Republic of Indonesia
PT. Pupuk Indonesia Pangan

Collaboration Program with the Private Sector for Disseminating Japanese Technology for High Value-added Rice Production in Indonesia

Final Report

April 2017

Ogata Village Akitakomachi Rice Producer Co., Ltd.

OS
JR
17-036

1. SUMMARY

1.1 Background (including Development Challenges in the Target Country)

With regard to the background of this project, there are three main points to note:

(A) Due to the aging and dramatic decrease in the number of rice farmers in Japan, the country faces the critical challenge of a shrinking capacity in rice production. Therefore, from the perspectives of securing new production capacity and consumer markets, and developing new agricultural business models, it is essential for Japan to extend its global operational presence as part of its business strategies.

(B) In Indonesia, there is a need to address issues of post-harvest loss and of underdeveloped agricultural industrialization. Our business proposal suggests cooperation with the local state-owned rice company (PT. Pupuk Indonesia Pangan), the provision of knowledge regarding post-harvest processing, quality control techniques, and necessary technology for the development of a high value-added market aimed at Pupuk's post-harvest rice polishing and processing would contribute to the development of a more value-added agricultural sector.

(C) From the perspective of ensuring food security and addressing poverty in Indonesia, it is necessary to pay attention to the rice cultivation (especially pre-harvest) process. In Indonesia, especially among those who own only a small amount of land or none at all, the first half of the rice cultivation process (such as tillage, ploughing and irrigation, rice planting, weeding, water management and harvest) is divided amongst various parties. Paired with the inefficiencies during the pre-harvest processes, the lack of a support system for fertilizers and agricultural machinery directly result in inefficient rice production, and also make it difficult for local farmers to escape from poverty. To improve this situation, the creation of an environment allowing for the employment of the reserve workforce whose time is freed up as a direct result of the improvement in agricultural efficiency is essential. The construction of rice milling and processing factories will offer new, higher-value alternative employment opportunities for workers who may lose their current jobs due to structural change, thereby realizing large-scale structural change in Indonesia's rice industry.

1.1.1 Technology to be provided

This project aims to provide the following techniques and knowledge.

(A) Techniques of post-harvest handling and quality management.

(B) Knowledge and techniques of "6th Industrialization (=added value agriculture)" including techniques for formation of commodity markets, securing sales channels etc.

1.1.2 Project Purpose / Objectives

The purpose of this project is to achieve two main goals:

(A) To educate key Indonesian rice sector players (including government, business level stakeholders and farmers) to increase their awareness of the direction of the agricultural sector's future development, as well as to ensure a basic level of knowledge in order to be able to embark on the creation of high value-added rice production as a first step towards the realization of this future development. As previously discussed, post-harvest loss and underdeveloped agricultural industrialization are serious issues in the Indonesian agricultural sector. In order to

address this, this project aims to show Indonesian officials involved in rice agriculture the high value-added situation of rice agriculture in Japan, thereby allowing them to understand how they could develop their rice agriculture sector and improve the added value within their agriculture sector.

(B) The project will hold discussions with stakeholders and rice milling and processing factories aimed at business cooperation to reduce post-harvest loss and to build a production system capable of high value-added rice production in cooperation with the local state-owned rice company (PT. Pupuk Indonesia Pangan, henceforth "PIP"). PIP is a subsidiary of the PT. Pupuk Indonesia group (major state-owned fertilizer company) which was founded at the direction of the Indonesian government – the company was recently established to specialize in the integrated rice production and processing businesses including rice milling, rice planting, rental of agriculture mechanization, provision of fertilizers/pesticides, and technical guidance for farmers. As for business evaluation, discussions with business partners will be held after confirming the compatibility of candidate processed rice products with the local area, and to identify the most suitable product with the highest added value. Moreover, business alliances will also be discussed with PIP as well as the local government of Indonesia (Ministry of Agriculture) and other candidate partners (Bogor Agriculture University).

1.1.3 Details of Project

This project was implemented in both Japan and Indonesia. The main activities of the project are classified under the following categories: A) Training workshops on on-site rice farming, techniques of post-harvest handling and rice processing in Japan; B) Seminars for Indonesian government officials and stakeholders in Indonesia; and C) Stakeholder discussions on business collaboration with rice milling and processing factories in Indonesia.

(A) Training workshops in Japan (May, September 2016)

The first training workshop was held in May 2016. It including a visit to rice farms in Ogata village in Akita prefecture to observe on-site farming, post-harvest handling and processing. In the second training workshop, post-harvest processing and processing technology training was carried out at Satake Corporation's factory in September 2016.

Table: Contents of Training Workshops in Japan

First training workshop in Japan: Training session on high value-added agriculture in Ogata village, Akita prefecture as a case study for improving agricultural value-added in Indonesia (May 2016)	
Contents	・On-site visit to rice fields in Ogata village, Akita prefecture ・Observation of post-harvest processing technology, automation, and manufacturing ・Training session on quality control for the production of high-quality products (rice milling, processed products etc.) ・Lecture by joint professor at both Akita Prefectural University and Akita International University on the 6th Industrialization
Second training workshop in Japan: Training session on improving post-harvest processing and quality control, and automation for the improvement of productivity at Satake Corporation's factory (Sep 2016)	
Contents	・Training session on the use of machinery and its maintenance

Source: Created by research team.

(B) Seminars in Indonesia (August 2016)

A local seminar was held over 2 days on the theme of handling post-harvest and quality management technology,

in cooperation with Bogor Agricultural University, local affiliated partners, the Indonesian government and other related organizations.

(C) Stakeholder discussions in Indonesia (April, August, December 2016, February 2017)

The discussions were held in Indonesia with the stakeholders of this JICA project: business partner candidates of processed rice production businesses, and Indonesian and Japanese government officials. Regarding the direction of this project's development, there was a need to determine the optimal product for a high value-added rice product. After the first trip to assess the feasibility of the production of processed rice products, it has been determined that the rice bran obtained during the process of rice milling is not utilized efficiently. As there is a high possibility of increasing the value added at the early stages of rice farming with the use of this rice bran, discussions were held over the production of rice bran oil which is derived from processing rice bran.

1.1.4 Achievements

The achievements of this project are as follows: A) Provided information on the implications on the future of Indonesian agriculture to main stakeholders through training workshops in Japan and seminars in Indonesia; B) Received an official request for business advisory consulting from the business partner candidate PIP; and C) Identified rice bran oil as the optimal high value-added rice product which has potential to enhance the Indonesian rice industry's added value.

(A) Provided information on the implications on the future of Indonesian agriculture

All programs of this project were highly evaluated by stakeholders as an effective opportunity to learn about the development of Japan's agricultural system, the knowledge and techniques from the "6th Industrialization (= added value agriculture)", as well as post-harvest handling and quality management at Ogata village Akitakomachi Rice Producers Co., Ltd., (hereafter, Akitakomachi Co.), which was seen to bring new possibilities to Indonesian agriculture.

(B) Received an official request for business advisory consulting from PIP

In the process of discussions with PIP regarding improving the situation of rice milling, rice collection and its business model, Akitakomachi Co. proposed that instead of installing large-scale drying and milling factories, it would be better to install small-scale dryers at locations which are expected to serve as rice collection spots, thereby allowing for drying of rice grains immediately after harvest and preventing rotting or mold, and ensuring that high quality dried grain can be transported to larger-scale milling and processing factories. PIP expressed much interest in Akitakomachi Co.'s proposal due to its applicability for the local Indonesian agricultural situation and requested for business advisory consulting service. However, though the original plan was to have PIP start operations for its first rice milling plant at the end of 2017, due to a delay in the starting date, business advisory consulting for PIP has been postponed and is expected to begin in 2018. (Details below in 1.1.6)

(C) Identified rice bran oil as the optimal high value-added rice product which has potential to enhance the Indonesian rice industry's added value

As shown previously in the section "Project Purpose / Objectives", after the identification of a rice-processed

product to improve the added value for Indonesia's post-harvest rice milling and rice processing, even though the project was carried out in conjunction with PIP, attention was focused onto rice bran oil. As can be seen from the above, as per the results of the first business trip, most of the rice bran obtained during the process of rice milling is not utilized efficiently. Therefore, it has been identified that the efficient use of this rice bran could lead to a swifter creation of added value in the rice sector (more details in 1.1.6).

1.1.5 Future Business Outlook at the Current Stage (Decision for Extension, Evaluation and Termination of Project)

The future business outlook for this JICA project is as follows, business advisory consulting service on A) PIP's rice milling business, along with B) on-site production of rice bran oil and processed rice products. Both will undergo continuous evaluation.

1.1.6 Evidence for Further Business Outlook

A) Advisory service for PIP's rice milling business

As shown previously, there has been a request for business advisory consulting from PIP. However, PT. Pupuk Indonesia Holding Company (hereafter, Persero), the shareholder of PIP, has postponed the decision in order to focus on activating the first rice milling plant. The main challenges raised by Persero are regarding the feasibility of commercializing PIP's rice milling project itself. Therefore, there is a need to identify potential issues and verify the feasibility of rice milling operations before the commercialization of the rice milling project.

The pilot project by the Rice to Rice plant, which evaluates the 2 main challenges raised by Persero (i.e. feasibility of commercializing the rice milling operation, and securing of sales channel), will be held from June to October 2017. This Rice to Rice plant does not dry and mill raw rice grains bought from farmers, but engages in further milling of milled rice (or genmai) bought from existing rice milling service providers. The main objectives to be met through this pilot project are to evaluate the feasibility of commercializing rice milling operations and to secure sales channels. Also, the pilot project operations are not carried out in conjunction with external parties, but only by PIP itself. Due to the fact that Persero will decide the start of the rice milling operations based on the results of Rice to Rice plant pilot project, advisory service provided by Akitakomachi Co. will also be postponed. Based on the results of the pilot project, if Persero has officially announced the beginning of rice milling operations and requested advisory service, further discussions concerning advisory services are expected to be held after the completion of the pilot project in October 2017.

Considering the above information, discussions have been held on Japan's side. The results of the discussion are as follows: instead of providing advisory services for business operations of rice milling and the production of processed rice products as a set, it has been decided that priority will be placed on supporting the construction of a business framework for PIP's rice milling operations. Although PIP and Persero have been holding mutual discussions regarding commercialization through the current project for about a year, considering the fact that Persero exercises caution about rice milling as a new business area, the provision of step-by-step support to PIP adapted for its capabilities is essential as it will lead to the actual commercialization of rice bran oil.

Therefore, the first step after the start of this project will be to conclude advisory services focused on rice milling operations, and to support the necessary preparations (formulation of rice collection mechanisms, selection of relevant machinery etc.) for the construction of PIP's rice milling plant.

Following advisory services for the rice milling operations, after the start of operations at the first rice milling plant, the plan is to move on to the next step of providing advisory services for processing operations together with the pilot production of rice bran oil via small-scale F/S plants.

B) Advisory service for on-site production of rice bran oil and processed rice products

Evaluation of the commercialization of rice bran oil will continue to be carried out. Furthermore, discussions over investment plans etc. have been held and PIP has also expressed interest in the rice bran oil project. On the other hand, as rice bran oil is made from rice bran, it is impossible to work without PIP's rice mill, therefore negotiations aimed at the official start of PIP's rice milling operations will be reopened. Besides, pilot production of rice bran oil at the small-scale F/S plant during the reopening of negotiations regarding commercialization will be planned.

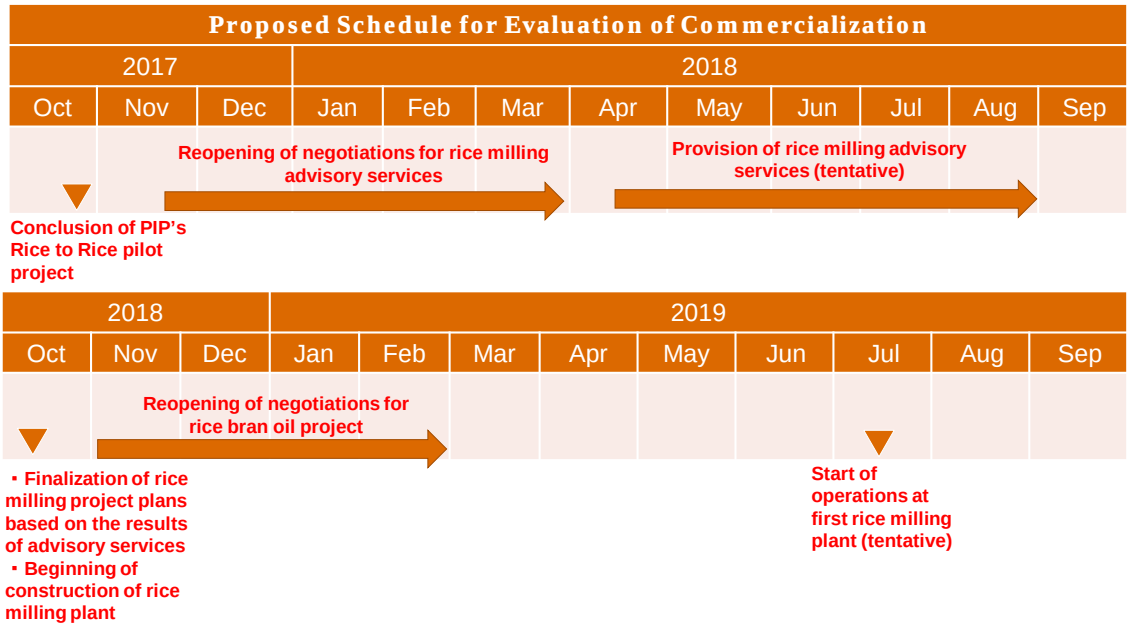
As the supply needs for rice bran oil in Japan are extremely high, buyers of rice bran oil are guaranteed. Pilot production of rice bran oil at the small-scale F/S plant, and the identification of needs and other issues through transactions with potential clients and pilot sales are essential for improving the chances of commercialization of this project. Through the validation and verification of the F/S plant operations, the feasibility of commercializing rice bran oil will be evaluated, and the actual decision of whether or not to commercialize it will be made at that point.

1.1.7 Plans for Further Expansion of Operations and Remaining Issues

The implementation schedule of the business advisory service on producing rice bran oil and processed rice products will be resumed after confirming the result of PIP's pilot project of Rice to Rice plant in October 2017. As previously mentioned, Persero exercises caution about rice milling as a new business area. Therefore, the provision of step-by-step support to PIP adapted to its capabilities will result in the actual commercialization of rice bran oil. The schedule for reopening discussions will be decided in October 2017 after the conclusion of the pilot project.

1.1.8 Time Schedule for Further Expansion of Operations

The following diagram shows the proposed schedule for further expansion of operations.

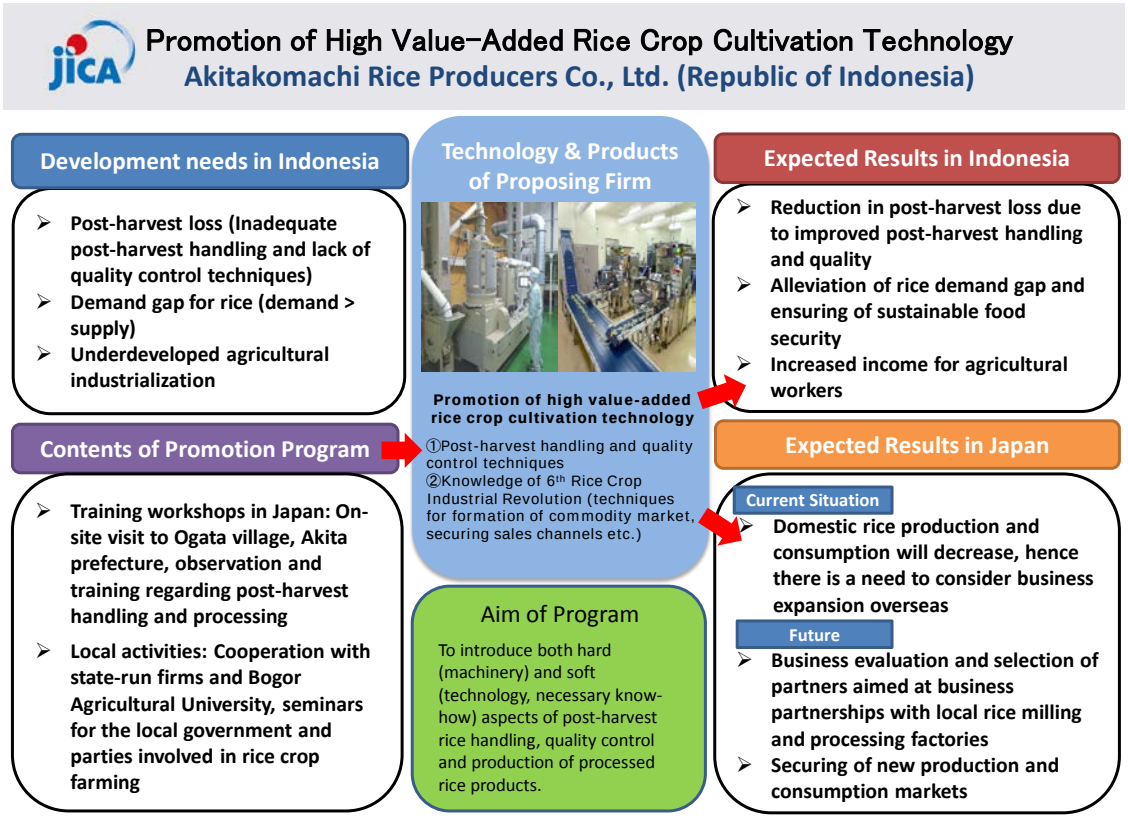


Source: Created by research team

Diagram: Plans for expansion of rice bran oil business operations

1.2 Outline of This Program

The outline of this program is shown in the diagram below.



Source: Created by research team based on JICA format

Diagram: Summary of Program