



The Kingdom of Cambodia
Agricultural Productivity Promotion Project
in West Tonle Sap (APPP)

Project Completion Report



March, 2015

Various Activities in Picture

Output 1: Technical Training for C/Ps & Extension Staff

(1) Training for C/Ps and Extension Staff in 2011 and 2012. Venue: Komping Puoy Agricultural Development Center (KADC)



In 2011. Training1 : Seed Treatment (seed selection and hot water disinfection).



In 2011. Training2 : Preparation of Seedling Nursery Bed.



In 2011. Training 2: Dapog nursery method instructed by Japanese Expert.



In 2011. Training 3 : A lecture by the Japanese Expert prior to the field practice



In 2011. Training 3 : A practice of line transplanting method



In 2011. Training 4 : A practice of Growth Survey method



In 2011. Training 6 : A practice of Cutting Survey method.



In 2012. Advanced course on how to conduct an experimental cultivation for comparative growth study



In 2012. Advanced course. Presentation and discussion of the study result of each experiment plot

(2) Training course for TSC3 C/Ps conducted in collaboration with TSC3 irrigation project in 2012. Venue: Pursat PDA Toul Lapov Agricultural Station (TAS)

<p>Starting Training, Venue: PDA Pursat province</p>	<p>Trainers (APPP C/Ps) and trainees belong to TSC3</p>	<p>Training1: Seed Treatment at TAS</p>

<p>Starting Trainin, Venue: PDA Pursat province</p>	<p>Trainers (APPP C/Ps) and trainees belong to TSC3</p>	<p>Training1: Seed Treatment at TAS</p>

(3) Other subject specific trainings

<p>Quality Testing practice for C/Ps under the instruction of Japanese expert</p>	<p>Soil analyzing practice for C/Ps by using soil analyzing kit under the instruction of Japanese expert</p>	<p>A knowledge input for C/Ps & Extension Staff on Plant Physiology lectured by Japanese expert</p>

<p>Workshop training conducted by the short term Japanese expert</p>	<p>Lecture by the Japanese expert on the use of manuals for C/Ps and extension workers.</p>	<p>Knowledge input for C/Ps & Extension Staff on pest generation mechanism lectured by Japanese expert</p>

Output 2: Promotion of Communes' Activities



Explanation on the outline of FFS in a District Integrated Workshop (: DIW) in Battambang in 2012.



Distribution of the reports of Agro-Ecosystem Analysis to 36 communes in 2012.



Group discussion by participants from the target districts and commune councils in a CIP workshop in 2012.



Demonstration of seed disinfection techniques in the CIP workshop.



A workshop for better agricultural services participated by eleven aid organizations in 2013.



The workshop participants having guidance from the project's C/Ps on the recommended cultivation techniques.

Output 3: Extension of rice cultivation techniques through Farmers Field School (FFS)

(1) Training for general farmers at the site of demo farm (Battambang, Pursat and Kampong Chhnang)



FFS-1: Technical instruction by Extension Staff, C/P and Japanese Expert



FFS-1: C/P explaining the agronomical knowledge to the participants by using Technical manual which APPP produced



FFS-1: Practice of seed treatment



FFS-2: Line plating method



FFS-2:How to use Drum Seeder



APPP Demo Field within a boundary of TSC3 irrigation scheme (2011 – 2014)



FFS-5 : Presentation of the cutting survey result of demo farm and assessment of training.



Demo farm submerged and completely damaged due to serious flood (Oct-Nov, 2013)



Cracked soil surface of demo farm caused by serious drought and demo farmer standing beside. (2012 and 2014)

(2) The seminar for wide area extension on intensive rice cultivation techniques (26-27 Jan,2015)



(1st day) Presentation by Expert Mr Hagiwara & C/P Ms KimNay on improved rice cultivation techniques



Presentation by Expert Mr Fujita on seed production techniques



Presentation by Expert Mr Sonoyama on methodology to support farmers group



Presentation by Expert Mr Shimokawa & C/P Ms Ratha on PJ made manuals



(1st day) Opening ceremony : Venue: Stung Sangkae Hotel (Battambang)



(2nd day at PDA) Demonstration on how to use "Drum Seeder"



Demonstration on "Seedling nursery in Dapog method"



Demonstration on rice husk charcoal making



Demonstration on Seed Treatment method



Exhibition and a spot sale of seeds by SGG members

(3) Delivery lecture and demonstration to the areas other than the target provinces



(Feb 5,2015)Prey Veng Province:
Distributing manuals to the participants



66 farmers & 4 PDA officials participated.



Demonstration of seed treatment



(Feb 6, 2015) Svay Rieng Province.
Distributing manuals to extension staff



81 Extension staff receiving a technical lecture from APPP C/P



Demonstration of seed treatment. Around 60 extension staff learned the method.



(Feb17, 2015) Takeo Province:
explanation by the C/Ps and extension workers



Distributing manuals to the participants



108 farmers participated

Output 4: Seed production by Seed Growers Groups (SGG)



Banan SGG(Battambang) Field Inspection to the nursery bed



Bavel SGG (Battambang) Accurate line transplanting using a marking lope



Bavel SGG (Battambang) Quality check of harvested seed paddy.



Moug Russei SGG(Battambang) Training of making rice husk charcoal.



Banan SGG (Battambang), Officially organized the cooperative in Dec,2012



M. Russei SGG Leader won the 1st prize in the contest of quality seed production techniques and awarded by the prime minister H.E Hun Sen in Mar, 2013



Kampong Chhnang(K.C)SGG, Gathering for FFS session



K.C SGG members receiving instructions from the forerunner M. Russei SGG leader.



Interviews to K.C SGG by radio crews for sale promotion through the radio program.



PDA Pursat Toul Lpov Agri, Station (TAS), FFS 1st session.



Field inspection at TAS



Germination test conducted by C/P of Pursat province

Output 5: Collective activity by the Pilot Groups for distribution improvement



Study by a short-term expert through interviews with rice millers (2012)



A farmers' meeting for group formation in Battambang (PG1, 2012)



PG members practicing collective sales in Pursat (PG5, 2012)



Explanation by C/P & Expert to the PG members on the group fund mechanism



PG members discussing an annual action plan in Kampong Chhnang (PG14, 2013)



Accounting training lectured by Pursat C/P for the PG members in charge of accounting (2013)



PG members visiting a rice miller in Pursat (2013)



PG members visiting a rice miller in Battambang (2013)



A signboard set up for advertising PG members rice for sale (2014)



Radio broadcasting by C/P and PJ staff for sale promotion of both PG paddy and SGG seed (2014)



Money collection by PG members for group fund (PG7, 2014)



PG members, C/Ps and extension workers at the final workshop (PG8, 2015)

Output products (Technical Manuals & Teaching material)






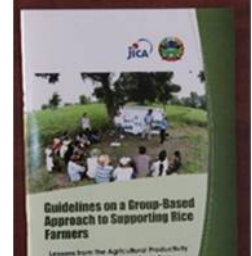


		 <div data-bbox="1284 414 1460 548" style="border: 1px solid orange; padding: 5px; text-align: center;"> <p>Farmers Calendar (En & Kh)</p> </div>
<div data-bbox="132 582 555 660" style="border: 1px solid orange; padding: 5px; text-align: center;"> <p>How to Use Drum Seeder (En & Kh)</p> </div>	<div data-bbox="577 582 1002 660" style="border: 1px solid orange; padding: 5px; text-align: center;"> <p>FFS Operation Guide for Extension Officers (En & Kh)</p> </div>	
<p>The important preparation procedure for proper use of Drum Seeder (For Farmers use)</p>	<p>Procedure and training components of FFS and technical flow of rice cultivation (For instructors use)</p>	<p>Farming management and cultivation calendar (for general farmers use)</p>
		 <div data-bbox="1284 862 1460 1176" style="border: 1px solid orange; padding: 5px; text-align: center;"> <p>Guideline on a Group-based Approach to Supporting Rice Farmers (En & Kh)</p> </div>
<div data-bbox="132 1108 555 1187" style="border: 1px solid orange; padding: 5px; text-align: center;"> <p>Rice Seed Production Manual (En & Kh)</p> </div>	<div data-bbox="577 1108 1002 1187" style="border: 1px solid orange; padding: 5px; text-align: center;"> <p>Step Up Your Knowledge on Rice Cultivation (Ver.2) (En & Kh)</p> </div>	
<p>Theory and cultivation procedure for producing high quality seeds (For Instructors use)</p>	<p>Technical issue specific manuals explaining the basic theories on the rice cultivation techniques (For farmers and instructors)</p>	<p>Important factors and issues for forming and promoting farmers group activity(For instructors use)</p>
 <div data-bbox="383 1400 555 1713" style="border: 1px solid orange; padding: 5px; text-align: center;"> <p>Improvement of Farmers Income through New FFS Technology (in Khmer only)</p> </div>		
<p>Most simple explanation of cultivation procedures (For farmers use)</p>	<p>FFS teaching material made of vinyl canvas sheet (Khmer) 15psc/set</p>	

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Chapter 1 Overview of the Project

1-1 Project Target and Outputs

The “Agricultural Productivity Promotion Project in West Tonle Sap” (hereinafter referred to as “the project”) has its Project Design Matrix (PDM) with 5 outputs to realize improved productivity leading to profitability of the target farmers namely Demo Farmers (DFs) and their participants. The followings describe how much the Project achieved its target by explaining the degree of achievement of each of the 5 outputs.

Output 1 is to raise the ability of extension skills on rice cultivation techniques about extension officers who are belong to the office of Provincial Department of Agriculture (PDA) and are regarded as counterparts (C/Ps) to the Project. This output is naturally justified as improved and skilled human resources are first of all necessary to continue carrying out the achievement of the Project after its termination for the sake of sustainability.

A characteristic way of achieving this output in the Project can be described as “Learning and experiencing by doing practices”. C/Ps and extension officers are required to organize and manage 1st Farmers Field Schools (FFS)-based training courses for target farmers soon after they received intensive trainings from JICA experts on improved rice cultivation techniques which were recommended by The Project during the rainy season in 2011. FFS is a basic framework in which 5 times of training courses are organized in a manner to pinpoint every important stages of rice growth and the training is commonly applicable to all type of farmers’ groups including Seed Growers Groups (SGGs) and Pilot Groups (PGs) under The Project.

As a result of the activities on this output, total number of FFS-based training courses conducted reached to 1,796 times including ones with SGGs and PGs in four 4 years. This means an average of 69 times per one 1 extension officer as there are 26 officers in total. Furthermore, considering various weather conditions and factors related to each and every farmer during the period, they should have had wonderful learnings for gathering experiences, leading to improved skills over extension work (refer to the details in Chapter 2).

Output 2 refers to achieving sustainability on the side of counterpart offices which are supposed to be able to disburse necessary funding for continuing agriculture support programs such as technical training for their farmers. This output sounded ideally though, The Project could try at most was to make effort in convincing some officers of around 30 commune offices in the target districts of Battambang province, to submit

budget requests for realizing agriculture support programs such as FFS-based training courses conducted by The Project. But, none of them actually funded in spite of such budget requests were being submitted every year. Considering the result, this output might have been too ideally to realize. If counterpart country can manage agriculture support programs in terms of every aspect including funding and personnel in sound and proper manner, then there would be no necessity to carry out international-donor-funded projects such as this one (refer to the details in Chapter 3).

Output 3 is to achieve dissemination of rice cultivation techniques recommended by The Project through FFS-based training courses targeting DFs and their participant farmers. DFs are used as model farmers who could apply the techniques into their own paddy fields following instructions provided by extension officers. Extension officers then try to disseminate the techniques to the participant farmers as many as they can accommodate by explaining theory and doing practice at DFs. In 4 years, The Project set and run 302 DFs throughout 37 communes in 3 target provinces, where 1,796 times of FFS-based training courses were conducted as mentioned above. There were 26,495 farmers participated to the training courses in the period after all. According to the survey conducted every time at the end of cultivation season, it found that most of the participants did apply several kinds of the recommended techniques as the result of participating the training courses and that also lead to an increase of rice yield as well as profit among the farmers (refer to the details in Chapter 4).

Output 4 is to achieve production and distribution of rice seeds of good quality. As a result of 4 years' long supports by The Project and the efforts made by the members of 5 SGGs, they produced and distributed (marketed) 381 tons of certified rice seeds. Although it was only in the year of 2013 when The Project's production target of "100 tons per year" was attained, as SGGs expressed a plan of doubling present number of 64 members in the future to come, a greater amount of seed production can still be expected.

Here are few but notable efforts about SGGs. First, they established Certified Seed production line based on the supply of Foundation Seed from Cambodian Agricultural Research and Development Institute (CARDI) to ensure the genetic purity of seeds. Second, they practiced seed production following a strict quality guidelines set by The Project, including periodical field inspection to produce only good quality seeds. Third and as the most important measures taken during latter period of The Project, that was to promote seed sale by using various media forms such as posters, fliers, TV, and radio programs.

As a positive effect, a SGG received more retail orders from individual farmers nearby itself and other SGG even received an order from a group of farmers in faraway

province. What occurring around SGGs could suggest further diversifying their seed marketing options rather than only selling to middlemen or rice millers but to other demands come from individual and group of farmers that may be more profitable for SGGs to become more independent (refer to the details in Chapter 5).

Output 5 is to try to increase rice productivity by farmers' group-based approaches. The farmers as group involved in this output are called Pilot Groups (PGs). This trial included 3 main activities, which are: 1) rice cultivation practice through FFS-based training, 2) management of Group Fund to buy agricultural inputs, and 3) making collective efforts in marketing rice.

An important point of this output is that if attaining profit by group-based activities could as well be beneficial to its individual member in the group, or not. As a result of 3 years' long effort, most of the PGs (11 out of 15 PGs) expressed their eagerness to continue their group-based activities that included 1) use of Group-Fund, 2) collective purchase of agricultural inputs, 3) application of cultivation techniques learned through FFS-based training course, and 4) collective marketing efforts and sale.

This result also suggested many members of PGs were able to feel benefits being as a member in the group. The effort and experience gathered by working with PGs may give further lessons valuable to the effort being made by MAFF to organize agricultural cooperative which should realize the notion of so-called "One for All, All for One" (refer to the details in Chapter 6).

By having explained the degree of achievement over each of 5 outputs as above, The Project intended to show as one example of how to improve farmers' productivities by organizing them into three type of groups as DF, SGG and PG. DF is used for technical information dissemination and SGG is used to produce good quality seeds as a profitable business model, while PG is to learn and apply the benefits of group-oriented farming practices.

Of course, only after 4 years' long of The Project's trials, what we have learnt were various difficulties and possibilities at the same time. The representative of the difficulties was climatic conditions that fluctuate greatly year to year in the extreme of between flooding and drought. On the other hand, however, some of the farmers and their groups worked very hard to cope with the difficulties caused by the climatic extremes. Furthermore, many of such farmers were eager to help other fellow farmers in their localities improve rice cultivation techniques. And, that was why The Project had also come to believe that the concept of FTF (Farmer To Farmer)-based technical extension system be the one important way to achieve successful rice farming

development in Cambodia, especially in the face of lacking technical supporting systems for farmers' production as well as institutional supporting systems for farmers' distribution of agricultural products (refer to the matters related to extension system in Chapter 4)

1-2 Implementation System of The Project

Implementation structure of the Project is shown at ANNEX3. Although General Directorate of Agriculture (GDA) under MAFF is to be overseeing the Project activities implemented in the three (3) target provinces, namely Battambang, Pursat, and Kampong Chhnang, in practice, JICA experts and C/Ps including all extension officers from the three provinces managed all the Project matters including planning and implementation through Monthly Monitoring (MM) meeting held regularly at the Project office situated at PDA Battambang.

On-going activities and related results are reported as a quarterly report in English and an annual report in Khmer. JICA experts also visited MAFF to make oral reporting to the Project director when necessary. PDA directors as the Project managers also joined MM meeting once in 2 months to share the matters related project implementation. Table 1 shows several forms of communication continued during the Project in order to achieve deepened understanding among all the members thus leading to success of the Project.

Table 1 Various forms of communication for common understanding

Forms	Attendants, Frequency	Purpose, Effects, etc.,
①Morning meeting	JICA experts, C/Ps in PDA Battambang, project staff including drivers conducted every morning till 2013. Since 2014, held only on Monday morning because of improved communication level and efficiency.	Collection of information from the field as references and monitoring of on-going situations in order to make decisions and responses effectively. Finding out issues as subjects common to other provinces, and so on.
②Weekly JICA expert meeting	Meeting of JICA experts weekly or actually at any time whenever necessary.	4 JICA experts and 5 C/Ps staying and working in one large-spaced room made it possible to have constant communications leading to make smooth decision making if necessary.
③Monthly Monitoring (MM) Meeting	All the project members (4 JICA experts, 10 C/Ps, 26 Extension officers and other staffs gather for 1-2 days once a month regularly.	MM meeting functioned as if overseeing committee for project operation. Sometimes, the occasions were used for small learning sessions and additional training activities.
④Project	3 PDA directors as project managers	Sharing information on project

Manager(PM) Meeting	only met with experts and C/Ps every 2 months during MM meeting for quite some time, but since November 2013, PMs also joined MM meeting as part of the members.	management including any issues to raise awareness as they are actually the implementer and owner of the Project.
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1-3 Inputs as Project Activity Cost

Table 2 shows [Total Activity Cost] with main items for the Project operation for 4 years and 3 months and Table 3 shows the breakdowns in relation to inputs and outputs of [Miscellaneous Cost] which amounted to 72.6% of [Total Activity Cost].

Table 2 [Total Activity Cost] and main expense items

Expense Items	Amount(US\$)	%	Remarks
[Total Activity Cost]	1,562,594	100.0	Period : Jan. 2011-Mar. 2015
Fees and Honorarium	278,774	17.8	Honorarium to Extension Officers
Miscellaneous Cost	1,135,206	72.6	
Refreshments (Meeting)	3,750	0.2	Meeting packages
Travel Expenses	137,944	8.8	Daily Allowance and Accommodations Fares
Contract/Consultant	6,200	0.4	

Table 3 Breakdowns of [Miscellaneous Cost]

Inputs and Outputs	Expense Items	Amount (US\$)	%	Remarks
	[Miscellaneous Cost]	1,135,206	100.0	
① Direct Inputs to produce Outputs related	Training activities for C/Ps and extension officers (Output 1)	45,877	4.0	Inclusive of survey fees conducted at early stage
	Promotion activities for commune oriented agricultural support programs (Output 2)	4,692	0.4	
	Extension activities to improve farmers' rice cultivation techniques (Output 3)	259,778	22.9	FFS-based training cost including DF, SGGs and PGs
	Rice Seed production and distribution activities (Output 4)	200,231	17.6	
	Promotion of Farmers' group-based activities (Output 5)	8,732	0.8	
② Inputs related to Project Office, Vehicle,	Fuel and Transport related	183,463	16.2	
	Project office maintenance related	101,202	8.9	Inclusive of 3 project offices in 3 provinces
	Vehicle maintenance related	123,657	10.9	

Personnel and other costs	Project personnel related	118,292	10.4	Overtime payment for C/Ps
	Emergency supports and others	22,971	2.0	Need of official request and limited by budget availability
	Holding Regular Meeting elated	10,813	1.0	
③ Outputs as dissemination of beneficial information	Manuals related to FFS-based training and rice cultivation techniques (4 kinds)	28,037	2.5	Additional 8,435\$ was disbursed through JICA office
	Rice Seed Production Manual as guide book	6,143	0.5	
	Book of Guidelines on group-based approaches	4,241	0.4	
	Holding seminars and workshops	17,077	1.5	

1-4 Joint Coordination Committees (JCC)

1st Joint Coordination Committees (JCC) was held on 26th January 2012 (See ANNEX9). Since then, the Project held 5 times of JCCs throughout the period of 4 years and 6 months, and of which 2nd and 4th ones were held jointly with mid-term and terminal evaluations respectively, and that was when both positive evaluation results were shared among participants.

Every time, JCC included progress reporting with presentations as a regular part, they also dealt with raised issues such as approval of rolling plans, revision of PDM indicators as well as amendment of certain expressions in it. In this way, JCCs were well used to acknowledge the Project results and also provided opportunities to raise positive awareness among the participants from MAFF, who usually did not have much chance to visit actual activity sites in the Project.

Chapter 2 Training for counterparts and extension workers (Output1)

2-1 Achievement and implementation procedure

The initial activity plan stipulated in the Project Design Matrix (PDM) was separated into two steps like below.

1-3. Conduct trainings for PDA staff in charge of extension.

1-4. Conduct trainings for extension workers.

This process, however, was considered an unpractical and inefficient in every respect of rice cultivable period within the year and a considerable tight schedule for pursuing the every target subject (verifiable indicators). Then, above two subjects were shifted with drastic revision such as both counterparts(C/P) and extension workers (E/W) take a training together at the same time and go forward the immediate practice of teaching on the stage of actual Farmers Field School (FFS). This “lean and practice” process was intensively and rationally repeated at every FFS session.

This training process also contributed in the development of more confidence among C/Ps and E/Ws and resulted in the doubled number of FFS implementation site from the 2nd year 2012.

2-1-1 Course trainings through cultivation period

1) Training in 2011 on general rice cultivation techniques

- Used rice variety: Early maturity IR66
- Duration: April to July in 2011
- Venue: Komping Puy Agri,Development Center (KADC) attached to Battambang PDA
- Trainees were all C/Ps and E/Ws (22). JICA experts and one C/P who have already experienced in the former BRAND project become the main instructors and guided the training consistent of lectures on the theories/technical process and paddy field practice.

2) Training on Seed production

- Used variety: Government recommended 10 varieties
- Duration: April to July in 2011

- Venue: KADC attached to Battambang PDA
- Three extension workers who were assigned to Seed Growers group (SGG) received the training intermittently while receiving the training stipulated above 1). The paddy field of cultivated 10 varieties was opened to the public as a display of Government recommended variety.

3) Training in 2012 on the basic field comparative experiment method

- Used variety: Early maturity IR66
- Duration: April to July in 2012
- Venue: KADC attached to Battambang PDA
- 19 extension workers received the training. They formed 5 groups and each group set up their objective respectively with expected target results of experiment. JICA expert gave only introductory guidance and knowledge on the theory of comparative study and how to carry out actual experiment in the field. Each group designed the experiment including the use of Drum Seeder focused on the correlation between rice growth and fertilization rate.
- After completion of their training on comparative experiment, they exchanged the result of their experiments and discussed the effects of each study. Through this process their knowledge and expertise were much leveled up compared to before training.

4) Training in collaboration with TSC3(MOWRAM) project

- Used variety: Medium maturity, Phka Rumdoul
- Duration: April to October, 2012
- Venue: Pursat PDA and Toul Lapov Agricultural Station:(TAS)
- The collaboration training with TSC3 project was a long term issue for JICA. It was planned in detail the beginning of year 2012 and materialized in April even though the program was not stated on PDM. The trainees count 26 persons composed of TSC3's twelve (12) C/Ps belonging to PDA in six provinces, eleven (11) extension workers in Pursat province and three (3) MOWRAM officials.
- In prior to this program, the Chief Advisor expert to APPP offered the technical lecture to MOWRAM officials in Phnom Penh.in response to the request from MOWRAM.

(*See ANNEX 8 related above trainings)

2-1-2 Small training and study gathering

On the occasion of monthly Monitoring Meeting where all of project team members

get together, the experts offered a series of small trainings such as soil science, plant physiology, pest control mechanism, rice husk choral making practice, etc, and some issues were often times put on the table for the purpose of study discussion among members.

(*see pictures on the beginning pages)

Chapter 3 Promotion of Communes' Activities (Output 2)

3-1 Outline of the Assistance for Promoting Communes' Activities

The project's assistance for communes' activities (output 2) are aimed, to be precise, at both Communes and Sangkats (hereinafter called as "communes" as a general term). The main purpose of this project component was to help the targeted Commune (Sangkat) councils acknowledge the importance of the extension of rice cultivation techniques, thereby encouraging them to include extension project plan in their own development plans.

Support for communes' activities was added in the APPP's project component given the fact that a very limited amount of budget is allocated by MAFF for agricultural extension services. It was expected that the sustainability of APPP's extension activities would be ensured by communes if they could plan their own extension projects and put them into implementation by acquiring financial sources.

Communes are supposed to formulate two types of development plan: a five-year rolling "Commune Development Plan (: CDP) " ; and a three-year rolling (but annually updated) "Commune Investment Plan (: CIP)". Every year they need to implement a variety of planned development projects by mobilizing financial resources from external institutions or by making use of money transferred from the central government. The core activity expected to the project was to help a total of 30 target communes in Battambang include rice cultivation training plans into CIP (: PDM activity 2-4)¹

Table 4 Target Communes/Sangkat (Battambang Provinces)

	District/City	Commune/Sangkat		District/City	Commune/Sangkat
1	Banan	Cjjei Teal	16	Monug Ruessei	Kear
2		Phnum Sampov	17		Chrey
3		Ta Kream	18		Ta Loas
4	Thma Koul	Boeng Pring	19	Sangkae	Kakaoh
5		Kouk Khmum	20		Norea
6		Bansay Traeng	21		Ta Pun
7		Rung Chresy	22		Kampong Preah
8	Battambang	Kdol Daun Teav	23	Koas Krala	Voat Ta Moem
9		Ou Mal	24		Thipakdei
10		Voat Kor	25		Hab

¹ To be precise, PDM stipulates that the project should "support inclusion of *agricultural activities* into CIPs (:Activity 2-4)" and expects that "more than half number of the target communes includes the *agricultural activities* in their CIPs (:Indicator 2-2) without clearly defining the term of "*agricultural activities*". As Indica rice has officially been set as the only target crop of the project, the project has regarded "the extension of rice cultivation techniques (i.e. rice cultivation training)" as what meant by *agricultural activities* in the project context.

11	Bavel	Bavel	26		Doun Ba
12		Khnach Romeas	27	Aek Phnum	Preah Norint
13		Lvea	28		Preah Khpob
14	Rukhak Kiri	Preak Chik	29		Preah Luong
15		Prey Tralach	30		Samraong Knong

The major activities implemented in the component for supporting communes are summarized below.

1) Agro Eco-system Analysis (2010-2012)

After the project is launched, the Agro-Ecosystem Analysis (AEA) was implemented to grasp the status of agricultural production and environmental conditions of communes (:PDM activity 2-1).

The implementation was divided into two times. The first AEA was carried out by targeting 18 communes in Battambang Province from October 2010 to December 2010 before Japanese experts were dispatched to the project, based on the agreement between Battambang PDA and JICA Cambodia Office. The second AEA covered not only the remaining 12 communes in Battambang, but also covered Pursat (4 communes) and Kampong Chhnang (2 communes), which were conducted from January 2012 to February 2012 by each PDA on contract by the project.

The completed AEA reports (in Khmer) of the 36 communes were distributed to every commune council in the target commune and district agricultural office so that the information can be used as references in planning CIP.

2) Explanation at the District Integrated Workshops (:DIW) (Jan 2012)

According to the guideline of the government, a commune is supposed to take several steps to prepare (update) and implement CIP. In January 2012, following the communes' annual planning process, the project first participated in the District Integrated Workshops (DIWs) held in six districts in Battambang province, where it explained on the outline of the rice cultivation training program (FFS) for the participants from the district offices and commune councils. As a result, all of the targeted 30 communes have included rice cultivation training plan into their CIP for FY2012.

3) Workshop on Rice Cultivation Training for Communes (May 2012)

In May 2012, in order to deepen each commune councils' awareness of the importance of promoting agricultural extension for rice farming, the project organized "a workshop on rice cultivation training through FFS and CIP" with approximately 50 participants

including the representatives from the 30 commune councils, district governors (or deputy governors) from 9 districts, and the chiefs of 30 district agricultural offices.

During the workshop the project explained to the participants on its activities, recommended rice cultivation techniques and FFS, which were followed by demonstration of seed selection and disinfection techniques and a field visit to a FFS demo site. The participants were then divided into nine district groups for group discussion, through which all of them have agreed that rice cultivation training plan should be included into CIP.

After the workshop, 90 percent (27 communes) out of the target communes resulted in including training plans to CIP for FY2013. On the other hand, it was also confirmed that virtually no commune has succeeded in acquiring a new financial source as a result of preparing the plans. Although APPP was designed on assumptions that supporting communes' planning would lead to sustainable extension activities, it was revealed that there was a gap between the expectation and reality.

4) Workshop on Better Agricultural Services with aid organizations (Sep 2013)

If commune's extension plans were unlikely to be implemented due to lack of financial resources, no more support from project would be needed for their planning activities. Rather, as a means for realizing sustainable extension, it would be useful to share the project's techniques and knowledge directly with the other aid organizations already operating similar training or rural development projects in the province, thereby encouraging them to make the best use of the techniques and methods in their project implementation.

Based on this idea, in September 2013 the project organized a two-day workshop titled "Workshop for Better Agricultural Services for Rice Farmers" with approximately 90 participants from a total of eleven aid organizations (public institutions and NGOs) and PDAs, and so on. Through presentations by seven representative organizations, panel discussion and field visit, they could share lessons and experiences on a variety of activities including the extension of rice cultivation techniques.

With regard to CIP for FY2014, meanwhile, 87 percent (26 communes) of the target communes resulted in including rice training plans into it.

3-2 Challenges on the promotion of extension activities by communes

The major achievements by the support for communes' activities are summarized in the Table 5.

Table 5 Major Achievement by the Support for Communes' Activity (Output 2)

Item	Target (PDM)	Achievement		
		CIP (FY2012)	CIP (FY2013)	CIP (FY2014)
No. of Communes that have included rice cultivation training plans into CIP	19 communes or above	30 Communes	27 Communes	26 Communes

Regarding the PDM indicator related to “the inclusion of rice cultivation training plans into CIP”, the project has achieved it for three consecutive years. In fact, however, most of them were the training projects already designed and committed by APPP or the other NGOs, and not by communes’ own initiatives. In CIP for FY2014, six communes have actually come up with its own original training plan, but acquired no financial resources to implement them.

In the CIP planning process, the District Integrated Workshop (DIW) is expected to function as a matching system between communes seeking for financial resources for their projects and external institutions including provincial line departments, NGOs, civil society and other development partners. In practice, however, the events are in most cases held merely for reporting and confirming the number of CIP projects planned and implemented each year, and not functioning as intended.

On the other hand, communes are allowed to implement development projects planned in CIP by using money in the Commune/Sangkat Fund (C/SF) transferred from the central government. However, the funds are too little for communes to implement all of the projects planned in their CIP. For agricultural development, in particular, most of communes tend to put a highest priority on constructing infrastructures such as irrigation canals and rural roads. Even though they are aware of the importance of rice cultivation training, they cannot afford to allocate its limited amount of budget to it.

Given this situation on the ground, what is needed to ensure the sustainability of extension activities in Battambang province would not be technical support for CIP planning. Rather, increase in money transfer from the C/SF fund to communes and further efforts by MAFF and PDA to secure agricultural extension budget would be critical.

Chapter 4 Achievement on Extension Activity (Output3)

4-1 FFS (Farmers Field School) Implementation

4-1-1 Shift of the training form from FFD to FFS and clarification of basic concept on extension work through FFS.

Soon after project inauguration, the comparative discussion of FFD (Farmers Field Day) and FFS (Farmers Field School) was repeatedly done among Japanese experts for pursuing more training efficiency and effectiveness though FFD was already designated in the initial Project Design Matrix (PDM). After series of discussions and field review study, the experts judged that the FFS was more efficient and superior to FFD as a training tool for the effective technology transfer to the farmers.

The FFS's superiority is considered that all stages of consecutive training could hold the same participants who can learn and master all techniques systematically just like a school student who study all subject contents along with the curriculum. Therefore the FFS method is more advantageous in respect of increasing the participant's degree of mastery of technology.

As another project concept in extension purpose, the project emphasized the effectiveness for possible sustainability by Farmer to Farmer (FTF) extension mechanism, and tried to bulk out the number of technical core farmers (demo farmers) who mastered the all techniques in FFS as many as possible.

Table 6 FFS Curriculum

	Transplanting method	Direct sowing method by Drum Seeder
Session 1	Explanation on general techniques to be adapted during whole cultivation spell	Explanation on general techniques to be adapted during whole cultivation spell
	Seed Treatment techniques(theory and practice)	Seed Treatment techniques(theory and practice)
Session 2	Nursery bed preparation and seeding (theory and practice)	How to use Drum seeder (theory and practice)
	Land preparation (Theory)	Land preparation and Basal fertilizer application(Theory and practice)
Session 3	Line transplanting (theory and practice)	1 st Top dressing(theory and practice)
	Basal fertilizer application	Removal of alien variety and weeding

	(Theory and practice)	(theory and practice)
Session 4	How to judge Panicle Initiation (theory of 2 nd Top dressing and practice)	How to judge Panicle Initiation (theory of 2 nd Top dressing and practice)
	Removal of alien variety and weeding (practice)	Removal of alien variety and weeding (practice)
Session 5	Yield estimation by cutting survey method	Yield estimation by cutting survey method
	Evaluation of training	Evaluation of training

In 2011, the project planned and implemented FFS at 41 sites in 3 provinces. The site number was decided in consideration with the capacity level and number of C/Ps and extension workers to cover. In 2012, since C/Ps and extension workers became already familiar with the skill and knowhow of FFS operation through one season experience in 2011, 87 FFS sites were drastically increased and assigned to them. In 2013 and 2014, almost similar scale of FFS were implemented consecutively.

Overall achievement in FFS implementation during 4 years of operation has come up with 302 sites(=demo sites), 1,554 times of training (1,796 including PG & SGG) and 23,100 participants (26,495 including PG & SGG). (*refer to ANNEX-10)

Since the extension work by the project has a limit (impossible) of technical follow-up to every FFS participant after FFS completion at the every demo site due to a large scale extension target designated in the PDM and mandated to the project to achieve. In this respect, the way of project operation like this could not be said an ideal extension methodology.

In the project's extension activity, technical follow-up (after-care) by the project to an individual participant after finishing FFS has been quite difficult due to that the number of demos and FFS sites are too large for C/Ps and Extension Workers to cover the follow-up², and furthermore all of FFS participants changes every year which accumulates the experienced participants drastically. In this respect FFS method is considered not perfect extension method yet in terms of continuous technical handout to the farmers.

However, considering the fact that a majority of farmer have never received any training regarding the rice cultivation technology, the project policy putting a priority on offering training to as many farmers as possible was considered rather appropriate than doing an intensive and successive extension to the small and the limited number of farmers and areas.

² One C/P covers 27-28demo sites and one extension worker covers 4 FFS and assisting 4 demo farm operation on average.

Thus, the project fulfilled its initial objectives and roles. Therefore, in the FFS extension activities which offers only one chance of course training to the participants, it is unavoidable to make the gaps more or less among the participants in understanding level of technology, not like a farmers group (SGG and PG) who have received the guidance and technical instructions through FFS and other occasions for successive years.

Table 7 Number of FFS site (demo farmer), Times of training and number of participants

Year	Province	#Demo farm*	Times of training	# Participant
2011	Battambang	35	209	3,085
	Pursat	4	30	682
	Kampong Chhnang	2	10	251
2012	Battambang	68	409	5,597
	Pursat	13	65	1,260
	Kampong Chhnang	6	30	699
2013	Battambang	68	298	4,403
	Pursat	14	70	1,263
	Kampong Chhnang	7	35	604
2014	Battambang	65	298	3,940
	Pursat	12	60	704
	Kampong Chhnang	8	40	612
Total		302	1,554	23,100

*Number of demo farmer indicates the one at starting time of FFS

4-1-2 Transition of average yield per hectare

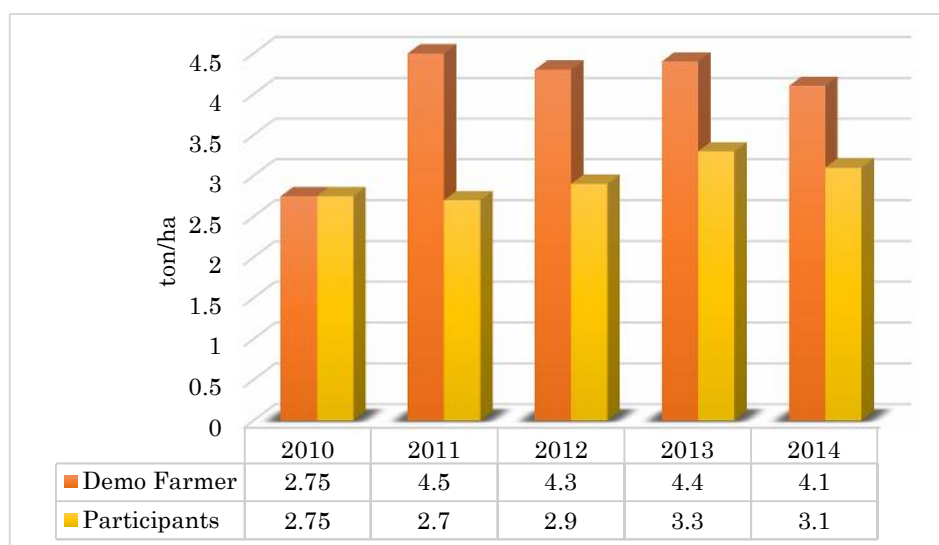
As indicated by Figure 1, the demo farmers have consecutively obtained over 4.0 ton/ha on average through four (4) cropping seasons. On the other hand, the FFS participants gained the peak of 3.3ton/ha³ in 2013 as the highest average yield among 4 seasons.

2014 as the last year of the project activity, the average yield of both demo farmers and FFS participants declined down to year 2012 level. A drastic shortage of rain water was observed in wider areas that lasted until the end of August, particularly in Battambang areas were serious and many demo farms, PG farms and SGG farms were affected terribly. It caused to a large extent a delay of seeding or transplanting and also growth stagnancy on the planted paddy seedlings. Fortunately damage of water shortage to the average yield was a little smaller than expected.

³ Based on the 2013 End line survey

The gap in the unit yield between the demo farmers and participants comes up with the environmental differences whether or not they can receive the successive technical support from the project during cultivation practice. However, this outcomes (yield figures) proves that the effects of training is appeared exactly with the survey data on yield which exceed the region average 2.4-2.7ton/ha⁴

Figure 1 Change of average yield (ton/ha) from 2010-2014



*Data source: Base line survey in 2010, End line Survey in 2011-2014

4-1-3 Change of FFS Participant's profitability in rice production

Since the project activity has started in 2011, Demo farmer's profit level from rice sale have risen largely. An average yield/ha got almost doubled in comparison with the past and at the same time, the demo farmer's product induced more purchase wants from neighboring farmers as a seed. This phenomenon also contributed in increasing their profitability from rice production.

The FFS participant's profitability is incomparably lower than those of demo farmers, however, it has been certainly above the region average and showing gradual up slop. When discussing the cropping pattern for improving profitability, it is necessary to keep the idea that higher yield does not necessarily go in parallel with higher profit. It must be focused on the large gap of market price among rice varieties.

The early maturity varieties and traditional local varieties in less export demand are generally given only low prices by traders. Those prices stay only around 60 % of the

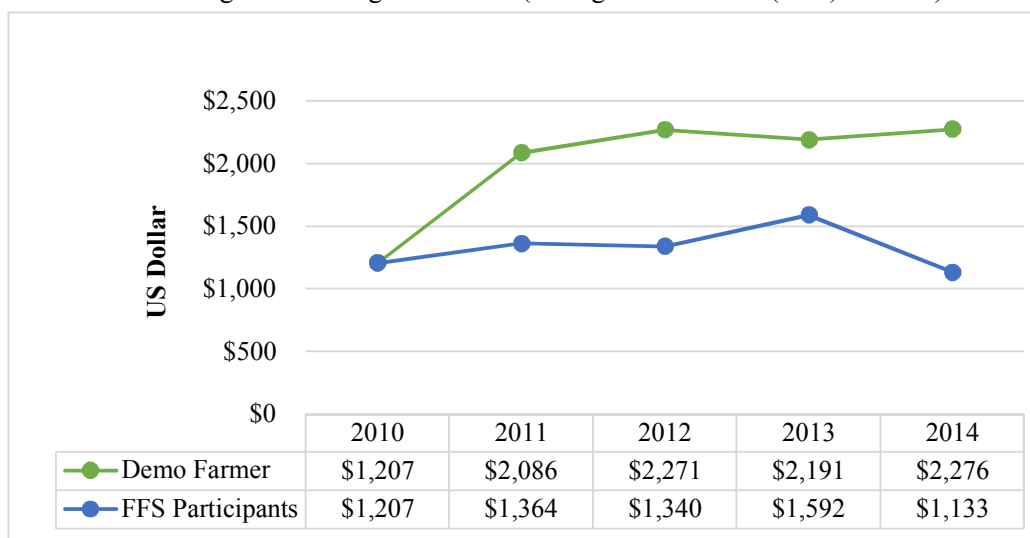
⁴ Survey data by APPP and PDA data

medium maturity varieties with a high market price like “Phka Rumdoul” variety. Therefore, having the same amount of material inputs, costs and labors to obtain the same high yield as aroma rice (medium maturity variety) does not pay the balance in profitability.

Then, the question is that the high price medium varieties is cultivable successfully and regularly every year? The answer is negative on account that those marketable varieties specify the appropriate cultivable timing (month) because of its physiological character and the said period may overlap with the seasonal timing of unfavorable weather phenomena such as drought and flood, and also susceptible to disease. In other word, the medium varieties are severely facing the risk of heavy damage by natural disasters which would cause a drastic yield decrease with lower or no profit.

From this view point, the marketable medium varieties are not necessarily advantageous for cropping all the time. This contradictory phenomenon between the rice growing features and natural conditions is a kind of dilemma for rice production activity in the country.

Figure 2 Change of income (average sales amount(US\$) /hectare)



*Data source: Base line survey in 2010, End line survey in 2011-2014.

*Decline of participant’s income in 2014 was caused by scale down of cultivation areas due to a shortage of water under the long-lasting drought.

4-1-4 Evaluation of participants to the FFS training and technical instruction by the project

According to the End line Survey conducted every year after completion of FFS training, the majority of FFS participants have shown 100 % satisfaction towards the contents of training and technical lecture & instruction by the project (Extension Staff, C/P and

Japanese Experts).

Application of techniques by the participants in the actual rice cultivation practice at their farms, it seems to vary depending on the individual technique, easiness to apply and interest of farmers. Among those, the fertilization techniques was the most eye-catching technique for the participants because that the technique is directly influential to the yield condition.

On the other hand, line planting method was found the least interesting technique for the participants and they showed the passive responses against the actual application even though the project want them to practice positively in light of creating a desirable growth condition inducing overall favorable growth environment for the paddy plants.

The cognition and practice of general farmers on rice cultivation show roughly following features;

- 1) In case of transplanting, the farmers widely believes the wrong theory that planting a large number of seedling (6-8 seedlings or even more) per hill (planting spot) and also randomly planting at many hills with narrow spaces can produce more yield. As a result, they have to use unnecessarily an excessive amount of seed (over 100kg/ha).
(**APPP recommended method requires only less than 40 kg/ha)
- 2) In case of direct seeding (broad casting by hand), they usually broadcast the seeds of 150kg-200kg/ha due to (maybe) considering the bird's bite and germination failure in not small amount.
(** APPP recommendation for use is only 80kg/ha as far as pre seed treatments method is done)
- 3) The farmers simply believe that more chemical fertilizer apply, the more yield could be obtained without knowing the appropriate amount and timing to be applied for producing the max yield.

As mentioned above, it is an ordinary convention for the farmers not to think up how to reduce agricultural inputs efficiently in view of Profit & Cost (P/C) relation, and much less the quality of produced paddy. The most of cases, according to the hearing survey at the FFS sites, the almost all farmers have no knowledge about meaning of chemical components contained in fertilizer products and their functions.

Then, they tend to purchase fertilizers more than necessity as simply obeying the illogical suggestions and advices of the agricultural material shop. With learning

functions of chemical elements, appropriate timing and amount of application through FFS, many of farmers have come to recognize the technological impact in that a less fertilization can produce higher yield. This recognition was also meaningful on account of lessening the production cost for purchasing fertilizers.

One more important aspect they noticed was the amount of seeds to be used, as mentioned above, majority of farmers use a quite large amount of seed for both transplanting and direct broadcasting. And what they learnt was even less than one half of seeds can produce enough paddy if cultivation practice was accompanied with project recommended techniques.

4-1-5 A role of demo farmer as a displayer of the technology to the farmers in the target area

During the 4 years of extension activities, the project designated and set up 302 demo farmers covering 3 provinces of Battambang, Pursat, Kampong Chhnang. Among those, however, not all the demo farmers were able to be a technically key farmer.

As a matter of fact, it was only one half of total number of demo farmers who were judged outstanding in both learning and practicing techniques, and eligible to receive the certificate namely "*Master of improved Rice cultivation technology*". Even though only one half, they are still expected to play a great role as technology base in the area for further technical dissemination.

During 4 years of project period, the total number of related people who visited the demo farmers for the purpose of knowing the rice cultivation techniques have counted nearly 22,000 persons⁵ including neighboring farmers, rice millers, NGOs and others.

⁵ Data source: End line survey, 2,370psn in 2011, 7,516psn in 2012, 6,174psn in 2013, 5,865psn in 2014, Total 21,929 persons.

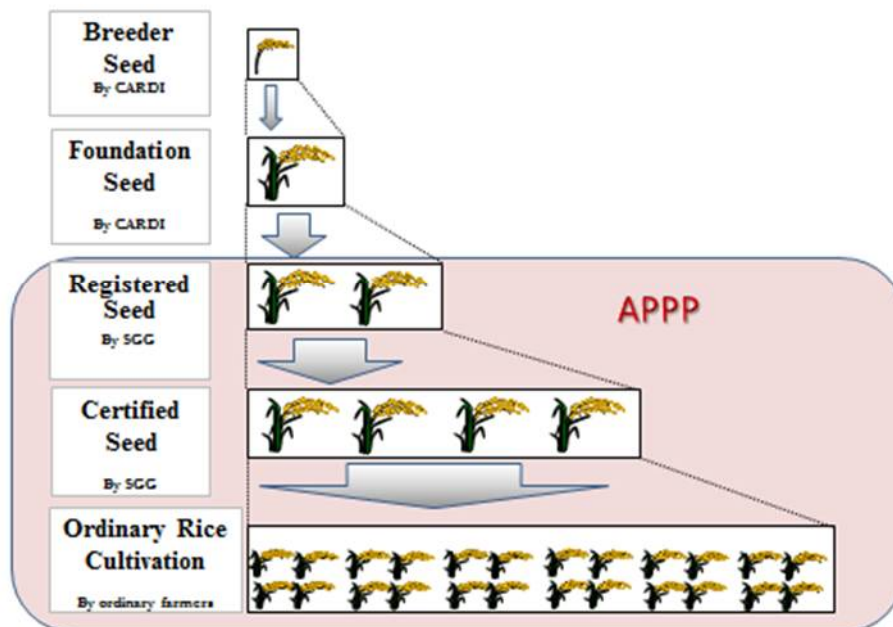
Chapter 5 Seed Production Activities (Output 4)

5-1 Introduction

In the project, rice seed production began in 2011 aiming to increase yield and stabilize paddy rice production by disseminating good quality seed. Seed farmers could get higher income by selling rice seed with high market demand. The Project attained the target production of 100 tons of certified seed and 1 ton of registered seed per annum in 2013.

Rice seeds are produced with special production technique in seed production plots, to maintain specific genetic characteristics of the newly bred varieties. They are categorized in three groups from upper level: foundation seed, registered seed, and certified seed. The Project obtains foundation seed from Cambodian Agricultural Research and Development Institute, CARDI, and produces registered seed at Toulapov Agricultural Center of Provincial Department of Pursat (TAS) and Moung Russei Seed Growers' Group (SGG). Each SGG produces certified seed from the registered seed produced under the Project.

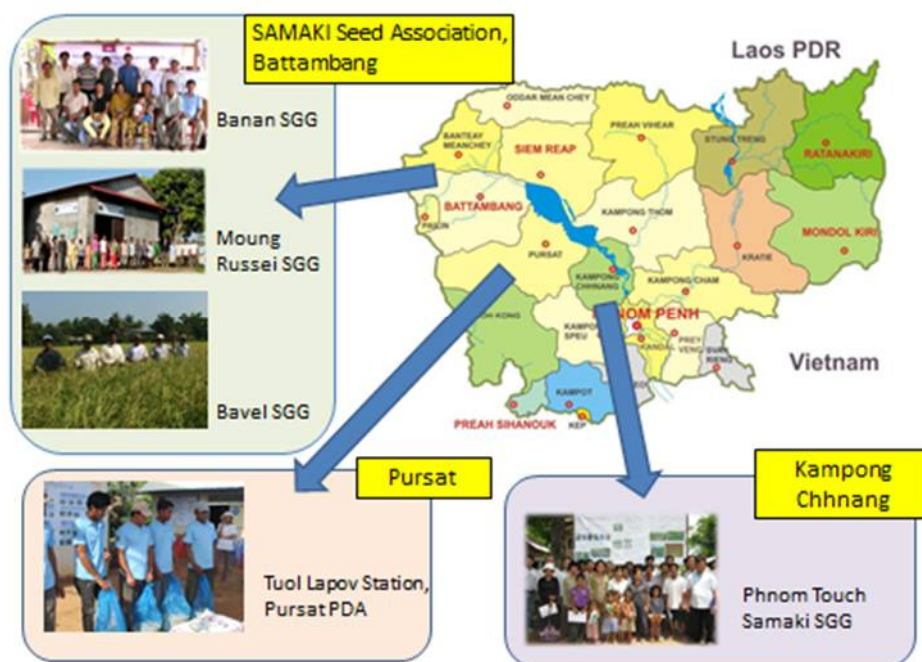
Figure 3 The Rice Seed Production System of APPP



The Cambodian Government has ten recommended rice varieties for extension, and the official rice seed production is limited to those ten varieties. However, the demand

toward Phka Rumduol variety is extremely larger than other nine varieties. That is why Phka Rumduol accounts for about 90% of seed production in the Project.

Figure 4 Seed Growers' Groups in APPP



Three SGGs in Battambang (Banan, Bavel, and Moug Russei) and a SGG in Kampong Chhnang are conducting rice seed production. Some rice farmers have joined TAS in Pursat for seed production since 2014. The three SGGs in Battambang are jointly conducting seed sales activities by using “Samaki (solidarity in Khmer) Seed” brand and the Samaki Seed Committee formed by the representatives of the three SGGs certifies the quality of the seeds produced by the three SGGs. The seeds produced by TAS and Kampong Chhnang SGG are certified by TAS and Kampong Chhnang SGG respectively.

Table 8 List of Officially Recommended Rice Varieties in Cambodia

Early Maturing Varieties	Middle Maturing Varieties	Late Maturing Varieties
IR66	Phka Rumduol	Riang Chey
Chul'sa	Phka Rumdeng	CAR4
Sen Pidao	Phka Romeat	CAR6
	Phka Chan Sen Sar	

Table 9 Rice Seed Production by Year in the Project Period

Classification/ Year	2011	2012	2013	2014
Certified Seed	94.0	81.7	110.8	94.3
Registered Seed	3.3	3.3	4.4	2.6

*Total Annual Rice Seed Production

In 2013, the Project achieved the target certified seed production of 100 tons per annum. Despite of fluctuated production, this could be achieved because planned production was set including 10% surplus. However, unstable weather conditions made rice seed production difficult every year. Other physical and social factors, such as limited availability of irrigation water and decreased number of seed growers, affected the Project to achieve the target production.

5-2 General Achievements in 2014

The main achievements accomplished by activities of the Expert were as follows:

(1) Monitoring and Technical Support to Field Inspection

A signboard is displayed for each seed production plot to clearly differentiate from ordinary paddy fields. Field inspection and product inspection were conducted to secure seed quality. Growth survey was conducted to judge timing and amount of fertilizer application. Yield survey was conducted at maturity stage.

(2) Monitoring and Technical Support for Product Inspection

Moisture content, good grain ratio, and germination rates were checked after harvesting as part of quality control. Although adjusting right moisture content of paddy is important, excessively rapid drying should be avoided to maintain good seed quality. Proper advice was given to maintain thick layer of paddy (approximately 10 cm) in drying yard.

(3) Public Relations for Sales Promotion of Quality Rice Seed

PR activities were conducted to promote brand names of rice seed produced by the SGGs. High quality of their rice seed was publicized so that they could sell the produce in more favorable sales conditions. The production process of the seed was informed to general rice farmers in the region and necessity of renewal of rice seed was disseminated to create more demand through TV, radio, and newspapers.

(4) Extension of Effective Sales Method of Quality Seed

In the 2013 wet season, sales contract was signed between the three SGGs of Battambang and a rice miller for the first time in the Project. In 2014, the three SGGs successfully made sales contracts with rice millers. The expert and counterparts assisted the SGGs contact rice millers and seed companies for sales promotion.

(5) Monitoring of Management and Accounting of SGG

A monitoring format was made to monitor activities of SGGs namely rice cultivation schedule, FFS, and field inspection. Operation and management of machinery and equipment were checked from time to time in such occasions as FFS and field inspections. Appropriate methods of management were advised on machinery and equipment by the expert and counterparts. Proper accounting records of the SGGs were kept for each cropping season and the accounts were settled at the end of the year. The settlement of accounts was reported at the Annual Seed Production Meeting with annual seed production report and production plan of next three years.

(6) Data Collection and Analysis of Seed Production Activities

Monitoring data of seed production activities were handled in an integrated manner by using the monitoring format. Monitoring meetings were held on monthly basis because seed production activities take place throughout the year including seed preparation and postharvest processing. Counterparts and extension officers in charge of seed production were invited to the monthly monitoring meetings. At the end of year, all monitoring data were compiled and analyzed to make use of them for next year.

5-3 Rice Seed Production in 2014

5-3-1 Rice Seed Production in 2014 Dry Season

In the 2014 dry season, Banan SGG conducted seed production by using stagnant water in canals, as renovation work is underway in Kamping Puoy Dam. The dry season cultivation started in the middle of February in 3.1ha of seed production plots with Chulsa variety. Harvesting finished in June to get 7.3 tons of seed. Although some stagnant water was available for irrigation at the beginning of the season, it became difficult to get water after middle of the season.

Throughout the cropping season, no serious insect and disease damage was observed. However, rats attacked rice plants at ripening stage and that resulted in decreased yield. Although the seed production plots were managed in a proper way, there were some poorly managed other ordinary rice fields where a lot of weeds were observed. It is necessary to disseminate the idea of thorough weeding to not only to SGG farmers but also non-SGG farmers as weeds could be transmitted from ordinary rice fields to seed

plots. The same idea should be applied to other pests and diseases as well.

Table 10 Rice Seed Production in 2014 Dry Season

SGG	Area (ha)			Production (tons)	Yield/ha (tons)
	Planned Area	Planted Area	Passed Area		
Banan	3.8	3.6	3.1	7.3	2.3

Table 11 FFS conducted in 2014 Dry Season

No.	1		2		3		4		5		Total	
Contents	Seed selection & Disinfection		Transplanting : Planting Density & Number of Seedlings		Top Dressing 1: Appropriate Amount of Fertilizer		Top Dressing 2 : Judging Timing of Top Dressing		Harvesting		No. of FFS	Partici pants
Date/ Participan ts	Date	Partici pants	Date	Partici pants	Date	Partici pants	Date	Partici pants	Date	Partici pants	No. of FFS	Partici pants
Banan	1/30	6/6	2/28	6/6	3/17	6/6	4/7	4/6	6/10	5/6	5/5	27/30

Table 12 Field Inspection in 2014 Dry Season

No.	1		2		3		4		5		Total	
Timing	Nursery		30 days after transplanting		Heading		Maturity		Postharvest		No. of Inspections	No. Passed
Date/ Number Passed	Date	No. Passed	Date	No. Passed	Date	No. Passed	Date	No. Passed	Date	No. Passed	No. of Inspections	No. Passed
Banan	2/21	6	3/26	6	5/9	6	4/7	6	5/26	6	5/5	30

5-3-2 Rice Seed Production in 2014 Wet Season

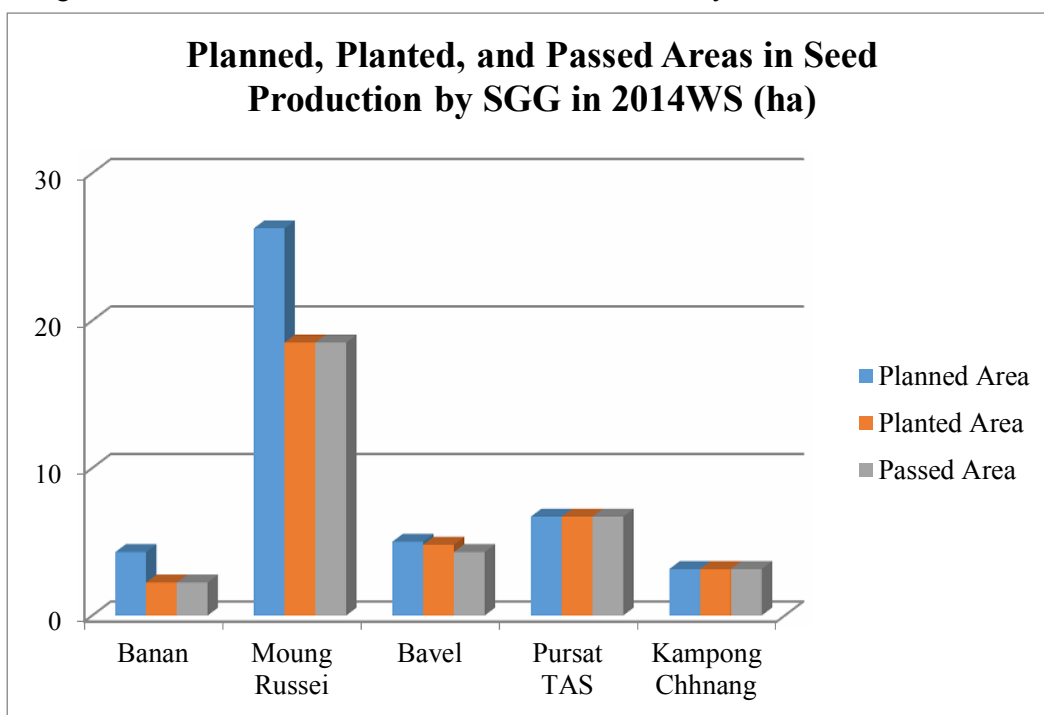
Outline

In the 2014 wet season, four SGG and Pursat TAS produced rice seed. Although planned seed production area was 41.4 ha as a total of the four SGG and TAS at the end of June, actual planted area remained 36.4 ha due to drought. A total of 35.9 ha passed field inspection and product inspection. The pass rate in planted area was 98.6% and the total production of seed was 87.0 tons.

From June to August in this wet season, the amount of rainfall was extremely low, especially in Battambang Province, and many SGG members missed chances of sowing and transplanting. The main variety for seed production, Phka Rumdoul, is a medium

maturing variety that could show low yield when it is planted later than mid-August. This is because growth period from transplanting to heading (vegetative growth period) was shorter than normal growth period and enough volume of growth could not be attained for a short period of time. Therefore, many seed farmers were forced to give up growing Phka Rumdoul and eventually seed production itself without alternative varieties to plant.

Figure 5 Planned Area, Planted Area, and Passed Area by SGG in 2014 Wet Season



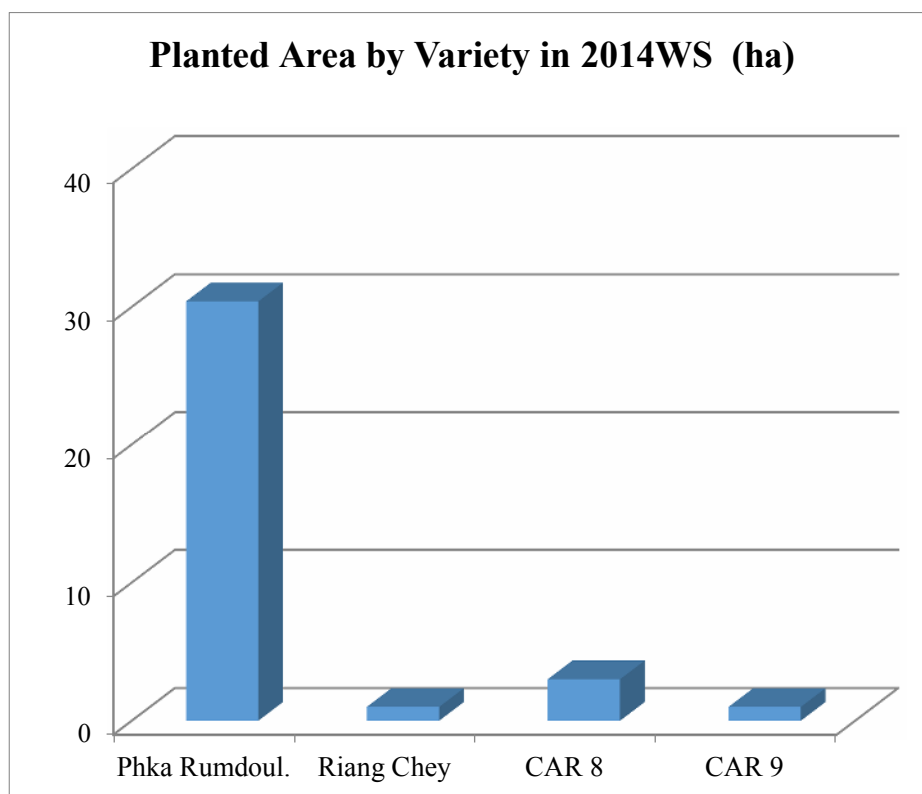
Moung Russei SGG is the most seriously affected group by drought. Around a half of the group members sowed rice seed in the end of June as usual, but it was impossible to plow and puddle their paddy fields as there was no water in canals and paddy fields. In early August, some member farmers started soil puddling and transplanting by pumping up water from Moung Russei River through irrigation channels. The extremely dry conditions continued even after that and seedlings in nurseries and paddy fields were to dry up. The Project supported part of fuel costs for pumping up water as an emergency measure for the SGG.

Planted Area

The planted area of Phka Rumdoul was 30.4ha which accounts for 86% of the total planted area; registered seed was produced in 1 ha and the rest of the area was for certified seed. The three varieties of Rieng Chey, CAR8, and CAR9 were produced as certified seed and the total planted area was 5 ha. As mentioned earlier, the market

demand of rice concentrates on Phka Rumdoul among ten officially recommended varieties and this variety eventually accounts for nearly 90%.

Figure 6 Planted Areas by Variety in 2014 Wet Season

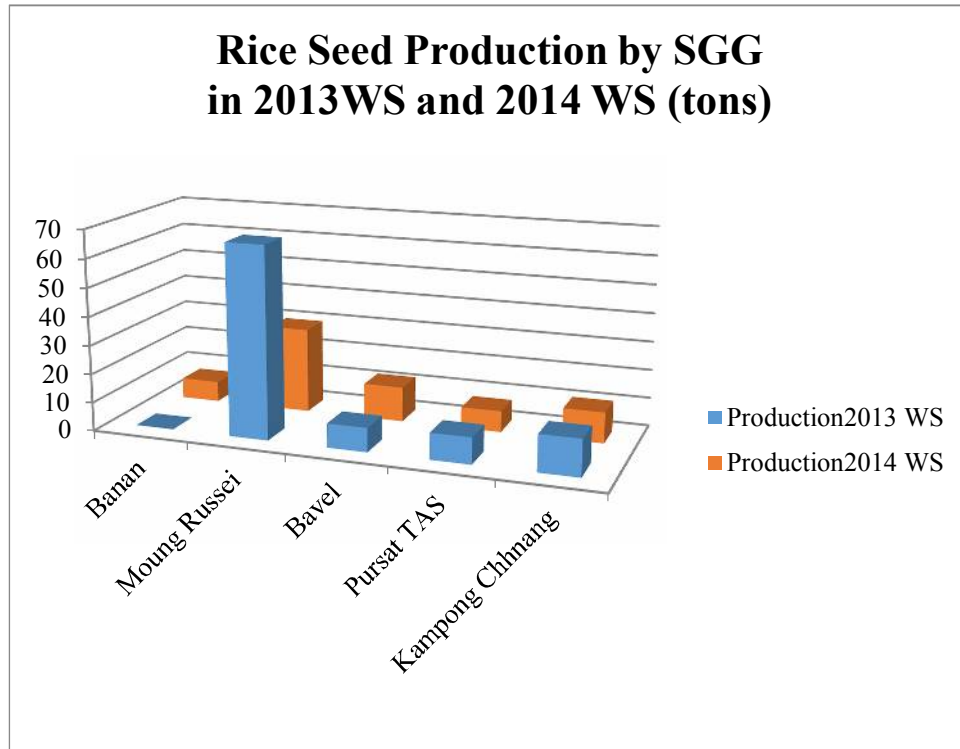


In 2014 wet season, a seed production plot failed to pass the final field inspection in Bavel because of rice blast. The variety planted was Phka Rumdoul and the rate of this variety in the Passed Area is 86%. Apart from ten officially recommended varieties, there are some other rice varieties in the Cambodian market and among the rice farmers. However, the Project is not supposed to produce seeds of such rice varieties.

Amount of Seed Production

The amount of certified seed production was 87.0 tons in 2014 wet season, and this is 90% of the amount of certified seed production in 2013 wet season. The amount of registered seed production was 2.6 tons. As mentioned earlier, low precipitation between June and August caused decreased yield of rice seed, especially in Battambang.

Figure 7 Amount of Rice Seed Produced by SGG in 2013 Wet Season and 2014 Wet Season



The factors for decreased yield are considered as follows:

(1) Insufficient Growth of Rice Plants by Late Planting

The harvest time of Phka Rumdoul does not change much even if transplanting is carried out late. This is because flower bud initiation takes place by photoperiodic response. In this wet season, the growth period of rice from transplanting to heading (vegetative growth period) was relatively short compared with normal growth period. As a result, sufficient growth of rice plants, such as number of tillers and accumulated amount of carbohydrate, was not able to attain for higher yield.

(2) Transplanting of Old Seedlings

Seedlings were transplanted late, sometimes two months old compared with three weeks in normal years. Such aged seedlings have less ability of tillering and this resulted in insufficient number of tillers and number of panicles at later growth stage.

(3) Growth Delay by Water Shortage

In extensive areas in Battambang Province, severe drought occurred after transplanting

to crack soil surface. The drought caused growth delay of rice plants and disruption of nutrient uptake by root cutting as a result of soil cracks.

Farmers Field School (FFS)

Table 13 Farmers Field School (FFS) for Rice Seed Production in 2014 Wet Season

Time	1		2		3		4		5		Total	
Contents	Seed selection & Disinfection		Transplanting : Planting Density & Number of Seedlings		Top Dressing 1: Appropriate Amount of Fertilizer		Top Dressing 2 : Judging Timing of Top Dressing		Harvesting			
Date/ Participants	Date	Participants	Date	Participants	Date	Participants	Date	Participants	Date	Participants	Number	Participants
Banan	6/16	6/6	7/18	6/6	8/12	4/6	9/25	5/6	11/20	5/6	5/5	26/30
Moung Russei	6/23	29/30	8/6	12/30	8/21	19/30	9/29	12/30	12/18	16/30	5/5	88 /150
Bavel	7/14	7/9	8/14	7/9	9/4	8/9	10/1	5/9	12/9	6/9	5/5	30/45
TAS	6/6	7/7	7/17	7/7	8/20	7/7	9/27	7/7	12/1	7/7	5/5	35/35
Kampong Chhnang	6/11	13/13	7/2	8/13	8/6	11/13	9/16	11/13	10/30	10/13	5/5	53/65
Sub-total	—	62/65	—	40/65	—	49/65	—	40/65	—	40/65	25 /25	231 /325

All SGG conducted five FFS in the season. The number of participants declined because some SGG members were forced to give up seed production due to drought. As a result, the overall attendance rates were relatively low.

Field Inspection

All SGG conducted field inspection as planned. A member farmer could not transplant seedlings due to drought and another member failed to pass because of rice blast in Bavel SGG. All samples passed the product inspection.

Table 14 Field Inspection in 2014 Wet Season

No.	1	2	3	4	5	Total
Timing	Nursery	30 days after transplanting	Heading	Maturity	Postharvest	

Date/ Number Passed	Date	No. Passed	Date	No. Passed	Date	No. Passed	Date	No. Passed	Date	No. Passed	
Banan	7/8	4/4	8/19	4/4	10/27	4/4	11/12	4/4	Nov.- Dec.	4/4	5/5
Moung Russei	7/9 – 9/1	21/21	9/16 10/7	21/21	10/30	21/21	11/17	21/21	Nov.- Dec.	21/21	5/5
Bavel	8/4 – 8/20	8/8	10/6	7/8	11/11	7/8	11/20	6/8	Dec.	6/8	5/5
TAS	7/26	7/7	9/5	7/7	10/27	7/7	11/8	7/7	Nov.- Dec.	7/7	5/5
Kampong Chhnang	6/25– 7/4	13/13	7/25	13/13	10/27	13/13	11/1	13/13	Nov.- Dec.	13/13	5/5
Sub-total	—	53/53	—	52/53	—	52/53	—	51/53	—	51/53	25/25

5-4 Summary of Rice Seed Production in APPP

Some major events in seed production activities are for records as follows:

The Conditions of SGGs at the beginning of APPP

APPP supported the three SGGs of Battambang from the beginning of the Project in 2010 in terms of seed production technique and enhanced management of SGGs. Although Moung Russei and Bavel SGGs had experience in rice seed production with assistance of other projects prior to APPP, they did not have basic facilities and equipment necessary for rice seed production. Inspections for seed production fields and final products were not conducted and quality of seeds produced was not necessarily satisfactory.

For this reason, they had not reached a point to get positive valuation from the market. Meanwhile, some farmers in Banan learned basic technique for rice seed production from the previous JICA assisted agricultural project. However, they had not started activities as a SGG.

Variety Selection for Good Quality Rice Seed

A variety trial was conducted with ten officially recommended rice varieties at KADC of Battambang PDA in 2011 wet season, and at Pursat TAS and Kampon Chhnang SGG in 2012 wet season. The ten varieties were examined with Phka Rumdoul as a control variety especially for maturity. As a result, maturity periods from sowing to harvesting were identified as 102-117 days for early maturing varieties, 143-168 days for medium

maturing varieties, and 176 – 178 days for late maturing varieties. Chulsa variety, one of early maturing varieties, showed less than 100 days of growth period depending on growth conditions. Although Phka Chan Sen Sar is one of medium maturing varieties, this variety could require the longest growth period among officially recommended four medium rice varieties and is close to late maturing varieties in terms of maturity.

At the beginning of the Project, all seeds of officially recommended rice varieties were produced as registered seed to promote those varieties. The Project focused on Phka Rumdoul in response to market demands later. However, such non-photosensitive varieties as IR504 and Sen Kro Ob are gaining popularity among rice farmers, and a subsidiary seed company of the Cambodian government (AQIP) is selling the seeds of those varieties. The Project kept eyes on the market trend of rice seed.

Formulation of Rice Seed Production Standard

At the beginning of the Project, Rice Seed Production Standard was formulated in consultation with CARDI. The MAFF of the Cambodian government has been working toward formulation of the standard. The work is still undergoing at the end of the Project. When the Rice Seed Production Standard is finalized by the MAFF, the new standard will be applied for SGGs. The present Rice Seed Production Standard of APPP includes “Filled Grain Ratio” as an original item of the Project.

Training for the Counterparts, Extension Staff and Farmers

At the beginning of the Project, training was conducted aiming to learn basic rice seed production technique for project counter parts and extension staff. After the training, Farmers Field School (FFS) was conducted for SGG members by the counterparts and extension staff as instructors. FFS was conducted five times each cropping season until the end of the Project, and the fifth training was called Farmers Field Demonstration, FFD, as it is mainly demonstration. In 2013 and 2014, more specific training was conducted as growth survey, soil and fertilizer, and pest control on occasions of monthly monitoring meetings.

Provision of Facilities and Equipment

Dry yard is necessary to dry seed paddies to 13% moisture content as specified in the rice seed production standard of APPP. The Project helped the SGGs and Pursat TAS construct dry yards and seed stores as storage facilities after postharvest processing. Although the store construction began in Bavel assisted by the Cambodian government before the commencement of the Project, it was suspended before the construction work was completed. The Project provided construction materials to the SGG and they completed the work with the members’ labor contribution. Banan and Moung Russei SGGs built seed stores with material provided by the Project and labor contribution of their members.

For Kampong Chhnang SGG, the construction work of rice store was ordered to a construction company and it was completed in 2013. The warehouse of Pursat TAS was renovated because the wooden building was aging. Such equipment was provided to the SGGs as threshing machine with diesel engine, winnower with electric motor, weighing scale, grain moisture meter, and filled bag closing sowing machine.

Sales Promotion of Rice Seed

In 2011, the Expert and counterparts in charge of seed production visited some twenty rice millers in Battambang Province with representatives of SGGs for sales promotion of rice seed produced by the SGGs. Most of the rice millers did not accept the offered price of rice seed by the SGGs at 2,400 riel/kg, insisting that it was too high. However, the three SGGs of Battambang succeeded to sign a sales contract with a rice miller in the province in 2013.

In 2013, some radio programs and commercials were broadcasted aiming to disseminate the idea of seed renewal and promote rice seed sales in Battambang province. This made SGGs become known better in the region and number of telephone inquiries increased even from outside of the province. Radio broadcasting continued in Battambang and extended to Pursat and Kampong Chhnang provinces in 2014 to further dissemination of rice seed renewal and sales promotion. In addition, media reporters were invited to such occasions as FFS and other training opportunities to be reported on TV and newspapers.

During the Project period, publicity was given high priority; installation of signboards for SGGs, distribution of posters and leaflets are other examples of efforts for increasing public awareness on rice seed produced by the SGGs.

5-5 Acceptance of Visitors

The achievement of acceptance of visitors by SGGs and TAS in rice seed production is shown in the following table.

Table 15 Number of Visitors and Trainees from 2012 to 2015

	2012	2013	2014	2015	Total
Visitors	70	184	75	N/A	329
Trainees	23	251	31	125(*)	430
Total	93	435	106	125	759

*In 2015, expected 80 trainees in July and August are included.

- The Minister of Agriculture and the Japanese Ambassador visited the Project sites.
- The visitors were also from MAFF HQ and related organizations, PDA, faculty of agriculture of university (students), media reporters, and NGOs.
- The trainees were farmers under NGOs from Battambang and other provinces, cooperatives, and farmers under TAS.

Chapter 6 Distribution Improvement Activity (Output 5)

6-1 Outline of the Distribution Improvement Activity

The core activities in the project component of distribution improvement (Output 5) was pilot activities to help farmers in the target three provinces improve rice production and sales by organizing them into groups. Farmer groups, the direct beneficiaries of the activity, are called “pilot groups (:PGs) and the project has supported a total of 15 PGs.

Table 16 Pilot Groups Targeted by the Project (As of February 2015)

No	Code	District/City	Commune /Sangkat	Village	Year	No. of Members	Size of Target Farmland (ha)		
							Ave./ member	Total	
1	PG1	Banan	Phnum Sampov	Kdoang	2012	18	1.0	18.0	
2	PG2	Banan	Ta Kream	Thmey	2013	19	0.5	9.5	
3	PG3	Battambang	Ou Mal	Dak Sasor	2013	18	0.5	9.0	
4	PG4	Bavel	Bavel	Svay Chrum	2013	11	0.5	5.5	
5	PG15	Sangkae	Vaot Ta Moem	Slar Krarm	2013	20	0.5	10.0	
Battambang Province (5 groups)						(Sub-Total)	86	0.6	52.0
6	PG5	Bakan	Snarm Preah	Andong Krasarng	2012	23	0.5	11.5	
7	PG6	Bakan	Snarm Preah	Bak Pring	2013	15	0.5	7.5	
8	PG7	Bakan	Snarm Preah	Thnos Tacharb	2013	20	0.5	10	
9	PG8	Bakan	Snarm Preah	Khmar	2013	20	0.5	10	
10	PG9	Bakan	Snarm Preah	Roung	2013	15	0.5	7.5	
11	PG10	Bakan	Boeng Khnar	Doem Chresh	2013	17	0.5	8.5	
12	PG11	Bakan	Boeng Khnar	Kandoeng Meas	2013	10	0.5	5	
13	PG12	Pursat	Lolok Sar	Chumrum Siem	2013	18	0.5	9	
14	PG13	Pursat	Lolok Sar	Khmar	2013	13	0.5	6.5	
Pursat Province (9 groups)						(Sub-Total)	151	0.5	75.5
15	PG14	Rolea B'ier	Pongror	Trapeang Chong	2013	18	0.3	5.4	
Kampong Chhnang (1 group)						(Sub-Total)	18	0.3	5.4
Total (Three Provinces, 15 groups)						255	0.5	132.9	

The 15 groups are composed of five groups in Battambang, nine in Pursat and one in Kampong Chhnang (Table 16). The total number of the group members at the end of the project period was 255 farmers, and the target farmland size was approximately 133 ha in total. The land size per member was 1.0ha in a group (PG1) in Battambang, 0.3ha in a group (PG14) in Kampong Chhnang and 0.5ha in the other 13 groups.

Based on experience and lessons from the pilot activities, the project has continuously

considered and examined “effective ways (:PDM activity 5-2)” of supporting rice farmer groups’ production and sales. The group-based approach to supporting rice farmers was finally presented in a guideline and shared with the stakeholders including MAFF by organizing a seminar (:PDM activity 5-3).

The schedule and outline of each activity implemented in this project component are presented below.

Table 17 Schedule of the Distribution Improvement Activity (Output5)

Major activities	2012	2013	2014	2015
1) Rice Distribution Study	■	■		
2) Pilot Activities	■	■		
• Group Formation	■	■		
• Support for groups' activities	■	■	■	■
• Final Workshop				■
3) Preparation & Distribution of the Guideline			■	■
4) Final Seminar				■

1) Rice Distribution Study (2012)

- Study by a short-term expert (February 2012):

A short-term expert was dispatched to study rice production and distribution in the target area through interview with five rice millers and rice farmers at two sites. Based on the findings from it, the project has come to decide on how to organize and support PGs in 2012⁶.

- Rice Distribution Study (from June to October, 2012):

A long-term expert and his counterpart staff in PDA carried out an additional study on rice production and distribution in the target area by interview with 24 rice millers, 4 middlemen and rice farmers at 24 sites. Based on the findings presented in the study report, the project reviewed and revised its method to organize and support PGs in 2013⁷.

2) Pilot Activities (2012-2015)

- Formation of Two Pilot Groups (from February to April, 2012):

In 2012, the 1st year of the pilot activities, the project newly organized two PGs: one group (PG1) in Battambang and another (PG5) in Pursat. At the outset of the group formation process, the project first selected two promising sites among its FFS demo sites covered by its extension activities (Output 3) in the previous year. Neighbor

⁶ See Noriko Ishibashi (2012) “Implementation Report for Short Term Expert: Farmer Organization Strengthening Support”

⁷ See APPP (2012) “Rice Distribution Study Report”

farmers interested in group activities were then invited to join meetings with the project, where group member selection, discussion and agreement on group bylaws and selection of the group representatives were carried out.

- Support for collective activities by two groups (from May 2012 to January 2013) :
 In wet season 2012 the project started to help two groups carry out collective activities in three areas: 1) rice production; 2) marketing and sales and 3) organization and group-fund management. An extension staff assigned to work for each group. For rice production, the project provided FFS training and monitored each member's farming practice to improve the quality and quality of their produce. As for rice sales, according to the rules for group activities, the members were required to share market information each other and practice collective sales and shipping with support from the project. As for organization management, the project introduced a group fund system into each group to enable the members purchase necessary farm inputs (fertilizers and seeds) without relying on external loans with high interest rate (Refer to 6-2-3).
- Formation of 13 Pilot Groups (from December 2012 to February 2013):
 In 2013, the 2nd year of the pilot activities, the project additionally organized 13 PGs. The project revised approach to group formation; the project first selected target villages according to several criteria including rainfall amount and access to market. To prevent specific persons within the villages from monopolizing opportunities to gain project support, it introduced an application-based system in which any farmers can have equal opportunity to apply for the project by organizing themselves into a group.

Figure 8 Process of Pilot Group Formation (2013)



Among all of the application from them, the project selected candidate groups that

meet the criteria. The project and the applicants then had several meetings for group formation to confirm the conditions and rules of group activities, set up group bylaws and select the group representatives. Finally, farmer groups that have agreed on every condition were officially entitled to become the target group of the project.

- Support for collective activities by 15 groups (from March 2013 to January 2014) :
In wet season 2013, the project started its support for the 13 groups. Including the existing two groups, it helped a total of 15 PGs' collective activities in the three areas. For marketing and sales, all of the group members attempted to produce and sell Phka Rumduol, a highly-demanded fragrant rice variety promoted by the government of Cambodia as one of the 10 recommended varieties.

To enable the members understand rice buyers' needs in general and also to increase recognition as the groups of quality fragrant rice production, the groups visited local buyers (rice millers). On the other hand, based on lessons learnt from the experience in the 1st year, the project avoided encouraging groups to practice collective sales and shipping.

With regard to the organization management, a meeting to discuss and agree on group's annual action plan was newly introduced into the group's regular activity. The payment of membership fee and interest, accounting book keeping, opening group's bank account are added as new rules of the group fund system. The project provided training on bookkeeping for accounting staff of each group, too.

- Continued Support for collective activities by 15 groups (from March 2014 to January 2015) :
In 2014, the 3rd year of the pilot activities, the project continued supporting 15 PGs. To improve their group fund management, training on bookkeeping was repeated.

With regard to rice production, a training session on the use of drum seeder was added to the FFS curriculum. For four groups that were seriously affected by the outbreak of disease (rice blast) and insects (rice thrip), Japanese experts directly provided a special training on the countermeasures for them.

For marketing and sales, each group was allowed to choose any rice varieties other than Phka Rumduol, given the fact that there could be varieties that can be sold at higher price than the variety recommended by the government. In addition, the project suggested the groups to practice sales promotion activities by using advertisement (posters, leaflets and signboards). It also conducted its own campaign for advertising the groups' products through radio broadcasting and website.

- Final Workshops (February 2015) :

At the end of the project period, each group held the final workshop to discuss and agree among the members their future plans.

3) Preparation and Distribution of the Guideline (2014-2015)

Based on experiences and lessons from the pilot activities, the project finally developed the “Guidelines on a Group-based Approach to Supporting Rice Farmers”. In February 2015, a total of 1,400 copies were printed and distributed as a reference for officers in MAFF and NGOs for the formation and implementation of similar project (For details, see 7-3).

4) Final Seminar (January 2015)

In January 2015, the project conducted a seminar titled “the wide area extension of the intensive rice cultivation technology”, inviting various stakeholders from major rice production area in 10 provinces, including APPP’s target three provinces. The project made a presentation on the outline of the above-mentioned guideline together with the other technical manuals produced by the project (See 7-3 for details of the seminar).

6-2 Major Outputs of the Distribution Improvement Activity

The followings are the major outputs of the pilot activities.

6-2-1 Rice Production Activity by Pilot Groups

1) Collective Purchase of Agricultural Inputs (Seeds and Fertilizers)

One of the outputs expected to the project was to promote “collective purchase of agricultural inputs” by groups (: PDM indicator 5-2). In 2013, two groups (PG1 & PG5) collectively purchased rice seeds and chemical fertilizers by using their reserves in the group fund, and so did 14 groups in 2014. The main sources of the seeds were seed growers groups (:SGGs) supported by the project in Battambang and Kampong Chhnang.

Only one group (PG4) in Battambang never practiced collective purchase of the inputs as they had to rely on input provision from the project for two consecutive years because of the shortage of their fund resulted from serious damage by floods in 2013.

2) Participation in Farmers Field School (: FFS)

During wet seasons from 2012 to 2014, the project carried out the “Farmers’ Field School (:FFS)” for each PG. A demo farmer was selected from each group and his/her

premises and farmland were used for training and the demonstration of rice cultivation techniques recommended by the project.

The outline of the FFS for PG is as shown in the table below. The purpose and contents of the final session, Farmers Field Day (: FFD) were changed from those of the ordinary FFD of the project FFS. The FFD for the PGs aimed at sharing production and sales results, practicing cost-benefit analysis and discussing next season's plan among the group members.

The curriculum of FFS in 2012 and 2013 aimed at training PG members on line-transplanting method. In 2014, however, a session on the use of drum seeder was added to it as an additional or alternative session (Some groups have taken FFS2 twice: one for line-transplanting and the other for drum seeder).

Table 18 FFS for Pilot Groups

Session	Main Contents (Techniques)	
	Transplanting	Drum Seeder (direct sowing)
FFS1	Seed selection, seed disinfection by hot water, nursery bed making (only for transplanting method), land leveling	
FFS2	Transplanting (line-transplanting, planting 21-day seedlings, appropriate planting density)	Use of drum seeder
FFS3	Top dressing (1st: appropriate amount of fertilizers)	
FFS4	Top dressing (2 nd : appropriate amount of fertilizers, identifying panicle initiation)	
FFD	Sharing production and sales results, cost & benefit analysis, plan of the next season	

The PG members were obligated to join every FFS session to learn the recommended techniques, and most of them actively kept attending the training. In 2014, however, a training session (FFS4) was cancelled at a group's site (PG15) because of serious water shortage, and the actual FFS attendance rate has turned out to be 82% on average, down from the previous season (90%).

As observed in 2013, the attendance rate was remarkably low (around 60%) in some groups in Battambang. It says that the absence was largely owing to pressure of business such as farm work, meeting or ceremonies in their village. But this could also be attributed to weak motivation of the members, weak leadership, the influence of floods and dry spells hit the province, and the problem of counterpart and extension staff (:a long absence due to disease, accident or business trip; lower motivation and capacity; and lack of communication or coordination with group members).

Table 19 FFS Attendance by Pilot Group Members by Province (2012-2014)

Province	2012		2013		2014						
	Total	Ave.	Total	Ave.	FFS1	FFS2	FFS3	FFS4	FFD	Total	Ave.
Battambang	50	10 (100%)	314	63 (83%)	80 (91%)	84 (73%)	53 (60%)	45 (87%)	76 (88%)	338	66 (77%)
Pursat	113	23 (100%)	628	125 (93%)	149 (99%)	187 (74%)	111 (74%)	128 (98%)	139 (92%)	714	126 (84%)
Kampong Chhnang	-	-	76	15 (95%)	18 (100%)	18 (100%)	15 (83%)	13 (88%)	14 (78%)	78	15 (87%)
Total/Ave.	163	33 (100%)	1,018	204 (90%)	247 (97%)	289 (75%)	179 (70%)	186 (93%)	229 (90%)	1,130	208 (82%)

*In 2014, seven PGs held FFS2 two times (for transplanting and drum seeder, respectively). The number of the participants of FFS2 indicated is the sum of the two sessions, the attendance rate is the average of them.

As regards the satisfaction level of the members in terms of the training, 99% of the members (No. of respondent: 240 members) are satisfied with it in 2014. This result suggests that the significance of the training was recognized by most of the PG members.

3) Adoption of the Recommended Rice Cultivation Techniques

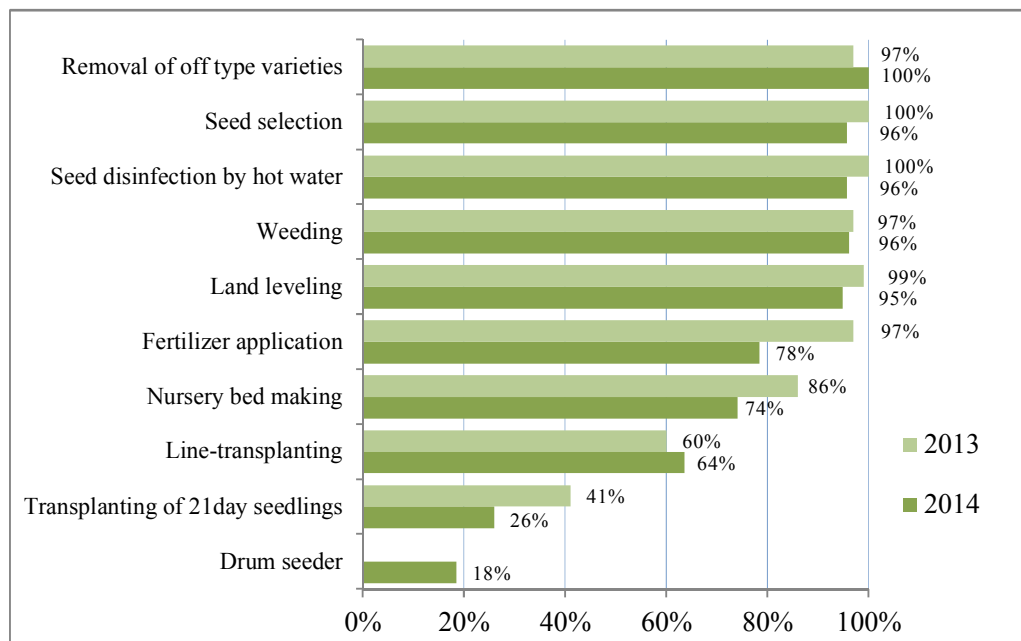
When the PG members joined their group, they agreed to adopt all of the rice cultivation technologies recommended in the FFS in the fixed size of farmland. Increased number of the groups who produce rice under a standard technical procedure is one of the outputs expected to the project (: PDM indicator 5-2).

Figure 9 shows the actual technique adoption rate of the members in 2013 and 2014. “Seed selection (96%)” and “seed disinfection by hot water (95%)” were practiced by almost all of the members.

Although the other techniques such as “removal of off type varieties (100%)” “weeding (96%)” and “land leveling (95%)” also seem to be adopted by a high proportion of the members, extension staff who have inspected their farmlands have identified problems in many members’ practice. Their technical levels seem to be far below the project’s requirements.

The rate of adoption of “fertilizer application” and “transplanting of 21 day seedlings” dropped down significantly due mainly to water shortage in farmland, which made it difficult for many members to practice the techniques as planned.

Figure 9 Adoption of the Techniques by Pilot Groups (Wet Season 2013 & 2014)



“Line transplanting” also shows a low adoption rate (64%). This is largely affected by non-technical constraints such as “line-transplanting requires high labor cost (: economic constraints)” and “transplanting at required timing was impossible due to water shortage in the field (: environmental constraints)”. In the case of drum seeder use, too, almost a half of the members who had planned to use the equipment could not make it because of water shortage in 2014.

4) Average Paddy Yield (t/ha)

The PGs were negatively affected by a dry spell in 2012 (mainly in Pursat) and floods in 2013 (in Battambang). In 2014, crop damage was again caused by a dry spell widely in three provinces, but fortunately all of the 255 PG members could at least complete rice harvest, although some could gain just a little.

The average paddy yield was 3.2 t/ha, almost at the same level as the previous year. Though slightly below the project target (3.5 t/ha: PDM indicator 2), it is by 16% higher than the project baseline (2.75 t/ha, 2010). By province, Battambang was the most severely affected by the dry spell and recorded the worst average yield (2.9 t/ha).

The yield gaps among PG members have widened, ranging from 0.9t/ha to 5.8t/ha. However, 36% of the PG members have achieved the yield higher than the project target (3.5t/ha) and therefore not a few members were satisfied with good harvest.

Table 20 Average Paddy Yield of Pilot Groups (2012-2014)

(Unit:t/ha)

No.	Group Code	District/City	2012	2013	2014	*Rice Variety(2014)
1	PG1	Banan	3.4	3.8	3.8	Phka Rumduol
2	PG2	Banan	-	2.0	2.8	Phka Rumduol
3	PG3	Battambang	-	2.6	2.5	Phka Rumduol
4	PG4	Bavel	-	2.5	2.4	Phka Rumduol, Sen Kro Ob
5	PG15	Sangkae	-	2.6	2.9	Phka Rumduol
Battambang (5 groups)			3.4	2.7	2.9	
6	PG5	Bakan	2.4	3.6	3.3	Phka Rumduol
7	PG6	Bakan	-	3.9	3.4	Somaly
8	PG7	Bakan	-	3.3	3.8	Somaly, Phka Rumduol
9	PG8	Bakan	-	2.8	2.2	Phka Rumduol
10	PG9	Bakan	-	4.0	3.1	Phka Rumduol
11	PG10	Bakan	-	4.1	3.8	Phka Rumduol
12	PG11	Bakan	-	4.2	4.0	Phka Rumduol
13	PG12	Pursat	-	4.0	2.3	Phka Rumduol
14	PG13	Pursat	-	3.7	3.6	Somaly
Pursat (9 groups)			2.4	3.7	3.3	
15	PG14	Rolea B'ier	-	2.8	3.8	Phka Rumduol
Kampong Chhnang (1 group)			-	2.8	3.8	
Ave. of all members			2.7	3.3	3.2	
Rate to Baseline (2010:2.75t)			(-2%)	(+20%)	(+16%)	
No. of members with harvest			33	220	255	

*Data was collected by a sample survey in 2012 and a complete survey (monitoring) in 2013 and 2014.

6-2-2 Marketing and Sales Activities by Pilot Groups

1) Sharing information on Buyers and Market Price

To promote “sharing of price information (:PDM indicator 5-2)” and collaboration for marketing and sales among group members, the project encouraged the PG members to have a meeting called “workshop for marketing & sales” before every harvest season. Except a few groups who cancelled the meeting due to flood damage in 2013, each group had the workshop every year, which has also become an opportunity of discussing their sales and shipping plan, too.

In 2013, in the presence of the project the representative members of 13 groups visited local buyers (rice millers) in their activity area as a part of their marketing activity. The visitors from each group attained information from the millers on their demands in

terms of paddy variety and quality and shared it with their colleagues later, deepening their group's understanding of buyers' needs in general.

In Battambang, two groups received from a rice miller an offer of contract farming with a buying price slightly higher than market price, but their negotiation was not continued as the groups were not willing to be bothered by complex contract procedures and strict requirements from the miller for only a little amount of sales and profit.

2) Sales promotion activities by advertisement

In 2014, the project encouraged the groups to practice sales promotion activities by using advertisement (posters, leaflets and signboards). As a result, all of the 15 groups agreed to practice them and distributed a total of approximately 4,500 leaflets and 430 posters in their village, communes, rice millers, middleman and NGOs.

The project also conducted its own campaign for advertising the groups' products via mass media. One of them was FM radio program (one a week) and radio commercials (two or three times a day) for SGGs as well as PGs, which were broadcast mainly focusing on the harvest period in November and December 2014⁸. The other advertising information was broadcast by establishing a simple website with contact information of a total of 19 farmer groups (including SGGs), the address of which was shared with the major rice miller and export companies in the countries.

In terms of the effectiveness of the promotion activities, 11 out of 15 groups told that the advertisement was very effective. For example, a group (PG9) gained contact from about 50 customers (middleman and neighbor farmers), the other group had inquiry from Banteay Meanchey (PG1), while the other one was approached by a seed company (PG14). However, they might be effective only in that PGs could attract attention from more customers. As mentioned later, it could not lead to an increase in unit sales price or sales.

3) Average Sales Price of Paddy

In 2013, only 86% of the PG members actually sold paddy produced from the pilot group activity for various reasons including harvest loss by floods. In 2014, however, 98% (249 members) have so far practiced rice sales (As of the end of February, 2015).

⁸ The radio stations were FM92.7(Battambang), FM100.5(Pursat) and FM99.75(Kampong Chhnang).

Table 21 Average Paddy Sales Price of the Pilot Groups (2012-2014)

(unit: KHR/kg)

No.	Group Code	District/City	2012	2013	2014	*Rice Variety(2014)
1	PG1	Banan	1,326	1,267	1,133	Phka Rumduol
2	PG2	Banan	-	1,400	1,042	Phka Rumduol
3	PG3	Battambang	-	1,175	1,244	Phka Rumduol
4	PG4	Bavel	-	1,250	974	Phka Rumduol, SKO
5	PG15	Sangkae	-	1,188	1,060	Phka Rumduol
Battambang (5 groups)			1,326	1,234	1,099	
6	PG5	Bakan	1,100	995	1,000	Phka Rumduol
7	PG6	Bakan	-	1,115	1,065	Somaly
8	PG7	Bakan	-	1,167	1,116	Somaly, Phka Rumduol
9	PG8	Bakan	-	1,081	1,013	Phka Rumduol
10	PG9	Bakan	-	1,094	1,024	Phka Rumduol
11	PG10	Bakan	-	1,156	1,103	Phka Rumduol
12	PG11	Bakan	-	1,202	1,085	Phka Rumduol
13	PG12	Pursat	-	1,138	1,046	Phka Rumduol
14	PG13	Pursat	-	1,115	1,042	Somaly
Pursat (9 groups)			1,100	1,114	1,052	
15	PG14	Rolea B'ier	-	1,413	1,100	Phka Rumduol
Kampong Chhnang (1 group)			-	1,413	1,100	
Ave. of all members			1,168	1,168	1,071	
No. of paddy sellers			33	195	249	

*SKO: Sen Kro Ob

However, the average paddy sales price of all members was KHR 1,071 per kg, down from the previous year (KHR 1,168). Because there is a group (PG4) that has even introduced a different fragrant rice variety of lower market price (Sen Kro Ob) in the year, the average price cannot be simply compared with the previous year's one.

Yet because only one group (PG3) among all could gain higher price than the last season, many members are not satisfied with this result.

As experienced in the previous year, they are likely to have received significant influence from a fall in domestic paddy market price. There remain gaps in the average sales price by provinces, and as usual, Pursat is at the lowest level (1,052 KHR/kg).

The project had assumed that this was resulted from the fact that all of the members in Pursat had sold only “wet paddy” with higher moisture contents, which is generally traded at prices lower than “dry paddy”. However, not a few farmers in the province now state that with dry paddy they can get lower prices than wet paddy. Market condition is getting more complex.

On the other hand, it is highly likely that the timing of harvest and sales was influential on the price of paddy. Figure 11 shows the relationship between the date of paddy sales (Phka Rumduol and Somaly only) by the PG members and their average daily price recorded in 2014. Just as observed in the previous season, the price clearly tends to start falling when the harvest season starts in respective province.

Figure 10 Proportion of Dry & Wet Paddy Sales (2013-2014)

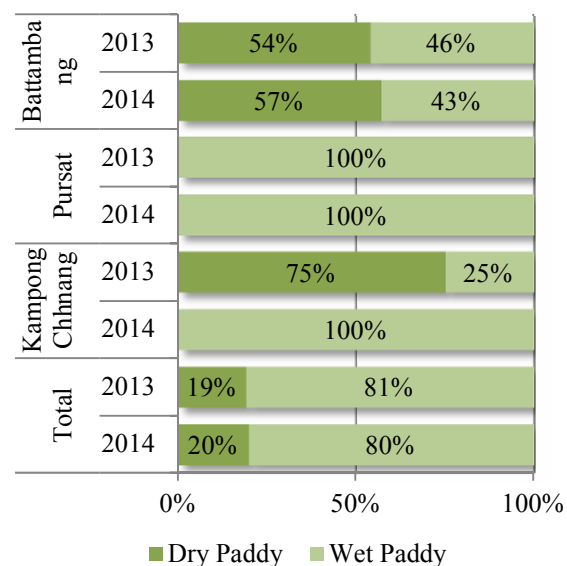
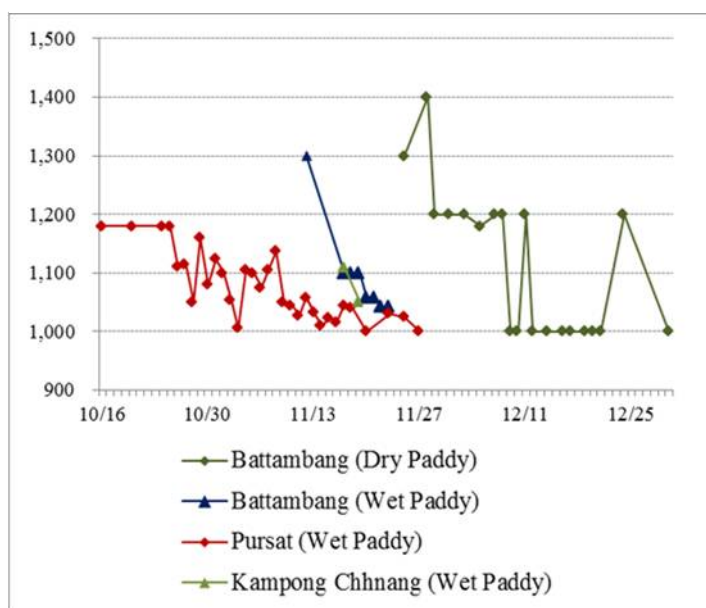


Figure 11 Date of Paddy Sales & Average Sales Price (KHR/kg)



In Pursat (wet paddy, red line), especially, some members in three groups (PG6, PG7, PG13) that introduced Somaly variety (which can be harvested earlier than Phka Rumduol) could sell their produce in October and gained relatively higher prices.

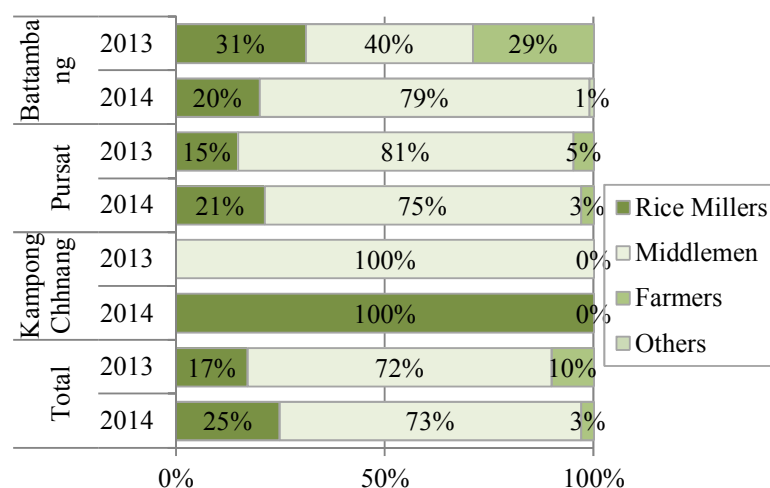
4) Methods for Sales and Customers

Although “collective sales and shipping of paddy by groups (:PDM indicator 5-2)” were practiced by 2 groups encouraged by the project in 2012, after 2013 each group has come to discuss and decide by themselves whether they sell and ship their products by a group or individually (See 6-3-2 for the constraints of the collective sales and shipping)⁹.

As a result of this, all of the members of the groups have sold paddy individually. A group (PG1) in Battambang got an offer from the largest rice miller company in the province to purchase all the paddy produced from the members. Almost all the members ended up selling them to the company, but because the timing of harvest and paddy quality was different from member to member, negotiation and transport with the company were practiced individually.

The customers to whom the members of 15 PGs have sold in 2014 are middlemen (73%), rice millers (25%) and farmers (3%).

Figure 12 Customers of the Pilot Groups (2013-2014)



⁹ From the results of rice cultivation study and the experience of the support for two PGs in 2012, the project has learnt that practicing collective sales and shipping could rather be disadvantageous to farmers. Refer to rice distribution study report (2012) to know the existing constraints in the practice.

5) Gross Sales and Net Profit

Assuming that each member of 15PG has sold all of their paddy harvest in 2014, on average, the gross sales of paddy per hectare are estimated to be approximately US\$845, which is by 16% higher than the 13 PG's baseline (728 US\$/ha, 2012), yet drastically down from the previous year (1,004 US\$/ha, 2013). As the majority of the members cultivated 0.5ha of land in this season, the gross sales per member could be approximately US\$420.

Figure 13 Average Gross Sales of the Pilot Groups (Estimate, 2012-2014)

Province	Baseline ^{*1)} (2012)	Average Gross Sales (US\$/ha)		
		2012	2013	2014
No. of members who have sold paddy		33	195	249
Battambang	857	1,127	925	806
Pursat	690	701	1,035	852
Kampong Chhnang	675	-	986	1,032
Total	728	830	1,004	845

*1) Average gross sales (2012) of 13 PGs which were formed in 2013

If calculated based on the amount of production and sales cost reported from each member, the average net profit per hectare is approximately US\$491, which has also went down from the previous year (US\$600) (See Table 22). However, since the figure reported by each member depends on their vague memory and low math- ability, the credibility of this data is not necessarily ensured.

Table 22 Average Net Profit of the Pilot Groups (2013-2014)

(Unit: US\$/ha)

Year	Battambang		Pursat		Kampong Chhnang		Total	
	2013	2014	2013	2014	2013	2014	2013	2014
Gross Sales	925	806	1,035	852	986	1,032	1,004	845
Cost	403	344	380	342	601	557	403	354
Net Profit	522	462	656	509	384	474	601	491

6-2-3 Organization and Group Fund Management by the Pilot Groups

1) Introduction and Management of Group Fund

Under the group fund system introduced into the PGs, for the first wet season, the project provided rice seeds and fertilizers needed for the targeted size of farmland with each member of the groups. Each member was not required to pay money back to the project for the provided inputs, but needed to deposit a defined amount of savings equivalent to the value of the inputs and interest (US\$5/US\$3) into a group fund.

In the second wet season, each group was encouraged to buy seeds and fertilizer collectively by using the fund, and after harvest each member was again required to deposit savings with interest. By this mechanism, the members were expected to manage and make the best use of the group fund without depending on high interest debt from external moneylenders.

Table 23 shows the planned and the actual amount of annual savings of each group over the past three years.

Table 23 Collection of Savings for the Group Fund (2012-2014)

(Unit: US\$)

No.	Code	2012			2013			2014		
		Plan	Actual	%	Plan	Actual	%	Plan	Actual	%
1	PG1	1,300	1,335	103%	2,880	2,880	100%	2,880	2,880	100%
2	PG2	-	-	-	1,360	1,360	100%	1,615	1,615	100%
3	PG3	-	-	-	800	800	100%	1,650	1,480	90%
4	PG4	-	-	-	880	155	18%	1,815	285	16%
5	PG15	-	-	-	1,600	720	45%	1,839	1,440	78%
Battambang		1,300	1,335	103%	7,520	5,915	79%	9,799	7,700	79%
6	PG5	2,990	1,898	63%	1,898	1,898	100%	1,898	1,898	100%
7	PG6	-	-	-	1,200	1,200	100%	1,275	1,275	100%
8	PG7	-	-	-	1,600	1,600	100%	1,700	1,750	103%
9	PG8	-	-	-	1,040	1,040	100%	1,700	1,600	94%
10	PG9	-	-	-	720	720	100%	1,230	1,230	100%
11	PG10	-	-	-	1,120	1,120	100%	1,430	1,430	100%
12	PG11	-	-	-	960	960	100%	1,020	850	83%
13	PG12	-	-	-	1,280	1,280	100%	1,530	1,530	100%
14	PG13	-	-	-	1,040	1,040	100%	1,105	1,138	103%
Pursat		2,990	1,898	63%	10,858	10,858	100%	12,888	12,701	99%
15	PG14	-	-	-	768	768	100%	969	918	95%
Kampong Chhnang		-	-	-	768	768	100%	969	918	95%
Total		4,290	3,233	75%	19,146	17,541	92%	23,656	21,319	90%

In wet season 2014, the total amount of annual saving by the 15 group has reached to approximately US\$21,300 (as of 28 February 2015), which is 90% compared to the plan.

While some PGs (PG7 and PG13) have voluntarily made the higher amount of savings than planned acknowledging its benefit, the other PGs could not reach to the target amount because of sudden death or withdrawal of their members during the cultivation season (PG3, PG11, and PG14) or low production yields (PG8).

In Battambang, the two groups (PG4 and PG15) that were severely affected by floods in 2013 were expected to recover the saving collection rate in 2014, but could not make it as they again suffered from damage by dry spells and poor harvest.

2) New entry and Withdrawal of Group Members

As summarized in the Table below, in 2013 a total number of the group members increased significantly up to 227 members as 13 groups were newly added to the project beneficiaries. In 2014, there was a withdrawal of eight members for various reasons, but because the group received more numbers of new members, the total number of the members finally reached to 255 members.

Table 24 New Entry and Withdrawal of the Pilot Group Members

Province	2012 (2PG)	2013 (15PG)			2014 (15PG)				
	No. of Members	Entry	Withdra wal	Net	No. of Members	Entry	Withdra wal	Net	No. of Members
Battambang	10	67	-1	66	76	13	-3	10	86
Pursat	23	112	0	112	135	20	-4	16	151
Kampong Chhnang	0	16	0	16	16	3	-1	2	18
Total	33	195	-1	194	227	36	-8	32	255

6-3 Summary of the Distribution Improvement Activities and Challenges for the Future

6-3-1 Summary of the Achievement by the Pilot Groups

The major achievements by the PGs are summarized in the Table 25.

Table 25 Major Achievement by the Pilot Groups

Item	Target(PDM)	Achievement		
		2012	2013	2014
No. of Groups	More than 14	2	15	15
No. of Members	-	33	227	255
Total size of farmland	-	33.0ha	119.3ha	132.9ha
Average Paddy Yield	3.5t/ha	2.7t/ha	3.3t/ha	3.2t/ha
Average Sales Price	-	1,168KHR/kg	1,168KHR/kg	1,071KHR/kg
Average Gross Sales	Increase	830\$/ha	1,004\$/ha	845\$/ha
Group Fund Payment Rate	-	75%	925	90%

The table below shows the achievements in terms of collective actions by the groups (:PDM indicator 5-2). “Collective sales and shipping” have not been practiced since 2013 according to the group’s own decision, but the other activities have been practiced as much as expected.

Table 26 Collective Actions by the Pilot Groups

(unit: groups)

Actions	2012	2013	2014
No. of PGs	2	15	15
Collective purchase of agricultural inputs	0	2	14
Rice production under a standard technical procedure	2	15	15
Sharing price information	2	13	15
Collective sales and shipping	2	0	0
Collective action for sales promotion	0	0	15

6-3-2 Challenges for the Future Activities of the Pilot Groups

The group bylaws agreed by the PG members at the time of group formation only stipulate the rules of the period of the project implementation. From now on, the members themselves should make a decision as to in what way they are going to work as a group.

In February 2015, each PG had the final workshop, where 13 groups but two groups (PG14 and PG15) in Battambang and Kampong Chhnang agreed to continue their group activities. The overview of the future plan and challenges for their activities are

described below.

1) Use and Management of Group Fund

After combining savings from the members, membership fees and other income and expenditure (interest from bank account, transport cost of inputs, etc.), the total balance of 15 PGs' group fund has reached to approximately 22,500 US\$ (As of 28 February 2015).

This is almost the same amount of the cost of agricultural inputs (seeds and fertilizers) supplied by the project. Except a group (PG5) affected by serious dry spell in 2012 and two groups (PG4 and PG15) hit by floods, 12 groups has increased its funds by 16% on average.

Table 27 Balance of Group Fund (As of 28 February 2015)

(Unit: US\$)

No.	Code	Inputs by the Project (a)	Balance of the Fund (b)	(Major resources)			Gap (=b-a)	(%)
				Savings	Membership Fee	Others		
1	PG1	2,550	2,880	2,880	0	0	380	15.2%
2	PG2	1,425	1,711	1,615	95	1	286	20.0%
3	PG3	1,500	1,582	1,480	100	2	82	5.5%
4	PG4	1,650	340	285	55	0	-1,310	-79.4%
5	PG15	1,639	1,540	1,440	100	0	-99	-6.0%
Battambang		8,714	8,053	7,700	350	3	-661	-7.6%
6	PG5	2,990	1,918	1,898	0	20	-1,072	-35.9%
7	PG6	1,125	1,388	1,275	75	38	263	23.3%
8	PG7	1,500	1,858	1,750	100	8	358	23.9%
9	PG8	1,500	1,710	1,600	100	10	210	14.0%
10	PG9	1,275	1,303	1,230	75	-2	28	2.2%
11	PG10	1,275	1,530	1,430	85	15	255	20.0%
12	PG11	900	935	850	60	25	35	3.9%
13	PG12	1,350	1,634	1,530	90	14	284	21.0%
14	PG13	975	1,213	1,138	65	10	238	24.4%
Pursat		12,890	13,488	12,701	650	137	598	4.6%
15	PG14	855	972	918	57	-3	117	13.7%
Kampong Chhnang		855	972	918	57	-3	117	13.7%
Total		22,459	22,513	21,319	1,057	137	54	0.2%

(*) The amount of "savings" in the table is the actual balance as of the end of February 2014 (excluded outstanding repayment), "Others" are the balance of the other income and expenditure as of March 2014 recorded PG's account report.

In terms of the activities after the end of the project, 13 PGs agreed that they would

continue using group fund by keeping account book. Most of them have also changed the rules of the fund management that include: size of available amount of fund per member; an increase in savings (interest payment) amount; use of funds for dry season cultivation; and penalty for delayed repayment. 6 groups also agreed to close their groups' bank account as they regard it inconvenient or unnecessary.

The biggest challenged faced by the group fund management would be natural disaster. At the time of serious dry spell or floods, most of the members could face difficulties of repayment (savings) to the fund. But because the size of the group fund capital is very small, unless additional funds are injected from external bodies, it is unlikely to be sustained.

2) Collective Purchase of Agricultural Inputs (Seeds and Fertilizers)

Only three groups plan to continue practicing collective seed purchase. While many members seem to have understood the benefit of regular replacement of seeds and the use of high quality certified seeds, most of them plan to buy new seeds every two or three seasons. If the frequency and timing of seed purchase were different among members, it would be hard to continue purchasing them collectively.

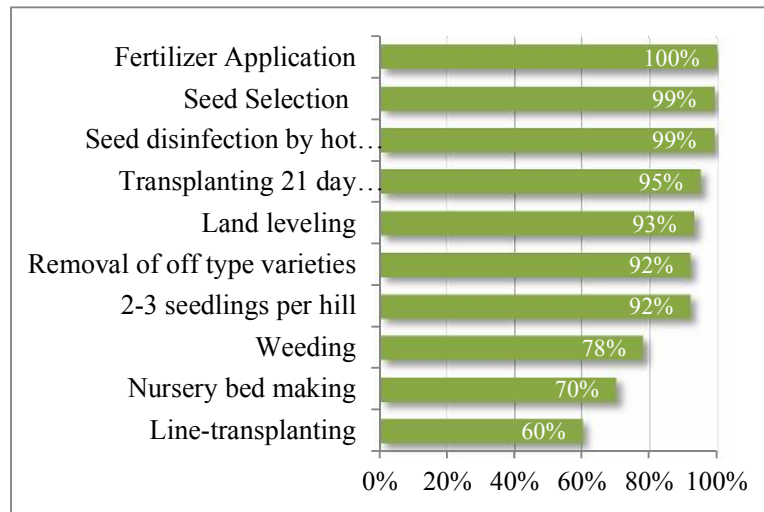
On the other hand, 11 groups have decided to buy fertilizers collectively, because by working together as a group, they can get quality fertilizers from the seller and the products can be delivered to their premises. If their decisions are put into actions, this would be seen a successful case in which group were strengthened by the support from the project.

3) Practice of the Recommended Rice Cultivation Techniques

During the final workshop at each PG site, many members expressed their willingness to keep practicing the rice cultivation techniques recommended by the project. In particular, 12 groups out of 15 groups have agreed to keep practicing together seed selection and disinfection methods.

However, as shown in the results of the interviews at the last stage (No. of respondent: 219 members), many members have negatively responded to such techniques as “line-transplanting” and “nursery bed making” (Figure 14).

Figure 14 Pilot Group Members' Perception on the Continuous Practice of Recommended Techniques



In Battambang, where mean farmland size per household is much larger than the other province and direct seed broadcasting is commonly practiced given the high labor cost of transplanting and the risk of natural disaster, it seems highly unlikely that the adoption of these transplanting techniques remains steady.

On the other hand, the advantage of drum seeder introduced by the project in 2014 seems to be appreciated by many groups. An increasing number of members are now willing to practice it for rice farming in the future, and in 5 groups, all of the members plan to use it together. The biggest challenges for drum seeder users are again, erratic rainfall conditions. Without water in the paddy field, it is impossible to use it.

4) Marketing and Sales Promotion

Although the project promoted collective actions by group members in various areas, it has not necessarily led to remarkable outcomes in terms of improved sales price. For the PG members, producing pure and quality paddy so as to meet buyers' demands is the prerequisite for gaining better sales price, but even though they succeed in meeting the requirements, sales prices can fluctuate according to the other various factors. The group members' increased paddy sales and income in the project period were exclusively owing to their increased paddy yield. Challenges still remain in terms of the improvement in marketing and sales.

Regarding rice variety for production and sales, many group will keep choosing fragrant rice. However, while there is a growing demand among producers and customers on the high-value fragrant varieties such as Somaly and Sen Kro Ob which are out of the 10

varieties recommended by the government, getting high quality seeds of these varieties remains very difficult. The countermeasures against this rice variety issue need to be taken quickly by the government.

The members of 11 groups have agreed to take collective actions for marketing and sales promotion activities. However, most of them are likely to practice small actions such as “mouth to mouth advertising for neighbor farmers” and “organizing a small team for sales”.

5) Collective Shipping and Sales

At this moment no group plans to practice collective shipping and sales of rice for the future. In the area where “wet paddy” trade is popular, paddy sales prices tend to fall down quickly due to the concerns for quality deterioration. The more days pass by after harvesting, the more the price goes down. If members who harvest paddy earlier than the others keep it for some time to practice collective sales with the other members, they would end up gaining lower prices and lose potential profit.

In case members choose to sell “dry paddy” as a group’s product, when there are gaps among members in terms of paddy quality, those who succeeded in producing good quality paddy would result in gaining the same price (and often lower price for the quality) as the other members with poorer quality paddy. They might be able to solve this problem by practicing quality inspection to classify their products into several grades. But it requires a common storage and the cost of managing the inspection and grading system is too high for such a small-scale group.

6) Shifting to Seed Growers Group and Agricultural Cooperatives

Among the 15 groups, 2 groups (PG14 and PG15) did not agree to continue the group activities. These groups are likely to be disbanded shortly after the termination of the project. However, the reasons for the groups’ disbanding are not necessarily negative ones.

In the case of the group (PG13) in Kampong Chhnang, approximately 40% of the members are willing to join the existing SGG in the province. While they are planning to discuss with the SGG members on the matter, the rest of the group members will get their savings refunded and go back to work individually.

In the case of the other group (PG15) in Battambang, all of the members are planning to join an agricultural cooperative already existing in the area, because it allows its members to access agricultural loan service and irrigation water. The PG members therefore agreed to spend the balance of its group fund for buying shares to become

cooperative members.

In Pursat, PDA is willing to upgrade the nine groups in the province into agricultural cooperatives, too. At the final workshop held at each PG site, the C/Ps of the PDA explained to the group members on the outline of the cooperative system. and every group shows a positive response on it.

6-3-3. Considerations on the Group-based approach to distribution improvement

When MAFF and NGOs adopt an group-based approach in implementing projects to improve rice farmers' production and sales, there are some points to be taken into consideration based on lessons learnt from the project. For details, refer to the above-mentioned "the Guidelines on a Group-based Approach to Supporting Rice Farmers" developed by the project.

Chapter 7 Other Achievement

7-1 Achievement with other project (JICA related)

7-1-1 Collaboration activity with the Project for River basin Management and Development Capacity Improvement (TSC3)

Irrigation facility as a hard component and Cultivation technology as a soft component are inseparable like a both wheels of the car for better productivity in agriculture. In this respect, it was ideal and meaningful to work together with the same objective in terms of agricultural promotion.

7-1-2 Cooperation to other Donors ,NGOs and Others

Some coverage areas of USAID HARVEST Project were found overlapped with APPP target areas. Then, both projects closely exchanged the information on the customer target villages in order to avoid a duplication of assistance by both projects. APPP also accepted the farmers under umbrella of HARVEST project to the seed production training through Seed Growers Group (SGG). Many NGOs were also given the seed production training through APPP assisted SGGs.

7-2 Acceptance of intern students from Universities (Agronomy students)

In response to the request of Battambang Provincial Department of Agriculture (BTB, PDA), the project accepted total 15 students of Battambang University in agronomy major. Their internship counted 4-5 months every year in 2011 and 2012. And acceptance of interns from the Tokyo University of Agriculture (TUA) in Japan for few weeks was made in 2013 and 2014. The student interns from TUA counted total 8.

7-3 Trial of nationwide extension trial to the rice production areas

Responding to the recommendations made by the Joint Terminal Evaluation Team, the project have taken the following actions;

Action 1) Sales promotion of produce through Radio program

The project C/P team in 3 provinces organize the Radio Programs and broadcasted for accelerating sales promotion of the produce harvested by Pilot Group (PG) and Seed growers Group (SGG). The achievement in Radio broadcasting counts 24 times of one hour program including live talk show and 778 times of spot CM(3min×3-5 times /day×3 months) during November 2014 to January 2015 (*See ANNEX 18).

Action 2) The seminar for dissemination of rice cultivation techniques to the areas in

nationwide

As one of dissemination activities to other major rice belts in the country, the project planned and implemented the seminar titled "the wide area extension of the intensive rice cultivation technology" inviting stakeholders relevant to the rice production in 10 provinces including APPP target 3 provinces.

Starting with the said seminar on 26-27 January 2015 inviting PDA officers, extension workers and rice farmer representatives from 10 provinces and NGOs, MAFF officials, BPAC (Cooperative) project, Rice millers, Agronomy students etc.

Action 3) Distribution of manuals and teaching materials produced by the project to 10 provinces

Seven (7) kinds of manuals were produced and distributed widely to the seminar participants, PDAs in 10 provinces, NGOs, Cooperatives under BPAC project, MAFF GDA, Embassy of Japan 2 Universities in Battambang, etc. Total distribution volume counted 32,600 books. And a set of large sized vinyl canvas made technical poster and manuscript data installed in USB also provided together with manual books. The following table shows the detail of distribution.

Table 28 Manual distribution list

Title of manual	Organization delivered	# distributed
① Drum Seeder Manual	10 rice belt provinces	17,000
② Farmer's Calendar		
③ FFS Operation Guide for Extension Officers	NGO, University ^(*)	3300
④ Step up your Knowledge on Rice Cultivation (Ver.2)	MAFF(GDA)	9,700
⑤ Rice Seed Production Manual	Embassy of Japan ^(*)	950
⑥ Guideline on a Group-based Approach to Supporting Rice Farmer	JICA Office ^(*)	280
⑦ Improvement of Farmer Income through new FFS technology	BPAC Project	900
	SGG trainees-to-be ^(*)	1,050
Technical large sized poster in 15 pcs/set	No provision to this mark ^(*)	18 sets
Manuscript data (USB)	One unit to All	24

* Distribution volume was determined after adjusting the requested number and available budget to produce.

Action 4) Delivery lecture and technical demonstration

In response to the requests from the PDAs in 5 provinces, the project dispatched the special task team to 5 provinces namely Prey Veng, Svay Rieng, Takeo, Kampong Thom, Banteay Meanchey to offer, what we call, the delivery lecture and technical

demonstration to the related stakeholders in the provinces. And the project also provided quite a large number of manual books and guide books to the seminar participants and also particularly from hundreds to thousands units of 5 kinds manuals were given to 10 PDAs respectively for helping their extension activity in their areas. The participants to the delivery demos counted 411 in total composing rice farmers, extension workers and PDA officers.

Dispatched Expert - long and short-term (As of 20 March 2015)

ANNEX 1

(1) 長短専門家派遣実績 (氏名、専門分野、派遣期間、派遣前の所属)

番号	専門家氏名	指導科目	名前	指導科目	派遣期間	派遣前の所属先
No.	Name	Expertise	Name	Expertise	Assigned Period	Organization
1	萩原 知	チーフアドバイザー/農業普及1	Mr. Satoru Hagiwara	Chief Advisor/ Extension1	2011.01.05 - 2015.03.31	JICA
2	筒井 佳壽	営農	Mr. Yoshitoshi Tsutsui	Farm Management	2010.12.20 -2012.12.19	n.a.
3	山田 大	業務調整/研修/普及2	Mr. Masaru Yamada	Coordinator/ Training/ Extension2	2010.12.20 -2013.01.31	n.a.
4	石橋 典子	農民組織強化支援	Ms. Noriko Ishibashi	Farmer Organization Strengthening Support	2012.02.08 -2012.02.25 (Short-term)	IC Net Limited
5	園山 英毅	コミュニティ活動/ 流通改善	Mr. Hideki Sonoyama	Community Development/ Distribution Improvement	2012.05.10 -2015.03.31	JIN Corporation
6	下川 浩二	業務調整/研修/普及2	Mr. Koji Shimokawa	Coordinator/ Training/ Extension2	2012.12.24-2015.03.31	n.a.
7	藤田 達夫	営農/種子生産	Mr. Tatsuo Fujita	Farm Management/Seed Production	2013.03.21-2013.10.14 2013.11.15-2014.02.18 2014.04.17-2014.10.03 2014.10.17-2015.02.27	OADA Foundation

Assignment of Counterparts (C/P) and other personnel (As of 20 March 2015)

ANNEX 2A

Assignment of Counterparts (C/P) (As of 30 June 2014)

No.	C/Pの氏名及び役職		配属先	C/Pの専門分野	配置期間	実施機関での勤務期間	技術協力を行った専門家氏名*					備考等
No.	C/P's Name	Position	Organization	Expertise	Assigned Period	Duration of Duty (years)	Expert-in-charge*					Note
							1	3,6	2,7	4	5	
1	H.E. Mr. San Vanty	Under Secretary of State/ Chiar person	MAFF									
2	H.E. Mr. So Khan Rithykun	Director General/ Project Director	MAFF, GDA									
3	Dr. Cheam Chansophon	Director/ Project Manager	Battambang PDA		2011.01.10-2012.07.31		1					退官(Retired)
4	Mr. Chhim Vachira	Director/ Project Manager	Battambang PDA		2012.08.01-2011.01.09		1					後任(Successor)
5	Mr. Tith Sam Oenn	Director/ Project Manager	Pursat PDA		2011.01.10-2014.02.27		1					退官(Retired)
6	Mr. Lay Viseth	Director/ Project Manager	Pursat PDA		2014.02.28-up-to-date		1					後任(Successor)
7	Mr. Ngan Nany	Director/ Project Manager	Kampong Chhnang PDA		2011.01.10-2014.01.15		1					退官(Retired)
8	Mr. Ngen Hun	Director/ Project Manager	Kampong Chhnang PDA		2014.01.16-up-to-date		1					後任(Successor)
9	Ms. Siea Kimnay	Deputy Chief/ C/P for Output 1 (Training)	Battambang PDA, Agricultural Extension Office	Training/ Extension	2011.01.10-up-to-date	27	1	1				
10	Mr. In Sovanmony	Chief/ C/P for Output 2 (Commune Activity)	Battambang PDA, Agronomy Office	Agronomy/ Community Development	2011.01.10-2013.04.30	16	1				1	異動
11	Mr. Ouch Hoenu	Chief/ C/P for Output 2 (Commune Activity)	Battambang PDA, Agronomy Office	Agronomy/ Community Development	2013.05.01-up-to-date	5	1	1				後任(Successor)
12	Ms. Ros Ratha	Officer/ C/P for Output 3 (Extension)	Battambang PDA, Agronomy Office	Extension/ Community Development	2011.01.10-up-to-date	6	1	1				
13	Mr. Khath Borin	C/P for Output 4 (Seed Production)	Battambang PDA, Agronomy Office	Agronomy/ Seed Production	2011.01.07-2012.02.29	24			1			異動
14	Ms. Pov Lina	C/P for Output 4 (Seed Production)	Battambang PDA, Agronomy Office	Agronomy/ Seed Production	2012.02.30-up-to-date	5			1			後任(Successor)
15	Mr. Pa Boreak	Deputy Chief/ C/P for Output 5 (Distribution)	Battambang PDA, Agro-industrial Office	Distribution	2011.01.10-up-to-date	17					1	
16	Mr. Leng Chandamony	Officer/ C/P (Extension)	Pursat PDA, Agricultural Extension Office	Extension/ Seed Production	2011.01.10-up-to-date	24	1	1	1	1	1	
17	Mr. Hov Chandara	Officer/ C/P (Agronomy)	Pursat PDA, Agronomy Office	Extension/ Seed Production	2011.01.10-up-to-date	15	1	1	1	1	1	
18	Mr. El Yoeurn	Chief/ C/P (Extension)	Kampong Chhnang PDA, Agricultural Ext. Office	Extension/ Seed Production	2011.01.10-up-to-date	16	1	1	1	1	1	
19	Mr. Ly Samol	Officer/ C/P (Agronomy)	Kampong Chhnang PDA, Agronomy Office	Extension/ Seed Production	2011.01.10-up-to-date	22	1	1	1	1	1	
20	Mr. Sreng Rithy	Officer/ C/P 10 for Monitoring and Coordination	GDA, Department of Administration, Accounting and International Cooperation	Monitoring	2011.11.01-up-to-date	7	1	1				
21	Mr. Touth Kimseun	District Chief/ Extension Staff 1	Battambang, Banan DAO	Extension	2011.01.10-up-to-date	30	1	1	1		1	
22	Mr. Yorm Sandosh	Extension Worker/ Extension Staff 2	Battambang, Banan DAO	Extension	2011.01.10-2014.09.30	24	1	1			1	退職(Quitted)
23	Mr. Sen Nil	Extension Worker/ Extension Staff 2	Battambang, BTB PDA	Extension	2013.10.01-up-to-date	27	1	1			1	後任(Successor)
24	Mr. Chhoeuk Sam Ath	District Chief Extension Staff 3	Battambang, Thma Koul DAO	Extension	2011.01.10-up-to-date	26	1	1				
25	Mr. Chhin Nun	Extension Worker/ Extension Staff 4	Battambang, Thma Koul DAO	Extension	2011.01.10-up-to-date	20	1	1				
26	Ms. Yim Sarath	District Chief/ Extension Staff 5	Battambang, BTB DAO	Extension	2011.01.10-up-to-date	25	1	1				
27	Ms. Vy Saven	Extension Worker/ Extension Staff 6	Battambang, BTB DAO	Extension	2011.01.10-up-to-date	26	1	1				

No.	C/Pの氏名及び役職		配属先	C/Pの専門分野	配置期間	実施機関での勤務期間	技術協力を行った専門家氏名*					備考等
No.	C/P's Name	Position	Organization	Expertise	Assigned Period	Duration of Duty (years)	Expert-in-charge*					Note
							1	3,6	2,7	4	5	
28	Mr. Sorn Pov	Extension Worker/ Extension Staff 7	Battambang, Bavel DAO	Extension	2011.01.10-up-to-date	26	1	1	1			
29	Mr. Tin Sophal	Extension Worker/ Extension Staff 8	Battambang, Bavel DAO	Extension	2011.01.10-up-to-date	24	1	1			1	
30	Mr. Chab Sothea	District Chief/ Extension Staff 9	Battambang, Aek Phnom DAO	Extension	2011.01.10-up-to-date		28	1	1			
31	Mr. Nang Chantha	Extension Worker/ Extension Staff 10	Battambang, Aek Phnom DAO	Extension	2011.01.10-up-to-date	28	1	1				
32	Mr. Nob Nang	Extension Worker/ Extension Staff 11	Battambang, Maung Russei DAO	Extension	2011.01.10-2011.11.30	8	1	1				
33	Ms. Young Leakhena	Extension Worker/ Extension Staff 11	Battambang, Maung Russei DAO	Extension	2011.12.01-up-to-date	26	1	1				
34	Mr. Moa Kry	Extension Worker/ Extension Staff 12	Battambang, Maung Russei DAO	Extension	2011.01.10-up-to-date	26	1	1	1			
35	Mr. Phath Sopheurn	District Chief/ Extension Staff 13	Battambang, Sangkae DAO	Extension	2011.01.10-up-to-date	26	1	1			1	
36	Mr. Pech Sakhon	Extension Worker/ Extension Staff 14	Battambang, Sangkae DAO	Extension	2011.01.10-up-to-date	19	1	1				
37	Mr. Ann Samoeurn	District Chief/ Extension Staff 15	Battambang, Koas Krala DAO	Extension	2011.01.10-up-to-date	22	1	1				
38	Mr. Yim Sameth	Extension Worker/ Extension Staff 16	Battambang, Koas Krala DAO	Extension	2011.01.10-up-to-date	26	1	1				
39	Mr. Pok Ren	District Chief/ Extension Staff 17	Battambang, Rokhak Kiri DAO	Extension	2011.01.10-up-to-date	26	1	1				
40	Mr. Sath Samban	Extension Worker/ Extension Staff 18	Battambang, Rokhak Kiri DAO	Extension	2011.01.10-up-to-date	24	1	1				
41	Mr. Seang Heng	Manager/ Extension Staff 23	Battambang, KADC	Extension	2011.07.01-up-to-date	24	1	1				
42	Mr. Kvoeu Py	Extension Worker/ Extension Staff 19	Pursat, PS DAO	Extension	2011.01.10-up-to-date	24	1	1			1	
43	Mr. Sum Han	Extension Worker/ Extension Staff 20	Pursat, Bakan DAO	Extension	2011.01.10-up-to-date	6	1	1			1	
44	Mr. Sor Sary	District Chief/ Extension Staff 21	Pursat, Bakan DAO	Extension	2011.01.10-up-to-date	22	1	1			1	
45	Mr. Oun Chun Lin	District Chief/ Extension Staff 24	Pursat, PS PDA	Extension	2012.11.01-up-to-date	4	1	1			1	追加任命 (Additionally assigned)
46	Mr. Ly Pak	District Chief/ Extension Staff 25	Pursat, PS DAO	Extension	2012.11.01-up-to-date	29	1	1			1	追加任命 (Additionally assigned)
47	Ms. Ty Sour	District Chief/ Extension Staff 26	Pursat, Kandiang DAO	Extension	2012.11.01-up-to-date	29	1	1			1	追加任命 (Additionally assigned)
48	Mr. Yem Oeur	Extension Worker/ Extension Staff 22	Kampong Chhnang, Baribour DAO	Extension	2011.01.10-up-to-date	16	1	1			1	
49	Mr. Chhoeurn Kolyan	Project Assistant	APPP	Extension	2011.01.10-2013.06.10	7	1	1				退職(Quitted)
50	Mr. Tieng Sopheap	Project Assistant	APPP	Extension	2013.08.01-up-to-date	1	1	1				新採用 (New employment)
51	Mr. Phay Piseth	Project Assistant	APPP	Seed Production	2011.01.24-up-to-date	3	1		1			
52	Mr. Chhoeurn Sothea	Project Assistant	APPP	Distribution	2012.04.04-up-to-date	2	1			1	1	

Allocation of Counterparts (C/P) & Farmers' groups (As of 20 March, 2015)

ANNEX 2B

(2)C/P配置実績(年次及び対象地域別)、デモ農家、種子生産グループ、原種生産圃場数及び農民組織数の推移(年次及び対象地域別)

	Battambang				Pursat				Kampong Chhnang				PNP	Total
	2011	2012	2013	2014	2011	2012	2013	2014	2011	2012	2013	2014	Since 2011	June. 2014
C/P 配置数/ C/P Allocation	5	5	5	5	2	2	2	2	2	2	2	2	1	10
普及員配置数/ Extension Staff Allocation	19	19	19	19	3	3	6	6	1	1	1	1	n.a.	26
デモ農家 (DF)数/ No. of Demo Farmers(DF)	33	35	34	38	6	7	7	6	2	4	4	4	n.a.	180 ¹⁾
デモサイト数/ No. of demo sites	33	68	68	65	6	13	14	12	2	6	7	8	n.a.	302 ²⁾
パイロット・グループ (PG) 数/ No. of Pilot Groups (PG)	n.a.	1	5	5	n.a.	1	9	9	n.a.	n.a.	1	1	n.a.	15
種子グループ (SGG)数/ No. of Seed Growers Group (SGG)	3	3	3	3	n.a.	1	1	1	n.a.	1	1	1	n.a.	5

1)対象州で各年時に採用されたデモ農家数(実数)を示す。デモ農家は原則、2年間2シーズン継続・実施する。1) #of Demo Farmer, one demo farmer continue operation of demo farm for 2yea
 2)対象州で各年時に設定されたデモサイト数(1年目のデモ農家数+2年目のデモ農家数)となるが、2年目のデモ農家数の減少によりサイト数が増える場合がある
 (例:2014年バタンバン州デモサイト数)。2)#of demo site(1year demo+2nd year demo. # of Demo sites may reduce in case that some 2nd year demo farmers dropped out in the middle season(BTB)

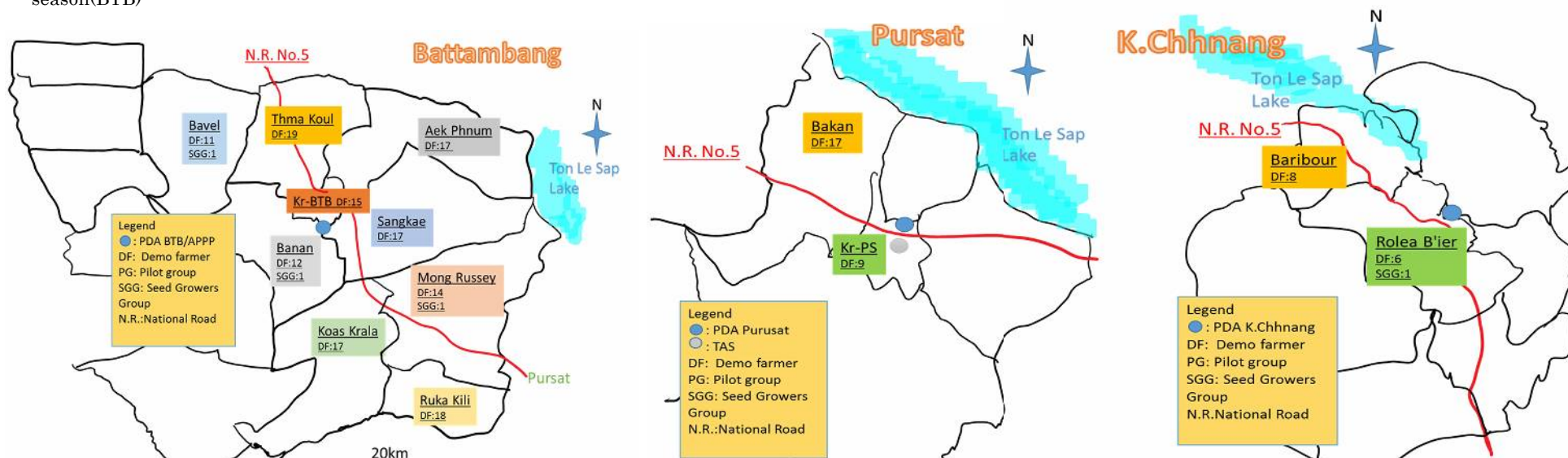
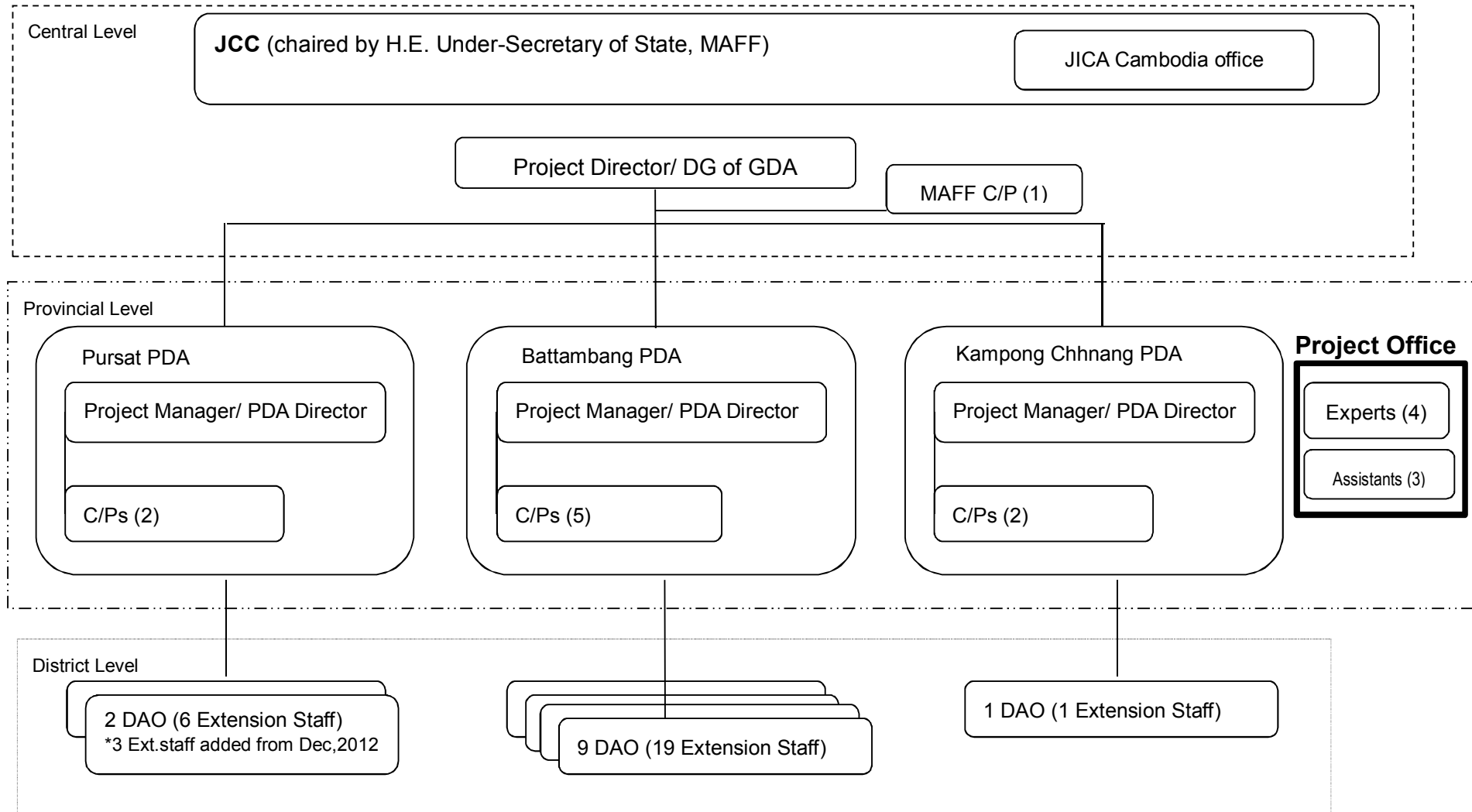


Chart : Organizational Structure of Project Implementation



(4) 機材供与及び携行機材実績/Procured Equipment (As of 20 March 2014)

ANNEX 4

No.	Date	Item	Model/Specification	Make	Unit price	Qty	Sub-total(\$)	User	Installed	Procured	Purpose	Running condition	Date of handover
Handed over items													
1	2011.01.13	Copier (with finisher)	DC-III 2007 P/N: TL200363 (B1 P/N: QC100043)	Fuji Xerox	3,950	1	3,950	APPP	Battambang PDA	Local	Project	Good	2011.01.25
2	2011.01.24	Vehicle - Prado (OI 7417)	Engine No. 5L-6155748; Chassis No. JTEBD9F J2BK002899	Toyota	41,500	1	41,500	APPP	Battambang PDA	Local	Project	Good	2011.01.25
3	2011.01.24	Vehicle - Hilux Vigo (OI7416)	Engine No.2KD 5140069; Chassis No. MROFR22G4B0576085	Toyota	26,000	1	26,000	APPP	Battambang PDA	Local	Project	Good	2011.01.25
4	2011.05.30	Motorbike - Suzuki Viva	FD110CSD	Suzuki	1,500	26	39,000	APPP	Battambang PDA (18), Pursat PDA (5), Kampong Chhnang PDA (3)	Local	Project	Good	2011.05.30
							TOTAL 110,450						

Items owned by the JICA side

1	2011.01.17	Desk-top computer	OptiPlex TM 380DT	Dell	890	1	890	APPP	Project office	Local	Project	Good	n.a.
2	2011.03.03	Air conditioner	Indoor Unit:CS-C12KKH, Outdoor Unit:CU-C12KKH	Panasonic	790	1	790	APPP	Project office	Local	Project	Good	n.a.
3	2011.05.18	Air conditioner	Indoor Unit:CS-C12KKH, Outdoor Unit:CU-C12KKH	Panasonic	878	1	878	APPP	Project office	Local	Project	Good	n.a.
4	2011.07.07	Air conditioner	Indoor Unit:CS-C13MKH, Outdoor Unit:CU-C13MKH	Panasonic	760	1	760	APPP	Project office	Local	Project	Good	n.a.
5	2011.07.07	Air conditioner	Indoor Unit:CS-C13MKH, Outdoor Unit:CU-C13MKH	Panasonic	760	1	760	APPP	Project office	Local	Project	Good	n.a.
6	2011.05.03	Desk-top computer	Dell Vostro 230MT	Dell	635	1	635	APPP	Project office	Local	Project	Good	n.a.
7	2011.01.12	LDC Projector	X1110	Acer	620	1	620	APPP	Project office	Local	Project	Good	n.a.
8	2011.07.15	Power tiller (hand tractor)	RT140 (H.P.14), plough implements, cage wheel, rubber tyre, pump	Siam Kubota	3,140	1	3,140	APPP	TLAS	Local	Project	Good	n.a.
9	2011.07.14	Printer Monochrome Laser	LBP-3500	Canon	885	1	885	APPP	Project office	Local	Project	Good	n.a.
10	2011.11.23	Printing format	Local made printing format for paddy seed backs	n.a.	1,200	1	1,200	APPP	Project office	Local	Project	Good	n.a.
11	2011.05.24	Safety Box	Steel made, dial and key lock	President	295	1	295	APPP	Project office	Local	Project	Good	n.a.
12	2011.05.27	Thresher	Metal frame	Nouth Vatha (local workshop)	3,800	1	3,800	APPP	Bavel SSG	Local	Project	Good	n.a.
13	2011.06.16	Thresher	Metal frame	Nouth Vatha (local workshop)	3,800	1	3,800	APPP	Moung Russei SGG	Local	Project	Good	n.a.
14	2011.09.14	Thresher	Metal frame	Nouth Vatha (local workshop)	3,850	1	3,850	APPP	Moung Russei SGG	Local	Project	Good	n.a.
15	2011.05.27	Winnower	Wood frame	Local workshop	683	1	683	APPP	Bavel SSG	Local	Project	Good	n.a.
16	2011.06.02	Winnower	Wood frame	Local workshop	683	1	683	APPP	Banan SSG	Local	Project	Good	n.a.
17	2011.06.02	Winnower	Wood frame	Local workshop	683	1	683	APPP	Banan SSG	Local	Project	Good	n.a.
18	2012.11.05	Winnower	Wood frame	Voeurn Chadeule, Battambang	990	1	990	APPP	Rolea B'ier SGG	Local	Project	Good	n.a.
19	2012.11.05	Winnower	Wood frame	Voeurn Chadeule, Battambang	990	1	990	APPP	Pursat PDA (TAS)	Local	Project	Good	n.a.
20	2012.11.12	Thresher	Metal frame	Chheang Rath, Phnom Penh	2,500	1	2,500	APPP	Rolea B'ier SGG	Local	Project	Good	n.a.
21	2012.11.12	Thresher	Metal frame	Chheang Rath, Phnom Penh	2,500	1	2,500	APPP	Pursat PDA (TAS)	Local	Project	Good	n.a.
22	2013.10.16	Printing format	Local made printing format for paddy seed backs	n.a.	550	1	550	APPP	Pursat PDA (TAS)	Local	Project	Good	n.a.
23	2013.10.16	Printing format	Local made printing format for paddy seed backs	n.a.	550	1	550	APPP	Rolea B'ier SGG	Local	Project	Good	n.a.
24	2014.04.09	LCD Projector	Dx140	Sony	715	1	715	APPP	Project office	Local	Project	Good	n.a.

TOTAL 33,147

(5)在外事業強化費等を通じた施設整備/Renovation/ Rehabilitation of Infrastructure (As of 20 March 2015)

ANNEX 5

No.	Fiscal Year	Site	Item	Cost	Details
1	JFY2010 Q4	Bavel SGG	Seed warehouse	\$ 3,444.00	Provision of construction materials (Free labour contribution from the SGG.)
2	JFY2011 Q2	Moung Russei SGG	Seed warehouse	\$ 16,050.00	Provision of construction materials, construction supervision fee (Free labour contribution from the SGG.)
3	JFY2011 Q2	Banan SGG	Seed warehouse	\$ 11,020.25	Provision of construction materials, construction supervision fee (Free labour contribution from the SGG.)
4	JFY2011 Q3	Banan SGG	Paddy dry yard	\$ 4,847.50	Provision of construction materials and constructor service fee (Free labour contribution from the SGG.)
5	JFY2011 Q3	Moung Russei SGG	Paddy dry yard	\$ 11,889.00	Provision of construction materials, constructor service fee and land refill cost (Free labour contribution from the SGG.)
6	JFY2012 Q1	Bavel SGG	Paddy dry yard	\$ 7,594.00	Provision of construction materials, constructor service fee and land refill cost (Free labour contribution from the SGG.)
7	JFY2012 Q1	TAS, Pursat PDA	Renovation of storage	\$ 8,828.00	Construction of toilet and installation of rain guard at the TAS, Pursat PDA.
8	JFY2013 Q2	TAS, Pursat PDA	Renovation of warehouse	\$ 3,945.00	Renovation of existing warehouse for the use of Seed Store Facility including renewal of roofing, ceilings, flooring and basement's surrounding.
9	JFY2013 Q2	TAS, Pursat PDA	Renovation of canal passage	\$ 4,782.00	Raising of passage by application of gravel, sand and soil and compaction to function properly as passage and canal bank.
11	JFY2013 Q3	K. Chhnang SGG	Seed warehouse & Paddy dry yard	\$ 14,943.00	Construction materials and contractor service fee for seed warehouse (30-40 tons of storing capacity) and concrete floor(13m x 10 m) to dry seed
10	JFY2013 Q3	TAS, Pursat PDA	Paddy dry yard	\$ 6,242.00	Construction materials and contractor service fee for concrete floor(30m x 20 m) to dry seed
		TOTAL		\$ 63,672.75	



Local Cost Shearing by Japanese and Cambodian sides (As of 20 March 2015)

A. Budget Execution by JICA

Unit: USD

Item/JFY ¹⁾	2010	2011	2012	2013	2014	Total Amount
Operation cost including renovation of building and procurement of equipment	\$40,085	\$415,147	\$409,748	\$374,282	\$323,311	\$1,562,574
Note	The actual budget execution for the fourth quarter of JFY2010.				Till 20 March 2015	This amount does not include the cost of the donated equipment appears on ANNEX 3.

B. Budget Execution by Ministry of Agriculture, Forestry and Fisheries

Unit: USD

Item/CFY ²⁾	2010	2011	2012	2013	2014	Total Amount
Project offices maintenance cost ³⁾ , estimated in terms of electricity bill paid by PDA BTB, PDA-Pursat, and PDA-K.Chhnang		\$12,064	\$12,064	\$12,064	\$12,064	\$36,193
Total						\$36,193
Note	*Seed warehouse for the Bavel SGG	*Cost for KADC, TAS *Registration fee (motorbikes).	*Cost for TAS	*Cost for TAS	*Cost forTAS	

1) Japanese Fiscal Year: April-March, 2) Cambodian Fiscal Year: January-December, 3) The electricity bill is estimated by the size of the office space allotted for project C/Ps in each PDA; 80% to PDA-BTB, 10% to PDA-Pursat, 10% to PDA-K. Chhnang

(8) 小研修、セミナー/ワークショップ等開催実績 /Achievement of various trainings and seminar /workshop (As of 20 March, 2012)

ANNEX 7

年度	研修場所	項目	研修内容	期間	参加者（数）	
Date	Venue	Item	Contents	Duration	Participants	
2011.01.09-11	Battambang PDA	Project Managers' Meeting	Kick-off Meeting	3	31	Project Manager, Counterparts (9) and extension workers (22)
2011.04.6-8	Battambang PDA/ KADC	Training Session 1	1) Salt-water seed selection, 2) Hot-water seed disinfection, 3) Soaking seeds, 4) Nursery preparation and Sowing, and 5) <i>Dapog (simple nursery)</i>	3	35	Counterparts (9) extension workers (22), seed farmers (4)
2011.04.28-29	Battambang PDA/ KADC	Training Session 2	1) Land preparation, 2)Types and characteristic of fertilizer, 3) Fertilizer application and timing (basal and top dressing), and 4) Transplanting (line planting).	2	35	Counterparts (9) extension workers (22), seed farmers (4)
2011.05.26-27	Battambang PDA/ KADC	Training Session 3	1) Fertilizer application, refresher, and 2) fertilizer application (first top dressing)	2	35	Counterparts (9) extension workers (22), seed farmers (4)
2011.06.16-17	Battambang PDA/ KADC	Training Session 4	1) Checking the panicle initiation; 2) fertilizer application (second top dressing)	2	35	Counterparts (9) extension workers (22), seed farmers (4)
2011.07.28-29	Battambang PDA	Monitoring Meeting 1	1) Preparation of yield survey, 2) Preparation for FFS 2012 (Identification of Transplanting sites); 3) Reviewing rainfall data; 4) case study of mutual help in Pursat	2	32	Counterparts (9) extension workers (23)
2011.08.30	Battambang PDA	Monitoring Meeting 2	1) Cropping calendar for each district; 2) pest and disease control	1	32	Counterparts (9) extension workers (23)
2011.09.13	Battambang PDA	Monitoring Meeting 3	Reviewing and study PDM	1	9	Counterparts (9)
2011.10.3	Battambang PDA	Monitoring Meeting 4	Group formation and farmers' cooperative	1	32	Counterparts (9) extension workers (23)
2011.10.27	Battambang PDA	Training Session 5	Crop cutting yield survey, usage of grain moisture meter, and yield calculation.	2	32	Counterparts (9) extension workers (23)
2011.12.28	Battambang PDA	Monitoring Meeting 5	Revising the FFS extension materials, and planning for 2012	1	31	Counterparts (9) extension workers (22)
2012.01.20	Battambang PDA	Project Managers' Meeting	Preparation of the First JCC meeting	1	12	Project Manager (3), Counterparts (9)
2012.01.26	MAFF, Phnom Penh	JCC meeting 1	Review of 2011 and planning of 2012; Revision of PDM	1	15	Chairman (1), PD (1), PM (3), Counterparts (10) and others
2012.01.30-31	Battambang PDA	Monitoring Meeting 6	Reviewing the FFS 2011; Planning for experiment at the KADC	2	32	Counterparts (9) extension workers (23)
2012.02.28-29	Battambang PDA	Monitoring Meeting 7	Finalizing the FFS extension materials and selection of demo sites; Preparation of experiment at the KADC	2	32	Counterparts (9) extension workers (23)
2012.04.30	Battambang PDA	Monitoring Meeting 8	Monitoring FFS2012, seed production	1	32	Counterparts (9) extension workers (23)
2012.05.28-29	Battambang PDA	Monitoring Meeting 9	Monitoring FFS2012 (household survey, growth observation), seed production, observation of KADC experiment	2	32	Counterparts (10) extension workers (23)
2012.06.26	Battambang PDA	Project Managers' Meeting	Monitoring FFS2012 (household survey, growth observation)	2	36	PM (3), Counterparts (10) and extension workers (23)
2012.07.11-13	Pursat PDA/ TLAS	TSC3 Collaboration Training Session 1	1) Seed preparation (seed selection and disinfection); 2) Seed incubation ; 3) Nursery bed making and sowing; 4) Introduction of the 10 prioritized varieties; 5) Renewal of seeds; 6) Introduction of FFS	3	25	TSC3 Counterparts (12), Pursat PDA (10), GDA (1), MOWRAM (2)

2012.07.20	Battambang PDA	Workshop on Rice Cultivation Training through Farmers' Field School and Commune Investment Program	1) Familiarize communes and districts staff with rice cultivation technologies recommended by the Project; 2) Familiarize the participants with the basic structure and implementation budget of the FFS; 3) Discuss issues to be addressed for sustainable agricultural development in each commune, and exchange views on agricultural extension activities to be included into the Commune Investment Program (CIP).	1	40	Commune council members (30), district council members (9), provincial staff (1)
2012.07.30	Battambang PDA	Monitoring Meeting 10	Monitoring FFS2012 (household survey, growth observation), and assessment and preparedness of drought impact	1	33	Counterparts (10) and extension workers (23)
2012.08.01-03	Pursat PDA/ TLAS	TSC3 Collaboration Training Session 2	1) Land preparation; 2) Line transplanting; 3) Fertilizer application (basal); 4) Fertilizer application: types and characteristic; and appropriate timing & amount; 5) Site visit: FFS sites including the Damnak Amnil model site	3	25	TSC3 Counterparts (12), Pursat PDA (10), GDA (1), MOWRAM (2)
2012.08.27-28	Battambang PDA	Project Managers' Meeting 4	Monitoring Operation 2012	2	36	PM (3), Counterparts (10) and extension workers (23)
2012.08.29	Banan SGG	Exchange Visit	Seed production (field visit to the Banan SGG)	1	24	Project staff from NGOs (GRET and CIRD) and farmers
2012.09.04-07	Pursat PDA/ TLAS	TSC3 Collaboration Training Session 3	1) Observation of Panicle Initiation (P.I.) and additional fertilizer application; 2) Growth survey method; 3) Dapog Nursery making practice; 4) Use of Drumseeder and its seeding practice; 5) Site visit : FFS demo sites & Rice millers	3	25	TSC3 Counterparts (12), Pursat PDA (10), GDA (1), MOWRAM (2)
2012.09.25-28	Battambang PDA	Monitoring Meeting 11	Monitoring FFS2012 on Demo farmer sites, Pilot groups and Seed Growers Group (SGG)	4	33	Counterparts (10) and extension workers (23)
2012.11.6-8	Pursat PDA/ TLAS	TSC3 Collaboration Training Session 4	1) Yield survey by "Cutting method" including sampling in the rice field and analysing method for estimating yield per square meters; 2) Overview of whole training course and evaluation; 3) Closing and certification ceremony	3	25	TSC3 Counterparts (12), Pursat PDA (10), GDA (1), MOWRAM (2)
2012.11.20-21	Battambang PDA	Monitoring Meeting 12	1) Update FFS 2012 by DF, PG & SGG; 2) End-line (yield) survey 2012	2	36	Counterparts (10) and extension workers (26)
2012.12.24-25	Battambang PDA	Monitoring Meeting 13	1) Update FFS 2012; 2) End-line (yield) survey 2012 (Continued)	2	36	Counterparts (10) and extension workers (26)
2013.01.21-22	Battambang PDA	Monitoring Meeting 14 & PM meeting	1) Making plan for 2013 FFS activities including new demo site selection by hearing from extension workers; 2) A presentation by Mr. Yamada for informing extension system and effort in other countries	2	39	PM(3), Counterparts (10) and extension workers (26)
2013.02.21-22	Battambang PDA	Monitoring Meeting 15	1) Discussion on extension methods; 2) Improvement of Signboard for FFS demo sites; 3) Production plan of rice cultivation guideline book (tentative title), 4) Update requirement of FFS materials 2013	2	43	Counterparts(10), Extension worker(26), SGG(7)
2013.02.22	Bannan, Battambang	FFS demonstration	1) Introduction of FFS techniques and its courses; 2) Demonstration of seed treatment practice	1	26	APPP Counterparts(2), Coop member farmers(22)

2013.03.12	Kampong Spue	TSC3 Collaboration FFS demo	1) Seed Treatment Demonstartion and guideline for demo sites of TSC3 project in Kampong Supu; 2) Nursery preparation as well as introduction of FFS techniqe guideline	1	24	APPP Counterpart (2), PDA K.Spue(2), TSC3 Counterparts(2), Farmers(18)
2013.03.21	Battambang PDA	Monitoring Meeting 16 & PM meeting	1) Briefing on End-line Survey results; 2) Discussion on farmers' guidebook; 3) Finalizing on FFS materials and sistribution arrangement; 4) Updating PG group membership	1	39	PM (3), Counterparts(10), Extension worker(26),
2013.04.03	Kampong Spue	TSC3 Collaboration FFS demo	1) Line Transplanting Method and its practice	1	22	APPP Counterpart (2), PDA K.Spue(2), TSC3 Counterparts(2), Farmers(16)
2013.04.10	Pursat PDA/ TLAS	Book keeping training for PG	1) Lecture of book keeping; 2) Book keeping exercise	1	21	Counterparts(2), Extension worker(1), 9 PGs in Pursat province (18)
2013.04.23-24	Battambang PDA	Monitoring Meeting 17	1) FFS demo farm 2013 monitering and reporting method; 2) SGG: Production Plan 2013, Inspection guideline, Monitering method update, SGG by laws update ; 3) PG	2	35	Counterparts(9), Extension worker(26),
2013.04.30	TSC3 (MOWRAM)	Training for TSC3 C/Ps	1) Agronomy basics; 2) Introduction of APPP FFS techniques and project activities	1	21	APPP Expert(1), Farming Management Counterparts (10), Irrigation Counterparts (10)
2013.05.21-22	Battambang PDA	Monitoring Meeting 18 & PM meeting	1) Making of FFS technical leaflet on seedtreatment 2) SGG: Production Plan 2013, Inspection guideline, Monitering method update, SGG by laws update ; 3) PG :Progress & result, Bylaw and Memberlist, FFS activities	2	39	PM (3), Counterparts(10), Extension worker(26),
2013.06.24-25	Battambang PDA	Monitoring Meeting 19	1) Progress reporting and monitoring record submission for demo farms, PG & SGG	2	35	Counterparts(9), Extension worker(26),
2013.07.23-24	Battambang PDA	Monitoring Meeting 20	1) Rice blast measures and information sharing, Instruction on the use of improved signboard for FFS demo field(paddy), Simple hydrometer making for use in seed treatment; 2) Progress reporting and monitoring record submission for demo farms, PG & SGG	2	36	Counterparts(10), Extension worker(26),
2013.08.22-23	Battambang PDA	Monitoring Meeting 21 & PM meeting	1) Information sharing on the use of drumseeder, Discussion of measures to water shortage cases in FFS demo sites, Making of farmer calender for keeping record of expenditure, Chemical use for disease control ; 2) Progress reporting and monitoring record submission for	2	35	Counterparts(9), Extension worker(26),
2013.09.25	Battambang PDA	Monitoring Meeting 22 & PM meeting	1) Progress reporting and monitoring record submission for demo farms, PG & SGG	1	39	PM (3), Counterparts(10), Extension worker(26),
2013.09.26-27	Khemala Hotel, Battambang	Workshop	A workshop titled as the "Workshop for Better Agricultural Service for Rice Farmers" was organized to share the experience and information for promoting improved agricultural extension servies.	2	90	11 NGOs in Battambang province, APPP Countertpats, PDA staff & extension workers
2013.10.21-22	Battambang PDA	Monitoring Meeting 23	1) Progress reporting and monitoring record submission for demo farms, PG & SGG; 2) Updating flood damage	2	36	Counterparts(10), Extension workers(26),
2013.11.21-22	Battambang PDA	Monitoring Meeting 24	1) Progress reporting and monitoring record submission for demo farms, PG & SGG; 2) FFS End-line survey progress; 3) Draft of JCC Presentation by Counterparts	2	35	Counterparts(9), Extension workers(26),
2013.12.23-24	Battambang PDA	Monitoring Meeting 25	1) Progress reporting and monitoring record submission for demo farms, PG & SGG; 2) FFS End-line survey progress; 3) SGG: Book keeping training for accountants	2	35	Counterparts(9), Extension workers(26),

2014.01.20-22	Battambang PDA	Monitoring Meeting 26 & PM meeting	1) Progress reporting of End-line survey for Demo farmers; 2) PG:Updating result of production and sale , Account book checking; 3) SGG: Annual activity report, Annual settlement of account, Activity plan 2014.	3	50	PM (3), Counterparts(10), Extension worker(26), SGG(11)
2014.02.24-26	Battambang PDA	Monitoring Meeting 27	1) DF: FFS action plan 2014, New demo farmer selection; 2)PG: PG awadee farmer selection, Seed procurement, 3) SGG: Updating Matrix on dry season cultivation, action plan 2014	3	36	Counterparts(10), Extension workers(26),
2014.03.20-21	Battambang PDA	Monitoring Meeting 28	1) Explanation on Rice Cultivation Technical Manual and Farmers' Calender, Assembly practice of Drum seeder; 2) PG: Preparartion of PG workshop for Action planning, Progress of Awards (Best & Good)	2	35	Counterparts(10), Extension workers(25),
2014.04.24-25	Battambang PDA	Monitoring Meeting 29 & PM meeting	1) End-line survey report presentation, Reminders on FFS operation 2014; 2) PG: Preparartion of PG workshop for action planning(-continued); 3) SGG: Preparation of Action Plan for wet-season 2014.	2	39	PM (3), Counterparts(10), Extension worker(26),
2014.05.22-23	Battambang PDA	Monitoring Meeting 30	1) Introduction of FFS training materials(revised ver.), Practice on making hydrometer ; 2) SGG: Preparation of Action Plan for wet-season 2014(continued); 3)PG:Progress of FFS in wet season 2014, Progress of accounting records.	2	35	Counterparts(9), Extension workers(26),
2014.06.24-25	Battambang PDA	Monitoring Meeting 31 & PM meeting	1) Progress report submission, JCC preparation; 2) Carbonized-husk making demo.; 3) Lecture on how to use herbicide; 4) FFS presentation practice; 5) SGG: Work plan update, Progress report & Growth Survey; 6) Update of Action Plan 2014, Progress of FFS, Plan of PG Sales Promotion.	2	38	PM (2), Counterparts(10), Extension worker(26),
2015.01.26-27	Stung Sankae Hotel Battambang PDA	Seminar	A seminar titled " Wide Area Extension on Intensive Rice Cultivation Technology" .	2	379	PDA& Farmers from10 provinces, 2NGOs, MAFF, BPAC project, Agronomy Students in 2 Universities, 3Cooperatives, Rice Millers
TOTAL				42	2,130	

Others

年度 Date	研修場所 Venue	項目 Item	研修内容 Contents	期間 Duration	参加者（数） Participants	
2011.07-11	Battambang PDA	Internship	Internship requested by Battmabang university and University of Management and Economics (UME)	5 months	10	Students from Bttambang Uniservisty
2012.05-09	Battambang PDA	Internship	Internship requested by Battmabang university and University of Management and Economics (UME)	5 months	5	Students from Bttambang Uniservisty
2013.05-11	Battambang Demo Farmer/SGG	Training	Training on genral rice cultivation method and seed production tehniques	5 months	2	Farm mnagemnet staff from JC Group campany.Ltd
2013.03	Battambang PDA	Short term study	Study requested by Tokyou University of Agriculture(TUA)	3 weeks	3	Students from TUA
2013.08	Battambang PDA	Short term study	Study requested by Tokyou University of Agriculture(TUA)	2 weeks	2	Students from TUA
2014.03	Battambang PDA	Short term study	Study requested by Tokyou University of Agriculture(TUA)	2 weeks	3	Students from TUA

Training Title	Duration & Venue	Trainers & Advisors	Participants	Training Contents	Evaluation & Effect
Training Course on Rice Cultivation Techniques for C/Ps & Extension Workers in 2011	Training 1: 3 days: 6-8 April Training 2: 2 days: 28 and 29 April Training 3: 2 days: 26 and 27 May Training 4: 2 days: 16 and 17 June (Venue: PDA-BTB and/or KADC ¹)	*Three (3) experienced C/Ps at PDA-BTB as trainer (un-experienced 6C/Ps as learners) *Experts as advisor	*22 extension workers	•10 rice varieties •Seed treatment •Nursery & Land Preparation •Line-transplanting • Dapog Seeding nursery method •Weeding & fertilization •Growth survey method	The extension workers who are to become instructors for FFS demo sites, were first of all trained on the FFS-techniques. 72% tainees were fully satisfied the contents of training(by questionnaire survey 2011).
Training for Extension Workers on Seed Production Techniques	May-July 2011 (intermittently conducted)	*C/P in chrg of seed as trainer *Expert as advisor	*3 extension workers in charge of SGGs in BTB	•Seed production techniques and quality standard •Rice varieties •Growth Testing method	The extension staff in charge of seed production were trained to initiate technical support to the SGGs in BTB.
Advanced Training Course for Extension workers in 2012	April-July, 2012 (Venue: PDA-BTB and /or KADC)	*Main initiative taken by C/Ps and extension workers *Experts as advisor	* 19 extension workers at PDA-BTB	•Comparative study for transplanting and direct sowing methods • Obtain experiment results on fertilization and planting density •Analysis and discussion on the result of experiment	The advance course was well carried out and attended by C/Ps and extension workers. It further upgraded practical knowledge and abilities of APPP personnel. 92% tainees were fully satisfied the contents of training(by questionnaire survey 2012).
Training on Rice Cultivation Method through Farmers' Field School (FFS) in 2012 (Collaboration with TSC3 project)	Session 1: 3 days, 11-13 July Session 2: 3 days, 1-3 August Session 3: 3 days, 4-6 September Session 4: 2 days, 1-2 October Session 5: 3 days, 22-24 October (Venue: PDA-Pursat and TAS ²)	*Four(4) APPP C/Ps as trainer, *Experts as advisor	*TSC3'sC/Ps & Pursat extension workers, total 26 participants	•10 rice varieties •Seed treatment •Nursery & Land Preparation • Dapog Seeding nursery method •Line-transplanting •Weeding & fertilization •Others	In collaboration with TSC3 ³ project, APPP's 4 C/Ps acted as trainers for training of 12PDA Officials from 6 provinces to be familiarized with FFS-techniques.
Workshop on Rice Cultivation Training through Farmers' Field School and Commune Investment Program in 2012	20 July 2012 (Venue: PDA-BTB)	*C/Ps (PDA-BTB) as lectures *Experts as advisors	*Commune council members (30), district council members (9), provincial staff (1) (Battambang Province)	1) Introduction of APPP's FFS rice cultivation technologies ; 2)Budgeting of FFS; 3) Issues to sustanable agriculture and aspects to include in Commune Investment Program (CIP).	Target commune council members were familiarized with APPP's FFS training programs.
Workshop for Better Agricultural Service for Rice Farmers	26-27 September 2013		*90 participants in all: international donors, local NGOs, PDA/BTB, C/Ps and extension workers	1)Presentations; 2)APP's site visit; 3)FFS demonstration; 4)Panel discussions.	International donors and local NGOs shared their experience in rendering agricultural services for rice cultivation farmers.
Monthly Monitoring Meetings, being used as opptunity of training & Study on issues.	Held once a month regularly since 2011 to date. 31times of the meetings were held as of 30 June 2014.	*C/Ps, Experts	*10C/Ps, 26 extension workers,4 Experts and 3 PJ staff	1)FFS monitoring system; 2)FFS techniques-related topics; 3)Seed production-related topics: 4)Farmer group management-related topics.	The meetings being used as opportunities of various trainings and study sessions, continuously upgraded skills and abilities of the extension workers and even C/Ps
Seminar on Wide Area Extension of Intensive Rice Cultivation Technology	26-27 January,2015 (venue: Stung Sanke Hotel & BTB-PDA compound)	*Experts & C/Ps (PDA-BTB) as a presenter. * All C/Ps & Ext staff as a lecturer for demonstration.	150 partipants from 10 provinces (PDA officers, Farmers, Agricultural Cooperatives, NGOs, Rice Millers, Agronomy Students from 2 Universities,BPAC project. etc)	1) Technical presentation on 4 topics 2) Grouo discussion for information sharing. 3) Demonstration of 4 techniches ('Dapog Seeding, Drum Seeder, Seed Treatment, Rice husk charcoal making)	Participants were given 7 kinds of technical manuals which project produced. And surged to request for more mnuals to their provinces.The tehcnical temonstrations on 2day was conducted in favor of participants and hundreds of neighboring farmers who came all the way to observe.
GROUP TRAINING COURSE ON IMPROVEMENT OF RICE CULTIVATION TECHNIQUES	March 8- October 30, 2015	JICA Tsukuba International Center	Ms Ros Ratha (C/P of Battannban PDA)	Rice Cultivation techniques, Extension methodology	—

1)KADC:Komping Puoy Agricultural Development Center, 2)TAS:Toul Lapov Agricultural Station,

3)TSC3:The Improvement of Agricultural River Basin Management and Development Project

(10) JCC開催実績/JCC Meeting Summaries during 2011-2015

ANNEX 9

JCC	Date	Venue	Major Agendas and Discussions
1st JCC	26 Jan. 2012	Meeting Room at MAFF	1)Activity Results of 2011 and Achievement of the Outputs in PDM:
			Six(6) presentations headed by Chief Advisor Mr Satoru Hagiwara were made to report the progress of the project. As a result, project operation and the results were endorsed.
			2)Revision of PDM:
			The both sided agreed to adopt the revised PDM as Version 2.0. Main revisions included to set indicators with numerical targets.
			3)Update plan of activities by proposal of the "Rolling Plan":
			As a result of the discussion, the proposed "Rolling Plan" which included numerical targets until the end of the project was accepted.
2 nd JCC (with Mid-Term Evaluation Report)	25 Oct. 2012	-do-	1)Progress reporting of 2012:
			Four(4) presentations headed by Chief Advisor Mr Satoru Hagiwara were made to report the progress of the project.
			2) Revision of PDM:
			The both sided agreed to adopt the revised PDM 2.0 as Version 3.0. Main revision included to clarify "agricultural product" as "Indica Rice".
			3) Mid-term evaluation report:
			As the conclusion, relevance, effectiveness and efficiency were evaluated "High" as all the perspectives felt well with steady progress and developing outputs. While, sustainability after the project termination was not yet evaluated defiantly though, as some of positive impacts were seen, further progress were expected to take place.
3rd JCC	13 Dec. 2013	-do-	1)Progress reporting of 2013:
			Four(4) presentations headed by Chief Advisor Mr Satoru Hagiwarawere made to report the progress of the project. One(1) presentation on "Market Demand for the 10 Prioritized Rice Varieties" was also made. Most of the discussion was concentrated on the issue of how to promote market demand and farmer's recognition on the "10 Prioritized Rice Varieties". Although there were no distinct answers made on the matter after all, but Chairman implys for seeking a possibility of nation wide survey on 10 varieties. Overall discussion was active.
4th JCC	18 Sep. 2014	-do-	1)Progress reporting of 2014:
			Four(4) presentations were made to report the progress of the project covering ①entire project achievement from 2010- 2014 by Chief Advisor.Mr Satoru Hagiwara, ②Highlights and progress of Activities by each PDA presented by representative C/P of 3 provinces.

			2) Reporting the result of Joint Terminal Evaluation
			Result of study on terminal evaluation was presented by JICA-MAFF Joint Evaluation Team, the project performances and achievement were reported with high evaluation and some recommendation was also made to both MAFF and the project.
5th JCC	25 Feb, 2015	-do-	1) Progress reporting of 2014 and prospective address on sustainable activities by PDA: Six(6) presentations were made. One(1) presentation by Chief Advisor Mr Satoru Hagiwara on the "Summary of Project achievement from 2011 to 2014", The others are addresses of C/P & Ext. Staff representatives on their impressions of having engaged in the APPP activities as project team member, and addresses by PDA Directors of three (3) provinces on the prospective activity plan by PDA to follow up the project achievement.
			2) Certificate hand-out and hand over manuals
			"Certificate of Contribution" signed by DG Mr SoKan Rhytikun & Chief Advisor Mr Satoru Hagiwara was handed out to all project team members in recognition of their contribution to the project activity.

活動実績一覧表(2015年3月20日現在)

ANNEX 10

項目	PDM指標	PDM指標(実績・達成度)	活動内容(PDM活動)	到達目標	進捗状況と実績	達成率	活動遅延理由	今後の計画
上位目標	対象地域の農家のインディカ米の単収が2.75トン/ha(2010年時点)から3.00トン/haにまで増加する。 対象地域の農家のインディカ米の総生産量(販売価格換算)が増加する。							
プロジェクト目標	1. デモ農家のインディカ米の単収が2.75トン/ha(2010年時点)から4.00トン/haにまで増加する。	2011年: 4.5 ton/ha (100%) 2012年: 4.3 ton/ha (100%) 2013年: 4.4 ton/ha (100%) 2014年: 4.1 ton/ha (100%)			2011年～2014年まで全て指標達成済み。	4		
	2. 研修に参加した農家のインディカ米の単収が2.75トン/ha(2010年時点)から3.50トン/haにまで増加する。	2011年: 2.7 ton/ha(77%) 2012年: 2.9 ton/ha(83%) 2013年: 3.3 ton/ha(94%) 2014年: 3.1 ton/ha(89%)				3		
	3. デモ農家のインディカ米の総生産量(販売価格換算)が増加する。	2010年一般農家基準(\$1,207/HH) 2011年: \$2,086/HH 2012年: \$2,271/HH 2013年: \$2,191/HH 2014年: \$2,276/HH *ANNEX17A 参照				4		
	4. 研修に参加した農家のインディカ米の総生産量(販売価格換算)が増加する。	2010年一般農家基準(\$1,207/HH) 2011年: \$1,364/HH 2012年: \$1,340/HH 2013年: \$1,592/HH 2014年: \$1,133/HH *ANNEX17A 参照				4		
成果1	1-1. カウンターパートの支援の下、26名の普及員がデモ農家と参加農家に対して880回以上の研修を実施できる。	(研修回数) & (指標達成度) 2011年: 265回 (30.1%) 2012年: 537回 (91.1%) 2013年: 501回 (148.0%) 2014年: 493回 (200.3%) 累計: 1,796回 (DF, PG, SGG 含む)	1-1. BAPEP, BRANDで構築・利用されてきたマネジメント体制及び現場の技術をレビューする。	1-1-1. Rolling Plan準備 1-1-2. 普及計画 (FFS Monitoring Matrix) 準備	1-1-1. →Rolling Plan策定済み →従前プロジェクトより引き継いだ技術や普及手法は大幅に改良・改善を図った(ANNEX15, 技術改善事例参照)。 1-1-2. →普及計画2011～2014年作成済み。	4	計画通り実施	完了
	1-2. 種子生産グループの担当普及員が圃場審査や種子検査技術を身につける。	2011年より、3名の当該普及員が技能を習得し、圃場審査及び品質検査を継4年間実施済み。	1-2. 州農業局の普及担当職員及び普及員に対する研修カリキュラムを作成する。	1-2-1. 研修計画(Training Outline)準備 1-2-2. 技術指導マニュアル準備 1-2-3. 普及教材の準備	1-2-1. 研修計画の策定→2011年～2014年策定済み。 1-2-2. 技術マニュアル作成 →2011年: FFS用一般稲作技術&SGG用種子生産技術マニュアル作成 →2013年: (マニュアル) ①Step-up your Knowledge on Rice Cultivation ②Drum Seeder Manual ③Farmer's Calenderの3種新規作成・製本化 1-2-3. 普及教材(技術サマリー版)作成 →2011年～2013年: キャンバス製大型技術ポスター3種及びA4サイズリーフレット制作 →2014年: 新規制作・製本化 ・キャンバス製大型技術ポスター改良版(1セット15枚組)新規制作 (以下マニュアル類を製本化・稲作地帯7州PDAに数百～千部単位で配布) ①Rice Seed production Manual ②Farmers Field School operation Guide for Extension officers ③Step up Your Knowledge on Rice Cultivation (Ver 2) ④Guideline on a group-Based Approach to supporting Rice Farmers ⑤Improvement Farmers income through FFS New Tehnology	4	計画通り実施	完了
	1-3. 普及員による普及サービスに対するデモ農家の満足度が平均80%以上となる。	平均満足度指数(指標達成度) 2011年: 100%(100%) 2012年: 100%(100%) 2013年: 100%(100%) 2014年: 100%(100%)	1-3. 州農業局の普及担当職員に対する研修を実施する。	1-3-1. 研修とOJTの実施 1-3-2. モニタリング会合の実施	1-3-1. →2011年: BTB KADCで実施したFF技術コース研修に全C/P(及び全普及員)が参加。 →2012年: PST州TASにて実施したTSC3連携研修にて、23名の研修員(6州PDA職員+MOWRAM職員)が受講した(指導講師はAPPP C/P4名)。 →2011年～2014年: OJT及びアドホックな小研修会、勉強会を実施 1-3-2. →毎月定期的に実施。	4	2013年11月よりモニタリング会合にプロマネ会合も併合して実施。	完了
	1-4. 普及員に対する研修を実施する。		1-4. 普及員に対する研修を実施する。	1-4-1. 普及員23名への研修実施 1-4-2. モニタリング会合の実施	1-4-1. →2011年, KADCにて普及員23名へFFS技術研修(4か月コース)を実施(アンケート結果、72%が大いに満足)。 →2012年, BTB普及員19名に対し上級研修(4か月コース)を実施(アンケート結果、92%が大いに満足)。 →2011年～2014年: OJT及びMM会合時を活用した小研修会、勉強会をに実施 1-4-2. →月例モニタリング会合は小研修及び勉強会の場としても活用	4	計画通り実施	完了
成果2	2-1. 80%以上の研修実施計画が実行される。	(指標達成度) 2011年: 100%* 2012年: 100%* 2013年: 100% 2014年: 100%	2-1. AEAを実施し対象コミュニティの状況を把握する。	2-1-1. AEA報告書作成	2-1-1. →2011年: 36コミュニティのAEA報告書を作成済み(PDAにも1セット36コミュニティ分供与済み)	4	計画通り実施	完了
	2-2. 対象コミュニティの半数以上において、コミュニティ投資計画に農業関連活動が含まれる。	*プロジェクト、コミュニティにより合同(コミュニティ投資計画に組込まれた形で実施)	2-2. AEAの結果を踏まえ、研修実施計画の作成を支援する。 ※活動2-2は、活動3-1と同一のもの。	2-2-1. 普及計画の準備・更新 ※活動2-2は、活動3-1と同一のもの。	2-2-1. ※活動3-1の進捗状況と実績を参照。	4	計画通り実施	完了
	2-3. 対象コミュニティの半数以上において、コミュニティ投資計画に農業関連活動が含まれる。	(CIP計画コミュニティ数(指標達成度) 2012年CIP: 30コミュニティ(100%) *2011年に作業 2013年CIP: 27コミュニティ(100%) *2012年に作業 2014年CIP: 26コミュニティ(100%) *2013年に作業	2-3. 女性グループ、水利グループ、その他農民組織を通し研修実施計画の実施・モニタリング・改善を支援する。 ※活動2-3は、活動3-2、3-3と同一のもの。	2-3-1. FFS(セッション1-4)の実施・モニタリング・改善 ※活動2-3は、活動3-2、3-3と同一のもの。	2-3-1. ※活動3-2、3-3の進捗状況と実績を参照。	4	計画通り実施	完了
			2-4. 農業関連活動のコミュニティ開発計画へ組込みを支援する。	2-4-1. 19以上のコミュニティによる研修計画のCIPへの組み込み	2-4-1. 対象郡およびコミュニティに対するFFS(研修計画)とCIPに関する説明会を完了。 →2011年: 6郡(21コミュニティ)のCIP会議で説明(2012年向けCIP) →2012年: 9郡(30コミュニティ)に対しワークショップ開催(2013年向けCIP)	4	計画通り実施	完了

項目	PDM指標	PDM指標(実績・達成度)	活動内容(PDM活動)	到達目標	進捗状況と実績	達成率	活動遅延理由	今後の計画	
成果3	参加農家の農業生産技術が改善される。	3-1. 研修参加農家のうち半数以上が研修活動において示される農業生産技術のうち少なくとも1種類を利用できる。 (採用技術数/人& 指標達成度) 2011年: 平均2.5技術/人(100%) 2012年: 平均7技術/人(100%) 2013年: 平均5技術/人(100%) 2014年: 平均6技術/人(100%) <u>2014年の技術別採用率</u> 圃場均平化 82% 苗床作り 30% 種子選別 88% 種子消毒 74% 3週間苗移植 39% 条植え(2-3本苗)29% 施肥技術 91% 異品種除去83% 除草82% *2014年 End line survey 結果より。	3-1. デモ農家を決定する。	3-1-1. 普及計画の準備・更新 3-1-2. サイトマップ準備・更新 3-1-3. 2014年までに176デモ農家設置を計画 2011年41サイト 2012年45サイト 2013年45サイト 2014年45サイト	3-1-1. 普及計画策定 →毎年策定の上実施済み 3-1-2. →プロジェクト事務所内に設置・更新 3-1-3. デモ農家設置実行サイト数 →2011年:41サイト (BTB 33, PST 6, KOC 2) →2012年:87サイト (BTB 68, PST 13, KOC 6) →2013年:89サイト (BTB 68, PST 14, KOC 7) →2014年:85サイト (BTB 65, PST 12, KOC 8) 合計:302サイト *データ出所:2011年~2015年 FFS実施モニタリングシート記録より	4	計画以上を実施	完了	
		3-2. 対象コミュニティのデモ農家に対して研修を実施する。	3-2-1. 農民圃場学校(FFS+FFD)1,535回 3-2-2. 参加農家延人数30,700人(見込み計画数)	農民圃場学校(FFS)実績 3-2-1. 一般農家研修回数(PG,SGGでのFFS含み合計数) 2011年:一般249回 (265回) 2012年:一般504回 (537回) 2013年:一般403回 (501回) 2014年:一般398回 (493回) 合計1,554回(1,796回) 3-2-2. 参加者延人数(PG,SGGでのFFS含み合計数) 2011年:4,018人(4,295人) 2012年:7,556人(7,999人) 2013年:6,270人(7,575人) 2014年:5,256人(6,626人) 合計23,100人(26,495人) *データ出所:2011年~2015年 FFS実施モニタリングシート記録より	4	干ばつと洪水被害の発生状況: →2011年:洪水(BTB, PST) →2012年:干ばつ(BTB, PST,KOC) →2013年:洪水(BTB) →2014年干ばつ(BTB)	完了		
		3-3. デモ農家が周辺農家に対し実施する研修を支援する。	3-4. インパクト調査を実施する。	3-4-1. 年次報告書(Annual Report)作成 3-4-1. 2011年~2014年End-Line 調査実施済み。同調査データ分析によりAnnual Report を作成・提出(→カ国MAFF & JICA))	4	計画通り実施	完了		
		4-1. 保証種子が2014年までに年間100トン以上生産されるようになる。	乾期作・雨期作/合計量(指標達成率/年) 2011年: 94.0 ton(94.0%) 2012年: 81.7 ton(81.7%) 2013年: 110.8 ton(100%) 2014年: 94.3 ton(94.3%)	4-1. 優良種子の生産対象の品種(早生種、中生種、晩生種)が選定される。	4-1-1. 優良種子生産対象の品種(早生種、中生種、晩生種)が選定される。 4-1-1. MAFF奨励10品種内から優良種子生産品種を選定。 →以下がプロジェクト活動枠の中でSGGが生産した品種。 早生種:IR 66, Chulsa 中生種:Phka Rumduol 晩生種:Riang Chey, CAR 4, CAR 6	4	計画通り実施	完了	
成果4	優良種子の生産・配布が促進される。	4-2. 優良原種が2014年までに年間1トン以上生産されるようになる。	(生産量&指標達成率) 2011年:3.3 ton (100%) 2012年:3.3 ton (100%) 2013年:4.4 ton (100%) 2014年:2.6 ton (100%)	4-2. 1. 作期当たり以下の研修を行う: ①圃場検査・調整・出荷・販売など種子生産の全般に関する研修、 ②種子準備、移植、追肥など栽培技術のための研修(FFS)	4-2-1. ①2011年、2012年計画通り実施済み。 ②2011年-2014年まで計画通りFFSを実施済み。	4	計画通り実施	完了	
		4-3 優良種子を利用する農家が1,000名以上となる。	(農家数&指標達成率) 2011年:41 戸 2012年:867戸~944戸(86.7%以上) 2013年:634戸~694戸(100%) 2014年:746戸~831戸(100%) <u>2014年までの累積:2288戸 ~2519戸</u> *直播+移植合計推計値:積算根拠は活動実績参考資料ANNEX17B参照	4-3. 優良種子圃場のモニタリングを定期的に実施する。	4-3-1. 種子生産圃場のモニタリング。 4-3-2. 種子生産圃場基準(暫定)、生産物基準(暫定)を策定する。 4-3-3. 種子生産圃場基準(暫定)及び、生産物基準(暫定)に沿った検査の実施。	4-3-1. →2011年から2014年まで継続的に普及員&グループリーダーがC/P支援の下検査・モニタリング票に基づき実施済み。 4-3-2. →種子生産圃場基準(PJ基準)、生産物基準(PJ基準)を策定済み。 4-3-3. →種子生産圃場基準(PJ基準)及び、生産物基準(PJ基準)に沿った検査を実施済み。	4	計画通り実施	完了
		4-4. 効果的な方法による優良種子の販売を支援する。	4-4-1. 販売促進活動の実施 →2011年~2012年:販売促進活動(チラシ配布、ポスター掲示、精米所や小売店への売り込みなど)を実施済み。SGG生産保証種子の名称決定(Samaki Seed)。 →2013年:BTB 3SGGでの契約栽培の促進と50トン生産・販売契約成立。販売促進用ラジオ広報番組制作・放送実施済み(1時間番組計4回、CM放送計300回)。 →2014年:販売促進用ラジオ広報番組の制作と放送実施済み(1時間番組計22回、CM放送774回) (ANNEX18参照)。	4-4-1. →2011年~2012年:販売促進活動(チラシ配布、ポスター掲示、精米所や小売店への売り込みなど)を実施済み。SGG生産保証種子の名称決定(Samaki Seed)。 →2013年:BTB 3SGGでの契約栽培の促進と50トン生産・販売契約成立。販売促進用ラジオ広報番組制作・放送実施済み(1時間番組計4回、CM放送計300回)。 →2014年:販売促進用ラジオ広報番組の制作と放送実施済み(1時間番組計22回、CM放送774回) (ANNEX18参照)。	4	計画通り実施	完了		
		5-1. 優良種子を利用して生産されたインディカ米の市場流通量の合計が2014年までに年間2,000トン以上となる。	(生産量&指標達成率) 2012年: 2,413 ton(100%) 2013年: 1712 ton(86%) 2014年: 3,010 ton(100%) *ANNEX17C 積算根拠参照	5-1. 農産物の流通改善のため、州政府・民間セクター・農家及びその他の関係機関の協働を支援する。	5-1-1. 現状把握調査の実施 5-1-2. 農家グループと精米業者、中間業者間の関係構築促進	5-1-1. →2011年-2012年:コメ流通調査実施済み。 5-1-2. →2013年:PGIによる精米業者訪問(6か所*)実施済み。 (*BTB3か所、PST2か所、KOC1か所) →2013年:SGGによる契約栽培に係る業者との契約成立。 →2014年:SGGによる契約栽培に係る業者との会合(契約成立)。技術セミナーへ5精米業者を招聘。	4	na	完了
成果5	州政府、民間セクター、農家等の協働により、受益農家のインディカ米の流通が改善される。	5-2. 対象3州において18以上の農家グループが農業資材の共同購入、プロジェクトのより導入された統一的な技術によるインディカ米生産、価格情報の共有、共同出荷もしくは共同販売などの共同作業を行う。	2011年: 3グループ (BTB州内3SGGs) 2012年: 6グループ (BTB州内3SGGs) (2PG(BTB州 1&PSAT州1) (KOC州内1preSGG) 2013年: 19グループ (4SGGs:BTB州3, KOC州1) (15PG:BTB州5, PST州9, KOC州1) 2014年: 19グループ (4SGGs:BTB州3, KOC州1) (15PG:BTB州5, PST州9, KOC州1)	5-2. 効果的な方法による農産物の流通・販売を支援する。	5-2-1. グループ化の手法を策定 5-2-2. グループ化推進(18グループ) 5-2-3. グループ化された農家による共同作業の促進。	5-2-1. グループ・ファンド・メカニズムを策定・導入した。 5-2-2. グループ化推進(設置実績) →2011年:BTB州3SGG →2012年:KOC州1SGG, BTB & PST州 計2 PG →2013年:BTB州4PG, PSAT州8PG, KOC州1PG 合計:19グループ(内訳4SGG, 15PG) 5-2-3. 共同作業の促進 →2011年:3SGGで資材共同購入・生産物共同販売を実施。 →2012年~2013年:4SGGで共同購入・共同販売を実施。 →2012年:2PGにて資材共同購入・生産物共同販売を実施。 →2013年:4SGG及び15PGにて資材共同購入、生産物共同販売(SGG+一部PGのみ)を実施。 →2014年:4SGG及び15PGにて資材共同購入、SGGによる生産物共同販売を実施。	4	(特記事項) 粗米販売市場傾向の変異(乾燥期→湿期)が急速に拡大しつつあるため、共同出荷/販売促進というPDM上の計画が成立しなかった。 2014年は干ばつによるへ平均収量の減(-3.6%)と主要米の市場価格が過去最低となったことから、農家の平均収益が大幅に下落した(-8.5%)。	完了

項目	PDM指標	PDM指標(実績・達成度)	活動内容(PDM活動)	到達目標	進捗状況と実績	達成率	活動遅延理由	今後の計画
			5-3. 効果的な取り組みについて農林水産省本省及び3州の間でセミナー等により情報共有を行う。	5-3-1.	5-3-1. →2012年コミュニケーションワークショップ(成果2関連)にて各種PJ活動情報・技術情報を配布。 →2013年コミュニケーション支援機関・団体ワークショップ(成果2関連)にて各種PJ情報・技術情報を配布。 →2014年1月「稲作技術広域普及セミナー」の開催(全国主要稲作地帯10州から稲作関係者約150人招聘、2日目は近隣農家約170名が加わり計370名)。2月には要望のあった全国5州への出前講座(講義と種子処理法デモ)を実施したほか、PJ作成技術マニュアル7種の全国10州へ配布済み(各州計数百部～数千部単位)。	4	計画通り実施	完了

注釈: 4.完了, 3.ほぼ完了(or完了見込み)、2.一部課題を残す、 1.活動せず

Output	Break down of activities	2010					2011												2012												2013												2014												2015		
		8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Output 1: Extension workers' abilities to implement extension activities are improved.	1-1. Review management system and the improved techniques developed and utilized in BAPEP and BRAND.	█					█												█												█												█												█		
	1-2. Prepare the training curriculum for PDA staff in charge of extension.	█					█												█												█												█												█		
	1-2-1. Collect existing technical manuals and teaching materials	█					█												█												█												█												█		
	1-2-2. Develop and prepare new technical and teaching materials	█					█												█												█												█												█		
	1-2-3. Design demo-farms, cropping method and monitoring plan	█					█												█												█												█												█		
	1-3. Conduct training for PDA staff in charge of extension.	█					█												█												█												█												█		
	1-3-1. Practice how to instruct extension workers by using designed teaching materials.	█					█												█												█												█												█		
	1-3-2. Conduct training on FFS	█					█												█												█												█												█		
1-4. Conduct training for extension workers.	█					█												█												█												█												█			
1-4-1. Give lectures and conduct field trainings	█					█												█												█												█												█			
1-4-2. Conduct training workshops.	█					█												█												█												█												█			
Output 2: Activities for the improvement of farm management are promoted by the target communes.	2-1. Implement AEAs in order to grasp the situation of the target communes.	█					█												█												█												█												█		
	2-2. Support drafting Training Implementation Plan based on the results of AEAs	█					█												█												█												█												█		
	2-3. Support implementation, monitoring and improvement of training Implementation Plan through women groups, water user groups and other farmer groups.	█					█												█												█												█												█		
	2-4. Support inclusion of agricultural activities into Commune Investment Plan.	█					█												█												█												█												█		
	2-4-1. Provide guidance on training implementation plan (FFS) for communes and relevant institutions.	█					█												█												█												█												█		
	2-4-2. Monitor the progress and results of Commune Investment Plan process.	█					█												█												█												█												█		
Output 3: Agricultural production techniques of participating farmers are improved.	3-1. Select Demo-farmers.	█					█												█												█												█												█		
	3-1-1. Profile candidate demo farmers by extension workers.	█					█												█												█												█												█		
	3-1-2. Finalize selection of demo farmers by counter part personnel	█					█												█												█												█												█		
	3-2. Implement training for demo-farmers in the target communes.	█					█												█												█												█												█		
	3-2-1. Conduct guidance to demo farmers by counterparts and extension workers	█					█												█												█												█												█		
	3-2-2. Operate the demo plots by the demo farmers	█					█												█												█												█												█		
	3-3. Support Demo-Farmers to implement training for neighbouring farmers.	█					█												█												█												█												█		
	3-4. Conduct impact surveys.	█					█												█												█												█												█		
Output 4: The production and distribution of quality seeds are promoted.	4-1. Select target varieties of quality seed	█					█												█												█												█												█		
	4-1-1. Study prioritized varieties' characteristic and marketability in the target provinces	█					█												█												█												█												█		
	4-2. Conduct technical training for seed grower groups of quality seeds.	█					█												█												█												█												█		
	4-2-1. Develop and prepare a reference of certified seed production	█					█												█												█												█												█		
	4-2-2. Conduct training for PDA staff and extension workers in charge of seed production	█					█												█												█												█												█		
	4-2-3. Conduct training for seed growers by extension workers.	█					█												█												█												█												█		
	4-3. Conduct monitoring activities regularly at quality seed farms.	█					█												█												█												█												█		
	4-3-1. Collect the existing standard of seed production and formulate necessary standards which are not existing.	█					█												█												█												█												█		
Output 5: The distribution of agricultural products is improved for the beneficiary farmers through the collaboration of the provincial government, private sectors and farmers	5-1. Promote the collaboration between the provincial government, private sectors, farmers and other related organizations in order to improve the distribution of agricultural products.	█					█												█												█												█												█		
	5-1-1. Conduct survey on market situation to understand needs of rice paddy buyers and producers (farmers).	█					█												█												█												█												█		
	5-1-2. Support farmer groups' activity for marketing and sales of agricultural products to buyers in private sector.	█					█												█												█												█												█		
	5-2. Promote effective ways of distribution and sales of agricultural products	█					█												█												█												█												█		
5-2-1. Develop or reexamine methodology to improve distribution & sales through farmer group formation.	█					█												█												█												█												█			
5-2-2. Organize farmer groups and give instruction on organization management.	█					█												█												█												█												█			
5-2-3. Conduct training on rice cultivation for farmer groups.	█					█												█												█												█												█			
5-2-4. Give instruction on marketing and sales of agricultural products for farmer groups.	█					█												█												█												█												█			
5-3. Share information on successful activities among MAFF HQ and the three provinces through seminars, etc	█					█												█												█												█												█			
Evaluation / Mission	█					█												█												█												█												█			
JCC	█					█												█												█												█												█			

█ Primary schedule designed by Detail Design Survey █ Revised Plan designed by APPP █ Track of actual implementation on the major subject components █ Track of actual implementation on the activities in break-down

Quality Rice Seed Production

ANNEX12

Battambang Province

Year	Cropping Season	Planted Area (ha)	Number of Rice Seed Growers	Amount of Certified Seed Production (tons)	Amount of Registered Seed Production	Rice Yield (tons/ha)	Main Varieties	Main Activities	Achievements	Issues
2011	Dry Season	0.0	0	0.0	0.0	-	-	•Variety Selection •FFS	•Characteristics of 10 varieties were studied. •FFS: 16 times with 277 participants	-
	Rainy Season	37.0	68	94.0	3.3	2.6	Phka Rumdoul, Riang Chey, CAR4	•Field & Seed Inspections •Facility Development & purchase of equipment	•Field Inspection: 12 times •Warehouse constructed for the 3 SGGs •A set of equipment was donated to the 3 SGGs.	
2012	Dry Season	5.1	14	15.1	0.0	3.0	IR66	•FFS	•FFS: 18 times with 230 participants •Field Inspection: 16 times	•Drought and flood in Moung Russei SGG
	Rainy Season	23.5	40	57.9	1.6	2.5	Phka Rumdoul, CAR4	•Field & Seed Inspections •Sales Promotion	•Sales Promotion: (1) Negotiated with a rice miller for contract (2) Distribution of brochure •Drying floor was constructed for Bavel SGG.	
2013	Dry Season	8.5	13	17.9	0.0	2.1	Chulsa	•FFS •Field & Seed Inspections	•FFS: 18 times with 197 participants •Field Inspection: 16 times	•Floods in Banan and Bavel SGGs
	Rainy Season	26.2	49	71.7	3.5	2.9	Phka Rumdoul	•Bookkeeping Training •Sales Promotion	•Sales Promotion: (1) Contracted with a rice miller for 50 tons of seed (2) Radio programs and CM broadcasted on seed sales (3) Installation of signboard	
2014	Dry Season	3.6	6	7.4	-	2.1	Chulsa	•FFS •Field & Seed Inspections	•FFS: 20 times (planned) •Field Inspection: 16 times (planned)	•Drought damage in Moung Russei SGG(BTB) and Pursat TAS
	Rainy Season	25.5	47	61.8	2.2	2.4	Phka Rumdoul	•Sales Promotion	•Sales Promotion: (1) Sales contracts with rice millers (2) Broadcast radio programs and CM (planned)	

Pursat Province

Year	Cropping Season	Planted Area (ha)	Number of Rice Seed Growers	Amount of Rice Seed Production (tons)	Amount of Registered Seed Production	Rice Yield (tons/ha)	Main Varieties	Main Activities	Achievements	Issues
2011	Dry Season	0.0	0	0.0	0.0	-	-	-	-	-
	Rainy Season	0.0	0	0.0	0.0	-	-	-	-	
2012	Dry Season	0.0	0	0.0	0.0	-	-	•Technical guidance	•Office building renovated and bathroom constructed	-
	Rainy Season	1.2	1	3.2	0.6	3.2	Phka Rumdoul	•Renovation of facilities	•Thresher, winnower, and hand tractor donated •More than 3 tons of quality seeds produced for the first time.	
2013	Dry Season	0.0	0	0.0	0.0	-	-	•Technical guidance	•Warehouse and farm road renovation	•Insufficient soil fertility
	Rainy Season	3.5	1	8.4	0.9	2.6	Phka Rumdoul	•Renovation of facilities	•Drying floor constructed • Installation of signboard	
2014	Dry Season	1.0	1	-	-	-	Chulsa	•Dissemination of seed production technique to farmers	•FFS: 5 times (planned) •Field Inspection: 4 times (planned)	•Application of Calcium Silicate
	Rainy Season	6.7	6	14.3	0.4	2.1	Phka Rumdoul	•Application of soil improvement materials	•Sales Promotion: (1) Sales contracts with rice millers (2) Broadcast radio programs and CM (planned)	

Kampong Chhnang Province

Year	Cropping Season	Planted Area (ha)	Number of Rice Seed Growers	Amount of Rice Seed Production (tons)	Amount of Registered Seed Production	Rice Yield (tons/ha)	Main Varieties	Main Activities	Achievements	Issues
2011	Dry Season	0.0	0	0.0	0.0	-	-	-	-	-
	Rainy Season	0.0	0	0.0	0.0	-	-	-	-	
2012	Dry Season	0.0	0	0.0	0.0	-	-	•FFS	•FFS: 5 times with 50 participants	-
	Rainy Season	2.1	10	5.5	1.1	3.2	Phka Chan Sen Sar, CAR4	•Field & Seed Inspections	•Field Inspection: 4 times •Thresher and winnower donated	
2013	Dry Season	0.0	0	0.0	0.0	-	-	•FFS	•FFS: 5 times with 90 participants	•Mixed varieties in nursery
	Rainy Season	3.5	17	12.8	0.0	3.7	Phka Rumdoul, CAR4	•Field & Seed Inspections •Sales Promotion	•Field Inspection: 4 times •Sales Promotion: (1) Contacted rice millers for sale promotion (2) Installation of signboard •Warehouse and drying floor constructed	
2014	Dry Season	0.0	0	-	-	-	-	•FFS	•FFS: 5 times (planned)	-
	Rainy Season	3.2	12	10.8	-	3.4	Phka Rumdoul	•Field & Seed Inspections •Sales Promotion	•Field Inspection: 4 times (planned) •Sales Promotion: (1) Sales contracts with rice millers (2) Broadcast radio programs and CM (planned)	

Battambang province

Year	Cropping Season	Planted area (ha)	Number of Pilot Groups	Number of farmers of PG	Rice Yield (t/ha)	Amount of Rice Production (t)	Main varieties	Number of PGs that carried out Collective Actions					Main Activities	Achievements	Issues
								Input purchase	Standard technology	Sharing price info.	Shipping or sales	Total			
2011	Rainy season	0	0	0	-	-	-	0	0	0	0	0	-	-	-
2012	Rainy season	10.0	1	10	3.4	34.0	Phka Rumduol	0	1	1	1	1	<ul style="list-style-type: none"> Organizing a new PG. Introduction of the group fund system. FFS and inspection. Support for marketing and sales. 	<ul style="list-style-type: none"> One new PG was organized. The group fund system was introduced to 1 PG. FFS: 5 times for 1 PG with 50 participants. Collective paddy sales were practiced by 1 PG. 	<ul style="list-style-type: none"> Drought in 1 PG. Practicing collective paddy sales was not welcomed by members.
2013	Rainy season	47.0	5	76	2.8	107.2	Phka Rumduol	1	5	3	0	5	<ul style="list-style-type: none"> Organizing new PGs. Introduction of the group fund system. FFS and inspection. Training on account bookkeeping. Support for marketing and sales. 	<ul style="list-style-type: none"> 4 new PG was organized and introduced the group fund system. Collective purchase of inputs was practiced by 1 PG. FFS: 25 times for 5 PGs with 314 participants. Visit to rice millers was conducted by 3 PGs for marketing. Training on account bookkeeping was practiced at each PG site. 	<ul style="list-style-type: none"> Serious floods especially in 2 PGs. Low paddy sales price. Improper record in group fund management.
2014	Rainy season	52.0	5	86	2.9	150.8	Phka Rumduol, Sen Kro Ob	4	5	5	0	5	<ul style="list-style-type: none"> FFS and inspection. Training on account bookkeeping. Support for marketing and sales. 	<ul style="list-style-type: none"> Collective purchase of inputs was practiced by 4 PGs. FFS: 25 times for 5 PGs with 338 participants. Drum seeders were introduced to 4 PGs. Training on account bookkeeping was practiced for 5 PGs together. Broadcast radio programs for sales promotion 	<ul style="list-style-type: none"> Serious drought in 2 PGs. Repayment rate was low in 2 PGs Lower sales price

Pursat province

Year	Cropping Season	Planted area (ha)	Number of Pilot Groups	Number of farmers of PG	Rice Yield (t/ha)	Amount of Rice Production (t)	Main varieties	Number of PGs that carried out Collective Actions					Main Activities	Achievements	Issues
								Input purchase	Standard technology	Sharing price info.	Shipping or sales	total			
2011	Rainy season	0	0	0	-	-	-	0	0	0	0	0	-	-	-
2012	Rainy season	23.0	1	23	2.4	N.A.	Phka Rumduol	0	1	1	1	1	<ul style="list-style-type: none"> Organizing a new PG. Introduction of the group fund system. FFS and inspection. Support for marketing and sales. 	<ul style="list-style-type: none"> 1 new PG was organized. The group fund system was introduced to 1 PG. FFS: 5 times for 1 PG with 129 participants. Collective paddy sales were practiced by 1 PG. 	<ul style="list-style-type: none"> Serious drought. Low paddy sales price. Practicing collective paddy sales not welcomed by members.
2013	Rainy season	67.5	9	135	3.7	243.6	Phka Rumduol	1	9	9	0	9	<ul style="list-style-type: none"> Organizing new PGs. Introduction of the group fund system. FFS and inspection. Support for marketing and sales. Training on account bookkeeping. 	<ul style="list-style-type: none"> 8 new PG was organized and introduced the group fund system. Collective purchase of inputs was practiced by 1 PG. FFS: 45 times for 9 PGs with 628 participants. Visit to rice millers was conducted by 9 PGs for marketing. Training on account bookkeeping was practiced for 9 PGs together. 	<ul style="list-style-type: none"> Outbreak of rice blast (70% of the PG members were affected). Low paddy sales price.
2014	Rainy season	75.5	9	151	3.3	249.15	Phka Rumduol & Somaly	9	9	9	0	9	<ul style="list-style-type: none"> FFS and inspection. Introduction of drum seeders. Support for marketing and sales. Instruction on account bookkeeping. 	<ul style="list-style-type: none"> Collective purchase of inputs was practiced by 9 PGs. FFS: 51 times with 714 participants. Drum seeders were introduced to 6 PGs. Broadcast radio programs for sales promotion 	<ul style="list-style-type: none"> Outbreak of rice blast and rice thrips. Low paddy sales price. Water shortage

*Rice yield in Pursat (2012) is based on a sample survey (end-line survey) results. Total amount of rice production of the group (2012) is not available in the survey.

Kampong Chhnang province

Year	Cropping Season	Planted area (ha)	Number of Pilot Groups	Number of farmers of PG	Rice Yield (t/ha)	Amount of Rice Production (t)	Main varieties	Number of PGs that carried out Collective Actions					Main Activities	Achievements	Issues
								Input purchase	Standard technology	Sharing price info.	Shipping or sales	total			
2011	Rainy season	0	0	0	-	-	-	0	0	0	0	0	-	-	-
2012	Rainy season	0	0	0	-	-	-	0	0	0	0	0	-	-	-
2013	Rainy season	4.8	1	16	2.8	13.4	Phka Rumduol	0	1	1	0	1	<ul style="list-style-type: none"> Organizing a new PG. Introduction of the group fund system. FFS and inspection. Support for marketing and sales. Training on account bookkeeping. 	<ul style="list-style-type: none"> 1 new PG was organized and introduce the group fund system. FFS: 5 times for 1 PG with 76 participants. Visit to rice millers was conducted by 1 PG for marketing. Training on account bookkeeping was practiced for 1 PG. 	<ul style="list-style-type: none"> Floods in 1 PG.
2014	Rainy season	5.4	1	18	3.8	20.5	Phka Rumduol	1	1	1	0	1	<ul style="list-style-type: none"> FFS and inspection. Instruction on account bookkeeping. Support for marketing and sales. 	<ul style="list-style-type: none"> Collective purchase of inputs was practiced by 1 PG. FFS: 5 times with 78 participants. Broadcast radio programs for sales promotion. 	<ul style="list-style-type: none"> Water shortage at nursery stage Low paddy sales price

in 3 provinces (Total)

Year	Cropping Season	Planted area (ha)	Number of Pilot Groups	Number of farmers of PG	Rice Yield (t/ha)	Amount of Rice Production (t)	Main varieties	Number of PGs that carried out Collective Actions					Main Activities	Achievements	Issues
								Input purchase	Standard technology	Sharing price info.	Shipping or sales	total			
2011	Rainy season	0	0	0	-	-	-	0	0	0	0	0	-	-	-
2012	Rainy season	33.0	2	33	N.A.	N.A.	Phka Rumduol	0	2	2	2	2	<ul style="list-style-type: none"> Organizing new PGs. Introduction of the group fund system. FFS and inspection. Support for marketing and sales. 	<ul style="list-style-type: none"> 2 new PGs were organized and introduced the group fund system. The group fund system was introduced to 2 PGs. FFS: 10 times for 2 PGs with 179 participants. Collective paddy sales were practiced by 2 PGs. 	<ul style="list-style-type: none"> Drought in 2 PGs. Low paddy sales price. Practicing collective paddy sales was not welcomed by members.
2013	Rainy season	119.3	15	227	3.3	364.2	Phka Rumduol	2	15	13	0	15	<ul style="list-style-type: none"> Organizing new PGs. Introduction of the group fund system. FFS and inspection. Training on account bookkeeping. Support for marketing and sales. 	<ul style="list-style-type: none"> 13 new PG were organized and introduced the group fund system. Collective purchase of inputs was practiced by 2 PGs. FFS: 75 times for 15 PGs with 1,018 participants. Visit to rice millers was conducted by 13 PGs for marketing. Training on account bookkeeping was practiced. 	<ul style="list-style-type: none"> Serious floods in Battambang (especially 2 PGs). Outbreak of rice blast especially in Pursat Low paddy price. Improper record in group fund management.
2014	Rainy season	132.9	15	255	3.2	420.5	Phka Rumduol, Sen Kro Ob & Somaly	14	15	15	0	15	<ul style="list-style-type: none"> FFS and inspection. Training and instruction on account bookkeeping. Introduction of drum seeders. Support for marketing and sales. 	<ul style="list-style-type: none"> Collective purchase of inputs was practiced by 14 PGs. FFS: 81 times with 1,130 participants. Drum seeders were introduced to 10 PGs. Broadcast radio programs for sales promotion. 	<ul style="list-style-type: none"> Serious drought in Battambang (especially 2 PGs) and water shortage in the other 2 provinces. Repayment rate was low in 2 PGs Lower paddy sales price

Output produced by APPP (Teaching Materials, Technical Manuals and Reports, etc)

Classification	Kind or Title of Material	Size	Produced timing	Purpose	Content	Word	#printing	Distribution Targets
Public Relations & Promotion	Outline of APPP	A4	2011- revision continuing	General P.R	Outline of activities and outcomes	JP/Eng	printed in PJ office	Project Visitors, JICA officials, etc
	Poster for Seed sale promotion (3kinds)	A2	Sept, 2012	Sale promotion	Expalananation of SGG and its produced Seed	Khmey	100	SGG, Demo Farmers, Village Bulletin board
	Leaflet for Seed sale promotion	A4	Oct, 2011	Sale promotion	Expalananation of SGG and its produced Seed	Khmey	20,000	FFS participants, Framers in village, Ricemillers
	Poster for Seed sale promotion	A2	Jan, 2014	Sale promotion	Expalananation of SGG and its produced Seed	Khmey	300	FFS participants, Framers in village, Ricemillers, Village Bulletin board
Teaching Material for extension	Technical Poster for FFS (Printed on large vinyl canvas sheet)	1.5m×2.3m	April, 2011	FFS	Cultivation techniques (flow)	Khmey	240	Demo Farmers, Community Hall, etc
	Technical Poster for FFS (stage pecific) (Printed on large vinyl canvas sheet)	1.1m×2.3m	April, 2012	FFS	Focus on individuali Techniquis	Khmey	130	Demo Farmers, FFS participants, PG members
	[Ver.2] Technical Poster (techniques on cultivation stages) for FFS (15kinds/set) (Printed on large vinyl canvas sheet)	0.9m×1.4m	Jun, 2014	FFS	Focus on individual Techniquis	Khmey	30 sets	Demo Farmers, FFS participants, PG members
	Technical Poster for SGG (Printed on large vinyl canvas sheet)	1.5m×2.3m	April, 2011	SGG	Cultivation techniques (flow)	Khmey	5	SGG
	Leaflet for Rice Cultivation Technology	A4	April, 2011	FFS	Cultivation techniques (flow)	Eng/Khmey	20,000	FFS participants, Framers in village, Ricemillers, Village Bulletin board
	Group fund Mechanizm (Printed on large vinyl canvas sheet)	1.5m×2.3m	May, 2012	PG	Flow of group funding and spending	Khmey	30	Pilot Group (PG) members
Technical Mnual	APPP Recommended Seed Production Technology	A4	May, 2011	SGG	Rice cultivation Techniques and Inspection Standerd	Eng/Khmey	printed in PJ office	C/P & Ext staff in charge of seed production
	APPP Recommended Rice Cultivation Technology	A4	April, 2012	C/P trainig	Rice cultivation techniques and its expalananation	Eng/Khmey	printed in PJ office	C/P, PDA officials, Ext Staff
	Drum Seeder Manual	A4	March, 2014	FFS, PG	How to use DS and technical explanation	Eng/Khmey	6,200	C/P, Ext staff, Demo Farmers, FFS participants, PG members
	Issue Specific Technical Manual (1st Ver) "Step up your knowledge on rice cultivation"	A3	March, 2014	FFS, PG	Issue Specific on rice cultivation techniques and its expalananation	Eng/Khmey	4,000	C/P, Ext staff, Demo Farmers, FFS participants, PG members
	Farmer's Calender (Farming Management)	A3	March, 2014	FFS	Rice cultivation process and cost record calender	Eng/Khmey	7,200	C/P, Ext staff, Demo Farmers, FFS participants, PG members
	[Rivision] Issue Specific Technical Manual "Step up your knowledge on rice cultivation" (Ver 2)	A3	December, 2014	Seminar and General extension	Isue specific technical manuals for general farmers and for the instructors.	Eng/Khmey	7,200	C/P, Ext staff, Demo Farmers, FFS participants, PG members
	Rice Seed Production Manual	A4	December, 2014	SGG	Production process, techniques and technical standerds	Eng/Khmey	3100	C/P, Ext staff, SGG members Other seed production farmers

	Guideline on a Group-Based Approach to Supporting Rice farmers	A4	December, 2014	Distribution Improvement	GroupFund mechanizm, Group activity, Management Criteria	Eng/Khmey	1,420	C/P, Ext staff
	Improvement of Farmer's Income through new FFS Technology (*Produced by BTB C/P task team)	A4	December, 2014	Extension	Techniques intruduced in FFS are explained as easy as possible.	Khmey	6,500	Farmers in general
Reports/ Mnuals	Annual Report on Project Activities	A4	2011 - 2013	Report to JICA & MAFF	Analysis on FFS & PG Endline Survey	Jap/Eng /Khmey	-	JICAOffice • JICA HQ MAFF GDA
	Report on Farmers Organization (by Short term expert)	A4	March,2011	Distribution Improvement	Survey resolt on rice miller and Farmers group	Jap/Eng	-	JICAOffice • JICA HQ MAFF GDA
	TSC3 collabration training cariculum	A4	November,2012	C/P training	Training calicuram & Technical mannual	Eng/Khmey	30	JICAOffice • JICA HQ MAFF GDA
	Rice distribution report	A4	December,2012	Distribution Improvement	Analysi on rice miller demand, social /economical issues of farmers.	Jap/Eng	-	JICAOffice • JICA HQ MAFF GDA
	Questionnaire survey on CIP(2013)	A4	May,2013	Commune activity	Result of CIP related to intake of commune proposal for training	Jap/Eng	-	JICAOffice • JICA HQ
	Report on the Work Shop titled " better agricultural service"	A4	September,2013	Commune activity	Commune suppot by NGO & Donor	Jap/Eng	50	JICAOffice • JICA HQ MAFF GDA, WS participant organization & body
	Project Completion Report	A4	March ,2015	JICA & MAFF	Summary of all category of activities in 4years activities.	Jap/Eng	-	JICAOffice • JICA HQ MAFF GDA
Equipment	Rice husk charcoal maker	-	June,2014	SGG	Making carcoal from rice husk	-	8 units	SGG members, Ext Staff training

APPPによる前プロジェクト継承技術の改善及び新規適用技術の導入実績

改善(改良)課題	改善(改良)内容
種子処理手法の改善 (種子選別及び温湯消毒)	1 従前プロジェクト(BRAND)当時、種子処理技術(種子選別及び温湯消毒)の指導において、種子選別には水汲み用のバケツを使い、温湯消毒には家庭用なべを利用して行う方法を指導してきた。これは各農家が個人で種子処理を行うことを前提にしていたためと思われる。APPPでは苗の病虫害防除の観点を重視し、病気の地域的発生・拡散予防の観点から地域農家が一齐に種子処理した方が効果的と判断し、キー農家(デモ農家)を中心に地域の農家が集まって集団で種子処理することを前提に、それに必要な資材として半切りドラム缶や大型タライ、安価なネット等を利用する方法を立案しデモンストレーション及び実技指導を行ってきた。また種子の選別においては従前から塩水選方式を指導してきたが、APPPでは大量の塩を使う塩水液以外の手法として尿素肥料の希釈液(比重1.1に調整)を使った種子選別法も発案し指導してきた。尿素希釈液は種子選別作業終了後に畑の肥料としても使え無駄にならないメリットがある。また、種子選別に係る肥料コスト負担も考慮し、淡水だけを使った水選方法も選択肢として併せ指導を行ってきた。
ダボッグ式育苗技術の導入	2 プロジェクト対象地域では大規模な自然災害(干ばつや洪水)の発生により、毎年のように播種期や生育初期或いは登熟期の稲に甚大な被害を与えている。このような被害水田での再移植には雨期の作付け可能期間の制約もあり、スピーディーな苗の再準備が求められることから苗床の設置場所を選ばず速やかに育苗できるダボッグ式育苗技術をプロジェクト開始初年度(2011)のC/P&普及員研修にて導入し、以降普及員を通じて少しずつ農家に普及を行ってきた。また、2012年の洪水期には被災農家への再移植用水稲苗の供給に必要な緊急支援要請がバタンバンPDAからプロジェクトに対しなされたため、PDA玄関前の広場全域を使い専門家の指導の下、10ha分のダボッグ苗床を3日間で緊急造成、2週間で育苗しPDAに供与した。これはC/PやPDA職員にとってはめったに経験できないダボッグ式育苗方式による大量育苗を実践する機会として、技術移転の観点からも非常に効果的であった。
ドラムシーダー(DS) (人力牽引型播種機)の 導入・普及	3 カンボジアでは直播(散播)による水稻栽培が広範囲に行われている。とりわけプロジェクト対象地域(コミュニン)の8割を占めるバタンバン州では作付けの95%以上が直播(散播)方式と言われている(PDA情報)。慣行農法としての長年の直播(散播)習慣からの脱皮は想像するほど容易なものではなく、また農家の移植方式への大きな抵抗感(人夫賃等コストや手間暇がかかる等)は想像以上であり、従前2つのプロジェクト時代(BAPEP、BRAND)から推進してきた当該地域での移植方式の普及は極めて困難であるとの認識に至った。その改善策として技術的検討を行った結果、ドラムシーダー(DS)の普及がより現実的である(*移植用人件費がかからず、稲の生育上からもより望ましい環境が作れ、価格的にも一般農家が十分手に入れられる)と判断され、またMAFFでも同様の認識からドラムシーダーの普及を図ろうと対応し始めたことから、プロジェクトとしてもプロジェクト2年次から同機材の利用・普及を積極的に進めてきた。2014年はプルサット州にも広めつつある。(*MAFF側のDS普及活動は2012年乾期のみでストップ)
籾殻燻炭製造器の 製作と導入	4 プロジェクトでは当初より一般苗床造成やダボッグ式育苗法に籾殻燻炭利用を推奨してきた。しかしながらレンガ工場等で入手できるものは籾殻燻炭というより籾殻灰にちかく、苗床用には理想的ではないため、プロジェクトでデザインした比較的安価(115 \$ /1器)で製造できる簡易籾殻燻炭製造器を町のワークショップにて製作し、種子生産グループ向けに導入し始めた。これにより適正な籾殻燻炭がいつでもできるようになった。
普及手法・ツールの改善	5 FFDからFFSへ変更 従前BRAND プロジェクトでは技術普及はFFD(Farmers Field Day)と称する日を設定し、4コミュニン毎に農家を中心とした不特定多数のコミュニン及び村落関係者を招聘し1日の研修会(作付け期での種子処理手法、収穫期でのデモ農家の収量結果及び技術全体のお披露目会等)を開催するという普及方法であった。APPP開始後、普及方法を検討した結果、研修参加者の理解度及び技術の定着度を一層深められるようなよりシステマティックな普及方式に変える必要があると考え、栽培ステージ毎に分けた個別技術の研修(座学と実習)のためのカリキュラム編成、研修参加者の登録と毎回の出席(出欠確認を行う)等を前提にした学校方式(FFS)に変更(PDM変更)することをJICA本部に提案、同意されことから、APPPではFFSを主要な普及ツールとして一般農家、種子グループ(SGG)、パイロットグループ(PG)それぞれのカテゴリの農家の技術研修を行ってきた。

普及手法・ツールの改善	6	<p>技術パンフレット(技術フロー解説大型シート(ビニールキャンバスシート))及びリーフレットの工夫: 従前プロジェクトではA4版技術マニュアル(紙)を各村にある掲示板に貼付け一般向け普及を行っていたが、2011年当初、この手法をレビューした結果、各所の掲示板に貼ったマニュアルは幾重にも上張りされ、かつ雨水や土埃で変色し長期的に機能するような体をなしていなかった。そこで最低1年は野外使用でも耐性のある大型ビニール製キャンバスシート上に、APPPで検討・作成した写真多用の見てわかる栽培技術フローを印刷し、FFS研修に使用するとともに、普段はデモ農家の軒先に掲示し、通行人等一般人の目につくような形に改善した。また2011年度は数か所の公民館への張り出し依頼や、2012年は30コミュン関係者にも配布し軒先に掲示してもらうよう依頼した。また、同じ内容の縮小版リーフレットも同時並行で作成、大量に印刷の上FFS全参加者に配布するとともにセミナー、ワークショップ、地域関係者集会・会議等のあらゆる機会を利用し広く配布を行ってきた。</p>
	7	<p>デモ圃場前の展示標識パネルの改良: 2011年～2012年まではデモ圃場前の表示パネルはデモ圃場名だけの標識中心であったが、2013年作付けシーズンからは栽培歴に加え主要技術も写真付きで掲示することで、何も知らない通行人(農民)でも直接稲の生育状況の観察と展示標識パネル上の栽培方法概要の両方が確認できるように改良した。</p>
	8	<p>技術マニュアルの制作(最終的に7種製本化): 2011年にFFSの実施および種子生産農家グループへ(SGG)技術指導に必要な栽培マニュアル2種については、従前プロジェクト作成の一般栽培マニュアルでは不十分と考え、APPP独自に内容を大幅に改良しFFS用及びSGG用を作成し直した。更にこれを2年にわたり使用してきた結果、さらに課題別技術マニュアルの必要性が出てきたことから、新たに3種を作成するとともに、これまでに作成した技術マニュアル類は以下の通り;</p> <p>2011年:①APPP Recommended Rice Cultivation Technology(A4版) ②APPP Recommended Seed Production Technology(A4版)</p> <p>2013年:③Step up your knowledge on Rice Cultivation (A3&A4版) ④Drum Seeder Manual(A4版) ⑤Farmers Calender (A3&A4版)</p> <p>2014年:⑥Improvement of Farmers Income through Seed new FFS Technology (A4版) (BTB C/Pチームによる制作) ⑦(Ver2.)Step up your knowledge on Rice Cultivation (A3&A4版) (上記③の改訂版) ⑧ Rice Seed Production Manual ((A3&A4版)(2011年版②を更に改訂・充実化) ⑨Farmers Field school (FFS)Operation Guide for Extension officer (A4版) ⑩Guide line for Farmers Group Formation and Management (A4版)</p> <p>*作成に当たっては「目で見て理解できるマニュアル」化を意識して作成。 *(A3&A4版)はクメール語版(A3),英語版(A4)、その他のA4は⑥を除き全て英語及びクメール語版を制作。</p>
	9	<p>農家表彰制度の導入: FFS研修も一作付け期間を通じた長期戦で行うため、参加者の傾向として中間(2回目から3回目あたり)の出席率が下がる傾向が顕著にみられる。そこで参加者のモチベーション高揚のため、2013年から優秀農家表彰制度を導入した。優秀デモ農家には「稲作技術マイスター認定証」を、研修参加率9割上の参加には研修終了証を供与した。4年間の実績:認定書授与デモ農家数74戸、研修終了証授与参加農家数476戸、PGメンバー優良農家賞授与者数77戸</p>
活動モニタリング手法 (活動全体マネージメント)	10	<p>活動モニタリング方法において、主要3課題(普及、種子生産、普及改善)の活動進捗の定期的確認に必要な基本項目(データ)を統一し、基本項目に分野特有項目を加えた形のフォーマットを各分野ごとに作成、モニタリングを行い各担当間で情報共有してきた。これにより各分野ごとの活動データのバラつきがなくなり、PDMに対応したプロジェクト活動全体の進捗が容易に把握できるようにした。プロジェクト開始当初よりこの形が継続された。</p>

インパクト事例

No	内容項目	時期	受益者/応対者等	内容詳細	備考
1	デモ農家による種子販売	2011年 収穫期	(受益者) 3州デモ農家	当初想定外のことであったが、収穫まで至った33デモ農家中24デモ農家がデモ圃場収穫物を種子として販売、購入者数は近隣農家合計153名となった。	2012年は未調査だが、現状を鑑みれば実態として種子販売はあったことに疑いの余地はないであろう。
		2013年 収穫期	(受益者) 3州デモ農家	収穫まで至った74デモ農家中43デモ農家がデモ圃場収穫物を種子として販売、購入者数は近隣農家213名及び精米業者等計11名(合計224名)となった	
		2014年 収穫期	(受益者) 3州デモ農家	今季収穫まで至った72デモ農家中35デモ農家がデモ圃場収穫物を種子として販売、購入者数は近隣農家合計151名となった	
2	農業大臣によるプロジェクト訪問/視察	2011年 11月9日	(応対者) 専門家及びC/P	バタンバン州PDA内のプロジェクト事務所を訪問、専門家及びカウンターパートより活動サイト及び内容についての説明及び質疑応答を行った。	
		2012年 8月16日	(応対者) 専門家及びC/P	MAFF総局長及び普及局長他幹部計21人、王立農業大学教授/講師5名/学生45名が同行し、コンボンチュナン州デモサイトD16圃場&政府推奨7品種展示圃場を視察された。	
		2014年 10月15日	(応対者) コンボン・チュナン州 種子生産グループ	新農業大臣であるDr. Uk Rabunが農業総局リディクン総局長を伴い、コンボンチュナン州SGGを突然訪問、視察した。リディクン総局長によれば、整然と移植され立派に育っている種子用稲を見て感激して帰ったとのことである。	
3	出前講座の実施	2013年2月	(応対者) バタンバン州デモ農家3名及びプロジェクトC/Ps	ローカルNGO「KWAP」(英語訳: Village Development) からC/Pを通じAPPPデモ農家3名が同NGOが支援中の農協メンバーに対する講習会に招聘され、APPPデモ農家としての活動体験談発表やFFSにて指導される技術の有効性等を積極的に説明した。引き続き種子処理に係る実務研修の要望も出され、後日プロジェクトが資材を運び込み、同農協組合員30数名に対し種子処理の実演及び講習を実施した。	
		2014年6月	(受益者) バタンバン州モンルセイ郡ルセイランコミュニティ(PJ対象外地域)	当該コミュニティの農家(49戸)がコミュニティ長を通じてプロジェクトに対して種子処理に関する技術指導を要請してきた。これは、昨年同地域において“いもち病”が広範囲に発生した状況があり、これを防除するための有効な手段としてプロジェクトが推奨する種子処理技術のことが伝聞された結果、当該地域の農家からPDAを通じ当該技術の指導要望が上がってきたものである。これに応えプロジェクト及びバタンバン州PDAが協働して種子選別&温湯消毒方法の実演及び実技指導を実施した。また併せ最新のマニュアル3種も参加者全員に同時配布された。	
		2015年2月	(受益者) プレイベン州PDA スパイリエン州PDA タケオ州PDA コンボントム州PDA バンティミンチェイ州PDA	2015年1月26日-27日にかけて開催されたプロジェクトセミナー「稲作広域普及セミナー」に招聘されたプロジェクト対象外7州の内、5州の農業局(PDA)より出前講座の要請が出された。これに応え専門家、C/P&PJスタッフからなる3チームを編成し要望のあった各州へ順次派遣し出前講座を実施した。各州の講座への参加者はプレイベン州66名(農家&PDA職員)、スパイリエン州81名(普及員&PDA職員)、タケオ州108名((普及員&PDA職員)、コンボントム州84名((農家&PDA職員)、バンティミンチェイ州72名((農家&PDA職員)、 <u>総計411名</u> の参加が記録された。	
4	自主農家グループの立上がり	2013年 雨期作~	(応対者) バタンバン州Por Canal地区担当普及員	バタンバン州モンルセイコミュニティ、Por Canal灌漑地区(TSC3連携地区)にて元FFS研修参加者が中心となり、周辺農家を含めた2つの自主グループ(各23名、10名の計33名)が立ち上がった(当該地区担当普及員の助言によるもの)。前年作付け期にFFS研修参加農家がドラムシーダー播種機を使い、好成績を上げたことが誘因となって、周辺農家も巻き込んだドラムシーダー利用グループ(DSグループと呼ぶ)が自主設立されたもの。同グループ内でFFS技術未修得の農家に対しては卒業デモ農家や元研修参加農家メンバーが技術移転していることも、農家間普及(FTF)の良い事例となって表れている。なお、2014年雨期作付け期には2つのDSグループはメンバーの増加(各31名、13名の計44名)が確認されている。また、さらに2014年6月時点で、同グループは3台のドラムシーダーを自前(共同)で購入した。これは農家グループ自身の明確な主体性の表れと考えられる。	

5	民間会社からの技術支援要請	2013年4月～	(応対者) バットアンバン州 C/Ps & 普及員	バットアンバン州で230ha超規模のコメ生産事業を展開するJC Holdings社(JICA民間連携調査団メンバー企業)からプロジェクトが実施するFFS研修への同社現地社員の参加受入れ要請があり、社員2名が一般FFSサイト(D87,バナン郡Chheu Tealコミュニティ)及びバナンSGGでの種子生産向けFFSに夫々2013年の雨期作付け期間を通して参加した。	
		2014年3月～	(応対者) 専門家	バットアンバン州で200ha規模のコメ生産事業を開始した本邦企業(茨城県所在)、(株)宮本商店の日本人駐在員から当地での稲作への技術的助言を求められ現在専門家が応対している。前述のJC Holdings社からの情報を元にAPPPを頼ってきたとの由。	
5	種子生産に関連する外部団体研修者の受け入れ	2012年8月	(応対者) バットアンバン州 バナンSGG	シエムリアップ州で農村支援活動を行う国内NGO“GRET”および“CIRD”がバットアンバン州バナンSGG (APPP支援種子生産グループ)において技術研修を受講した。研修には、各NGOスタッフ4名および種子生産を開始する同NGO傘下の農民20名が参加し、APPP普及員、C/P、SGG種子生産農家が講師となり種子生産についての講義および種子処理(尿素水選と温湯消毒)の実習、種子生産圃場の視察などを実施した。	
			(応対者) バットアンバン州 モンルセイSGG	USAID HARVESTプロジェクト支援農家10名がバットアンバン州モンルセイSGGを訪問し、上記バナンSGGと同様の種子生産にかかる技術指導を受けた。	
		2013年	(応対者) バットアンバン州SGG プルサット州農業局 PDA(TAS)	2013年の栽培期間中にバットアンバン州3SGG及びプルサット農業局種子生産ステーションを訪問した団体・機関数は計13、総訪問者数は411人となった。そのうち、種子生産にかかる研修を目的とした団体は計8団体182名となった。	*来訪者/研修者、別途詳細リスト有り
		2014年	(応対者) バットアンバン州モンルセイSGG,バナンSGG コンボンチュナン州SGG	2014年の栽培期間中にバットアンバン州3SGGを訪問した団体・機関数は計5、総訪問者数は106人となった。そのうち、種子生産にかかる研修を目的とした団体は計2団体31名となった。	
		2015年1月～8月	(応対者) バットアンバン州モンルセイSGG	1月22日、タケオ州の農家グループ46名が来訪し、SGGリーダー等から技術研修をうけた。2015年の今後の予定では、プルサット州の農家グループ54名、8月にはタプルサット州のNGO支援傘下の農家25名の研修が予定されている。	
6	PJ支援農家の各種コンテスト入賞	2014年1月	(主催者) コンボン・チュナン州 農業局、USAID	2014年1月19日に実施されたコンボン・チュナン州農産物品評会(州農業局、GIZ、USAID共催)にて米(粳&精米)出品部門でSGGのメンバー2名が第1位、2位となり、また3位はFFSデモ農家と上位の賞をAPPP支援農家が獲得した。	
		2014年3月	(主催者) カンボジア国 農林水産省(MAFF) 農業総局(GDA)	カ国農林水産省 農業総局主催の2014Annual Excellent Farmer Contestの「高品質種子生産技術」部門にて、APPP指導下のバットアンバン州モンルセイSGGのグループリーダー農家が「全国最優秀農家賞」を獲得した。全国21州からエントリーした23種子生産農家が数日間を通じた Kommission チームによる筆記、面接、種子圃場審査を含む各審査を受験し、その結果、上記SGGリーダー農家が稲作知識、審査員への説明内容ともに最高得点を獲得した。表彰式は3月28日フンセン首相より執り行われた。	表彰式写真(JICAカンボジア事務所公式Face Bookに掲載)

指標3&4 デモ農家及びFFS参加農家の総生産額 積算根拠&内訳

PDM指標3: デモ農家のインディカ米の総生産量(販売価格換算)が増加する。

年	計算根拠	総生産額/戸
2010	(PJ対象地域一般農家): 2.34 ton/ha(* ₁ 全農地平均収量) x 2.3ha (* ₂ 平均耕作面積) x 897 Riel/kg(* ₃ 平均販売価格) ÷ 4000R/\$=\$1,207/HH	(\$1,207/HH)
2011	デモ農家: 3.93 ton/ha(全農地平均収量) x 1.8ha (平均耕作面積) x 1180 Riel/kg(平均販売価格) ÷ 4000R/\$=\$2,086/HH	\$2,086/HH
2012	デモ農家: 3.32 ton/ha(所有全農地平均収量) x 2.4ha (平均耕作面積) x 1140 Riel/kg(平均販売価格) ÷ 4000R/\$=\$2,271/HH	\$2,271/HH
2013	デモ農家: 3.48 ton/ha(所有全農地平均収量) x 2.57ha (平均耕作面積) x 969 Riel/kg(平均販売価格) ÷ 4000R/\$=\$2,191/HH	\$2,191/HH
2014	デモ農家: 3.68 ton/ha(所有全農地平均収量) x 2.4ha (平均耕作面積) x 1031Riel/kg(平均販売価格) ÷ 4000R/\$=\$2.276/HH	\$2,276/HH

PDM指標4: 研修に参加した農家のインディカ米の総生産量(販売価格換算)が増加する。

年	計算根拠	総生産額/戸
2010	(PJ対象地域一般農家): 2.34 ton/ha(* ₁ 全農地平均収量) x 2.3ha (* ₂ 平均耕作面積) x 897 Riel/kg(* ₃ 平均販売価格) ÷ 4000R/\$=\$1,207/HH	(\$1,207/HH)
2011	参加農家: 2.72 ton/ha(平均収量) x 1.7ha (平均作付面積) x 1180 Riel/kg(平均販売価格) ÷ 4000R/\$=\$1,364/HH	\$1,364/HH
2012	参加農家: 2.90 ton/ha(平均収量) x 2.1ha (平均作付面積) x 880 Riel/kg(平均販売価格) ÷ 4000R/\$=\$1,340/HH	\$1,340/HH
2013	参加農家: 3.30 ton/ha(所有全農地平均収量) x 2.0ha (平均作付面積) x 965Riel/kg(平均販売価格) ÷ 4000R/\$=\$1,592/HH	\$1,592/HH
2014	参加農家: 3.10 ton/ha(所有全農地平均収量) x 1.4ha (平均作付面積) x 1044Riel/kg(平均販売価格) ÷ 4000R/\$=\$/HH	\$1,133/HH

*1: 2011年PDA統計

*2: 2008年NCDD統計

注) 2010年以外の数値元データは各年のプロジェクト終了時調査による。

注釈) 2014年の前年比収益減の原因はプロジェクト期間中最大の長期干ばつにより単位収量が減少したことで作付面積が減ったこと(水不足で作付をあき

指標4-3 優良種子利用農家数実績

PDM指標4-3: 優良種子を利用する農家が1000名以上となる。

年	計算根拠	農家数合計
2011	設置数41戸のデモ農家が優良種子を使用(種子はCARDI(カ国農業開発研究所)から調達)。	41
2012	2011年SGG生産の優良種子利用農家数:デモ農家85戸、既設2PGメンバー33戸及び同候補農家442戸(小計 560戸)	944~867
	<p>「市場流通量からの推計値」: 2011年のSGGによる生産量93.9トンからプロジェクト使用量+緊急時配布分以外の市場に出回った約83トン分を、慣行直播栽培に換算(播種量120kg/ha~150kg/ha)した場合、利用農家数は384~307戸分(*所有水田面積3州平均1.8ha/戸:2012 PDA統計)となり、デモ農家等合わせた総計は944戸~867戸*となる。 (*384~310戸分: → 83トン÷120kg(直播) ÷1.8ha/戸=384戸, 83トン÷150kg(直播) ÷1.8ha/戸=307戸)</p> <p>(*実態としては直播の1/3以下の種子量で済む移植栽培も行われていること、更にプロジェクトでは直播の場合の適正種子量は80kg/haと指導中)から、実際の農家数はこれ以上の戸数となる)</p>	
2013	2012年SGG生産の優良種子利用農家数:デモ農家88戸、既設13PGメンバー194戸及び旧同候補農家84戸、自主設立グループ25戸(小計 391戸)	694~634
	<p>「市場流通量からの推計値」: 2012年SGGの種子生産量78.9トンからプロジェクト使用量(前述の424戸分+緊急時配布分合計13.3トン)以外の市場に出回った約65.6トン分については、推計値として、慣行農法による全量直播(播種量120kg/ha~150kg/ha)として換算した場合303戸~243戸分*となり、2013年はプロジェクト使用量と市場流通量合わせて694戸~634戸が優良種子を使用したことになる。 (*303~243戸分: → 65.6トン÷120kg(直播) ÷1.8ha/戸=303戸, 65.6トン÷150kg(直播) ÷1.8ha/戸=243戸)</p>	
2014	2013年SGG生産の優良種子利用農家数:デモ農家85戸、2013年度表彰農家230戸、既設7PGメンバー91戸(SGGより自主購入68+PJ支給23)(小計 406戸)	831~746
	<p>「市場流通量からの推計値」: 2013年SGGの種子生産量110.8トンからプロジェクト使用量(前述の406戸分+緊急時配布分合計18.9トン)以外の市場に出回った約91.9トン分については、推計値として、慣行農法による全量直播(播種量120kg/ha~150kg/ha)として換算した場合425戸~340戸分となり、2013年はプロジェクト使用量と市場流通量合わせて831戸~746戸が優良種子を使用したことになる。 (*425~345戸分: → 91.9トン÷120kg(直播)÷1.8ha/戸=425戸, 91.9トン÷150kg(直播) ÷1.8ha/戸=340戸)</p>	
	総計	2,571~2,339

指標5-1 優良種子からの生産物流通量

PDM指標5-1: 優良種子を利用して生産されたインディカ米の市場流通量の合計が2014年までに年間2,000トン以上になる。

年	計算内訳	年間流通量(トン)
2012	<p>(2012年流通量)</p> <p>2012年作付け用保証種子利用量93.9トン (=2011年SGGでの生産量) からのインディカ米(食用米)総生産量は*3,005トンと推計され生産農家自家消費分*592トンを差し引くと2012年は2,413トンが市場に出たと推計される (2012年指標達成度100%)</p> <p>(積算根拠)</p> <p>●移植方式の場合: 種子総生産量93.9ton÷50kg/ha(PJ基準播種量+10kg)=1,878ha (作付け可能面積) 直播方式の場合: 種子総生産量93.9ton÷120kg/ha(慣行平均播種量)=783ha (作付け可能面積)</p> <p>●3州全体で移植方式3割、直播方式7割(*注1) の栽培実態と想定した場合、{ (1.878ha×0.3) ×3.0ton/ha(*注2)+{(783ha×0.7)×2.4ton/ha(*注3)}=3,005トンとなる。</p> <p>●自家消費分: 740農家{ (1.878ha×0.3) +(783ha×0.7)÷平均1.5ha/戸}×572kg/年 { (消費量143kg/人/年(*注4)×平均4人/家族(*注4))×1.4(注5)=約592トン</p>	2,413
2013	<p>(2013年流通量)</p> <p>2013年作付け用保証種子利用量78.9トン (=2012年SGG+TASでの生産量) からのインディカ米(食用米)総生産量は*2,523トンと推計され生産農家自家消費分*489トンを差し引くと2013年は1,712トンが市場に出たと推計される(2013年指標達成度86%)。成果指標未達成の要因は2012年の優良種子生産量がかなり落ち込んだため、必然的にそこからのインディカ米の生産量も市場流通量も下がることとなった。</p> <p>(積算根拠)</p> <p>●移植方式の場合: 種子総生産量: 78.9ton÷50kg/ha(PJ播種基準+10kg)=1,578ha (作付け可能面積) 直播方式の場合: 種子総生産量: 78.9ton÷120kg/ha(慣行平均播種量)=657ha (作付け可能面積)</p> <p>●3州全体で移植方式3割、直播方式7割(注1) の栽培実態と仮定した場合、{ (1.578ha×0.3) ×3.0ton/ha (注2) }+ {(657ha×0.7)}×2.4ton/ha(注3) =2,523トンとなる。</p> <p>●自家消費分: 622農家{ (1.578ha×0.3) +(657ha×0.7)÷平均1.5ha/戸}×572kg/年 { (消費量143kg/人/年(注4)×平均4人/家族(注4))×1.4(注5)=約489トン</p>	1,712
2014	<p>(2014年流通量)</p> <p>2013年作付け用保証種子利用量110.8トン (=2013年SGGでの生産量) からのインディカ米(食用米)総生産量は*3,610トンと推計され、生産農家自家消費分*600トンを差し引くと2014年は3,010トンは市場に出たと推計される。</p> <p>(積算根拠)</p> <p>●移植方式の場合: 種子総生産量: 110.8ton÷50kg/ha(PJ播種基準+10kg)=2,216ha (作付け可能面積) 直播方式の場合: 種子総生産量: 110.8ton÷120kg/ha(慣行平均播種量)=923ha (作付け可能面積)</p> <p>●3州全体で移植方式3割、直播方式7割(注1) の栽培実態と仮定した場合、{ (2,216ha×0.3) ×3.0ton/ha (注2) }+ {(923ha×0.7)}×2.5ton/ha(注3) =3,610トンとなる。</p> <p>●自家消費分: 749農家{ (2,216ha×0.3) +(923ha×0.7)÷平均1.5ha/戸}×572kg/年 { (消費量143kg/人/年(注4)×平均4人/家族(注4))×1.4(注5)=約600トン</p>	3,010

(*注1) 移植・直播比率: 公的統計データは存在しないためC/P聞き取りによる推測値

(*注2) 2012プロジェクト調査統計

(*注3) 対象地域平均単収(*2012-2013MAFF統計)

(*注4) 2011MAFF統計

(*注5)インディカ米籾米換算率 (MAFF統計)

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広報実績(プロジェクトからの企画・リリース分のみ) Achievement of Public Relations (News source planned & released by APPP)

年 Year	期間 Period	事業分野 Activity Category	News Paper / TV / Radio	内容 Contents of release
2013年	9月26日-27日	コミュニケーション活動	全国放送テレビ Television(KTV)	プロジェクトが主催したバタンバンに拠点のある国内外NGO及び他国ドナー (USAID) 招聘による「稲作農家のためのより良い農業サービス」と題したワークショップの様子をニュース放映。
	8月～11月	種子生産 (SGG)	バタンバン国営ラジオ局 National Radio Chamkar Chek (Battambang)	SGG生産種子の販売広報番組 (ライブトーク番組1回/月×4か月)+(スポットコマーシャル(2分×10回×30日))
	11月-12月	FFS 普及 Extension (FFS)	バタンバン国営ラジオ局 National Radio Chamkar Chek (Battambang)	FFS技術紹介、ライブトーク 番組(1/週×1.5か月)
	11月27日	種子生産 (SGG)	新聞(全国紙) Raksmey Compuchea (Nation wide News Paper)	種子倉庫、乾燥場、他施設整備にかかる施設開所・譲渡式(11/26)の様子、並びにプロジェクト活動紹介記事
	11月28日	種子生産 (SGG)	新聞(全国紙) Raksmey Compuchea (Nation wide News Paper)	種子倉庫、乾燥場、他施設整備にかかる施設開所・譲渡式(11/27)の様子、並びにプロジェクト活動紹介記事
2014年	5月16日-18日	種子生産 Seed Production (SGG)	全国紙3紙(Nation wide 3 News Paper) 1.Campuchea Thmey 2.Koh Santepheap 3.Raksmey Compuchea	モンルセイSGGリーダーの2013年度最優秀農家賞受賞及び優良種子生産概況の紹介記事。
	6月9日	種子生産 (SGG)	全国放送テレビ3社 (3 T.V companies) 1.Aspara TV 2.National TV 3.Bayon TV	プルサット州 PDA 付属TASでのFFS及び籾殻燻炭製造実習風景
	6月12日&13日	種子生産 (SGG)	全国放送テレビ2社 (2T.V companies) CNC TV (Cambodian News Channel) National TV (KTV)	(1) 種子選別・消毒の方法 (2) 苗代作りの方法 (3) 籾殻燻炭作りの方法
	6月13日	種子生産 (SGG)	全国紙新聞 Rasmei Kampuchea Daily (Nation wide News Paper)	(1) 種子選別・消毒の方法 (2) 苗代作りの方法 (3) 籾殻燻炭作りの方法
	11月15日-1月15日	種子生産& PG活動	バタンバン国営ラジオ局 National Radio Chamkar Chek(BTB)	ライブトーク番組(1時間)×2回、 録音番組(1時間)×2回、 コマーシャル(3分/回)×5回/日×2か月(計300回)
	11月1日-1月31日	種子生産& PG活動	プルサット国営ラジオ局 National Radio Chamkar Chek(PST)	ライブトーク番組(1時間)×12回、 コマーシャル(3分/回)×300 回
	11月22日-1月31日	種子生産& PG活動	コンボンチュナン国営ラジオ局 National Radio Chamkar	ライブトーク番組(1時間)×8回、 コマーシャル(3分/回)×204回
2015年	1月26日-27日	稲作広域普及セミナー	全国放送テレビ2社 2 T.V companies CNC TV、National TV (KTV)	プロジェクトの最終セミナーとして2日間の「稲作技術広域普及セミナー」を開催。初日は会議場での専門家とC/Pによる技術プレゼン及び情報共有のためのグループディスカッションが行われ、2日目は農業局(PDA)敷地内にて4技術の実演が行われた。参加者は正式招待者150名に近隣農170名(2日目)、関係者全員含め総勢370名となった。

Project Design Matrix (PDM)

Project Title: Agricultural Productivity Promotion Project in West Tonle Sap

Project Duration: 4.5 Years

Target Group: Staff members of GDA, PDAs and Extension Workers

Target Area: 36 Communes in Battambang, Pursat and Kampong Chhnang provinces (30+4+2=36)

Beneficiaries: Staff members of GDA, Provincial Government, PDAs and Extension Workers and Farmers in the target area

As of 18 August, 2010 PDM Ver. 1

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal: Productivity and income of farmers in the target areas in the three provinces in West Tonle Sap are improved.</p>	<p>1. The agricultural yields of farmers in the target areas increase by X %.</p> <p>2. Agricultural income of farmers in the target areas increase.</p>	<p>1. Interview Survey</p> <p>2. Interview Survey</p>	/
<p>Project Purpose: Productivity and income of farmers who participate in the project activities in the three provinces in West Tonle Sap are improved.</p>	<p>1. The agricultural yields of Demo-farmers increase by X %.</p> <p>2. The agricultural yields of farmers who participated in FFD increase by X %.</p> <p>3. Agricultural income of Demo-farmers increase.</p> <p>4. Agricultural income of farmers who participated in FFD increase.</p>	<p>1. Project Report</p> <p>2. Project Report</p> <p>3. Project Report</p> <p>4. Project Report</p>	<p>1. Extension activities are continued.</p> <p>2. Production of quality seed is continued.</p> <p>3. Distribution improvement of agricultural products is continued.</p>
<p>Outputs</p> <p>1. Extension workers' abilities to implement extension activities are improved.</p> <p>2. Activities for the improvement of farm management are promoted by the target communes.</p> <p>3. Agricultural production techniques of the participating farmers are improved.</p> <p>4. The production and distribution of quality seeds are promoted.</p> <p>5. The distribution of agricultural products is improved for the beneficiary farmers through the collaboration of the provincial governments, private sectors and farmers.</p>	<p>1-1. More than 22 extension workers are able to implement FFD for more than 12 Demo-farmers with the assistance of the counterparts.</p> <p>1-2. More than half number of the assigned extension workers are able to conduct inspection of demo-farms and examination of seeds in the field.</p> <p>1-3. Satisfaction level of Demo-farmers with extension services provided by extension workers is higher than X.</p> <p>2-1. More than X FFD Implementation Plans are implemented.</p> <p>2-2. More than half number of the target communes includes the agricultural activities in their Commune Investment Plans.</p> <p>3-1. More than half number of participating farmers is able to use at least one type of agricultural production technique shown at the FFD activities.</p> <p>4-1. More than 100 tons of quality seeds are produced annually by 2014.</p> <p>4-2. More than 1,000 farmers use quality seeds.</p> <p>5-1. More than X tons of agricultural products produced with quality seeds are annually in circulation by 2014 in target provinces and Phnom Penh</p> <p>5-2. More than 18 groups of farmers in Battambang conduct collective purchase of agricultural inputs or collective shipping or collective sales of agricultural products. (applied to only Battambang)</p>	<p>1-1. Project Report</p> <p>1-2. Project Report</p> <p>1-3. Project Report</p> <p>2-1. Project Report</p> <p>2-2. Project Report</p> <p>3-1. Project Report</p> <p>4-1. Project Report</p> <p>4-2. Project Report</p> <p>5-1. Project Report</p> <p>5-2. Project Report</p>	<p>1. Prices of agricultural products remain stable.</p> <p>2. There are no severe unseasonable changes of weather.</p>

<p>Activities</p> <p>1-1. Review management system and the improved techniques developed and utilized in BAPEP and BRAND.</p> <p>1-2. Prepare the training curriculum for PDA staff in charge of extension and extension workers.</p> <p>1-3. Conduct trainings for PDA staff in charge of extension.</p> <p>1-4. Conduct trainings for extension workers.</p> <p>2-1. Implement AEAs in order to grasp the situation of the target communes.</p> <p>2-2. Support drafting FFD Implementation Plan based on the results of AEAs.</p> <p>2-3. Support implementation, monitoring and improvement of FFD Implementation Plan through women groups, water user groups and other farmer groups.</p> <p>2-4. Support inclusion of agricultural activities into Commune Investment Plan.</p> <p>3-1. Select Demo-farmers.</p> <p>3-2. Implement FFD for Demo-farmers in the target communes.</p> <p>3-3. Support Demo-farmers to implement FFD for neighbouring farmers.</p> <p>3-4. Conduct impact surveys.</p> <p>4-1. Select target species or subspecies of quality seeds.</p> <p>4-2. Conduct technical training for seed grower groups of quality seeds.</p> <p>4-3. Conduct monitoring activities regularly at quality seed farms.</p> <p>4-4. Promote effective ways of sales of quality seeds.</p> <p>5-1. Promote the collaboration between the provincial governments, private sectors, farmers and other related organizations in order to improve the distribution of agricultural products.</p> <p>5-2. Promote effective ways of distribution and sales of agricultural products.</p> <p>5-3. Share information on successful activities among MAFF HQ and the three provinces through seminars etc.</p>	<p>Inputs</p> <p><u>Cambodian Side</u></p> <p>1. Office Space in Phnom Penh and in Battambang. Including the running costs for the offices, especially for water and electricity.</p> <p>2. Counterparts Project Director: Acting Director General of GDA, MAFF Project Managers: Directors of PDA of Battambang, Pursat and Kampong Chhnang MAFF staff: 1 from MAFF PDA staff: 5 from PDA of Battambang 2 from PDA of Pursat 2 from PDA of Kampong Chhnang</p> <p><u>Japanese Side</u></p> <p>1. Experts Long Term: Chief Advisor / Distribution Improvement(→/ Extension1) Farm Management Community Development / Extension(→Distribution Improvement) Coordinator / Training/extension2</p> <p>Short Term: Seed Improvement Soil, and others if necessary</p> <p>2. Equipment Motorbikes, Vehicles, and others</p> <p>3. C/P training</p>	<p>1. The extension workers trained in the project keep working in the same positions.</p> <p>Preconditions</p> <p>1. Extension workers are assigned to the target communes.</p> <p>2. There are no significant conflicts in the target communes.</p>
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Project Design Matrix (PDM)

Project Title: Agricultural Productivity Promotion Project in West Tonle Sap
 Project Duration: 4.5 Years
 Target Group: Staff members of GDA, PDAs and Extension Workers

Target Area: **37** Communes in Battambang, Pursat and Kampong Chhnang provinces (30+4+3=37)
 Beneficiaries: Staff members of GDA, Provincial Government, PDAs and Extension Workers and
 Farmers in the target area

As of **26 January, 2012** PDM Ver. **2**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>Overall Goal: Productivity and income of farmers in the target areas in the three provinces in West Tonle Sap are improved.</p>	<ol style="list-style-type: none"> 1. The agricultural yields of farmers in the target areas will increase from 2.75ton/ha in 2010 to 3.00ton/ha. 2. Gross output (converted to sales price) of agricultural products of farmers in the target areas increase. 	<ol style="list-style-type: none"> 1. Interview Survey , MAFF and PDA annual report and existing statistics 2. Interview Survey and existing statistics 	/
<p>Project Purpose: Productivity and income of farmers who participate in the project activities in the three provinces in West Tonle Sap are improved.</p>	<ol style="list-style-type: none"> 1. The agricultural yields of Demo-farmers will increase from 2.75ton/ha in 2010 to 4.00ton/ha. 2. The agricultural yields of farmers who participated in training will increase from 2.75ton/ha in 2010 to 3.50ton/ha. 3. Gross output (converted to sales price) of agricultural products of Demo-farmers increase. 4. Gross output (converted to sales price) of agricultural products of farmers who participated in training increase. 	<ol style="list-style-type: none"> 1. Project Report 2. Project Report 3. Project Report and existing statistics 4. Project Report and existing statistics 	<ol style="list-style-type: none"> 1. Extension activities are continued. 2. Production of quality seed is continued. 3. Distribution improvement of agricultural products is continued.
<p>Outputs</p> <ol style="list-style-type: none"> 1. Extension workers' abilities to implement extension activities are improved. 2. Activities for the improvement of farm management are promoted by the target communes. 3. Agricultural production techniques of the participating farmers are improved. 4. The production and distribution of quality seeds are promoted. 	<ol style="list-style-type: none"> 1-1. 22 extension workers are able to conduct more than 880 times of training to Demo-farmers and participating farmers with the assistance of the counterpart. 1-2. Extension workers assigned to the seed growers group acquire field inspection and seed examination skills. 1-3. Satisfaction level of Demo-farmers with extension services provided by extension workers is higher than 80%. 2-1. More than 80% of Training Implementation Plans are implemented. 2-2. More than half number of the target communes includes the agricultural activities in their Commune Investment Plans. 3-1. More than half number of participating farmers is able to use at least one type of agricultural production technique shown at the training activities. 4-1. More than 100 tons of certified seeds are produced annually by 2014. 4-2. More than one ton of registered seeds are produced annually by 2014. 4-3. More than 1,000 farmers use quality seeds. 	<ol style="list-style-type: none"> 1-1. Project Report 1-2. Project Report 1-3. Project Report 2-1. Project Report 2-2. Project Report 3-1. Project Report 4-1. Project Report 4-2. Project Report 4-3. Project Report 	<ol style="list-style-type: none"> 1. Prices of agricultural products remain stable. 2. There are no severe unseasonable changes of weather.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>5. The distribution of agricultural products is improved for the beneficiary farmers through the collaboration of the provincial governments, private sectors and farmers.</p>	<p>5-1. More than 2,000 tons of agricultural products produced with quality seeds are annually in circulation by 2014 in market</p> <p>5-2. More than 18 groups of farmers in 3 target provinces conduct collective purchase of agricultural inputs or collective shipping or collective sales of agricultural products.</p>	<p>5-1. Project Report</p> <p>5-2. Project Report</p>	
<p>Activities</p> <p>1-1. Review management system and the improved techniques developed and utilized in BAPEP and BRAND.</p> <p>1-2. Prepare the training curriculum for PDA staff in charge of extension and extension workers.</p> <p>1-3. Conduct trainings for PDA staff in charge of extension.</p> <p>1-4. Conduct trainings for extension workers.</p> <p>2-1. Implement AEAs in order to grasp the situation of the target communes.</p> <p>2-2. Support drafting training Implementation Plan based on the results of AEAs.</p> <p>2-3. Support implementation, monitoring and improvement of training Implementation Plan through women groups, water user groups and other farmer groups.</p> <p>2-4. Support inclusion of agricultural activities into Commune Investment Plan.</p> <p>3-1. Select Demo-farmers.</p> <p>3-2. Implement training for Demo-farmers in the target communes.</p> <p>3-3. Support Demo-farmers to implement training for neighbouring farmers.</p> <p>3-4. Conduct impact surveys.</p> <p>4-1. Select target varieties of quality seeds.</p> <p>4-2. Conduct technical training for seed grower groups of quality seeds.</p> <p>4-3. Conduct monitoring activities regularly at quality seed farms.</p> <p>4-4. Promote effective ways of sales of quality seeds.</p> <p>5-1. Promote the collaboration between the provincial governments, private sectors, farmers and other related organizations in order to improve the distribution of agricultural products.</p> <p>5-2. Promote effective ways of distribution and sales of agricultural products.</p> <p>5-3. Share information on successful activities among MAFF HQ and the three provinces through seminars etc.</p>	<p>Inputs</p> <p><u>Cambodian Side</u></p> <p>1. Office Space in Phnom Penh and in Battambang. Including the running costs for the offices, especially for water and electricity.</p> <p>2. Counterparts Project Director: Director General of GDA, MAFF Project Managers: Directors of PDA of Battambang, Pursat and Kampong Chnang MAFF staff: 1 from MAFF PDA staff: 5 from PDA of Battambang 2 from PDA of Pursat 2 from PDA of Kampong Chhnang</p> <p><u>Japanese Side</u></p> <p>1. Experts Long Term: Chief Advisor/Extension 1 Farm Management/Seed Production Community Development /Distribution Improvement Coordinator /Training/Extension 2 Short Term: Farmers Organization and others if necessary</p> <p>2. Equipment Motorbikes, Vehicles, and others</p> <p>3. C/P training</p>		<p>1. The extension workers trained in the project keep working in the same positions.</p> <hr/> <p>Preconditions</p> <p>1. Extension workers are assigned to the target communes.</p> <p>2. There are no significant conflicts in the target communes.</p>

Project Design Matrix (PDM)

Project Title: Agricultural Productivity Promotion Project in West Tonle Sap
 Project Duration: 4.5 Years (54 months)
 Target Group: Staff members of GDA, PDAs and Extension Workers

Target Area: 37 Communes in Battambang, Pursat and Kampong Chhnang provinces (30+4+3=37)
 Beneficiaries: Staff members of GDA, Provincial Government, PDAs and Extension Workers and Farmers in the target area

As of 25 October 2012, PDM Ver 3.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal: Productivity and income of farmers in the target areas in the three provinces in West Tonle Sap are improved.	1. The <u>Indica rice</u> yields of farmers in the target areas will increase from 2.75 ton/ ha in 2010 to 3.00 ton/ ha. 2. Gross output (converted to sales price) of <u>Indica rice</u> production of farmers in the target areas increase.	1. Interview survey, MAFF and PDA annual report and existing statistics 2. Interview Survey and existing statistics	/
Project Purpose: Productivity and income of farmers who participate in the project activities in the three provinces in West Tonle Sap are improved.	1. The <u>Indica rice</u> yields of Demo-farmers will increase from 2.75 ton/ ha in 2010 to 4.00 ton/ ha. 2. The <u>Indica rice</u> yields of farmers who participated in training will increase from 2.75 ton/ ha in 2010 to 3.50 ton/ ha. 3. Gross output (converted to sales price) of <u>Indica rice</u> production of Demo-farmers increase. 4. Gross output (converted to sales price) of <u>Indica rice</u> production of farmers who participated in training increase.	1. Project report, MAFF and PDA annual report 2. <i>ditto</i> 3. Project report and existing statistics 4. <i>ditto</i>	1. Extension activities are continued. 2. Production of quality seed is continued. 3. Distribution improvement of <u>Indica rice</u> production is continued.
Outputs 1. Extension workers' abilities to implement extension activities are improved. 2. Activities for the improvement of farm management are promoted by the target communes. 3. Agricultural production techniques of the participating farmers are improved. 4. The production and distribution of quality seeds are promoted.	1-1. 22 extension workers are able to conduct more than 880 times of training to Demo-farmers and participating farmers with the assistance of the counterpart. 1-2. Extension workers assigned to the seed growers group acquire field inspection and seed examination skills. 1-3. Satisfaction level of Demo-farmers with extension services provided by extension workers is higher than 80%. 2-1. More than 80% of Training Implementation Plans are implemented. 2-2. More than half number of the target communes includes the agricultural activities in their Commune Investment Plans. 3-1. More than half number of participating farmers is able to use at least one type of agricultural production technique shown at the training activities. 4-1. More than 100 tons of certified seeds are produced annually by 2014. 4-2. More than one ton of registered seeds are produced annually by 2014. 4-3. More than 1,000 farmers use quality seeds.	1-1. Project report 1-2. Project report 1-3. Project report 2-1. Project report 2-2. Project report 3-1. Project report 4-1. Project report 4-2. Project report 4-3. Project report	1. Prices of <u>Indica rice</u> remain stable. 2. There are no severe unseasonable changes of weather.

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p>5. The distribution of <u>Indica</u> rice is improved for the beneficiary farmers through the collaboration of the provincial governments, private sectors and farmers.</p>	<p>5-1. More than 2,000 tons of <u>Indica rice</u> produced with quality seeds are annually in circulation by 2014 in market</p> <p>5-2. More than 18 groups of farmers in 3 target provinces conduct <u>collective actions, such as</u> collective purchase of agricultural inputs, <u>produce Indica rice under a technical standard procedure introduced by the project, sharing price information, collective shipping, or</u> collective sales.</p>	<p>5-1. Project report</p> <p>5-2. Project report</p>	
<p>Activities</p> <p>1-1. Review management system and the improved techniques developed and utilized in BAPEP and BRAND.</p> <p>1-2. Prepare the training curriculum for PDA staff in charge of extension and extension workers.</p> <p>1-3. Conduct trainings for PDA staff in charge of extension.</p> <p>1-4. Conduct trainings for extension workers.</p> <p>2-1. Implement AEAs in order to grasp the situation of the target communes.</p> <p>2-2. Support drafting Training Implementation Plan based on the results of AEAs.</p> <p>2-3. Support implementation, monitoring and improvement of Training Implementation Plan through women groups, water user groups and other farmer groups.</p> <p>2-4. Support inclusion of agricultural activities into Commune Investment Plan.</p> <p>3-1. Select Demo-farmers.</p> <p>3-2. Implement training for Demo-farmers in the target communes.</p> <p>3-3. Support Demo-farmers to implement training for neighbouring farmers.</p> <p>3-4. Conduct impact surveys.</p> <p>4-1. Select target varieties of quality seeds.</p> <p>4-2. Conduct technical training for seed grower groups of quality seeds.</p> <p>4-3. Conduct monitoring activities regularly at quality seed farms.</p> <p>4-4. Promote effective ways of sales of quality seeds.</p> <p>5-1. Promote the collaboration between the provincial governments, private sectors, farmers and other related organizations in order to improve the distribution of agricultural products.</p> <p>5-2. Promote effective ways of distribution and sales of agricultural products.</p> <p>5-3. Share information on successful activities among MAFF HQ and the three provinces through seminars etc.</p>	<p>Inputs</p> <p><u>Cambodian Side</u></p> <p>1. Office Space in Phnom Penh and in Battambang. Including the running costs for the offices, especially for water and electricity.</p> <p>2. Counterparts Project Director: Director General of GDA, MAFF Project Managers: Directors of PDA of Battambang, Pursat and Kampong Chhnang MAFF staff: 1 from MAFF PDA staff: 5 from PDA of Battambang 2 from PDA of Pursat 2 from PDA of Kampong Chhnang</p> <p><u>Japanese Side</u></p> <p>1. Experts Long Term: Chief Advisor/Extension 1 Farm Management/Seed Production Community Development /Distribution Improvement Coordinator /Training/Extension 2 Short Term: Farmers Organization and others if necessary</p> <p>2. Equipment Motorbikes, Vehicles, and others</p> <p>3. C/P training</p>	<p>1. The extension workers trained in the project keep working in the same positions.</p> <p>Preconditions</p> <p>1. Extension workers are assigned to the target communes.</p> <p>2. There are no significant conflicts in the target communes.</p>	

