

|                     |  |
|---------------------|--|
| Country Name        | <b>Agricultural Productivity Promotion Project in West Tonle Sap</b> |
| Kingdom of Cambodia |  |

**I. Project Outline**

|  |  |              |   |               |               |                       |                                |  |   |               |  |
|--|--|--------------|---|---------------|---------------|-----------------------|--------------------------------|--|---|---------------|--|
| Background   | Agriculture is an important sector in Cambodia, but agricultural production is still low due to a number of factors, and one major factor is extension service delivery. Against such background, JICA technical cooperation projects, namely, “Battambang Agricultural Productivity Enhancement Project (BAPEP)” (2003-2006) and “Battambang Rural Area Nurture and Development Project (BRAND)” (2006-2010) were implemented. The projects resulted in the increase in crop yield of rice and the efficiency in seed use (reduction of seed rate <sup>1</sup> ) in its target areas. Meanwhile, the number of extension workers with sufficient knowledge and skills to disseminate newly acquired rice cultivation technologies was still limited. This made it difficult for the techniques to be disseminated to the whole Battambang Province and beyond.  |              |   |               |               |                       |                                |  |   |               |  |
| Objectives of the Project  | <p>Through capacity development of extension workers, promotion of farm management, improving agricultural production techniques, promotion of seed production and distribution, and improvement of rice distribution, the project aimed at improving agricultural productivity and income of participating farmers (Demo-farmers as the core farmers and training-participating farmers) in the target areas in the three provinces in West Tonle Sap, thereby improving agricultural productivity and income in the target areas.</p> <ol style="list-style-type: none"> <li>Overall Goal: Productivity and income of farmers in the target areas in the three provinces in West Tonle Sap are improved.</li> <li>Project Purpose: Productivity and income of farmers who participate in the Project activities in the three provinces in West Tonle Sap are improved.</li> </ol>  |              |   |               |               |                       |                                |  |   |               |  |
| Activities of the Project  | <ol style="list-style-type: none"> <li>Project Site: 37 communes<sup>2</sup> in Battambang, Pursat, and Kampong Chhnang Provinces</li> <li>Main Activities: Training for the staff of Provincial Department of Agriculture (PDA) and extension workers; support for communes’ planning activities; implementation of extension activities such as Farmers Field School (FFS); seed production; support to selected pilot groups for rice distribution activities, etc.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Cambodia Side</td> </tr> <tr> <td>1. Experts: 7 persons</td> <td>1. Staff allocated: 52 persons</td> </tr> <tr> <td>2. Equipment: vehicles, office equipment, agricultural equipment (threshers, etc.)</td> <td>2. Project office and training facilities</td> </tr> <tr> <td>3. Local cost</td> <td>3. Utility cost for the project office</td> </tr> </table> </li> </ol> |              |   | Japanese Side | Cambodia Side | 1. Experts: 7 persons | 1. Staff allocated: 52 persons | 2. Equipment: vehicles, office equipment, agricultural equipment (threshers, etc.) | 2. Project office and training facilities | 3. Local cost | 3. Utility cost for the project office |
| Japanese Side  | Cambodia Side  |              |   |               |               |                       |                                |  |   |               |  |
| 1. Experts: 7 persons  | 1. Staff allocated: 52 persons   |              |   |               |               |                       |                                |  |   |               |  |
| 2. Equipment: vehicles, office equipment, agricultural equipment (threshers, etc.) | 2. Project office and training facilities  |              |   |               |               |                       |                                |  |   |               |  |
| 3. Local cost  | 3. Utility cost for the project office   |              |   |               |               |                       |                                |  |   |               |  |
| Project Period   | October 2010 - March 2015  | Project Cost | (ex-ante) 440 million yen, (actual) 361 million yen |               |               |                       |                                |  |   |               |  |
| Implementing Agency  | Ministry of Agriculture, Forestry and Fisheries (MAFF); Provincial Department of Agriculture, Forestry and Fisheries (PDAFF) of the three target provinces (Battambang, Pursat, and Kampong Chhnang Provinces).<br>* Provincial Department of Agriculture (PDA) was renamed as PDAFF in 2016 by Prakas (Ministerial Ordinance) No. 609 dated on September 27, 2016 of MAFF.  |              |   |               |               |                       |                                |  |   |               |  |
| Cooperation Agency in Japan  | None   |              |   |               |               |                       |                                |  |   |               |  |

**II. Result of the Evaluation**

## &lt; Special Perspectives Considered in the Ex-Post Evaluation &gt;

- The indicators for the Overall Goal and the Project Purpose are the same (i.e., rice productivity and sales) but the target groups are different (i.e., the target communes for Overall Goal and participating farmers in the target communes for Project Purpose). For assessment of the continuation status of project effects at the time of ex-post evaluation, we approximated the indicator for Project Purpose with those for Overall Goal as specific data on participating farmers was not available. Furthermore, since commune-level data was not available, we used the district-level data as an alternative.
- The Project Purpose Indicators 3 and 4 and the Overall Goal Indicator 2 mention “sales prices” and it was defined as “sales price = average annual yield x average cultivated areas x average sales price” in the project plan. However, the terminal evaluation used sales amount per hectare to verify this indicator. This ex-post evaluation followed the terminal evaluation and used sales amount per hectare.
- Together with the continuation status of the Project Purpose Indicators, we assessed the degree of continued extension and use of the project’s techniques and seed production in sampled target communes (i.e., continuation status of selected indicators of Outputs 1, 3 and 4) to make sure if the increased rice productivity and sales are effects of this project.

**1 Relevance**

## &lt;Consistency with the Development Policy of Cambodia at the Time of Ex-Ante Evaluation and Project Completion&gt;

Agricultural and rural development is positioned in Cambodia’s development policies such as the “National Strategic Development Plan (NSDP)” (2006-2010), the “Agricultural Sector Strategic Development Plan” (2006-2010), the “Rectangular Strategy for Growth, Employment, Equity and Efficiency Phase III” (2014-2018) and the “Agricultural Strategic Development Plan” (2014-2018) as an important area for poverty reduction.

## &lt;Consistency with the Development Needs of Cambodia at the Time of Ex-Ante Evaluation and Project Completion &gt;

There were needs for improvement of rice cultivation techniques through enhancement of the extension service delivery as mentioned

<sup>1</sup> Seed rate refers to the amount of seeds sown on a unit of land.

<sup>2</sup> A commune is an administration unit under a district.

in “Background” above. The terminal evaluation of this project confirmed the continuing needs throughout the project implementation period.

<Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation>

Japan’s Country Assistance Program for the Kingdom of Cambodia (2002) held a theme, “sustainable economic growth and poverty reduction,” under which agricultural and rural development and improvement in productivity were aimed. This project is a measure to attain this end.

<Evaluation Result>

In light of the above, the relevance of the project is high.

## 2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved by the time of project completion. The annual Indica rice yields of Demo-farmers achieved the planned target, and the income significantly increased (Indicators 1 and 3). Also, the income of participating farmers also improved and their annual Indica rice yields almost reached the target as planned despite the extensive drought (Indicators 2 and 4).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have continued to the time of ex-post evaluation. The project techniques/methods are still extended to farmers, and those techniques have been utilized in other projects such as “Rural Irrigation Agricultural Productivity Improvement Project (RIAPEP)” (IMF, 2016-2019), “Boosting Food Production (BOOSTING)” (Government Fund, 2016-2019), and “Agriculture Service Program for Innovation, Resilience and Extension (ASPIRE)” (IFAD, 2014-2021). At least 60% of farmers adopted those techniques and MAFF, the targeted PDAFF and District Office of Agriculture (DOA) officers have monitored those techniques. In addition, new JICA Technical Cooperation titled “Project on Rice Seed Production and Promotion (RSPP)” (2017- 2022) has been utilizing the results and outcomes of the APPP such as rice seed manuals and human resources trained and developed by APPP since its pilot phase in Battambang from January 2018. The outcomes of APPP have also be utilized by the Soft Component for Agriculture Extension Activities of JICA ODA Loan Project “West Tonle Sap Irrigation and Drainage Rehabilitation and Improvement Project” (2011-2019) covering the targeted provinces Kampong Chhnang, Pursat and Battambang. On the other hand, according to the Kampong Chhnang PDAFF, one of the rice distribution pilot groups formed under this project does not exist as it was unable to continue to apply the recommended techniques due to high costs that were not acceptable by rice millers that used to take prices with traditional methods.<sup>3</sup>

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal has been achieved by the time of ex-post evaluation. The productivity (Indicator 1) and income (Indicator 2) of Indica rice in the target districts have been increased and improved. According to the targeted PDAFFs, the promoting factors include the quality seed usage (supplied by seed-growers’ groups (SGGs) formed under this project) and that the farmers have followed the recommended techniques introduced by the project. Also, the farmers use the modern equipment and the updated manuals to cope with current conditions such as climate change, so the seeds have more resilience and better yield.

<Other Impacts at the time of Ex-post Evaluation>

No negative impacts of the project were observed. As a positive impact on gender, the project promoted women participation among farmers and extension officers.<sup>4</sup>

<Evaluation Result>

Therefore, the effectiveness/impact of the project is high.

### Achievement of Project Purpose and Overall Goal

| Aim  | Indicators  | Results   |       |       |       |      |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |
|--|---|---|-------|-------|-------|------|------|----------------------------|----------------------------|-------|-------|-------|-------|-------------------------------------|-------------------------------------|-------|-------|-------|-------|-----|
| (Project Purpose)<br>Productivity and income of farmers who participate in the Project activities in the three provinces in West Tonle Sap are improved. | Indicator 1: The Indica rice yields of Demo-farmers will increase from 2.75 ton/ha in 2010 to 4.00 ton/ha.  | Status of the Achievement: achieved (continued)<br>(Project Completion)<br>Average yields of Indica rice (unit: ton/ha)<br><table border="1"> <thead> <tr> <th></th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Demo-farmers (Indicator 1)</td> <td>2.75</td> <td>4.5</td> <td>4.3</td> <td>4.4</td> <td>4.1</td> </tr> <tr> <td>Participating farmers (Indicator 2)</td> <td>2.75</td> <td>2.7</td> <td>2.9</td> <td>3.3</td> <td>3.1</td> </tr> </tbody> </table> <p>Note: The reason for the decline in 2014 was an extensive drought.<br/>(Ex-post Evaluation) * See Overall Goal Indicator 1.</p> |       | 2010  | 2011  | 2012 | 2013 | 2014                       | Demo-farmers (Indicator 1) | 2.75  | 4.5   | 4.3   | 4.4   | 4.1                                 | Participating farmers (Indicator 2) | 2.75  | 2.7   | 2.9   | 3.3   | 3.1 |
|  |   | 2010  | 2011  | 2012  | 2013  | 2014 |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |
|  | Demo-farmers (Indicator 1)  | 2.75  | 4.5   | 4.3   | 4.4   | 4.1  |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |
|  | Participating farmers (Indicator 2)   | 2.75  | 2.7   | 2.9   | 3.3   | 3.1  |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |
| Indicator 2: The Indica rice yields of farmers who participated in training will increase from 2.75 ton/ ha in 2010 to 3.50 ton/ ha.                     | Status of the Achievement: mostly achieved (continued)<br>(Project Completion) * See Project Purpose Indicator 1.<br>(Ex-post Evaluation) * See Overall Goal Indicator 1.   |   |       |       |       |      |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |
| Indicator 3: Gross output (converted to sales price) of Indica rice production of Demo-farmers increase.   | Status of the Achievement: both indicators were achieved (continued)<br>(Project Completion)<br>Average sales amount per hectare of Indica rice (unit: USD/ha)<br><table border="1"> <thead> <tr> <th></th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td>Demo-farmers (Indicator 3)</td> <td>1,207</td> <td>2,086</td> <td>2,271</td> <td>2,191</td> <td>2,276</td> </tr> <tr> <td>Participating farmers (Indicator 4)</td> <td>1,207</td> <td>1,364</td> <td>1,340</td> <td>1,592</td> <td>1,333</td> </tr> </tbody> </table> |   | 2010  | 2011  | 2012  | 2013 | 2014 | Demo-farmers (Indicator 3) | 1,207                      | 2,086 | 2,271 | 2,191 | 2,276 | Participating farmers (Indicator 4) | 1,207                               | 1,364 | 1,340 | 1,592 | 1,333 |     |
|  | 2010  | 2011  | 2012  | 2013  | 2014  |      |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |
| Demo-farmers (Indicator 3)   | 1,207   | 2,086   | 2,271 | 2,191 | 2,276 |      |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |
| Participating farmers (Indicator 4)  | 1,207   | 1,364   | 1,340 | 1,592 | 1,333 |      |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |
| Indicator 4: Gross output (converted to sales price) of Indica rice  |   |   |       |       |       |      |      |                            |                            |       |       |       |       |                                     |                                     |       |       |       |       |     |

<sup>3</sup> The contract farming system had not been well developed during the project implementation period. The government issued the Sub-Decree on Contract Farming in February 2011, but it was March 2017 when MAFF issued an instruction circular to implement the Sub-Decree, namely, on the procedures for implementation of contract farming in order to contribute to resolve some bottlenecks and to gain trust, ensure price, quantity and quality of the products.

<sup>4</sup> For example, in the training of trainers and chief extension officers, which resulted in the percentage of women participants being at least 50% (According to the law, a third is supposed to be women in the community leader). Also, according to the annual report of MAFF “In 2016, the staffs of department of agricultural extension and other technical department of MAFF have been providing the training to 64,637 farmers including 41,388 women (64% of women) in good seed using, crop/farm practice, management.” (Annual Report for Agriculture Forestry and Fisheries 2016-2017 and Direction 2017-2018.)

|   | production of farmers who participated in training increase.   | (Ex-post Evaluation) * See Overall Goal Indicator 2.  |           |      |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |
|---|--|---|-----------|------|------|------------|------------|-----------|-----------|--------|-----------|-----------|-----------|-----------------|-----------------|-----------|-----------|------|
| (Overall Goal)<br>Productivity and income of farmers in the target areas in the three provinces in West Tonle Sap are improved. | Indicator 1: The Indica rice yields of farmers in the target areas will increase from 2.75 ton/ha in 2010 to 3.00 ton/ha.  | (Ex-post Evaluation) achieved<br>Average yield of Indica rice in the targeted districts (aggregated by province) (unit: ton/ha)<br><table border="1"> <thead> <tr> <th>Province</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td>Battambang</td> <td>2.92</td> <td>3.15</td> <td>3.33</td> </tr> <tr> <td>Pursat</td> <td>2.91</td> <td>3.22</td> <td>3.34</td> </tr> <tr> <td>Kampong Chhnang</td> <td>3.19</td> <td>3.36</td> <td>3.42</td> </tr> </tbody> </table> | Province  | 2015 | 2016 | 2017       | Battambang | 2.92      | 3.15      | 3.33   | Pursat    | 2.91      | 3.22      | 3.34            | Kampong Chhnang | 3.19      | 3.36      | 3.42 |
|   | Province   | 2015  | 2016      | 2017 |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |
| Battambang  | 2.92   | 3.15  | 3.33      |      |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |
| Pursat  | 2.91   | 3.22  | 3.34      |      |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |
| Kampong Chhnang   | 3.19   | 3.36  | 3.42      |      |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |
| Indicator 2: Gross output (converted to sales price) of Indica rice production of farmers in the target areas increase.         | (Ex-post Evaluation) achieved<br>Average sales amount per hectare of Indica rice in the targeted districts (aggregated by province) (unit: Riel/ha)<br><table border="1"> <thead> <tr> <th>Province</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td>Battambang</td> <td>2,628,900</td> <td>2,832,300</td> <td>3,994,800</td> </tr> <tr> <td>Pursat</td> <td>2,764,500</td> <td>2,415,000</td> <td>3,339,000</td> </tr> <tr> <td>Kampong Chhnang</td> <td>3,513,400</td> <td>3,362,000</td> <td>4,446,000</td> </tr> </tbody> </table> <p>Notes: The average sales amount per hectare in each district is calculated based on the confirmation of the average sale price per ton by target PDAFFs at the provincial level as a whole as a substitute to sales price per ton in the target districts. Calculation of the average sales amount: Average sales amount <math>i,t = (\text{average yield}_{i,t} \times \text{average price per ton}_{i,t})</math> where <math>i =</math> Target district, <math>t =</math> year.<br/>The average sales amount of Indica rice has fluctuated because of the quality seed usage, time of harvesting, and the middlemen.</p> | Province  | 2015      | 2016 | 2017 | Battambang | 2,628,900  | 2,832,300 | 3,994,800 | Pursat | 2,764,500 | 2,415,000 | 3,339,000 | Kampong Chhnang | 3,513,400       | 3,362,000 | 4,446,000 |      |
| Province  | 2015   | 2016  | 2017      |      |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |
| Battambang  | 2,628,900  | 2,832,300   | 3,994,800 |      |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |
| Pursat  | 2,764,500  | 2,415,000   | 3,339,000 |      |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |
| Kampong Chhnang   | 3,513,400  | 3,362,000   | 4,446,000 |      |      |            |            |           |           |        |           |           |           |                 |                 |           |           |      |

Source: Terminal Evaluation Report; Project Completion Report; interview with PDAFFs and former extension officers

### 3 Efficiency

Both the project cost and the project period were within the plan (ratio against the plan: 82% and 100%, respectively). The Outputs of the project were produced as planned. Therefore, the efficiency of the project is high.

### 4 Sustainability

#### <Policy Aspect>

There is an emphasis in the “Agriculture Extension Policy” (2015) that Agricultural Extension programs and activities are to be developed to address national, provincial, and district agricultural development needs and priorities. Also, the “Agricultural Extension Strategic Action Plan and Implementation Guideline for Policy on Agricultural Extension in Cambodia” (2018), which is to be aligned with the goals of the “Agriculture Master Plan 2030,” have relevant components related to such as human resource development, extension materials development, and extension services delivery. Furthermore, each targeted province has its five-year budget strategic plan to implement the program and sub-program of MAFF related to agricultural productivity, diversification, and agricultural commercialization.

#### <Institutional Aspect>

There is the established organization structure for agricultural extension as shown in the table. However, the number of staff is not sufficient to do the extension service because the extension service needs more workforce to cover the target areas and it aims to have 2,100 staff members by 2030.

Number of staff allocated for agricultural extension

|                  |  |    |
|------------------|--|----|
| MAFF             | Department of Agricultural Extension, General Directorate of Agriculture (GDA) | 50 |
| Provincial level | Agriculture Extension Office, Battambang PDAFF                                 | 10 |
|                  | Agriculture Extension Office, Pursat PDAFF                                     | 4  |
|                  | Agriculture Extension Office, Kampong Chhnang PDAFF                            | 5  |
| District level   | DOA Battambang, extension officers   | 10 |
|                  | DOA Pursat, extension officers   | 24 |
|                  | DOA Kampong Chhnang, both extension and other officers                         | 26 |

Source: PDAFFs; GDA organization chart

#### <Technical Aspect>

Most of the extension officers who received technical transfer under this project still work on extension activities. With the support from other project activities such as ASPIRE (which has supported 28 training courses in the target provinces so far), PDAFFs have provided trainings on rice cultivation, vegetable, livestock to the extension officers and farmers, and on financial planning to extension officers. According to PDAFFs, all the manuals developed under the project are used by extension workers and farmers as well as SGGs, and part of them have been updated to fit into the situation (e.g., resilience to the climate change). Furthermore, GDA has kept strengthening its partnership with Cambodia Agricultural Research and Development Institute (CARDI) and International Rice Research Institutes (IRRI) for better addressing potential challenges such as diseases and pests, as recommended by the terminal evaluation of this project.

#### <Financial Aspect>

The funds for extension activities consist of the government budget (allocated to MAFF from the agricultural service program; 2 billion Riel annually in 2015-2017) and support from ADB, IFAD, and the World Bank (data not available). At the target provinces, the funds come from MAFF (15 million Riel annually in 2015-2017 to Battambang PDAFF; data not available on other provinces) and IFAD (data not available). The budget is insufficient for extension activities. The effects of lack of budget are the limited coverage areas and broadcasting capacity for extension activities and lack of technical training to farmers. Target PDAFFs try to request more budget to MAFF every year, but the allocation is still limited.

#### <Evaluation Result>

Therefore, the sustainability of the effects through the project is fair.

### 5 Summary of the Evaluation

The project achieved the Project Purpose of improving the agricultural productivity and income of participating farmers by the time of project completion. The Overall Goal of improving the agricultural productivity and income of farmers in the target areas have been achieved as well. Regarding the sustainability, problems were observed in the institutional and financial aspects mainly due to insufficient staffing and budget for extension activities. However, no problem was found in the policy and technical aspects. Considering all of the above points, this project is evaluated to be highly satisfactory.

### III. Recommendations & Lessons Learned

#### Recommendations for Implementing Agency:

GDA, Department of Agricultural Extension, and PDAFFs are recommended to continue their ongoing efforts as follows:

- Improve extension activities through allocating workforce and budget both from government and development partner's budget since these are extremely important for strengthening extension services.
- Keep improving technical manuals and extension materials to fit with the current situation, then widely distributed and disseminated to farmers.
- Provide the necessity training to farmers, especially rice cultivation techniques and marketing that are important for maintaining good yield and sales.

Lessons Learned for JICA:

- For future project design and implementation, JICA should take into consideration of securing the human resources and continued budget allocation to sustain project effects (from MAFF for extension activities in case of this project) through mutual discussion and agreement with government. The terminal evaluation team of this project was aware of the issue of insufficient human and financial resources. JICA should keep discussion with counterparts in order to encourage them to allocate necessary human resources and national budget.
- In the post project implementation, JICA had better make sure if there is an appropriate legal framework to support beneficiaries of the project (a secure contract farming system with potential buyers such as rice millers should have been in place in case of this project to ensure continuity of motivation among farmers to practice the techniques introduced by the project).



Warehouse of Phnom Touch Samaki SGG to store the produced seed (Banan District, Battambang Province)



Winnower used by Muong Ruessei SGG during the field visit (Muong Russei District, Battambang Province)