin | Project Manager, Deputy Regional Officer, West Bago Region, DOA |
| U AungMyoSwe | Deputy Director, West Bago Maintenance Division, IWUMD |
| U Aung Win | Deputy Director, Agricultural Mechanization Department |
| DawNaw Jenny Loo | Acting Director, Project Planning Management and Evaluation Div, DOA |
| DawThanThanHtay | Dy Director, Project Planning Management and Evaluation Div, DOA |
| Daw Lin LinThi | Dy Director, Project Planning Management and Evaluation Div, DOA |
| DawKhin Mar Yee | Assistant Director, Extension Division, Department of Agriculture |
| U NyiNyi | Assistant Director, Extension Division, Department of Agriculture |
| Daw Su SuKhin | Staff Officer, Project Planning Management and Evaluation Div, DOA |
| DawThidaAung | Deputy Staff Officer, Department of Agriculture |
| Mr. Hiromichi KITADA | JICA Long-term Expert, Irrigation Policy/ PROFIA Team Member |

Private Sector (Member of JCC)

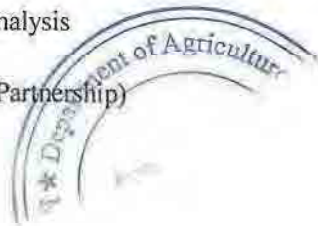
| | |
|-----------------|---|
| U HtaingHtaing, | Executive Committee Member of Myanmar Rice Federation (MRF) |
|-----------------|---|

JICA

| | |
|-----------------------|---|
| Mr. Masayuki KARASAWA | Chief Representative, JICA Myanmar Office |
| Mr. Jun YAMAZAKI | Representative, JICA Myanmar Office |
| Dr. Akira KAMIDOHZONO | Senior Advisor, JICA Headquarters |
| U Tun Myint Thein | Program Officer, JICA Myanmar Office |

PROFIA Project Team

| | |
|-----------------------|---|
| Mr. Kotaro KIKUCHI | Team Leader/ Marketing and Distribution |
| Mr. Hideaki HIRUTA | Co-leader/ Marketing and Distribution |
| Mr. Masakazu KANAMOTO | Public Private Partnership |
| Mr. Takao AKUTSU | Agricultural Machinery |
| Dr. Kiyoko HITSUDA | Agriculture/Gender |
| Ms. Mizuki IIDA | Organization |
| Ms. Ayumi SHIGA | Agriculture Economy/Baseline Analysis |
| Ms. Saaya MORIKAWA | Coordinator |
| U Phyto Lin Tun | Local Consultant (Public Private Partnership) |
| U Aung Htay Win | Project Assistant |
| U Aung Khaing Myint | Project Assistant |
| U Sai Aung Kyaing | Project Assistant |
| U Thant Zin Maung | Project Assistant |



Project Design Matrix

Version 2
Dated June 22, 2017

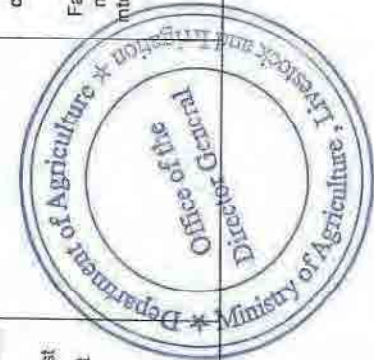
Project Title: Project for Profitable Irrigated Agriculture in Western Bago Region
Implementing Agency: Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation
Target Group: MCALI staff, private sectors and farmers in four irrigation systems in P.yaw district and Thayawaddy district (116,738 personnel / 23,394 House hold)
Period of Project: March 2016 to February 2021
Project Site: 6 townships (P.yaw, Paukkhaung, Theegon, Paungde, Nattein, Zigon) in 4 irrigation schemes in Western Bago Region
Model Site: 20 sites including PROFIA model areas, AMD demo farms and DOA seed farms.

| Narrative Summary | Objectively Verifiable Indicators | Means of Verification | Important Assumption | Remarks |
|---|---|--|--|---------|
| Overall Goal Profitability of agricultural activities in the Project Site is improved | Increase of agricultural profit in the Project Site since baseline year 2015 exceeds that of the whole country by more than 10%. | MOALI Statistics | Policy related to crop selection and trading does not change drastically. | |
| Project Purpose Profitable irrigated agriculture model with private sector involvement is established | - At least one of the practices introduced through the Project is adopted in more than 50 % of the model site. - Increase of agricultural profit since 2015 among farmers who adopt the practices exceeds that of the control group by more than 10%. | Baseline survey and endline survey of the Project Baseline survey and endline survey of the Project | Policy related to crop selection and trading does not change drastically. Water supply is not disturbed due to drought or flood | |
| Outputs 1. Public-Private-Producers (Farmers) Partnership is strengthened | 1-1 Paddy rice produced from Certified Seed by farmers in the Model Site is sold at higher price than paddy rice produced from ordinary seeds. 1-2 At least one variety of multiplication and distribution flow of good quality seeds of non-rice crops is strengthened. | Baseline survey and endline survey of the Project Baseline survey and endline survey of the Project | Policy and regulations for pulses seed production do not adversely affect the project activities | |
| 2. Profitability of farmers in the Model Site is improved | 2-1 Increase of agricultural profit since 2015 among farmers in the Model Site exceeds that of the control group by more than 20%. | Baseline survey, endline survey, and farming record of the Project. | | |
| 3. Guidelines for Participatory Irrigation Management (PIM) in the Project Site is prepared and applied in the Model Site | 3-1 Guidelines for participatory irrigation management is prepared. 3-2 Stakeholders meetings of irrigation sector are sustainably organized. 3-3 More than 50 % of farmers in the model site-participate in PIM activities | Monitoring sheet Monitoring sheet Baseline survey and endline survey of the Project | | |



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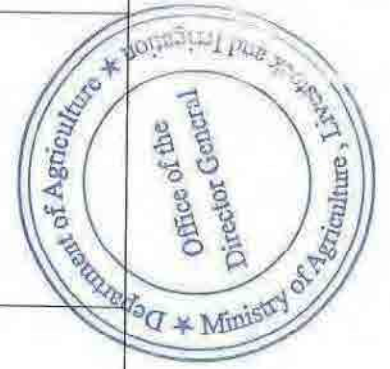
| Activities | Inputs | | Important Assumption |
|---|---|--|---|
| | The Japanese Side | The Myanmar Side | |
| 1-0-1 Conduct a baseline survey and endline survey to collect data on farm profitability of the target group and the control group. | (1) Dispatch of Experts ¹⁾ Team Leader/ Marketing and Distribution Co-leader/ Marketing and Distribution | a) Office space in DOA West Bago division | The mechanism to facilitate land consolidation is introduced by the state or the union government of Myanmar. |
| 1-0-2 Reconfirm the issues of present farming in the Project Site. | Public Private Partnership | b) Office space for irrigation policy advisor in IWJMD in Nay Pyi Taw | |
| 1-0-3 Review the suitable balance between land productivity and labor productivity to examine the project activities | Agriculture/ Gender | c) Fuel for field inspectors | |
| <Output1> | Agricultural Machinery | d) 9 designated staff for the Project assigned by DOA West Bago division throughout the project period (1 in division, 2 in districts, 6 in townships) | |
| 1-1. Promote the use of Certified Seed for rice | Training Material/ Coordinator/ Aariculture (2) | e) Running cost such as electricity and water | |
| 1-1-1 Review the current seed multiplication practice of DOA (seed farm & T/S extension office) and Model Seed Villages in the project site. | Water Management/ Organization | | |
| 1-1-2 Enhance the capacity of DCA seed farm to improve quality of FS and RS. | Coordinator/ Agricultural Machinery (2) / GIS | | Pre-Conditions |
| 1-1-3 Improve awareness of extension staff, farmers, private companies on the use of CS. | Local Consultant (PPP) | | 10 baskets of Yeizin 2, 3 and 5 (Black gram variety) is procured before the dry season cultivation in the 1st year. |
| 1-1-4 Encourage rice millers / traders to purchase CS seeds produced by seed growers. | Local Consultant (B) | | The AMD model land consolidation is completed before the start of the Project without lasting dispute. |
| 1-1-5 Involve rice millers for CS distribution and purchase of paddy produced from CS. | Local Consultant (C) | | The AMD model land consolidation site is not destroyed through rainfall, flood or use of machineries. |
| 1-1-6 Monitor and introduce measures to improve the network among Public-Private-Producers for rice. | (2) Provision of equipment 3 Seed Cleaners Moisture Meters 6 Motorcycles for field inspectors | | <Issues and countermeasures> |
| 1.2 Promote the use of Good quality seeds for non-rice crops | 2 Vehicles for the Project 1 Adopter for ridge building 2 Pulses thresher / cleaner Harvesting machine for pulses (3) Third country / In country training (4) Local cost shared by Japanese side | | Farmer's coordination mechanism may be introduced through the project activities. |
| 1-2-1 Introduce good quality seed of non-rice crops to the model site. | Project office refurbishment cost Travel allowance for the Project Other running cost | | |
| 1-2-2 Conduct trainings for DOA staff, farmers and the private companies on seed multiplication technique and use of good quality seed. | | | |
| 1-2-3 Enhance the coordination between farmers and private companies in the good quality seed distribution so that crops produced from quality seeds are sold with premium price. | | | |
| 1-2-4 Monitor and introduce measures to improve the Public-Private-Producers network for non-rice crops. | | | |



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| <p><Output2></p> <p>2-1 3-season cropping model and 2-season cropping model with improved profitability are demonstrated in the model sites in the 6 townships</p> <p>2-1-1 Identify the suitable crops for 3-season cropping in each model site-by taking market demand prospect into account.</p> <p>2-1-2 Identify more profitable crops for 2-season cropping in each model site-by taking market demand prospect into account.</p> <p>2-1-3 Promote the cultivation of suitable crops identified in 2-1-1 and 2-1-2.</p> <p>2-1-4 Enhance the capacity of farmers on appropriate use of agricultural inputs and on soil improvement.</p> <p>2-1-5 Introduce appropriate water management practices for rice production in addition to non-rice crops, including furrow irrigation through Water Users Group (WUG).</p> <p>2-1-6 Enhance the capacity of farmers, private companies and AMS staff on appropriate use of agricultural machinery.</p> <p>2-2 The practice introduced in 2-1 is disseminated in cost effective and sustainable way</p> <p>2-2-1 Introduce the farming-record (accounting book) to the target farmers⁶ and ordinary farmers.⁶</p> <p>2-2-2 Analyze the data of 2-2-1 and visualize the effect of the practices introduced in 2-1.</p> <p>2-2-3 Advertise the practice in 2-1 by using the information of 2-2-2 through poster, radio, newspaper, advertisement, etc.</p> <p>2-2-4 Create and distribute material such as booklet, poster, DVD etc. to disseminate the practice in 2-1.</p> <p>2-2-5 Promote extension activities, including study tour, field day, farmer field school, farmer to farmer extension, as well as extension activities through knowledge center.</p> | |
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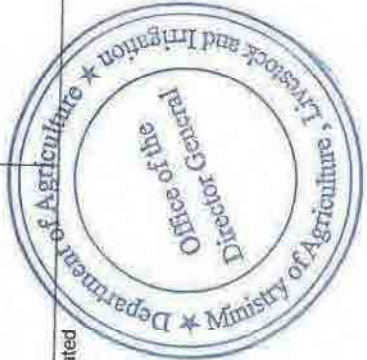


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| <p><Output3></p> <p>3-1. Identify the issues on middle- and long-term use of irrigation facilities in the Project Site through monitoring the Project.</p> <p>3-2. Develop a guideline on PIM (Participatory Irrigation Management) in the Project Site.</p> <p>3-3. Assist PIM activities by Water Users Groups / Water Users Association after establishment.</p> <p>3-4. Assist dissemination of the use of guidelines for land consolidation in the Project Site.</p> <p>3-5. Provide advices to solve the issues of irrigation sector in Myanmar through meeting with stakeholders and observation of various irrigation systems in Myanmar.</p> | |
|---|--|

Remarks: a/ "PROFIA Model Area": Farm plots irrigated under one designated turnout where target farmers' plots (demo-plots) are located
 b/ "Target Farmers": farmers who directly receive technical support from the Project.
 c/ "Ordinary Farmers": farmers who have farmland in surrounding area of the target farmers' land.
 d/ Experts not mentioned in this PDM version 2 (excluded from PDM version 0) will be dispatched if necessary.



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6.

**MINUTES OF THE MEETING
FOR
PROJECT FOR PROFITABLE IRRIGATED AGRICULTURE
IN
WESTERN BAGO REGION (PROFIA)**

A meeting was held on December 22, 2017, between the Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation and the Japan International Cooperation Agency (JICA) Project Team on "Project for Profitable Irrigated Agriculture in Western Bago Region (PROFIA)" for sharing the result of the baseline survey and setting the baseline values for the indicators of the Project.

In the meeting, the team leader of the PROFIA explained the summary of the baseline survey result, then, proposed to set baseline values for some of the indicators of the Project Design Matrix (PDM) of the project as stipulated in the attached document.

As a result of the discussion, the DOA accepted the report of the baseline survey result, and both parties reached a common understanding relating to the matters in the documents attached hereto.

Then, an explanatory meeting to JCC members of PROFIA was held on January 22, 2018, for sharing baseline results including the baseline value. Prior to this meeting, the baseline survey report had been distributed to the Project Implementing Committee (PIC) member and Joint Coordinating Committee (JCC) members.

Participants of the meeting basically accepted on the baseline results with some comments as follows;


- Project evaluation should be done in a simple manner, and it is better to compare the same farmers in the baseline and the end line.
- It is better to add another indicator such as increase in yield to measure output-2, since only one indicator (net agricultural income per household) is risky for the project.
- It is better to keep same farmer and same location in the case of selecting model farmer and model plot from the beginning to the end of the Project. And, where should be available irrigated water under four target irrigation schemes, since the title and objective of the project is irrigated agriculture.

Above suggestion and comments will be discussed in Pyay with PROFIA consultants and DOA and IWUMD officials, and PDM will be modified if necessary.

Nay Pyi Taw, January 22, 2018



Mr. Kotaro KIKUCHI
Team Leader
PROFIA



Dr. Ye Tint Tun
Director General
Department of Agriculture,
Ministry of Agriculture, Livestock and Irrigation



Mr. Hiromichi KITADA
Irrigation Policy Advisor
JICA Expert

ATTACHMENT

1. PDM of the Project

Achievement of the Project will be evaluated at the end of the project based on the Project Design Matrix (PDM). Objectively Verifiable Indicators (OVI) in the PDM are the tool to evaluate the project achievement in a quantitative way. OVIs of the PROFIA, stated in the PDM are shown in table below.

Narrative Summary and OVIs of the PROFIA

| Narrative Summary | Objectively Verifiable Indicators |
|---|--|
| Overall Goal | |
| Profitability of agricultural activities in the Project Site is improved | Increase of agricultural profit in the Project Site since baseline year 2015 exceeds that of the whole country by more than 10%. |
| Project Purpose | |
| Profitable irrigated agriculture model with private sector involvement is established | <ul style="list-style-type: none"> • At least one of the practices introduced through the Project is adopted in more than 50 % of the model site. • Increase of agricultural profit since 2015 among farmers who adopt the practices exceeds that of the control group by more than 10%. |
| Outputs | |
| 1. Public-Private-Producers (Farmers) Partnership is strengthened | 1-1 Paddy rice produced from Certified Seed by farmers in the Model Site is sold at higher price than paddy rice produced from ordinary seeds. 1-2 At least one variety of multiplication and distribution flow of good quality seeds of non-rice crops is strengthened. |
| 2. Profitability of farmers in the Model Site is improved | 2-1 Increase of agricultural profit since 2015 among farmers in the Model Site exceeds that of the control group by more than 20%. |
| 3. Guidelines for Participatory Irrigation Management (PIM) in the Project Site is prepared and applied in the Model Site | 3-1 Guidelines for participatory irrigation management is prepared. 3-2 Stakeholders meetings of irrigation sector are sustainably organized. 3-3 More than 50 % of farmers in the model site-participate in PIM activities |

2. Baseline Value

The project will be measured by various indicators stated in the PDM. Among them, to measure the increase of agricultural profit from the baseline year of 2015 to the end-line year of 2020, the baseline values of two important indicators, as highlighted in red color in the above PDM, need to be estimated. For this purpose, the net income of farm household had been surveyed and estimated as shown in Table 1.

Table 1. Baseline Value

| Location (Township) | Sample Number (n) | Average net income per HH (Ks / HH) |
|---------------------|-------------------|-------------------------------------|
| Pyay | 41 | 357,075 |
| Paukkhaung | 40 | 829,464 |
| Thegon | 41 | 1,847,234 |
| Paungde | 37 | 1,902,189 |
| Nattalin | 77 | 3,535,227 |
| Zigon | 38 | 2,166,123 |
| Total (Average) | 274 | (2,001,684) |

To estimate the net income of farmer household, difference in farming environment among 6 townships in the project area, including soil types and distance to market, needs to be considered. Therefore, the net agricultural incomes of farmer household, as a baseline values, are estimated by townships.

The project evaluation will be conducted by comparing the increase in net income of target and that of the control farmers. However, “model farmer,” “ordinary farmer” and “other farmer (control farmer)”, as defined in the main report, are treated altogether to estimate the baseline value. “Model farmers” at the time of baseline survey are not necessarily the target farmer of the project any more, since main activities of the project had been shifted from the land consolidation area to the new areas where water users group was established. Thus, there is no meaning to distinguish these groups in the estimation of the baseline value.

To see statistical validity, distribution of net income per HH is shown in Figure 1, in which vertical bars indicates the income distribution within township. Average of net income per HH by township is shown as red points in the figure. Outlier data was removed from the calculation of the average, which are shown as white circle points in Figure 1.

Figure 2. shows the breakdown of the average net income in each township. Net incomes from monsoon paddy and black gram in dry season account for large portion of the net income in four townships namely Thegon, Paungde, Nattalin and Zigion.

Whereas, the farmers in Pyay and Paukhaung seem to be hardly enable to earn fair net income from any crop, even from monsoon paddy, which almost all the farmers cultivate.

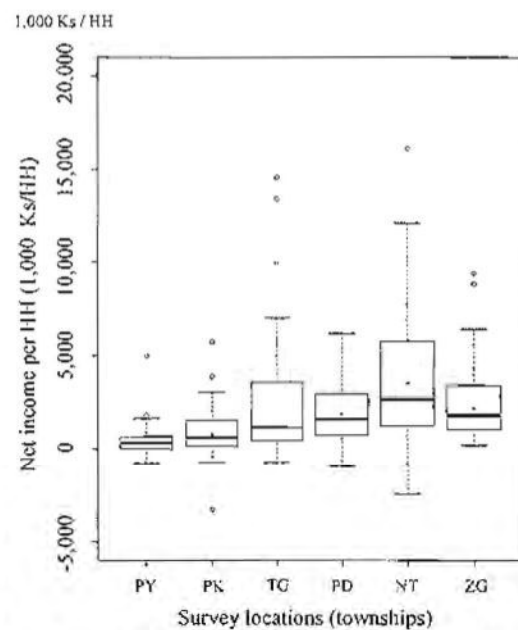


Figure 1. Distribution of Net Income per HH

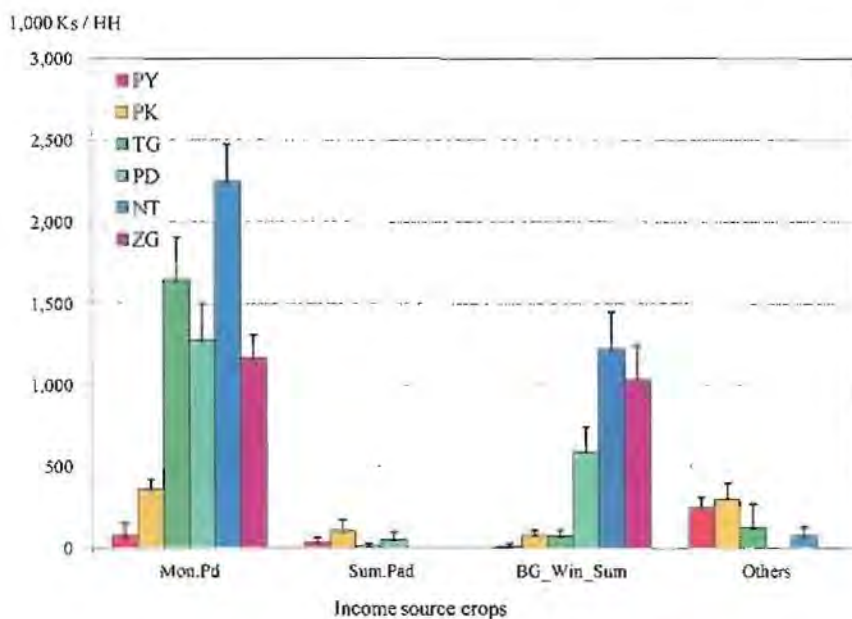


Figure 2. Breakdown of the Average Net Income

3. Interpretation of the Baseline Value

Difference of the agricultural net income among farmers, from whom the project obtained baseline data in 2016 depends largely on the **type of crops**, the **manageable farmland area**, and **land profitability** (variety and yield: large difference in that of monsoon paddy), which is in line with the observation through the project activities,

1) Type of crops

Figure 3. shows cumulative ratio (%) of respective crop growers in each township in different cropping seasons. Crops from which farmers in respective township earn income varies among townships. While in southern townships, namely Paungde, Nattalin, Zigon, main crops for the farmers are monsoon paddy and black gram in dry season, the farmers in Pyay and Paukhaung earn income from monsoon paddy and several kinds of upland pulses such as groundnuts and pigeon pea.

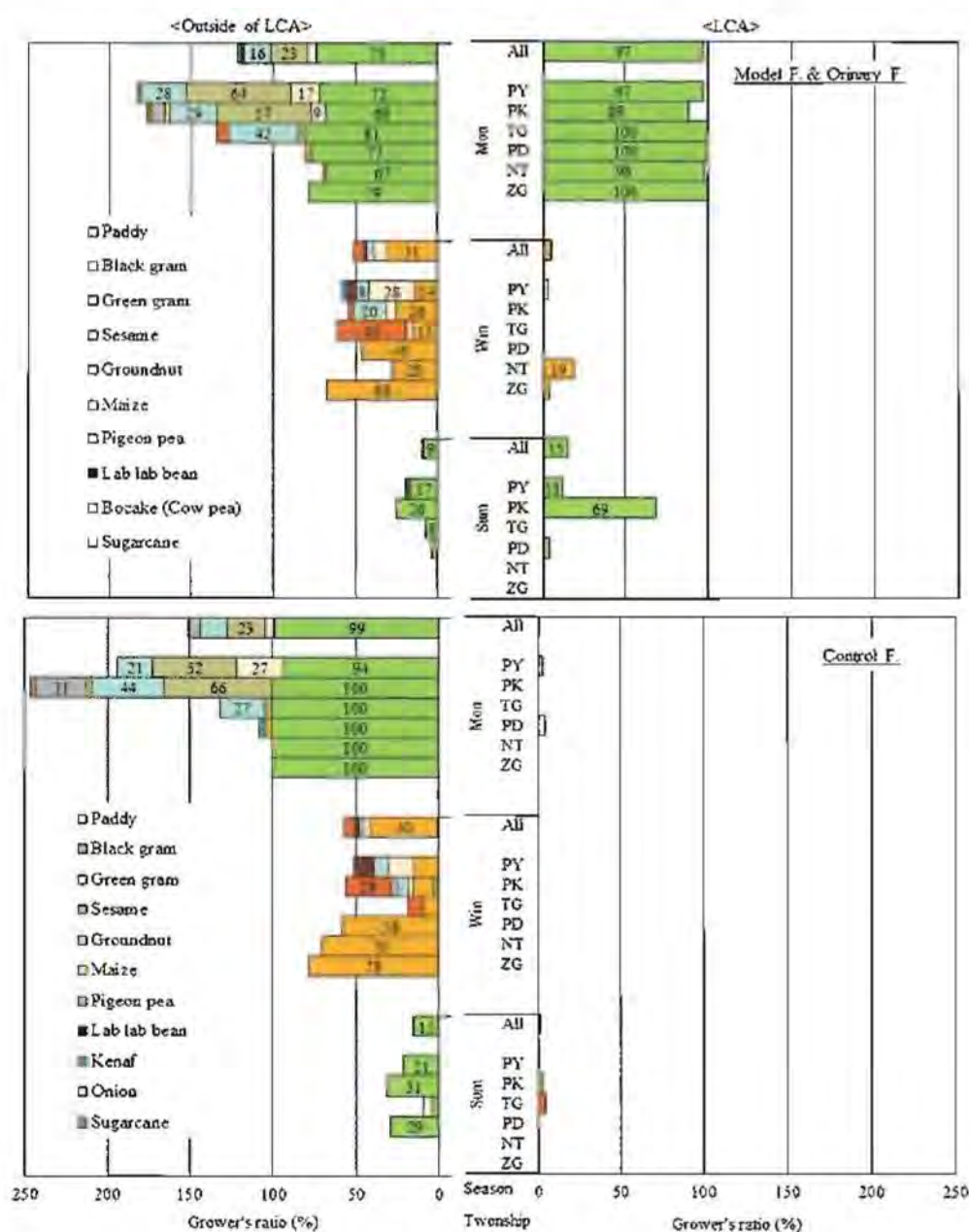


Figure 3. Cumulative Ratio of Respective Crop Growers in Each Township in Different Cropping Seasons

2) Manageable farmland area

Figure 4. shows an average manageable farmland area per household in the respective townships. Since the crops which largely contribute to farmers' income are monsoon paddy and black gram, manageable farmland area per household for those crops strongly relates to the income per household.

3) Land Profitability

Figure 5. shows land profitability (net income per acre) of major crops, whereas Figure 6. shows total cost per acre of the same crops. Land profitability of monsoon paddy, which almost all the farmers in every township grow, in Pyay is seriously lower than other townships, followed by that in Paukkhaung. Since cost of the farmers spent for one acre does not differ regardless of the location, difference in land profitability can attribute to the difference of yield and market price of major variety in each township. Although yield of Taung Pyan, which is grown in Paungde, Nattalin and Zigon, is not so high, it can get higher price because of its high marketability.

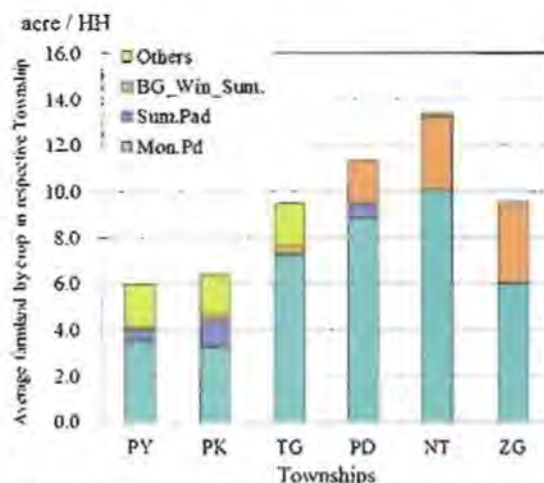


Figure 4. Manageable Farmland Area per Household

Land profitability of black gram in dry season is generally higher than that of monsoon paddy, and it is larger than 250,000 Ks / acre in the townships other than Pyay. Land profitability in Nattalin is outstanding among all, which seems to be due to high yield.

Compared to that of monsoon paddy and black gram, land profitability of upland crops, which commonly grown in Pyay and Paukkhaung, is considerably lower than that of monsoon and black gram in townships except for Pyay and Paukkhaung.

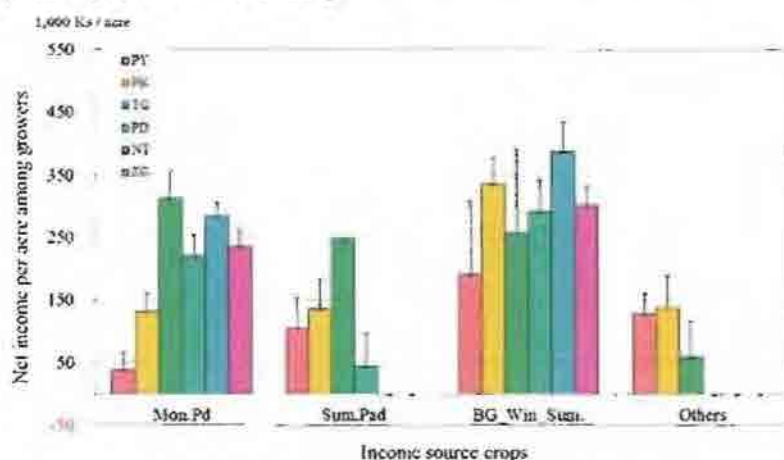


Figure 5. Net Income per Acre by Crops

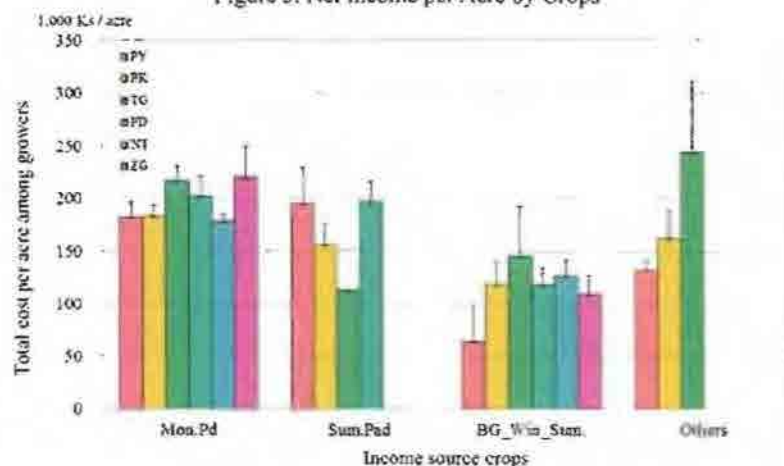


Figure 6. Total Cost per Acre by Crops

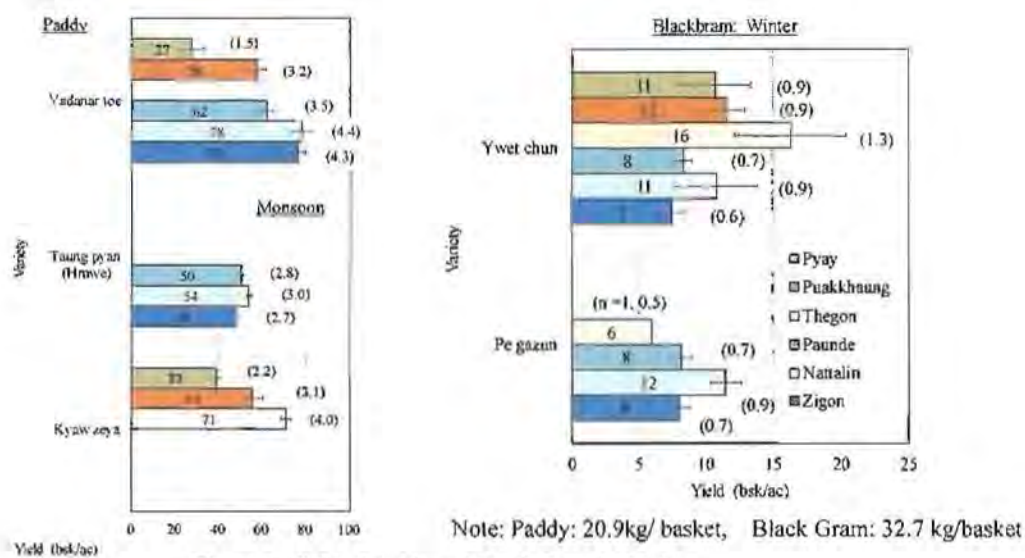


Figure 6. Yield of Paddy and Black Gram by Variety

Following table shows summary of the interpretation of the baseline value.

Table 2. Interpretation of the Baseline Value

| Location | Summary |
|------------|---|
| Pyay | Monsoon paddy and upland pulses are the most major income source. Considerably low land profitability (mainly due to low yield) of monsoon paddy and its small grown area results in making the farmers' income to belong to low income bracket among all. In addition to low land profitability of monsoon paddy, the farmers in the area rely on upland crops cultivation, which allows the farmers to earn money not so much as that from black gram. Many farmers could not cultivate summer paddy due to canal rehabilitation during dry season in 2015, which must be one of reason of lower income level than other townships. |
| Paukksuang | The condition is similar to that in Pyay. The farmers in the area allocate their farmland monsoon paddy, summer paddy, several kinds of upland crops including pulses and sugarcane, and a few lands for black gram. Since land profitability of monsoon paddy is relatively low among all, and monsoon paddy grown area was smaller than other locations like Pyay, which seemed result in lower income overall. Allocation of farmland for upland crops, which has lower land profitability, also leads not to be so high enough income compared to other locations. |
| Thegon | During dry season in 2015, canal was rehabilitated which result in no harvest of summer paddy in some lowland area. However, due to relatively larger monsoon paddy grown area than that in Pyay and Paukksuang, and considerable yield which seemed to lead to high land profitability of monsoon paddy, income level in the area keeps competitive with that in southern townships where the farmers could earn fair income both from monsoon paddy and black gram. Large population in the area belong to lower income bracket among all, almost same levels of Pyay and paukksuang, while some who earn much higher income from large-scale cultivation of sugarcane. |
| Paungde | Farmland where monsoon paddy and black gram were grown per household was the second highest among all location. Furthermore, fair land profitability of monsoon paddy and black gram contributed to the income level in the location to belong to higher income bracket among all. |
| Nattalin | Distribution of the individual income level widely varied in the location, however, both of farmland areas for monsoon paddy and black gram are the highest among all and both high yield levels eventually contributed to make overall income level in the location to be outstanding. Furthermore, Considerably more farmers own machinery in the area, which indicates overall farming level in the area is higher than other |

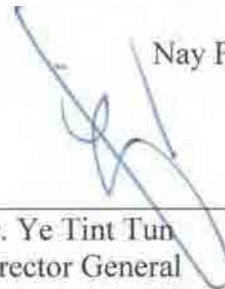
| Location | Summary |
|----------|--|
| | locations. |
| Zigon | Although the farmers grow monsoon paddy relatively smaller area, the farmers in the area could earn income from black gram growing it for large farmland area. Both of monsoon paddy and black gram land profitability level are fair, not so low like north two townships, and large area for black gram allow income level keep high, overcoming relatively small area of monsoon paddy. Some farmers in land consolidation area grow Chinese hybrid rice under the contract farming with Chinese company. |

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
MINISTRY OF AGRICULTURE, LIVESTOCK AND IRRIGATION
OF THE REPUBLIC OF THE UNION OF MYANMAR
ON
THE THIRD JOINT COORDINATING COMMITTEE MEETING
FOR
THE PROJECT FOR PROFITABLE IRRIGATED AGRICULTURE IN
WESTERN BAGO REGION

The third Joint Coordinating Committee (JCC) meeting for the Project For Profitable Irrigated Agriculture In Western Bago Region (hereinafter referred to as "Project") was held on June 28, 2018. As a result of the discussion, the Japan International Cooperation Agency (hereinafter referred to as "JICA") and Ministry of Agriculture, Livestock and Irrigation (hereinafter referred to as "MoALI") recorded the points stipulated in the attached document.



Mr. Jun Yamazaki
Senior Representative
JICA Myanmar Office



Nay Pyi Taw, June 28, 2018

Dr. Ye Tint Tun
Director General
Department of Agriculture
Ministry of Agriculture, Livestock and
Irrigation
The Republic of the Union of Myanmar



Mr. Kotaro Kikuchi
Team Leader
PROFIA



Mr. Hironichi Kitada
Irrigation Policy Advisor
JICA Expert

The Attached Document

1. Joint Mid Term Review

JICA dispatched the Japanese Terminal Evaluation Team (hereinafter referred to as “the Japanese Team”), headed by Dr. Akira Kamidohzono, to Myanmar from 11 to 28 June 2018, for the purpose of conducting the Mid Term Review.

The Joint Mid Term Review Team, which consists of members from the Japanese Team and the Myanmar Team, Ms. Myint Thu Thu Aung and Mr. Tin Maung Wai, was jointly organized for the purpose of conducting the Joint Mid Term Review.

After review and analysis of the activities and achievements of the Project, the Joint Mid Term Review Team prepared the Joint Mid Term Review Report attached as ANNEX 1, which was presented at the third JCC meeting.

JCC accepted the Report and agreed to recommend to the respective governments the matters referred to in the Report as below.

1.1 PROFIA Model

The Project explained about the PROFIA model, which is planned to be developed by the first half of the Project attached as ANNEX 2. The definition is approved as “Approaches and techniques in order to develop PPP based Rice and Diversified crops Value Chains through optimization of irrigation water utilization and group based activities by establishment of irrigation scheme and WUG/WUA”.

1.2 Revision of Project Design Matrix

The Mid Term Review Team, jointly with the Project suggested revision of PDM attached as ANNEX 3.

JCC agreed on and approved the revised PDM.

JCC also confirmed that following Output indicators will be discussed and revised, if necessary, at the fifth JCC which is planned to be held in second quarter of 2019.

Indicator 1-5

Unit yield of the paddy of the target farmers who adopted the recommended practice in the targeted WUGs/LCGs is at least 25 % higher than that of the farmer households which were captured by the baseline survey (as of 2015).

Indicator 2-4

Unit yield of the identified crops of the target farmers who adopted the recommended practice in the targeted WUGs/LCGs is 20% higher than that of the farmer households which were captured by the baseline survey (as of 2015).

1.3 The issues to be addressed by the Project reflecting the recommendation of the Mid Term Review

Both sides agree to commence discussion and arrangement for following measures reflecting the recommendation of the Joint Review Team.

- (1) Arrangement for commencement of Model Validation stage and Extension stage
- (2) Clarification of target group and intensification of inputs
- (3) Further involvement of the stakeholders in the value chain
- (4) Further capacity development of counterparts
- (5) Commencement of comprehensive production training
- (6) Developing effective extension methods
- (7) Strengthening farmers' marketing capacity
- (8) Necessity of authorizing PH-GQC laboratory to have a function as Seed Quality Testing Laboratory
- (9) Adoption of GESI (Gender Equality and Social Inclusion) activities

2. Work Plan for the remaining period

The work plan reflected recommendation of Mid Term Review will be prepared by the Project and submitted to JCC members by September 2018.

ANNEX 1: Joint Mid Term Review Report

ANNEX 2: General Concept of PROFIA Model

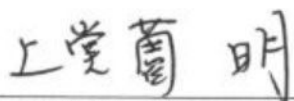
ANNEX 3: PDM version 3

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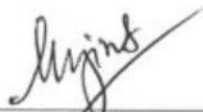
JOINT MID-TERM REVIEW REPORT

PROJECT FOR PROFITABLE IRRIGATED
AGRICULTURE IN WESTERN BAGO
REGION

Nay Pyi Taw, June 28, 2018



Dr. Akira Kamidohzono
Team Leader
(Japanese side)
Senior Advisor
Japan International
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Staff Officer
Planning Management and
Evaluation Division,
Department of Agriculture,
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(Myanmar side)
Assistant Director
Irrigation and Water Utilization
Management Department,
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Livestock and Irrigation

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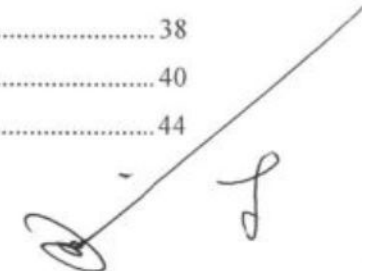
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ANNEX 6: List of Counterpart Personnel

ANNEX 7: List of Seminars and Trainings Conducted

ANNEX 8: Project Location Map at the Beginning

ANNEX 9: Project Location Map as of May 2018

ANNEX 10: Proposed PDM Version 3

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Summary of Evaluation

| | | |
|--|---|---|
| I. Outline of the Project | | |
| Country: Myanmar | | Project title: Project For Profitable Irrigated Agriculture In Western Bago Region |
| Issue/Sector: Agricultural/Rural Development | | Cooperation scheme: Technical Cooperation Project |
| Division in charge: Rural Development Department | | |
| Period of Cooperation | (R/D): October, 2015 March 2016 - February 2021 (five years) | Partner Country's Implementing Organization: Department of Agriculture (DOA), Ministry of Agriculture, Livestock and Irrigation (MOALI) |
| | | Supporting Organization in Japan: Ministry of Agriculture, Forestry and Fisheries |

Related Cooperation:
Irrigation Development Project in Western Bago Region (Yen Loan)

1. Background

The Republic of the Union of Myanmar (hereinafter referred to as "Myanmar") holds as large as 671 thousand km² national land area, of which the agricultural land shares 120 thousand km² area, 17.8% of the national total (FAO, 2009). It can be divided into four areas based on agro-ecological conditions: Delta Zone, Central Dry Zone, Hilly and Mountainous Zone and Coastal Zone. Out of these, Delta Zone that consists of Ayeyarwaddy, Yangon and Bago regions has extensive paddy cultivation area. However, it has become difficult to increase agricultural production especially in the lower part of the Zone due to industrialization as well as periodical inundation. On the other hand, middle and upper parts of the Zone, which includes the project target area, have a great potential for the increase of agricultural production if the areas are properly developed with irrigation facilities.

The Project target area is located in Western Bago Region. The rainfall in the area is relatively low as compared with other parts in the same agro-ecological zone, because humid air from South generates rain at Bago Yoma mountain ranges, but not in the project target area. Unstable rainfall is the cause of around 73% of the reasons of difficulty in farming in the area. This is one of the major reasons why the irrigation development projects are planned and implemented in the area in order to deliver irrigated water adequately and ensure a stable farming system. Moreover, the agriculture sector offers indirect job opportunities in the form of casual labor, sharing as much as 26% of total work force of the country.

MOALI has been promoting the enhancement of agricultural productivity aiming at increasing farmers' income from agricultural activities that are the principle livelihood of most of the people in rural areas. In line with the direction, MOALI and development partners, including the government of Japan, are implementing and planning several projects for developing agricultural infrastructure and enhancing productivity. Currently, MOALI has introduced the integrated approach called "From Seed to Shelf" by combining multiple components such as irrigation facilities development, land consolidation, agricultural and post-harvest mechanization as well as technical supports for the effective use of Good

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Agricultural Practices (GAP) in order to maximize the potential of farmland and modernize farming practices.

The government of Japan renewed its Official Development Assistance policy toward Myanmar in April 2012, and has been aiming to spread the dividends of democratization, national reconciliation and economic reforms to the people of Myanmar. In order to achieve this vision, the government of Japan puts emphasis on the improvement of people's livelihoods including assistance for agricultural and rural development. As a measure to achieve this purpose, improvement of agricultural productivity and procurement of agricultural equipment are prioritized. In line with this direction, JICA has been extending the Irrigation Development Project in Western Bago Region under the ODA Loan scheme since September 2014, in order to rehabilitate irrigation facilities and procure agricultural and construction machineries.

The Project For Profitable Irrigated Agriculture In Western Bago Region (PROFIA), complementary to the loan project, aims to establish a profitable irrigated agriculture model with private sector involvement by strengthening the public-private-producers (farmers) partnership, improving the profitability of agricultural production in the Model Site, and preparing and applying guidelines for participatory irrigation management in the Model Site, in order to improve the profitability of agricultural activities in Western Bago Region.

The Project incorporates rural development and poverty reduction through enhancing agricultural production in its scope, and thus is in line with the policy of the government of Myanmar and the government of Japan.

2. Project Overview

(1) Overall Goal

Profitability of agricultural activities in the Project Site is improved.

(2) Project Purpose

Profitable irrigated agriculture model with private sector involvement is established.

(3) Outputs

1. Public-Private-Producers (Farmers) Partnership is strengthened.
2. Profitability of farmers in the Model Site is improved.
3. Guidelines for Participatory Irrigation Management (PIM) in the Project Site is prepared and applied in the Model Site.

(4) Inputs

Japanese side:

| | |
|---|---|
| Expert: 13 Short-term Expert and 1 Long-term Expert (Irrigation Policy Advisor, concurrent) Trainee received: 8 Trainees | Equipment: 15.5 million yen Local cost: 51.6 million yen |
|---|---|

Myanmar Side:

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| | |
|---|--|
| Counterpart personnel (C/P): 24 DOA staff and other collaborative staff from DOA, AMD, and IWUMD Land and facilities: the project office and a building for the Postharvest Technique and Grain Quality Control Laboratory | Local cost: Utility expenses for the project office and Postharvest Technique and Grain Quality Control Laboratory |
|---|--|

II. Evaluation Team

| | | | |
|----------------------------|---|--|---|
| Members of Evaluation Team | The Japanese side | | |
| | Dr. Akira Kamidohzono | Leader | Senior Advisor (Agriculture Development/ Rural Development) Department, JICA |
| | Mr. Kota Sakaguchi | Evaluation planning | Deputy Director, Agricultural and Rural Development Group 1, Rural Development Department, JICA |
| | Dr. Kumiko Shuto | Evaluation analysis | Partner, IMG Inc. |
| | The Myanmar side | | |
| | Ms. Myint Thu Thu Aung | Staff Officer, Planning Management and Evaluation Division, DOA, MOALI | |
| Mr. Tin Maung Wai | Assistant Director, Irrigation and Water Utilization Management Department (IWUMD), MOALI | | |
| Period of Evaluation | June 12 - 28, 2018 | Type of Evaluation: Mid-term Review | |

III. Results of Evaluation

1. Project Performance

1-1. Inputs

Inputs both from the Japanese and Myanmar sides are basically provided as planned. However, due to unexpected extra work which was mainly the results of target area change, assignment of the Project Experts in the area of water management and so forth was found insufficient. The counterpart (C/P) assignment is undertaken in an appropriate manner expect for some incidences of transfer of some C/P, which temporarily hindered continuity of activities to a certain extent.

1-2. Outputs

(1) Output 1

Output 1 is produced at a relatively high degree for rice and moderate degree for non-rice crops. While rice using CS has shown promising results in its sales, the FVC establishment for non-rice crops still requires a lot of work both at the government side and farmers' side since both DOA and farmers have limited experience in producing and marketing such crops. The PPP Partnership the Project is trying to establish is currently focusing mainly on seed production and postharvest treatment, all of which are more to do with production rather than improving marketing channels. The Project may wish to give more attention to exploring extensive value chain stakeholder involvement and seeking strategic marketing techniques in the future. One important thing worth noting regarding Output 1 is that the

Postharvest Techniques & Grain Quality Control Team C/P have improved their capacity significantly in a short space of time through their participation in the project activities.

(2) Output 2

Presently, Output 2 is produced at a moderate degree. Because of unavailability of data, it is not possible to judge if the target farmers' profit is increasing after their adoption of the techniques the Project is promoting. The current situation is that the Project is still trying to discover a profitable agricultural method and techniques suitable for the target farmers through evidence-based knowledge creation process. The farmers have not received comprehensive interventions from the Project and visible changes in terms of profitability have not been observed among the farmers. Nevertheless, the Project's notable achievement so far when it comes to its influence on the farmers is that it has succeeded to show them some alternatives to rice cultivation by introducing non-rice crops such as sesame. The farmers are now aware that many options other than paddy are available, which is a step forward to crop diversification the Project is aiming for. Moreover, the cropping calendar PROFIA has introduced to WUAs has a high potential to bring out synergistic effects not only from the members of the farmer groups but also from the three parties; the farmer groups, DOA and IWUMD since it facilitates both irrigation water management and crop production planning.

(3) Output 3

Output 3 is produced at a relatively high degree. The PIM Guidelines are already prepared and shared with not only the Project implementers but also stakeholders in the irrigation sector throughout Myanmar. MOALI decided to promote PIM as part of national agricultural policies and the Guidelines will be utilized for operationalizing such policies. Thus, it can be said that the impact of the Guidelines is going beyond the framework of the Project.

As for application of the Guidelines, positive cases have just started to be recognized at several WUGs/WUAs which were established in collaboration with BWID and IWUMD. The farmers of those groups not only held meetings for group decision-making but also undertook construction work for water course development.

1-3. Achievement of Project Purpose

The Project Purpose is expected to be achieved at a moderate degree by the end of the project period judging from the fact that (1) currently the discovery of profitable agricultural model is still halfway through and (2) the Project has not started delivering extension services to the target farmers on a full scale based on the prospective model. If the Project can establish the prospective model in the not too distant future and start to apply the model intensively to the target farmers in the remaining period for the purpose of validating, fine-tuning and finalizing the model, the level of the achievement of the

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Project Purpose will be higher.

1-4. Implementation process

1-4-1. Factors which influenced the Project positively

(1) Collaboration with other projects and institutions

The Project has been working closely with other projects, various related institutions both in terms of gaining scientific knowledge and establishing linkages with the private sector. Such collaborations have helped the Project to undertake a wide range of technical trainings and accumulate scientific and technical knowledge which is necessary to develop the profitable agricultural model.

(2) Cooperation from various government and private institutions

While the C/P institution of the Project is DOA, the Project has been working extensively with other relevant government institutions as such collaborations are a key to implement field activities. The institutions include AMD, IWUMD, General Administration Department of Ministry of Home Affairs (MHA) and Planning Department of Ministry of Planning and Finance (MPF). In addition, within DOA, the Project is coordinating with Extension Division and Seed Division. Partnerships with the private sector are also promoted.

1-4-2. Factors which stood as challenges to the Project

(1) Change of target areas and delay of activities due to unfulfilled preconditions

The Project's preconditions, such as seed availability and appropriate conditions of land consolidation areas were not fulfilled. Delay and adjustments of BWID construction work in the areas the Project was planning to implement activities also affected the progress of the Project. These unfavorable conditions forced the Project to shift target areas and ultimately led to approximately one year delay in the 2.5 year implementation period thus far.

(2) Change of the Project's strategy and implementation schedule

Due to a change of the target areas, the Project needed to rethink its strategy and implementation schedule. The original strategy and implementation schedule had to be modified and the Project decided to spend more time in farming model establishment. As a consequence, the Project is still in the process of finalizing the target areas and a mutual agreement needs to be made between the Myanmar and Japanese sides on the new arrangement.

(3) Change of the target farmers

The change of target areas inevitably required the Project to change the target beneficiaries, farmers. Because of new addition of the target farmers, the Project had to conduct another set of data collection

activities for the baseline survey in 2017 and 2018, which affected efficiency of the project.

(4) Drastic and sudden change in market conditions

Year 2017 and 2018 have seen a drastic and sudden change in the market conditions which negatively affected the Project's farming model establishment activities. The 2017/2018 rice export skyrocketed and India put a limitation on importation of some types of beans and pulses in 2017. With the price of rice high and the price of black gram low, the Project had a hard time finding cooperating farmers in conducting some of the field experiments of non-rice crops, which hindered the development of the farming model.

2. Summary of Evaluation Results

(1) Relevance

Relevance is high. The Project is well aligned with the Myanmar development policies as well as with Japan's ODA policy towards Myanmar which focuses on strengthening PPP for Food Value Chain (FVC) establishment. It is also appropriately responding to the needs of the target group, i.e. smallholder farmers in irrigated farmland, for their efforts to increase income from agriculture. Furthermore, the Project leverages Japan's comparative advantages in rice cultivation, quality control techniques and participatory irrigation management. The implementation approach is also appropriately designed in that the Project taps into the opportunity of making a synergistic effect between the Project and irrigation infrastructure development project, namely, BWID, which is a Japanese yen loan project.

(2) Effectiveness

Effectiveness is moderate. The Project has been having a hard time keeping on the right track to produce expected outputs due to unexpected negative factors that occurred in the last 2.5 years. Mainly owing to the change of target areas/farmers and subsequent delay in implementing some of the field trials, the Project is yet to produce tangible results in profitable farming model development. On the other hand, some activities, such as quality rice seed multiplication, distribution and PIM, are seeing promising results and further expansion of these initiatives will give positive influence on the Project's overall performance. In the same breath, The Postharvest Techniques & Grain Quality Control Team C/P have improved their capacity considerably so far. For the remaining project period, the Project needs to accelerate the process of the farming model establishment and swiftly shift to the extension stage so that the model will be validated on a practical level and the hard data on agricultural profitability can be gathered from the target farmers.

(3) Efficiency

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Efficiency is relatively low. Although inputs both from the Japanese and Myanmar sides are provided as planned, unfulfilled preconditions and other negative factors caused substantial delay in activity implementation and insufficient output delivery so far. On the other hand, collaboration with various related projects and institutions is raising project's efficiency to a certain degree.

(4) Impact

Impact is moderate. The prospect of achieving the Overall Goal is moderate at present. Institutionalization of the project activities within the existing MOALI work duties is a key to realize a higher level of achievement of the Overall Goal. A positive impact can be observed regarding the PIM Guidelines in that application of the Guidelines is not limited to Western Bago region but to the whole country of Myanmar. In terms of impact on gender, useful information on gender collected during the baseline survey can effectively be used in future activity implementation.

(5) Sustainability

Sustainability is moderate. Presently, both policy and institutional sustainability is relatively high and it is expected to be maintained at the current level in the foreseeable future. Technical sustainability, on the other hand, needs to be improved in the remaining project period by paying due attention to capacity development of the C/P in carrying out extension activities. Financial sustainability is also a matter of concern since presently the Japanese side is bearing almost all the operational cost for implementing the project activities.

3. Factors that promoted realization of effects

(1) Factors concerning the planning

None.

(2) Factors concerning the implementation process

Collaboration with other projects and institutions helped the Project to gain expert knowledge in various technical fields.

4. Factors that impeded realization of effects

(1) Factors concerning the planning

Some of the preconditions specified in the PDM were not fulfilled, which delayed the progress of the project activities for about a year.

(2) Factors concerning the implementation process

None.

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5. Conclusion

The Project had to change its implementation strategy in the first half of the project period mainly owing to the unfulfilled preconditions such as unsuitable farmland for model establishment. Approximately one year delay in activity implementation has happened and efficiency of the Project is negatively affected because of this adversity. The establishment of a profitable farming model, which was scheduled to be completed before 2018 according to the original plan, is still halfway through due to such a delay. Therefore, the prospect of the achievement of the Project Purpose is moderate at present.

On the other hand, positive results of some activities, such as economic effects of CS multiplication (Output 1) and extensive application of the PIM Guidelines at the national scale (Output 3), are starting to be delivered. The prospect of the achievement of the Project Purpose will be higher if the following recommendations proposed below are addressed.

6. Recommendations

<Recommendation to the Project>

(1) Extension of the model establishment stage

Instead of adhering to the original schedule, which is to complete the model establishment by mid-2018, the model establishment stage should continue until the end of the project period. Though the Project is still in the model establishment stage, the Project should start delivering extension services to the target farmers from mid-2018 as scheduled. The model establishment stage will have a new phase from mid-2018 in that it will go into the “model validation, fine-tuning and finalization phase” from the previous stage of “information collection and tentative model establishment”.

(2) Clear targeting – farmer group approach

In the next extension stage, identified target farmers should receive intensive interventions so that they can tap into various income raising opportunities, such as use of quality seed, appropriate soil and fertilizer management, and mechanization, the Project offers to them. The target farmers will most likely to be those farmers who are the members of farmer groups, including WUGs/WUAs, LCGs, or group at DOs. The Project will also need to focus on specific irrigation canals as the target areas for interventions so that it can concentrate its resources on these areas.

(3) Capacity development of counterpart staff

The Project is advised to accelerate its technical transfer to the C/P, particularly in the areas of extension skills of effective production and marketing capacity development, so that the C/P will be able to independently conduct project activities by the end of the project period.

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(4) Identifying and involving more FVC Stakeholders

The Project is recommended to identify the key FVC stakeholders for rice and each kind of non-rice crops and get them more heavily involved in project activities such as SMWG and Marketing Improvement Forum. Capacity of the C/P in the area of marketing should be strengthened since DOA has limited experience in the area of marketing and agribusiness.

(5) Developing effective extension methods

In the remaining project period, useful knowledge concerning effective extension services, such as farmer-to-farmer knowledge sharing by means of study tours, field day, etc., should be accumulated more extensively and good practices need to be collected so that the farming model the Project will establish would demonstrate effective farmer-centered approaches.

(6) Comprehensive production training

The farmers need to learn not only postharvest handling skills but also the whole cycle of production so that they can ensure each step of production is appropriately taken care of for producing quality crops. The Project is advised to offer a comprehensive production training to the target farmers in the remaining project period. Addressing Good Agricultural Practices (GAP) may also be considered as part of the comprehensive training curriculum since there is a growing need for crop-specific GAP application in Myanmar.

(7) Strengthening farmers' marketing capacity

It is recommended that the Project develops extension methods to strengthen farmers' marketing capacity in the remaining project period. Since some WUAs are already formulating a cropping calendar, it may be useful to encourage WUAs to come up with various marketing activities as a group and write them down on the calendar.

(8) Gender-sensitive interventions as a means to achieve better farm activities

The Project is advised to make gender-sensitive interventions in implementing activities for the target farmers. Specific suggestions to the Project include collecting gender-segregated data on farmers' participation in trainings and meetings, routinely gathering qualitative information to monitor changes in gender relations and issues, offering technical trainings for female group members and members' spouses, or specifically organizing "trainings for female farmers", introducing labor-saving tools and technologies which would benefit women, encouraging women (members' wives) to keep farm records, and last but not least, facilitating joint decision-making by a farming couple.

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(9) Revision of the PDM

Considering the present situation of the Project and recommendations explained above, the Study Team proposes some revisions to be made to the latest PDM Version 2.

<Recommendation to the Myanmar side>

(1) Further collaboration among DOA, IWUMD and AMD

DOA, IWUMD and AMD are recommended to enhance their collaboration as the Project progresses so that they can maximize their services to the farmer groups to support their autonomous action.

(2) Institutionalizing the project activities, functions and facilities

In order to continuously undertake these activities after the completion of the Project, the work routine, staffing, facilities, operational budgets and so on need to be institutionalized in the existing DOA system.

7. Lessons learned

(1) The importance of fulfilling the preconditions and the timing of starting a project

The Project was forced to change target areas several times largely due to unfulfilled preconditions. The most important precondition which significantly influenced the Project's progress negatively was the physical conditions of the farmland. The Project discovered that the planned target plots had critical problems such as scarcity of irrigation water, inappropriate irrigation structure, unlevelled land, and degraded topsoil. It is advised that for agricultural projects which aim at establishing optimal farming models at newly-developed or rehabilitated areas, fulfilling important criteria regarding physical conditions of the farmland is extremely important. The progress of construction or rehabilitation of irrigation schemes should be carefully monitored and actual farmland conditions should be examined by agricultural experts so that the project implementers can make an accurate judgement as to when best to start the project.

(2) Effectiveness of farmer-to-farmer knowledge and skills transfer

Farmers' study tour to visit other skillful and successful farmers was effective especially when new technologies or new crops are introduced to the target farmers. The experience of CS promotion also showed that many neighboring farmers, after observing the thriving conditions of CS paddy fields, became motivated and willing to purchase CS without being solicited. These incidences suggest that for knowledge and skills transfer, a farmer-to-farmer approach is one of the most effective methods of extension.

(3) Risk management in dealing with export markets

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The Project had been putting efforts to attract not only local buyers but also foreign traders to trade non-rice crops in the Project area. Several foreign traders and food processing enterprises showed their interest in buying the produce and asked the Project to engage in this possible business opportunity as a confidential basis. However, the business deal in the first year was not materialized since the farmers could not meet the traders' requirements in terms of quality and quantity. When considering export markets, it is particularly necessary for farmers to make a contingency plan in case foreign enterprises do not buy their produce.

8. Follow-up Situation

None applicable.

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Abbreviation/ Acronyms

| | |
|--------|---|
| ADB | Agricultural Development Bank |
| AMD | Agricultural Mechanization Department |
| BWID | Irrigation Development Project in Western Bago Region |
| C/P | Counterpart personnel |
| CS | Certified Seed |
| DAC | Development Assistance Committee |
| DO | Direct Outlet |
| DOA | Department of Agriculture |
| FVC | Food Value Chain |
| GAP | Good Agricultural Practices |
| ITC | Irrigation Technology Center |
| IWUMD | Irrigation and Water Utilization Management Department |
| JAICAF | Japan Association for International Collaboration of Agriculture and Forestry |
| JCC | Joint Coordinating Committee |
| LCA | Land Consolidation Area |
| LCG | Land Consolidation Group |
| MHA | Ministry of Home Affairs |
| MOALI | Ministry of Agriculture, Livestock and Irrigation |
| MPF | Ministry of Planning and Finance |
| ODA | Official Development Assistance |
| OECD | Organization for Economic Cooperation and Development |
| PDM | Project Design Matrix |
| PIC | Project Implementation Committee |
| PIM | Participatory Irrigation Management |
| PROFIA | Project for Profitable Irrigated Agriculture in Western Bago Region |
| PPP | Public-Private-Producers (Partnership) |
| R/D | Record of Discussions |
| RS | Registered Seed |
| SMWG | Seed Multiplication Working Group |
| WUA | Water Users Association |
| WUG | Water Users Group |

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1. Introduction

1.1. Objective of the evaluation study

About two and a half years have passed since the inception of “Project for Profitable Irrigated Agriculture in Western Bago Region (PROFIA)” (hereinafter referred to as “the Project” or “PROFIA”). The project team has been undertaking a range of activities in order to achieve the project purpose. It is important for the Project to review its progress and examine to what extent the activities have led to producing expected outputs. The examination to be made in the Mid-term Review will make it possible to predict how much the Project will achieve the project purpose at the end of the project period. The purpose of the Mid-term Review is to objectively evaluate the progress of the Project and achievements it has made thus far. Based on the results of the evaluation, the study is to give suggestions and recommendations to the Project with the aim of improving the Project’s efficacy in attaining its expected goals in the remaining project period.

1.2. Members of the evaluation team

The study team is composed of the following personnel.

Japanese side:

| | | |
|-----------------------|----------------------|------------------------------------|
| Dr. Akira Kamidohzono | Leader | Senior Advisor, JICA |
| Mr. Kota Sakaguchi | Cooperation planning | Rural Development Department, JICA |
| Dr. Kumiko Shuto | Evaluation analysis | Partner, IMG Inc. |

Myanmar side:

| | |
|------------------------|--|
| Ms. Myint Thu Thu Aung | Staff Officer, Planning Management and Evaluation Division, Department of Agriculture (DOA), Ministry of Agriculture, Livestock and Irrigation (MOALI) |
| Mr. Tin Maung Wai | Assistant Director, Irrigation and Water Utilization Management Department (IWUMD), MOALI |

1.3. Schedule of the study

The study was conducted from June 12 to 28, 2018.

| Date | Schedule |
|---------------|---|
| June 12 (Tue) | Travel from Yangon to Pyay • Observation of the laboratory • Interview with PROFIA Experts |
| June 13 (Wed) | • Interview with Pyay District Officer • Interview with Township counterparts • Interview with Postharvest counterparts • Interview to PROFIA team members |
| June 14 (Thu) | Travel from Pyay to Paungde LDY-6 site • Interview with the WUG in Paungde (LDY-6) • Interview with Township officers of Paungde Travel back to Pyay |
| June 15 (Fri) | Travel from Pyay to Pyay CL-3 site |

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|---------------|--|
| | <ul style="list-style-type: none"> • Interview with the target farmers in Pyay (CL-3) & WUG/WUA • Interview with the sesame farmers at DO, Pyay • Observation of Paddy seed cleaner at DOA Paundale • Interview with Seed Multiplication Working Group (SMWG) member (rice miller/farmer) in Pyay with a grain grader • User of CS – farmer who purchased CS from a SMWG member |
| | Travel back to Pyay |
| June 16 (Sat) | Document analysis |
| June 17 (Sun) | Document analysis |
| June 18 (Mon) | Internal meeting |
| June 19 (Tue) | <ul style="list-style-type: none"> • Joint Evaluation Meeting • Meeting with DyDG of DOA • Meeting with DyDG of IWUMD |
| June 20 (Wed) | <ul style="list-style-type: none"> • Observation of the laboratory • Discussion with the PM with rep. of IWUMD • Interview with the counterparts (Township and Postharvest) all C/P |
| | Travel from Pyay to Paungde LDY-4 site |
| | <ul style="list-style-type: none"> • Interview with WUG/WUA in Paungde (LDY-4) |
| | Travel back to Pyay |
| June 21 (Thu) | Travel from Pyay to Nattalin |
| | <ul style="list-style-type: none"> • Interview with a SMWG member (rice miller) and CS user in Nattalin • Interview with a rice miller and a SMWG member in Paungde • Interview with Pwe Pyae seed farm |
| | Travel back to Pyay |
| June 22 (Fri) | <ul style="list-style-type: none"> • Interview with AMD • Meeting of joint evaluation team |
| June 23 (Sat) | Document analysis |
| June 24 (Sun) | Document analysis |
| June 25 (Mon) | <ul style="list-style-type: none"> • Meeting of joint evaluation team |
| June 26 (Tue) | <ul style="list-style-type: none"> • Joint Technical Meeting with Stakeholders |
| June 27 (Wed) | <ul style="list-style-type: none"> • Debriefing to Director General of DOA and IWUMD |
| June 28 (Thu) | <ul style="list-style-type: none"> • Joint Coordinating Committee |

2. Outline of the Project

2.1. Background of the Project

The Republic of the Union of Myanmar (hereinafter referred to as “Myanmar”) holds as large as 671 thousand km² national land area, of which the agricultural land shares 120 thousand km² area, 17.8% of the national total (FAO, 2009). It can be divided into four areas based on agro-ecological conditions: Delta Zone, Central Dry Zone, Hilly and Mountainous Zone and Coastal Zone. Out of these, Delta Zone that consists of Ayeyarwaddy, Yangon and Bago regions has extensive paddy cultivation area. However, it has become difficult to increase agricultural production especially in the lower part of the Zone due to industrialization as well as periodical inundation. On the other hand, middle and upper parts of the Zone, which includes the project target area, have a great potential for the increase of agricultural production if the areas are properly developed with irrigation facilities. The Project target area is located in Western Bago Region. The rainfall in the area is relatively low as compared with other parts in the same agro-ecological zone, because humid air from South generates

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rain at Bago Yoma mountain ranges, but not in the project target area. Unstable rainfall is the cause of around 73% of the reasons of difficulty in farming in the area. This is one of the major reasons why the irrigation development projects are planned and implemented in the area in order to deliver irrigated water adequately and ensure a stable farming system. Moreover, the agriculture sector offers indirect job opportunities in the form of casual labor, sharing as much as 26% of total work force of the country.

MOALI has been promoting the enhancement of agricultural productivity aiming at increasing farmers' income from agricultural activities that are the principle livelihood of most of the people in rural areas. In line with the direction, MOALI and development partners, including the government of Japan, are implementing and planning several projects for developing agricultural infrastructure and enhancing productivity. Currently, MOALI has introduced the integrated approach called "From Seed to Shelf" by combining multiple components such as irrigation facilities development, land consolidation, agricultural and post-harvest mechanization as well as technical supports for the effective use of Good Agricultural Practices (GAP) in order to maximize the potential of farmland and modernize farming practices.

The government of Japan renewed its Official Development Assistance policy toward Myanmar in April 2012, and has been aiming to spread the dividends of democratization, national reconciliation and economic reforms to the people of Myanmar. In order to achieve this vision, the government of Japan puts emphasis on the improvement of people's livelihoods including assistance for agricultural and rural development. As a measure to achieve this purpose, improvement of agricultural productivity and procurement of agricultural equipment are prioritized. In line with this direction, JICA has been extending the Irrigation Development Project in Western Bago Region (BWID) under the Official Development Assistance (ODA) Loan scheme since September 2014, in order to rehabilitate irrigation facilities and procure agricultural and construction machineries.

The Project For Profitable Irrigated Agriculture In Western Bago Region (PROFIA), complementary to the loan project, aims to establish a profitable irrigated agriculture model with private sector involvement by strengthening the public-private-producers (farmers) partnership, improving the profitability of agricultural production in the Model Site, and preparing and applying guidelines for participatory irrigation management in the Model Site, in order to improve the profitability of agricultural activities in Western Bago Region.

The Project incorporates rural development and poverty reduction through enhancing agricultural production in its scope, and thus is in line with the policy of the government of Myanmar and the government of Japan.

2.2. Summary of the Project

(1) Overall Goal

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Profitability of agricultural activities in the Project Site is improved.

(2) Project Purpose

Profitable irrigated agriculture model with private sector involvement is established.

(3) Outputs

- 1) Public-Private-Producers (Farmers) Partnership is strengthened.
- 2) Profitability of farmers in the Model Site is improved.
- 3) Guidelines for Participatory Irrigation Management (PIM) in the Project Site is prepared and applied in the Model Site.

(4) Activities

- 1-0-1 Conduct a baseline survey and endline survey to collect data on farm profitability of the target group and control group.
- 1-0-2 Reconfirm the issues of present farming in the Project Site.
- 1-0-3 Review the suitable balance between land productivity and labor productivity to examine the project activities

Activities for Output 1

1-1. Promote the use of Certified Seed for rice

- 1-1-1 Review the current seed multiplication practice of DOA (seed farm & T/S extension office) and Model Seed Villages in the project site.
- 1-1-2 Enhance the capacity of DOA seed farm to improve quality of FS and RS.
- 1-1-3 Improve awareness of extension staff, farmers, private companies on the use of CS.
- 1-1-4 Encourage rice millers / traders to purchase CS seeds produced by seed growers.
- 1-1-5 Involve rice millers for CS distribution and purchase of paddy produced from CS.
- 1-1-6 Monitor and introduce measures to improve the network among Public-Private-Producers for rice.

1.2 Promote the use of Good quality seeds for non-rice crops

- 1-2-1 Introduce good quality seed of non-rice crops to the model site.
- 1-2-2 Conduct trainings for DOA staff, farmers and the private companies on seed multiplication technique and use of good quality seed.
- 1-2-3 Enhance the coordination between farmers and private companies in the good quality seed distribution so that crops produced from quality seeds are sold with premium price.
- 1-2-4 Monitor and introduce measures to improve the Public-Private-Producers network for non-rice crops.

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Activities for Output 2

2-1 3-season cropping model and 2-season cropping model with improved profitability are demonstrated in the model sites in the 6 townships

2-1-1 Identify the suitable crops for 3-season cropping in each model site by taking market demand prospect into account.

2-1-2 Identify more profitable crops for 2-season cropping in each model site by taking market demand prospect into account.

2-1-3 Promote the cultivation of suitable crops identified in 2-1-1 and 2-1-2.

2-1-4 Enhance the capacity of farmers on appropriate use of agricultural inputs and on soil improvement.

2-1-5 Introduce appropriate water management practices for rice production in addition to non-rice crops, including furrow irrigation through Water Users Group (WUG).

2-1-6 Enhance the capacity of farmers, private companies and AMS staff on appropriate use of agricultural machinery.

2-2 The practice introduced in 2-1 is disseminated in cost effective and sustainable way

2-2-1 Introduce the farming-record (accounting book) to the target farmers and ordinary farmers .

2-2-2 Analyze the data of 2-2-1 and visualize the effect of the practices introduced in 2-1.

2-2-3 Advertise the practice in 2-1 by using the information of 2-2-2 through poster, radio, newspaper, advertisement, etc.

2-2-4 Create and distribute material such as booklet, poster, DVD etc. to disseminate the practice in 2-1.

2-2-5 Promote extension activities, including study tour, field day, farmer field school, farmer to farmer extension, as well as extension activities through knowledge center.

Activities for Output 3

3-1. Identify the issues on middle- and long-term use of irrigation facilities in the Project Site through monitoring the Project.

3-2. Develop a guideline on PIM (Participatory Irrigation Management) in the Project Site.

3-4. Assist dissemination of the use of guidelines for land consolidation in the Project Site.

3-3. Assist PIM activities by Water Users Groups / Water Users Association after establishment.

3-5. Provide advices to solve the issues of irrigation sector in Myanmar through meeting with stakeholders and observation of various irrigation systems in Myanmar.

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3. Method of evaluation

3.1. Five evaluation criteria

The JICA adopted “the Five Evaluation Criteria” for project evaluation. The Five Evaluation Criteria, proposed by the Development Assistance Committee (DAC) at the Organization for Economic Cooperation and Development (OECD) in 1991, are meant to be used for evaluating development assistance activities. The five criteria are namely:

- 1) **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.
- 2) **Effectiveness (prediction*):** A criterion for considering whether the implementation of project has benefited (or will benefit) the intended beneficiaries or the target society.
- 3) **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.
- 4) **Impact (prediction*):** 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, and
- 5) **Sustainability (prediction*):** A criterion for considering whether produced effects continue after the termination of the assistance.

* Since the Mid-term Review Study is conducted before the project has finished, these three criteria, effectiveness, impact and sustainability, are based on prediction rather than actual achievement.

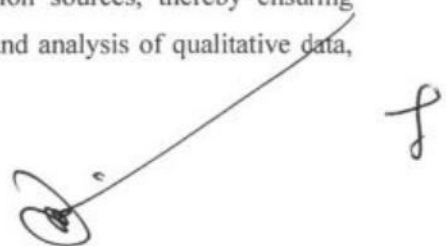
By examining the Project’s progress and achievement by using these five criteria, the study ascertains the value of the project from different viewpoints. It attempts to assess performance, make a value judgment about the project, and make recommendations and draw lessons learned.

The Mid-Term Review Study used the latest Project Design Matrix (PDM) revised on June 22, 2017 (see ANNEX 1: PDM Version 2).

3.2. Data collection methods and analysis

The study collected data (both quantitative and qualitative) relevant to the Project from a range of information sources by using multiple information-gathering methods. This approach enables the Study Team to undertake triangulation of methods and information sources, thereby ensuring reliability of the study. The focus of the study is on the collection and analysis of qualitative data,

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rather than quantitative one, since the main purpose of the study is to make an in-depth analysis of hindering and contributing factors to the implementation of the Project and to understand reasons for having such factors. Thus, research methods adopted for the study centered on qualitative data collection methods including interviews, observation, and questionnaires with many open-ended questions.

The following table shows methods used and information sources the Study Team accessed during the study period.

Table 1 Study methods

| Data collection method | Source of information |
|------------------------|--|
| Literature review | Project documents, written reports by Project Experts, minutes of Joint Coordinating Committee (JCC) and Project Implementation Committee (PIC) and other reports |
| Questionnaires | Project Director, Project Manager, and Project Experts |
| Interviews | Project Experts, counterpart (C/P) staff, farmers and private businesses (Rice mills) |
| Observation | Farmers' fields, irrigation canals including water courses, rice mills, a paddy seed cleaner, a grain grader, seed cleaners, a seed farm, Postharvest Technique and Grain Quality Control Laboratory |

Review of literature had been undertaken in Japan before the Japanese study team members visited Myanmar. The main purpose of the literature review was to confirm the level of the project performance and examine the implementation process. At the same time, questionnaires were prepared for the Project Director, Project Manager and Project Experts. As for the questionnaire for the Project Director and Project Manager, the English version was translated into Burmese and distributed to C/P. The answers were then collected and translated into English.

After the Team reached Myanmar, in-depth interviews were conducted with key informants such as the government officials of Myanmar, Project Experts, C/P, farmers and private businesses. The interviews were to supplement information gathered by the literature review and the questionnaire survey.

The Study Team also observed farmers' fields and irrigation canals including water courses, as well as Postharvest Technique and Grain Quality Control Laboratory and others as they occurred in a natural setting and interviewed the relevant personnel at the sites. The information generated by these methods was then analyzed based on the five evaluation criteria.

3.3. Limits and constraints of the study

Due to time and resource constraints, it was not possible to interview all the Project Expert and C/P who were involved in the project implementation. Efforts were made, however, to gather the information by literature review or by interviewing other personnel in a similar field so as to reduce

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possible sample biases. The Team was able to gather data from the majority of the personnel directly involved in project implementation. Therefore, it is reasonably said that the information collected within the evaluation framework maintains a substantial level of reliability and validity.

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4. Project performance and implementation process

4.1. Inputs from Japan

4.1.1. Dispatch of Project Experts

A total of 13 short-term Project Experts in various professional fields including marketing and distribution, public private partnership, agriculture, agricultural machinery, gender, water management, etc. have been working since the inception of the Project. The total Person/Month spent for the short-term Experts is 89.4 up to now. For the component of water management, a long-term expert who works as an irrigation policy advisor at Irrigation and Water Utilization Management Department (IWUMD) of MOALI is engaged in the Project concurrently. For more detailed information on the dispatch of Project Experts, see “Annex 2: List of Project Experts”.

The dispatch of the Experts is basically undertaken as scheduled. However, due to unexpected extra work which was mainly the results of target area change, the consulting company which the Project Experts belong to has been dispatching some additional experts in the fields of water management, farm management, farm economy, baseline analysis and so forth at its own expenses.

4.1.2. Training of C/P in Japan

A total of eight C/P participated in the two training courses held in Japan. The first training course, “Training on Water Management in Japan” was held from October 15 to November 11, 2017 with the participation of six IWUMD C/P staff. The second training, “Vegetable Production Technology for Livelihood Improvement of Small Scale Farmers”, is currently underway with the participation of two DOA C/P staff and scheduled to continue from February 4 to November 3, 2018. For the details on the training course in Japan, see “Annex 3: List of C/P Training in Japan”.

4.1.3. Machinery and equipment provided by Japan

Equipment and machinery including seed cleaners, seed and bean graders, moisture meters, 4WD vehicles, and so on, which is worth 15.5 million yen in total, has been provided. These items are maintained and used in a proper manner. For the details of the items provided, see “Annex 4: List of Machinery and Equipment”.

4.1.4. Local cost borne by Japan

A total of 51,582,000 yen has been provided by the Japanese side for daily project operation. For the details see “Annex 5: Project Cost borne by Japanese Side”.

4.2. Inputs from Myanmar

4.2.1. Assignment of C/P

The Deputy Director General (Technology) of DOA, MOALI is appointed as the Project Director



and the Deputy Regional Officer, DOA Bago West Regional Office is appointed as the Project Manager. Apart from these two personnel, a total of 24 staff members from DOA and others from Agricultural Mechanization Department (AMD) and IWUMD have been working for the Project as the C/P and collaborators, respectively. They have been receiving technical transfer from the Project Experts. For more detail see “Annex 6: List of Counterpart Personnel”.

The transfers of the C/P have raised an issue so far. For example, two DOA staff members in Thegon Township and “Postharvest Techniques and Grain Quality Control Team” were transferred, which temporarily hindered the process of capacity development of those staff. In the area of machinery operation also, a collaborative C/P from AMD had a transfer and a successor C/P has not been assigned since.

As for the DOA staff, DOA agreed to continue assigning project activities to those two staff members so that continuity of the Project is ensured. DOA is also making sure that other C/P will not be transferred to other posts during the Project in response to the Project’s request.

4.2.2. Local cost borne by Myanmar

The Myanmar side is bearing the expenses for C/P’ salaries in addition to utility expenses for the project office and Postharvest Technique and Grain Quality Control Laboratory.

4.2.3. Facilities provided by Myanmar

DOA provided facilities necessary for project implementation. Such facilities include the office space, machinery spaces (Annex 4: List of Machinery and Equipment) and a building for the Postharvest Technique and Grain Quality Control Laboratory.

4.3. Achievement of outputs¹

4.3.1. Output 1

Output 1: Public-Private-Producers (Farmers) Partnership is strengthened.

Evaluation Result: Output 1 is produced at a relatively high degree for rice and moderate degree for non-rice crops. While rice using CS has shown promising results in its sales, the FVC establishment for non-rice crops still requires a lot of work both at the government side and farmers’ side since both DOA and farmers have limited experience in producing and marketing such crops. The PPP Partnership the Project is trying to establish is currently focusing mainly on seed production and postharvest treatment, all of which are more to do with production rather than improving marketing channels. The Project may wish to give more attention to exploring extensive value chain stakeholder involvement and seeking strategic marketing techniques in the future. One important thing worth noting regarding Output 1 is that the Postharvest Techniques &

¹ The achievement levels of the Outputs, Project Purpose as well as the evaluation results based on the five evaluation criteria are rated “high”, “relatively high”, “moderate”, “relatively low” or “low”. “High” indicates the achievement of the goal at the end of the project is almost certain. “Relatively high” indicates that there is a high prospect of achieving the goal with some minor issues. “Moderate” indicates the prospect of achieving the goal is neither positive nor negative. “Relatively low” indicates that major issues can be observed and the achieving the goal is rather difficult. “Low” indicates that unless substantial improvements are made, the achieving the goal is unlikely.

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Grain Quality Control Team C/P have improved their capacity significantly in a short space of time through their participation in the project activities.

| Objectively Verifiable Indicators | Status as of Mid-term Review | | | | | | | | | | | | | | | | |
|---|--|--|--|--|-----------------|-------------|-------|-------|------|--------------------|-------|-------|------|--------------------|-------|-------|------|
| 1-1. Paddy rice produced from Certified Seed (CS) by farmers in the Model Site is sold at higher price than paddy rice produced from ordinary seeds | <p><u>The level of achievement is relatively high.</u></p> <p>While the farm gate price of paddy rice produced from non-CS was 5,500 kyat/basket, the corresponding figure of the paddy rice produced from certified seed was 5,846 kyat/basket (CL-3 in Pyay Township), 6,217 kyat/basket (LDY-4 in Paungde Township) and 6,320 kyat/basket (LDY-6 in Paungde Township) for the 2017 monsoon season. The net profits of grain produced from CS (CS grain) were 2,918 kyat/basket (LDY-4) and 3,960 kyat/basket (LDY-6), as opposed to 2,557 kyat/basket (LDY-4) and 3,210 kyat/basket (LDY-6) of non-CS grain, which indicates profitability of paddy rice produced from certified seed was 14.1% (LDY-4) and 23.4% (LDY-6) higher than that of paddy produced from non-CS seed. In terms of the rate of profit increase per acre, CL-3 had 47.2% increase, LDY-4 had 35.1% and LDY-6 had 36.6% increase because the unit yield per acre as well as milling recovery were much higher than those of non-CS grain (Error! Reference source not found., Error! Reference source not found., Error! Reference source not found., and Error! Reference source not found. below).</p> | | | | | | | | | | | | | | | | |
| Table 2 Selling price comparison between CS and non-CS | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Township</th> <th style="text-align: center;">Price of Grain² (kyat/basket³) (non-CS)</th> <th style="text-align: center;">Price of Grain⁴ (kyat/basket) (CS)</th> <th style="text-align: center;">Increase (%)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Pyay (CL-3)</td> <td style="text-align: center;">5,500</td> <td style="text-align: center;">5,846</td> <td style="text-align: center;">6.2</td> </tr> <tr> <td style="text-align: center;">Paungde (LDY-4)</td> <td style="text-align: center;">5,500</td> <td style="text-align: center;">6,217</td> <td style="text-align: center;">13.0</td> </tr> <tr> <td style="text-align: center;">Paungde (LDY-6)</td> <td style="text-align: center;">5,500</td> <td style="text-align: center;">6,320</td> <td style="text-align: center;">14.9</td> </tr> </tbody> </table> | | Township | Price of Grain ² (kyat/basket ³) (non-CS) | Price of Grain ⁴ (kyat/basket) (CS) | Increase (%) | Pyay (CL-3) | 5,500 | 5,846 | 6.2 | Paungde (LDY-4) | 5,500 | 6,217 | 13.0 | Paungde (LDY-6) | 5,500 | 6,320 | 14.9 |
| Township | Price of Grain ² (kyat/basket ³) (non-CS) | Price of Grain ⁴ (kyat/basket) (CS) | Increase (%) | | | | | | | | | | | | | | |
| Pyay (CL-3) | 5,500 | 5,846 | 6.2 | | | | | | | | | | | | | | |
| Paungde (LDY-4) | 5,500 | 6,217 | 13.0 | | | | | | | | | | | | | | |
| Paungde (LDY-6) | 5,500 | 6,320 | 14.9 | | | | | | | | | | | | | | |
| Source: (PROFIA, 2018) | | | | | | | | | | | | | | | | | |
| Table 3 Yield comparison between CS and non-CS | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Township</th> <th style="text-align: center;">Yield of Grain (basket/acre) (non-CS)</th> <th style="text-align: center;">Yield of Grain (basket/acre) (CS)</th> <th style="text-align: center;">Increase (%)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Pyay (CL-3)</td> <td style="text-align: center;">78.0</td> <td style="text-align: center;">93.5</td> <td style="text-align: center;">19.8</td> </tr> <tr> <td style="text-align: center;">Paungde (LDY-4)</td> <td style="text-align: center;">64.3</td> <td style="text-align: center;">76.1</td> <td style="text-align: center;">18.3</td> </tr> <tr> <td style="text-align: center;">Paungde (LDY-6)</td> <td style="text-align: center;">80.0</td> <td style="text-align: center;">88.6</td> <td style="text-align: center;">10.7</td> </tr> </tbody> </table> | | Township | Yield of Grain (basket/acre) (non-CS) | Yield of Grain (basket/acre) (CS) | Increase (%) | Pyay (CL-3) | 78.0 | 93.5 | 19.8 | Paungde (LDY-4) | 64.3 | 76.1 | 18.3 | Paungde (LDY-6) | 80.0 | 88.6 | 10.7 |
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| Paungde (LDY-6) | 80.0 | 88.6 | 10.7 | | | | | | | | | | | | | | |
| Source: (PROFIA, 2018) | | | | | | | | | | | | | | | | | |
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| Township | Milling Recovery Rate of Grain (%) (non-CS) | Milling Recovery Rate of Grain (%) (CS) | Increase (%) | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

² Ordinary price in the season the recovery test carried out.

³ 1 basket holds approximately 20.9kg of paddy.

⁴ An average of prices for the target farmers' produce (price of white rice was converted into unit price per a basket of paddy rice).

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|--|---|---|---|-----------------|
| | Pyay (CL-3) | 47.81 | 59.64 | 24.74 |
| | Paungde (LDY-4) | 52.58 | 57.47 | 9.3 |
| | Paungde (LDY-6) | 58.29 | 59.88 | 2.7 |
| | Source: (PROFIA, 2018) | | | |
| | Table 5 Profit comparison between CS and non-CS | | | |
| | Township | Profit per acre ⁵ (kyat/ac) (non-CS) | Profit per acre ⁶ (kyat/ac) (CS) | Increase (%) |
| | Pyay (CL-3) | 248,925 | 366,526 | 47.2% |
| | Paungde (LDY-4) | 164,415 | 222,059 | 35.1 % |
| | Paungde (LDY-6) | 256,800 | 350,856 | 36.6 % |
| | Source: (PROFIA, 2018) | | | |
| 1-2. At least one variety of multiplication and distribution flow of good quality seeds of non-rice crops is strengthened. | <p><u>The level of achievement is moderate.</u> Although various attempts including seed multiplication techniques development, field trials, information collection from sesame buyers have been made, multiplication and distribution flow of any non-rice crops using good quality seeds is yet to be developed at present mainly due to unsuccessful production of, or limited yield of non-rice crops for the 2017/2018 dry season.</p> | | | |

Evaluation of the effectiveness of activities regarding Indicator 1-1

One of the strategies of the Project for raising agricultural profitability is to improve the quality and quantity of rice that the target farmers produce on irrigated farmland. Since almost all the farmers in Western Bago Region cultivate rice at least once a year for the monsoon season as previously required by the government policy for ensuring food security⁷, the Project has been promoting the use of CS so that the farmers can produce higher quality paddy rice.

Use of low-quality seed is prevalent in the target areas mainly because of the fact that rice millers and traders, or paddy brokers who buy paddy rice directly from farmers at paddy fields, do not have an appropriate inspection system to grade rice according to quality such as moisture content, the percentage of cracked or colored rice (influencers of the rice milling recovery rate). The purchasing price in this situation is usually low and as it is determined by the buyers based upon their past trading experiences, not by the actual quality of rice paddy being traded. In order to realize profitable farming, it is necessary for the market to have a system in place where the price is determined based on the actual quality of the traded products.

The Project has been implementing a range of activities to promote high-quality rice seed through building a cooperative relationship among public, private (particularly, rice mills) and producers (PPP Partnership). Specific activities conducted so far are: (1) reviewing the current seed

⁵ "Profit per basket" is calculated by deducting cost required for producing a basket of paddy grain.

⁶ "Profit per basket" is calculated by deducting cost required for producing a basket of paddy grain.

⁷ This requirement is now lifted and farmers can choose any crops to grow at an irrigation system.

multiplication practice of DOA at DOA's seed farms and Township extension offices, and seed growers' fields, (2) establishing the Seed Multiplication Working Group (SMWG) (Table 6) which consists of rice millers and medium- to large-scale farmers⁸ for promoting CS production and distribution, and (3) organizing the "Postharvest Techniques & Grain Quality Control Team" among DOA staff (Table 7), and (4) introducing machineries such as paddy seed cleaners and grain graders, (5) establishing "Post-Harvest Technique and Grain Quality Control Laboratory" at DOA Regional Office for various testing and training purposes, and (6) holding a range of trainings, seminars, and study tours for raising awareness and improving knowledge and skills of public, private and producer participants (see ANNEX 7: List of Seminars and Trainings Conducted). The Study Team has recognized that capacity of the C/P, particularly the members of the Postharvest Techniques & Grain Quality Control Team, has developed to a substantial degree in the last 2.5 years and they are very much motivated to execute their duties.

It should also be noted that a series of trainings on seed multiplication was offered by the JICA Experts of "The Project on Development of Participatory Multiplication and Distribution System for Quality Rice Seed" (2011-2017).

Table 6 List of members and performance of SMWG (2017-2018 fiscal year)

| | Sex | Occupation | Location (Township) | Crop | Production area (acre) | Total production (lb) | Total production (bag) |
|-------|-------------------------------|---------------------|---------------------|------------|------------------------|-----------------------|------------------------|
| 1 | M | Farmer/ Rice Miller | Pyay | Paddy | 4.80 | 18,780 | 272.2 |
| | | | | Black Gram | 2.60 | 1,728 | 24.0 |
| | | | | Sesame | 3.40 | 540 | 10.0 |
| 2 | M | Rice Miller | Thegon | Paddy | 1.68 | 6,855 | 99.3 |
| | | | | Black Gram | 4.00 | 504 | 7.0 |
| 3 | F | Farmer | Thegon | Paddy | 0.60 | 2,778 | 40.3 |
| 4 | M | Farmer/Rice miller | Paungde | Paddy | 1.05 | 4,830 | 69.0 |
| | | | | Black Gram | 0.25 | 151 | 2.09 |
| 5 | M | Farmer/Rice Miller | Nattalin | Paddy | 2.21 | 8,795 | 127.5 |
| | | | | Black Gram | 0.93 | 842 | 11.7 |
| 6 | M | Farmer/Rice Miller | Pyay | Black Gram | 0.80 | 108 | 1.5 |
| Total | Monsoon Paddy (2017-2018) | | | | 10.34 | 42,038 | 608.3 |
| | Winter Black Gram (2017-2018) | | | | 8.58 | 3,333 | 46.3 |
| | Summer Sesame (2017-2018) | | | | 3.40 | 540 | 10.0 |

N.B. Paddy - 69 lb/bag, Black Gram - 72 lb/bag, Sesame - 54 lb/bag

(Source: produced by PROFIA)

⁸ As shown in Table 6, the SMWG are often rice millers who work also as farmers. While Table 6 shows that the number of the SMWG members were six for 2017/2018 cropping seasons, the corresponding figure increased to 16 for the 2018 monsoon season with the total projected area of production being 65 acres for paddy, 5.4 for sesame and 1.0 for groundnut.

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Table 7 List of members of DOA Postharvest Techniques and Grain Quality Control Team

| | Sex | Position and institution | Area of specialty | Postharvest in-charge |
|----|-----|--|------------------------|--|
| 1 | M | Assistant Officer, Deputy Regional Office in Pyay | Agricultural Extension | Paungde Township |
| 2 | F | Deputy Officer, Deputy Regional Office in Pyay | Planning | Pyay Township, Acting Chief of CPs |
| 3 | M | Assistant Officer, Deputy Regional Office in Pyay | Land Utilization | Paukkhaung Township |
| 4 | M | Assistant Officer, Deputy Regional Office in Pyay | Plant Protection | Zigon Township |
| 5 | F | Deputy Officer, Deputy Regional Office in Pyay | Seed Production | Chief of CPs, Regional Office |
| 6 | F | Assistant Officer, Deputy Regional Office in Pyay | Seed Production | Nattalin Township |
| 7 | F | Assistant Officer, Deputy Regional Office in Pyay | Land Utilization | Thegon Township |
| 8 | F | Assistant Officer, Deputy Regional Office in Pyay | Market Information | Regional Office |
| 9 | M | Assistant Officer, Deputy Regional Office in Pyay | Field Supervision | Pyay Township |
| 10 | M | Assistant Officer, Deputy Regional Office in Pyay | Planning | Marketing for Paungde, Nattaling, Zigon Township |
| 11 | M | Upper Clerk, Deputy Regional Office in Pyay | Administration | Marketing for Pyay, Paukkhaung, Thegon Township |
| 12 | F | Deputy Assistant officer, Deputy Regional Office in Pyay | Planning | Lab Administrator |
| 13 | F | Computer Clerk, Deputy Regional Office in Pyay | Administration | Lab Computer |
| 14 | F | Assistant Officer, Paungde Seed Farm | Field Supervision | Paungde Township |
| 15 | M | Deputy Officer, Pwe Pyae Seed Farm | Field Supervision | Thegon Township |

N.B.: No. 9 to 13 are newly assigned. No. 14 to 15 previously belonged to DOA seed farms in Paungde and Thegon.
(Source: produced by PROFIA)

The members of SMWG are rice millers and farmers who work closely with DOA and the Project Team to produce high-quality seeds of rice and non-rice crops as well as to promote awareness on quality-based price setting. This initiative can be said to be a tangible embodiment of a Public-Private-Producer (PPP) Partnership. They meet periodically, discuss common issues regarding seed production and quality control and participate in various trainings and study tours. Based on their increased knowledge and skills, they are encouraged to produce quality seed and pay due attention to the quality of rice paddy. For instance, the paddy rice produced from CS by the five members of the SMWG working on a total of 7.1 acres of land was sold at 9,999 to 13,200 kyat/basket for the 2017 monsoon season. 31 ordinary farmers who are not the members of SMWG also obtained CS and started producing paddy. They cultivated a total of 51.1 acres of land for the 2017 monsoon season and were able to sell their crops 1,000 kyat higher than grain price per basket. The Project is now conducting a further monitoring study by contacting CS purchasers to understand how the paddy rice produced from CS is traded. The result of the study is scheduled to become available in October or November this year.

It can be said that the Project's effort to promote CS is now starting to show positive results. If the activities continue with more farmers' and other value chain stakeholders' participation, such as that of paddy brokers, and stronger partnerships in seed production/ distribution as well as raising awareness of crop quality are realized, this indicator has a high prospect to be achieved by the end of the project period.

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Evaluation of the effectiveness of activities regarding Indicator 1-2

Activities for promoting high quality non-rice crops are centered on taking advantage of irrigated agriculture in winter and summer seasons since it raises the possibility of increasing profitability as opposed to focusing only on rice production during the monsoon season. The Project has been conducting field trial to find suitable non-rice crops for the dry seasons, strengthening seed production through SMWG activities, and seeking marketing channels by PPP partnerships building. In terms of strengthening the government's capacity in this area, 15 members of the Postharvest Techniques and Grain Quality Control Team have been working on improving their knowledge on postharvest technologies and quality management skills, gathering market information on non-rice crops such as black gram, sesame, green gram, groundnut, butter beans, vegetables and so forth, sometimes together with two C/P assigned for marketing (see ANNEX 7: List of Seminars and Trainings Conducted). These are the areas that C/P had no experience of before the start of the Project. The field trials made thus far led to the discovery of the potential varieties of sesame and appropriate season for seed production.

As for farmers' endeavor, one farmer/rice miller out of six SMWG members started producing high quality seeds for sesame and black gram together with rice seed in 2017 (Table 6). Five SMWG members produced black gram seed in 2017 (Table 6). It is still not clear how many SMWG members would choose to produce non-rice seeds for 2018/2019 summer and winter seasons. Perhaps influential factors are that there was a steep rise in rice price due to increased export demand and a huge plunge of black gram price due to India's limitation on some beans and pulses importation in 2017. It is likely that the SMWG members will take these last year's situation into account when planning this year's seed production.

Apart from the SMWG members, ordinary farmers who are not members of SMWG also attended training on sesame production (see ANNEX 7: List of Seminars and Trainings Conducted). It is worth noting that 21 novice summer sesame producers at a Direct Outlet (DO) in Pyay Township started to organize themselves into a producer group this year following the advice given by the Project. They selected a leader, sub-leader, a person in charge of quality control and another for marketing, as well as two persons for advertisement, among themselves. The group started cultivating sesame on 100 acre of land after observing the Project's demonstration plot, harvested, and sold at a local wholesale market as a group. The group, however, could not sell their produce to a Japanese export company as originally planned due to limited amount of yield and also uncompetitive price offered by the company. Although their group work is still in its infancy, there is some promising sign in terms of collective crop diversification endeavor with farmers' autonomous initiative.

Although all the above-described activities are the results of the Project's initiative, notable progress in terms of FVC stakeholder linkages is yet to happen except that some information on exporting



non-rice crops, including export to Japan, was obtained and some potential buyers, including Japanese buyers, are identified by the Project Team. Therefore, with respect to the objectively verifiable indicator, the Project is still at the initial stage and tangible outputs are still not produced yet.

4.3.2. Output 2

| Output 2: Profitability of farmers in the Model Site is improved. | |
|--|---|
| <u>Evaluation Result:</u> Presently, Output 2 is produced at a moderate degree. Because of unavailability of data, it is not possible to judge if the target farmers' profit is increasing after their adoption of the techniques the Project is promoting. The current situation is that the Project is still trying to discover a profitable agricultural method and techniques suitable for the target farmers through evidence-based knowledge creation process. The farmers have not received comprehensive interventions from the Project and visible changes in terms of profitability have not been observed among the farmers. Nevertheless, the Project's notable achievement so far when it comes to its influence on the farmers is that it has succeeded to show them some alternatives to rice cultivation by introducing non-rice crops such as sesame. The farmers are now aware that many options other than paddy are available, which is a step forward to crop diversification the Project is aiming for. Moreover, the cropping calendar PROFIA has introduced to WUAs has a high potential to bring out synergistic effects not only from the members of the farmer groups but also from the three parties; the farmer groups, DOA and IWUMD since it facilitates both irrigation water management and crop production planning. | |
| Objectively Verifiable Indicator | Status as of Mid-term Review |
| 2-1 Increase of agricultural profit since 2015 among farmers in the Model Site exceeds that of the control group by more than 20%. | <u>The level of achievement is moderate.</u> Since no hard data to show the change of farmers' profit from farming business is available at the moment, it is not possible to judge to what extent the Project is producing the expected output. Qualitative information suggests that the effect of the Project's intervention on the target farmers has not been materialized yet mainly due to the fact that the process of profitable farming model establishment is still only halfway through and the farmers have not yet received comprehensive interventions and extension services for their skills development. |

Evaluation of the effectiveness of activities regarding Indicator 2-1

The Project conducted a baseline survey in 2016 for 376 sample farming households in and outside the LCAs, where the Project originally planned to target for project activities. The intension is that by conducting the endline survey at the end of the Project, it can compare the change of agricultural profit of the target farmers with that of the non-target farmers. The income data was obtained through the baseline survey exercise, which will be compared after the endline survey data become available. At this moment, there is no hard data to compare the progress of the income change since there is no mid-term data collection planned to be conducted.

Therefore, for the evaluation purpose, the Study Team gathered qualitative data from the project implementers and beneficiaries so that reasonable judgement regarding the progress of the activities and their effects on farmers' performance of agricultural business can be made.

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Regarding the activities implemented so far, the Project has been conducting field trials (soil fertility tests, soil moisture monitoring, machinery use trials, sowing and transplanting methods experiments, etc.) to gain evidence-based knowledge as well as introducing farming records to determine profitable crops for two-season cropping and three-season cropping models, the process of which is still ongoing. Thus, the Project is still not in a position to show the optimal two-season and three-season cropping models with increased profitability although some study findings, such as (1) that two-cropping pattern seems most profitable for smallholder farmers or (2) that sesame is a potential crop for the summer season, have been obtained. For instance, the results of trial sesame production performed by 40 cooperating farmers in Pyay Township in the 2018 summer season indicated that with proper land preparation and application of chemical fertilizer, most farmers have a potential to gain income 1.54 times higher than that of summer paddy.

Side-by-side of these efforts of acquiring science-based knowledge, the Project organized a range of trainings and seminars for C/Ps and farmers in the areas of soil analysis, fertilizer ingredient analysis, sesame and black gram cultivation, and farming record (see ANNEX 7: List of Seminars and Trainings Conducted). It was observed that farmers' eagerness to learn cultivation skills was very strong and often farmers in nearby villages also attended on-farm trainings. Field visits to farmers who were successfully producing sesame outside the project site was particularly effective in that the participants were convinced of the efficacy of the production techniques, such as furrow irrigation, thinning, appropriate fertilization, weeding, etc., the Project was trying to promote.

In implementing these activities, collaboration with other projects and institutions played an important role. Technical information on pest control and post-harvest handling of sesame was shared with the Experts of "Technical Cooperation Project for Agricultural Productivity and Quality Improvement in Myanmar" by Japan Association for International Collaboration of Agriculture and Forestry (JAICAF). As for plant protection trainings, a collaboration with JICA's technical cooperation project, "the Project for Capacity Development of Yezin Agricultural University" was made. Another JICA's technical cooperation project, "Development of Participatory Multiplication and Distribution System for Quality Rice Seeds" offered a series of trainings on seed multiplication. The Project also exchanged information with "The Project for development of water saving agriculture technology in Central Dry Zone". The Project also exchanged information on black gram cultivation with Japan's Yamato Noen seed company which is implementing a JICA's survey project under JICA's public-private partnership scheme.

As for WUA/WUG-based group activities, some WUAs, by building a consensus among WUGs under the same distributary canal, started formulating a "cropping calendar" following the advice given by the Project. The cropping calendar facilitates farmers' planning of group activities based on the cropping patterns of their choice. Through the formulation of the cropping calendar, the farmers can make a collective decision on their group work not only in the areas of water management, but

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also in the areas of budgeting and agricultural activities. From the government side also, by being presented the farmers' month-by-month agricultural activities in a visual form, both DOA and IWUMD can have a common understanding on farmers' activities and endeavor on the ground, which hopefully facilitates collaborative service delivery to the farmer groups by the two departments. The Study Team hopes that PROFIA's cropping calendar can tease out such a cementing effect so that the three parties; farmer groups, DOA and IWUMD can work together more easily and constructively in the future.

Even with all those endeavors made so far, however, the Project is still only halfway through in discovering a profitable agricultural model to show to the target farmers. Thus, the impact on the target farmers in terms of guiding them to profitable farming model implementation is yet to be observed.

4.3.3. Output 3

The activities for Output 3 and their current status are as follows.

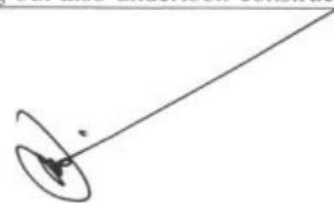
| Activity | Progress |
|--|---|
| 3-1. Identify the issues on middle- and long-term use of irrigation facilities in the Project Site through monitoring the Project. | <u>Completed</u> Issues such as uneven land leveling, inappropriate design of water structures, deteriorated farm road and footpath, and thin and poor soil condition of model LCAs were identified. |
| 3-2. Develop a guideline on PIM (Participatory Irrigation Management) in the Project Site. | <u>Completed</u> The guidelines were developed and announced externally on March 21, 2018 during the IWUMD-JICA Joint Workshop on the PIM. |
| 3-3. Assist dissemination of the use of guidelines for land consolidation in the Project Site. | <u>Ongoing</u> The guidelines for land consolidation are being disseminated at various meeting/ seminar opportunities. |
| 3-4. Assist PIM activities by Water Users Groups (WUG)/ Water Users Association (WUA) after establishment. | <u>Ongoing</u> The Project is providing assistance to the established WUGs and WUAs for PIM activities. |
| 3-5. Provide advices to solve the issues of irrigation sector in Myanmar through meeting with stakeholders and observation of various irrigation systems in Myanmar. | <u>Ongoing</u> Advice is being given at various meeting opportunities. |

Output 3: Guidelines for Participatory Irrigation Management (PIM) in the Project Site is prepared and applied in the Model Site.

Evaluation Result: Output 3 is produced at a relatively high degree. The PIM Guidelines are already prepared and shared with not only the Project implementers but also stakeholders in the irrigation sector throughout Myanmar. MOALI decided to promote PIM as part of national agricultural policies and the Guidelines will be utilized for operationalizing such policies. Thus, it can be said that the impact of the Guidelines is going beyond the framework of the Project. As for application of the Guidelines, positive cases have just started to be recognized at several WUGs/WUAs which were established in collaboration with BWID and IWUMD. The farmers of those groups not only held meetings for group decision-making but also undertook construction

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| work for water course development. | |
|---|---|
| Objectively Verifiable Indicators | Status as of Mid-term Review |
| 3-1. Guidelines for participatory irrigation management is prepared | <u>The level of achievement is high.</u> The Guidelines for participatory irrigation management (PIM) were prepared and distributed at the PIM Seminar held in March 2018. The application of the Guidelines is not limited to the Project's target area, Western Bago Region, but throughout Myanmar as the government of Myanmar has adopted PIM as part of MOALI's policy. |
| 3-2. Stakeholders meetings of irrigation sector are sustainably organized. | <u>The level of achievement is high.</u> The national level meetings as well as community level meetings with participation of the key stakeholders in the irrigation sector are held continuously. |
| 3-3. More than 50% of farmers in the model site participate in PIM activities | <u>The level of achievement is relatively high.</u> It is still too early to judge if 50% of the farmers of WUGs/WUAs are participating regularly in PIM activities since two groups out of 9 s were established less than four months, three still in the process of establishment. On the other hand, some positive signs can be observed among those groups which are already established as quite a few of them are engaged in PIM activities such as holding regular meetings for planning water management and constructing water courses (tertiary canals) from turnouts on the secondary canals. |

Evaluation of the effectiveness of activities regarding Indicator 3-1

The activities for Output 3 started by establishing water users groups (WUGs) and water users associations (WUAs), which are bigger organizations comprised of several WUGs in the same distributary canal, in August 2016. The Project has been working closely with the Japanese Yen Loan Project, "Irrigation Development Project in Western Bago Region (BWID)" (2016-2021) as it develops irrigation systems in Western Bago Region. The Project also worked in collaboration with IWUMD since IWUMD is the main implementer of irrigation systems development.

In April 2017, the task force for PIM Guidelines preparation was organized with relevant institutions. After holding five task force meetings and several other meetings such as IWUMD-JICA Joint Workshop, the PIM Guidelines were finalized and distributed to relevant officers of IWUMD throughout the country as well as other stakeholders at the PIM Seminar held in March 2018 (see ANNEX 7: List of Seminars and Trainings Conducted).

MOALI has decided to adopt PIM as a national policy which will be applied throughout Myanmar. Therefore, the scope of the Guidelines is not confined in Western Bago Region but throughout Myanmar.

Evaluation of the effectiveness of activities regarding Indicator 3-2

The stakeholder meetings have been organized and attended by relevant institutions in the irrigation sector (see ANNEX 7: List of Seminars and Trainings Conducted). At the community level also,

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WUGs/WUAs meetings for establishment and operationalization of the WUGs/WUAs have been organized in collaboration with IWUMD and BWID consultants for LDY-4 (WUA) and LDY-6 (WUG) in Paungde Township, CL-3 (WUG and Land Consolidation Group⁹ (LCG)) in Pyay Township, Thegon LCA (LCG) in Thegon Township, Paukhaung LCA (LCG) in Paukhaung Township and Nattalin LCA (LCG) in Nattalin Township. These efforts of facilitating WUGs/WUAs meetings for strengthening their institutional capacity are ongoing in order to ensure implementation of PIM activities.

Evaluation of the effectiveness of activities regarding Indicator 3-3

PIM activities by WUGs/WUAs include, but not limited to, holding regular meetings for information sharing and decision-making such as formulating water management plans and taking action such as water course construction in accordance with the decisions made in the meetings.

WUGs and WUAs are established or in the process of establishment at nine irrigation canals as shown below (Table 8). Total number of farmers at these nine irrigation canals are 919.

Table 8 Progress of group formation at irrigation schemes in Western Bago Region

| No | Irrigation Canal | Irrigation Scheme | Town ship | Total Acre | No. of Farmers | No of TO | Established Date (GA) | Remark |
|----|--------------------------|-------------------|-----------|------------|----------------|----------|-----------------------|--------|
| 1 | LDY-6 | Weyyi | PD | 47 | 21 | 1 | - | WUG |
| 2 | RDY-3 | Weyyi | PD | 103 | 32 | 6 | 2017/6/6 | LCG |
| 3 | PK-2, PK-3 | South Nawin | PK | 103 | 57 | 5 | 19/6/2017 | LCG |
| 4 | DY-17 | South Nawin | TG | 114 | 35 | 4 | On Going | LCG |
| 5 | Natural Drainage (MDY-2) | Taung Nyo | ZG | 120 | 28 | 3 | On Going | LCG |
| 6 | Natural Drainage (BDY-3) | Taung Nyo | NT | 185 | 32 | 7 | On Going | LCG |
| 7 | CL-3 (Upper) | North Nawin | PY | 519 | 191 | 30 | 8.3.2018 | WUA |
| 8 | CL-3 (Middle) | North Nawin | PY | 656 | 213 | 29 | 3.5.2018 | WUA |
| 9 | LDY-4 | Weyyi | PD | 1,288 | 310 | 22 | 23.3.2017 | WUA |

Source: JICA Project Team (2018)

Note: CL-3 and LDY-4 were established under the activity of BWID project. Total acreage is based on farmers' own estimation.

Source: (Sanyu Consultants Inc. (SCI) and Overseas Merchandise Inspection Co., Ltd. (OMIC), 2018, p. 14)

Those groups established in 2017 and early 2018 have been engaged in a range of PIM activities including holding general assembly meetings for important decision-making with more than 70% of the members' participation. During these meetings, the farmers are gaining a clear understanding about the demarcation of responsibility between IWUMD and WUAs. For example, they now understand that that construction, maintenance and operation of waster courses (tertiary canals) are the responsibility of WUAs, not IWUMD.

PIM activities other than meetings are also undertaken at some WUGs. For instance, farmers of WUGs at LDY-4 and LDY-6 in Paungde Township, and DO at North Nawin Irrigation Scheme in Pyay Township constructed water courses by themselves in order to shift from plot-to-plot irrigation to furrow irrigation. Although WUGs faced challenges such as difficult consensus building and resorting to constructing much simpler waterways, these tangible outputs are the results of the

⁹ A Land Consolidation Group (LCG) is a farmer group which is established in the Land Consolidation Areas.

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Project's facilitation in encouraging WUGs/WUAs to carry out PIM activities.

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